Empirical Essays on Corporate Governance and Corporate Decisions in Emerging Economies: The Case of Oman

Mohamed Isa Elghuweel

BSc Accounting (University of Al Gabal Al Gharbi, Libya) and MA Accounting and Finance (Sheffield Halam University, UK)

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ABSTRACT

This thesis consists of three essays analysing corporate governance (CG) reforms in emerging economies, with a particular focus on Oman. The three essays focus on three closely related CG topics that quantitatively examine the extent to which Omani CG reforms have been effective in enhancing three main corporate policy decisions.

In the first essay, the thesis investigates the level and determinants of voluntary CG compliance and disclosure. The central objective of this essay is to empirically examine two main research questions: First, what is the level of voluntary compliance with, and disclosure of, CG rules contained in the 2002 Omani CG Code for listed firms?; Secondly, what factors determine the level of voluntary compliance with, and disclosure of, CG recommendations contained in the 2002 Omani CG Code for listed firms? Exploring these questions has the capacity of improving current understanding of firms' willingness to voluntarily engage in and disclose more transparent information about their CG practices. The findings indicate that Omani firms have responded positively to the 2002 CG Code's best practice recommendations. Relying on insights from agency, legitimacy, resource dependence and signalling/stakeholder theories, the findings also suggest that ownership structure and board characteristics have significant impact on firm-level voluntary CG disclosure. Specifically, the findings suggest that government ownership, institutional ownership and foreign ownership, board size, the presence of a CG committee, and board diversity on the basis of nationality are positively related to the level of CG compliance and disclosure, whereas block ownership and board diversity on the basis of gender are negatively associated with the level of CG compliance and disclosure.

The second essay investigates how effective the CG measures contained in the 2002 Omani voluntary CG Code and other CG mechanisms proposed by other laws, such as the Companies Law, mitigate agency problems associated with capital structure (CS) decisions. The main purpose of this essay is to empirically examine the extent to which firm-level CG quality, ownership structure and board/audit characteristics influence capital structure, as well as the corporate decision (choice) to issue equity or debt in seasoned equity offerings (SEOs). This examination has the ability to expand current understanding of Omani firms' capital structure decisions and the role that CG mechanisms can play with respect to this corporate decision. Informed by insights from tax-driven (e.g., Modigliani-Miller capital structure irrelevance and trade-off) and non-tax-driven (e.g., agency, market timing, pecking order, and signalling) capital structure theories, the empirical evidence reveals that CG is a significant determinant of capital structure decisions and SEOs. First,

the findings suggest that CG index, government ownership, institutional ownership, foreign ownership, board size, audit firm size and CG committee are negatively related to capital structure, whereas block ownership is positively associated with capital structure. Second, the results indicate that firms with better governance structures, more institutional ownership and audited by big four are more likely to raise additional financing through SEOs. By contrast, firms with poor CG mechanisms, more government ownership more, foreign ownership, block ownership, large boards, and CG committee are less likely to raise additional financing through SEOs.

The final essay investigates the extent to which a broad composite CG index, corporate ownership structure, and board/audit characteristics can explain observable changes in firm-level earnings management (EM). The key objective of this essay is to investigate how effective the CG recommendations contained in the 2002 Omani CG Code and other CG mechanisms proposed by other laws, such as the Companies Law, constrain earnings management practices. The result has the potential of deepening current understanding of the ability of different CG measures to mitigate agency problems and reduce agency costs associated with earnings management. Utilising insights from agency, stakeholder, stewardship and signalling theories, the study finds that firms with better governance structures, government ownership, institutional ownership, foreign ownership, audited by big four and CG committee are negatively related to earnings management. In contrast, firms with poor CG mechanisms, more block ownership, larger boards, and CG committee are positively associated with earnings management. The reported empirical findings of the three essays are fairly robust across a number of econometric models and estimations that take into account alternative variables and potential endogeneity problems.

In brief, given the dearth of empirical evidence on the nature of CG's influence on these three corporate policy decisions in emerging economies in particular, this thesis seeks to contribute to the literature by providing new insights with specific focus on CG reforms that have been pursued in Oman. Specifically, this thesis contributes to the limited, but steadily growing body of literature on the effectiveness of CG mechanisms in influencing a number of crucial managerial decisions, including voluntary disclosure, financing and earnings management, in emerging economies.

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In the name of God, the Most Compassionate, the Most Merciful, and May God bless upon our beloved Prophet Muhammad *Sallallahu Alaihi Wasallam.* I would first and foremost like to express my deep gratitude to the Almighty Allah for His blessings and for honouring me with His guidance in order to complete this thesis successfully.

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AUTHOR'S DECLARATION

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature:

Printed name: Mohamed Isa Elghuweel

ABBREVIATIONS

ADF	Augmented dickey-fuller test
AT	Agency theory
BIG4	Audit firm size
BLKOWN	Block ownership
BSIZE	Board size
BSRK	Business risk
CG	Corporate governance structures
CGCOM	Corporate governance committee
CMA	Omani capital market authority
CRB	Commercial registration body
DIVPO	Dividended policy
EM	Earnings management practices
BDIVN	Board diversity on the basis of nationality
FCS	Firm capital structure decision
FLB	Firm's licence body
FOROWN	Foreign ownership
GCC	Gulf Cooperation Council
GNDR	Board diversity on the base of gender
GOVOWN	Government ownership
GROWT	Growth
INSOWN	Institutional ownership
EISSUE	Equity issuance
LALD	Legal affairs and legislation department
LNTA	Firm size
LT	Legitimacy theory
LVRG	Leverage
MCI	Ministry of commerce and industry
MENA	Middle Eastern and North African
MRD	Market regulation department
MSM	Muscat securities market
MTT	Market timing theory
OCGC	The 2002 Omani corporate governance code
OCGI	Omani corporate governance index
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares estimates
POT	Pecking order theory
RDT	Resource dependence theory
ROA	Profitability
SGT	Signalling theory
TNGAS	Tangible assets

INTRODUCTION

The world has witnessed a number of corporate scandals at major institutions, such as Enron, WorldCom and Barings Bank. A considerable number of firms have been exposed to financial distress and bankruptcy following the recent financial crisis of 2007/2008. Weak CG structures have been commonly suggested as a probable cause of these incidents, because they influence corporate policy decisions, such as voluntary disclosure, financing (i.e., capital structure) and earnings management. Specifically, the agency problem associated with the separation of ownership and control, along with information asymmetry between different stakeholders, has largely led to such incidents. The absence of effective internal controls allows managers to behave opportunistically by making decisions that allow them to reap personal benefits at the expense of shareholders and other stakeholders, which in turn can have a negative effect on firm value. In this regard, CG has been suggested by academics, practitioners, professionals and regulatory authorities, as an effective remedy for such agency problems (Cadbury Report, 1992; Organisation for Economic Co-operation and Development Report, 1999; Rwegasira, 2000; Ho and Wong, 2001; Filatotchev and Boyd, 2009). In response to these suggestions, CG policy reforms have been globally pursued to encourage firms to commit to high standards of CG practices. International and national initiatives have been launched to provide recommendations for good CG practices, with the aim of promoting high standards of corporate behaviour. Many countries have issued national codes of good CG practices aimed at improving the quality of their firms' governance.

A considerable number of emerging countries have issued codes of good CG practices as a result, including Middle Eastern and North African (MENA) countries. Observably, efforts to promote CG in Oman started earlier than in other emerging economies in general and the MENA region in particular. Specifically, Oman reviewed its corporate regulatory framework by initiating a number of corporate reforms aimed at making firms less vulnerable to financial distress and bankruptcy following the 1997 Asian crisis. These reforms began with a number of amendments to the 1974 Companies Act, establishment of the Capital Market Authority (CMA) in 1998 and the introduction of the Capital Market Law in 1998. Importantly, Omani policy-makers realised that there was a need to improve the quality of domestic firms' governance to ensure high standards of corporate behaviour. As a result, the voluntary CG Code was issued in 2002 and effectively implemented in 2003. This is regarded as a major CG reform aimed at improving CG practices and standards. It was designed to provide greater protection for all

stakeholders by promoting a culture of compliance, quality disclosure and accountability. An important aim of the CG Code is to assist firms in setting up effective CG mechanisms that can mitigate agency problems associated with managerial and corporate policy decisions. A crucial issue is that the CG recommendations contained in the 2002 Omani CG Code were built on an Anglo-American CG tradition and are drawn mainly from the 1992 UK Cadbury Report, particularly those recommendations relating to the composition and functions of the board of directors. One of the major concerns of this thesis, therefore, is the extent to which reliance on an Anglo-American CG model can provide effective CG mechanisms that are able to enhance corporate policy decisions, given the differences between the emerging Omani context and the developed corporate settings.

Specifically, and as will be discussed furher, the impact of CG recommendations proposed by CG codes on a number of important managerial decisions, including voluntary disclosure, financing and earnings management in emerging economies, such as Oman, can be expected to be different from those of developed countries because of the differences in corporate contexts. The examination of CG reforms in Oman shows that emerging countries have unique features differentiating them from developed countries. This can be expected to have important implications on the willingness of Omani listed firms to voluntarily adopt and implement CG provisions contained in the code. More specifically and briefly, the Omani context which is characterised by religious notions built around Shariah Law, informal rules and concentrated ownership; and thus these characteristics may lead to different results from what has been reported in developed countries regarding CG codes' ability to encourage firms to engage in good CG practices.

While studies in developed countries report evidence that CG has a crucial impact on voluntary disclosure, financing (i.e., capital structure) and earnings management, the CG literature shows that there is a clear paucity of empirical evidence in emerging economies in general, and Oman in particular. Therefore, examining the impact of CG on these topics in the Omani context, is arguably one way of providing a deeper understanding of whether and the extent to which firms' managerial decisions in emerging economies can be influenced by CG mechanisms.

This thesis, therefore, consists of three essays that examine how and why a firm's CG mechanisms may influence its policy decisions by focusing on three closely related corporate decisions, namely voluntary CG disclosure, financing (i.e., capital structure) and earnings management. It considers emerging economies with a specific focus on Oman.

The first essay empirically examines the extent to which Omani listed firms disclose CG information, and determinants that may affect such disclosure. The first

central research question it seeks to answer is: What is the level of voluntary compliance and disclosure with the 2002 CG Code among listed firms? Four sub-questions are also posed from this central research question as: (i) To what extent has the introduction of the 2002 CG Code improved CG practices?; (ii) Which CG provisions do listed firms comply with most?; (iii) Is there a significant difference between financial and non-financial firms in terms of providing CG disclosure?; and (iv) To what extent can reliance on an Anglo-American model lead to improved CG standards in an emerging country like Oman?

The first essay also seeks to answer its second central research question of whether the observed cross-sectional differences in firms' voluntary CG disclosure can be explained by traditional ownership structures and board/audit characteristics. In doing so, a multi-theoretical approach was adopted to develop hypotheses and interpret the results, where the chosen theories were considered complementary rather than competing perspectives. The multi-theoretical framework includes critical insights from agency, resource dependence, legitimacy and signalling theories. Nine hypotheses were quantitatively examined to specify the nature of the relationship between firm-level voluntary CG disclosure and government ownership, institutional ownership, foreign ownership, block ownership, board size, audit firm size, board diversity on the basis of gender, the presence of a CG committee and board diversity on the basis of nationality. Using a sample of 116 listed firms with 1,152 firm-year observations from 2001 to 2011, and multiple linear regression analysis and Ordinary Least Squares (OLS) as estimation methods, these hypotheses were examined.

The first essay expects that CG disclosure in the Omani context may be different from what is reported in developed countries because of the differences in institutional structures; hence, investigating the level and determinants of voluntary CG disclosure in the Omani context is arguably appropriate empirical investigation. This investigation found generally, that, ownership and board characteristics have significant impact on firm-level voluntary CG disclosure. Specifically, the results indicate that firms with more government ownership, more institutional ownership, more foreign ownership, larger boards, a CG committee and more nationalities diverse boards are more likely to disclose more CG information. In contrast, the findings suggest that block ownership impacts negatively on firm-level voluntary CG disclosure, whilst audit firm size and board diversity on the basis of gender have no significant impact on voluntary disclosure of CG practices.

The second essay contained in this thesis empirically examines the extent to which CG drives a firm's capital structure and the choice of financing (i.e., whether to issue equity or debt). It addresses two main research questions: Are better-governed firms likely

to employ higher or lower levels of leverage in making their capital structure decisions?; and Are better-governed firms more likely to issue equity or debt when seeking new or additional financing? These two central research questions were split into three sub-questions, including: (i) What is the impact of firm-level CG on a firm's level of capital structure and equity issuance?; (ii) Does ownership structure influence a firm's level of capital structure and equity issuance?; and (iii) Do board and audit characteristics impact on a firm's level of capital structure and equity issuance?

The second essay also adopts a multi-theory approach in order to benefit from insights provided by existing relevant capital structure theories to develop its hypotheses and interpret its results. These include tax-driven (e.g., Modigiliani-Miller irrelevance theorem and trade-off) and non-tax (e.g., pecking order, signalling, market timing and agency) theories of CS. The relationship between CG and CS on the one hand, and CG and equity issuance on the other hand were investigated. Specifically, the thesis developed eight hypotheses that examine the impact of a broad composite CG index, corporate ownership structures, and corporate board/and audit characteristics on capital structure and equity issuance. Two data sets were used to perform these investigations. The hypotheses relating to capital structure were examined based on a sample of 1,152 firm-year observations over eleven years via the application of multiple OLS linear regression analysis, whereas the hypotheses relating to equity issuance were examined based on a sample of 1,049 firm-year observations for the same period, but through the application of logistic regression techniques.

The second essay, however, expects that the Omani corporate contextual characteristics, namely religious notions, informal rules and concentrated ownership may suggest that the impact of CG on capital structure decisions may be different from that observed in developed countries. This, therefore, underlies the need to empirically analyse the extent to which firm-level CG drives CS and the choice of financing. The results of this essay indicate that capital structure decisions and SEOs can be significantly influenced by CG. First, the empirical evidence reveals that CG index, audit firm size and CG committee impact significantly and negatively on firm-level CS. Government ownership, institutional ownership, foreign ownership, board size and audit firm size impact negatively, but insignificantly on capital structure, whereas block ownership is insignificant and positively related to firm-level CS. Second, CG index, government ownership and institutional ownership are significantly and positively related to equity issuance. Block ownership, board size, audit firm size and CG committee have no significant impact on equity issuance.

The final essay empirically assesses the extent to which CG measures can be useful in understanding earnings management behaviour among listed firms. It seeks to answer its main research question: Are better-governed firms more or less likely to engage in earnings management practices? Three sub-questions were also examined: (i) What is the relationship between firm-level earnings management and firm-level CG quality? (ii) Does ownership structure drive or constrain earnings management?; and (iii) Do board and audit characteristics influence firm-level earnings management? Similar to essays 1 and 2, this essay adopts a multi-theoretical approach to undertake its investigation by developing a multi-theoretical framework incorporating crucial insights from earnings management relevant theories, including agency, signalling, stakeholder and stewardship theories. The multi-theoretical framework was used to develop nine hypotheses investigating the impact of a broad composite CG index, corporate ownership structures, and board/audit characteristics on firm-level earnings management. The hypotheses were examined using a sample of 116 listed firms with 1,152 firm-year observations over the 11-year period and multiple OLS linear regression technique.

This essay expects that the association between firm-level earnings management and firm-level CG in the Omani context may be different from what is found in developed countries. Thus, examining the ability of CG measures to curb managerial opportunistic behaviour in general and earnings management practices in particular may be crucial in providing a deeper understanding of why and how a firm's CG strategy might drive or constrain its earnings management practices. The results of this examination indicate that CG and ownership have significant impact on earnings management. The empirical evidence suggests that CG index, government ownership and institutional ownership are negatively associated with earnings management, whereas block ownership has a positive relationship with earnings management. Foreign ownership, audit firm size and board diversity on the basis of gender are negative, but statistically insignificant. Board size and the presence of a CG committee are insignificant and positively associated with earnings management.

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Essay 1

The Level and Determinants of Voluntary Corporate Governance Compliance and Disclosure in Emerging Economies: Evidence from Omani Listed Firms

ABSTRACT

The first essay empirically investigates whether Omani listed firms voluntarily comply with and disclose recommended good CG practices proposed by the 2002 Omani Code of CG and, if so, the main determinants that influence such voluntary CG disclosure behaviour. Employing one of the largest and extensive dataset to-date on CG in emerging economies (i.e., a sample of 116 Omani listed firms from 2001 to 2011 and 1,152 firm year observations) and a broad CG index consisting of 72 CG provisions, the study finds that although Omani firms have shown some positive response to the voluntary 2002 Omani Code's recommendations, CG compliance and disclosure among these firms is generally low compared to those reported for other developing and developed economies. It also finds that firms with more government ownership, more institutional ownership, more foreign ownership, larger boards, audited by big four, have a CG committee and more non-Omani directors tend to voluntarily disclose more information on CG compliance, whereas those with high block ownership and board diversity on the basis of gender disclose less CG information. The study's results are fairly robust across a number of econometric models that sufficiently account for alternative CG proxies and different endogeneity problems. Overall, the findings of the study are generally consistent with the predictions of a multi-theoretical framework that incorporates insights from agency, resource dependence, legitimacy, and signalling/stakeholder theories.

Keywords: Voluntary CG disclosure, corporate governance; the 2002 Omani Code of corporate governance; multi-theoretical approach; emerging economies; Oman; endogeneity.

1 INTRODUCTION

1.1 Background

Over the last two decades, the world has witnessed a number of corporate failures. Specifically, the corporate scandals of major institutions, such as Enron, WorldCom and Barings Bank, amongst others, have drawn the attention of academics and professionals to the concept of CG (Kiel and Nicholson, 2003; Bauwhede and Willekens, 2008; Ntim *et al*., 2014a, b; Soltani, 2014). In a similar vein, the Asian financial crisis during the 1990s raised crucial questions about whether firms with weak CG systems can survive, and how they can maintain their credibility (Rwegasira, 2000; Ho and Wong, 2001; Haniffa and Hudaib, 2006). In response to these events, international and national initiatives have been launched to provide recommendations for good CG practices, with the aim of promoting high standards of corporate behaviour (Weimer and Pape, 1999; Collett and Hrasky, 2005). The suggested recommendations are genearally aimed at promoting greater transparency in financial and non-financial reporting, clear-cut responsibility and more accountability in the corporate environment. Arguably, this may assist firms in maintaining stakeholders' confidence and protecting shareholders' rights, as well as improving performance (Cadbury Report, 1992; Organisation for Economic Co-operation and Development Report, 1999).

At the national level, many countries have issued codes of good CG practices aimed at improving the quality of their firms' governance (Denis and McConnell, 2003; Davies and Schlitzer, 2008; Aguilera and Cuervo-Cazurra, 2009; Solomon, 2010). A common feature of most of these codes is self-regulation ('voluntary regulation'/'comply or explain') (Wymeersch, 2006), mainly originating from the UK's influential 1992 Cadbury Report. Given their voluntary nature, the ability of such codes to improve CG standards is subject to firms' voluntary desire to comply with their provisions (Healy and Palepu, 2001; Core, 2001; Aguilera and Cuervo-Cazurra, 2009). This has motivated researchers to undertake empirical studies to investigate the extent to which firms comply with such codes, and the factors influencing such compliance (Huafang and Jianguo, 2007; Zattoni and Cuomo, 2008; Bozec and Bozec, 2012). In this regard, Deegan (2002, pp.302) states that "*As long as such disclosures remain predominantly of a voluntary nature then accounting academics will undoubtedly continue efforts to understand the motivations for reporting*". However, most of these studies have been conducted in developed countries with similar institutional contexts with limited evidence on emerging countries in general and the MENA in particular (Barako *et al.*, 2006a; Ntim *et al*, 2012a). This may suggest that voluntary compliance with CG codes in emerging countries could be different from

that in developed countries, where institutional contexts are different (Chau and Gray, 2002; Haniffa and Hudaib, 2006; Krambia-Kaprdis and Psaros, 2006; Zattoni and Cuomo, 2008; Ntim *et al.*, 2012a, b). Therefore, investigating voluntary CG disclosure in emerging economies, where empirical evidence is lacking, may be essential in providing a broader picture to understanding firms' voluntary CG compliance and disclosure behaviour.

A number of theories have sought to explain firms' motivations to voluntarily disclose CG practices, such as agency, resource dependence, legitimacy and signalling theories. For instance, from an agency theory perspective, managerial incentives are regarded as one of the main motivations influencing firms to engage in voluntary CG disclosure. The basic premise of the theory is that CG disclosure can reduce the conflict of interests between managers and shareholders. In this view, increased information about CG practices can reduce information asymmetry, as well as agency costs that result from the separation of ownership and control (Jensen and Meckling, 1976; Cooke, 1993; Raffournier, 1995; La Porta *et al.*, 2002). Further, by providing more CG information, managers offer shareholders a way to continuously monitor their actions, hence, reassuring them that they are working in line with their interests (Raffournier, 1995). Thus, agency theory considers CG disclosure as a governance mechanism by which shareholders can reduce agency costs and mitigate the divergence of interests between shareholders and managers.

Resource dependence theory provides another view to explain managerial incentive to comply with and disclose best practice CG recommendations. It suggests that firms are motivated to disclose more information about CG practices in order to address the needs of a wide range of external actors (e.g., local communities, government, and suppliers), whose resources firms rely on (Pfeffer and Salancik, 1978). This theory assumes that external actors are more likely to provide firms who provide additional transparent CG disclosures with the needed resources, especially financial ones than those who disclose less transparent disclosures about their CG practices. Additional information on CG compliance is considered by external actors as assurance that there are effective CG mechanisms in place to reduce the misuse of resources. In this regard, firms may be expected to provide additional information on CG practices in order to ensure more commitment and involvement from external actors, which may be helpful in the provision of resources. Hence, a firm's failure to provide adequate disclosure of CG practices may limit its ability to secure critical resources.

Stakeholder and signalling theories have also their expainations regarding a firm's motivations for voluntary CG compliance and disclosure. Stakeholder theory suggests that

firms are motivated to disclose more CG information to a broad range of stakeholders (e.g., creditors, suppliers, employees and society) in order to mitigate conflicts of interest between managers and stakeholders (Freeman, 1984; Hill and Jones, 1992; Donaldson and Preston, 1995). Stakeholders are confronted with the problem of ensuring that their utilities are protected from opportunistic managers. Hence, stakeholder theory emphasises the need to consider stakeholders' interests along with shareholders' interests, which can encourage firms to disclose more information about CG practices. Signalling theory predicts that firms are motivated to redue information asymmetry by signalling more CG information (Leland and Pyle, 1977; Ross, 1977). It suggests that firms should rely on voluntary disclosure as a means to inform outsiders about a firm's quality and its true value. Thus, disclosing more CG information can act as a signal to outsiders, which will positively affect stakeholders' perceptions.

Therefore, and applying insight from these theories, this study seeks to shed new light on voluntary CG compliance and disclosure in the Omani context. Oman issued a voluntary code of CG for listed firms in 2002; it was effectively implemented in 2003. The issuance of the Omani CG code (OCGC) was as a result of major national and international developments. Since 1998, the Omani economy has witnessed remarkable reforms towards its development as a market-oriented economy (Shankaraiah, 2004). A central aim of the economic reforms was an attempt to improve the quality of domestic firms' governance (Dry, 2003). Indeed, many countries have responded to corporate failures by establishing codes of good CG practice, such as Denmark (2000), Taiwan (2002), Turkey (2003) and Norway (2004), to mention, but a few. In response to these developments, Oman also implemented its national CG code with the aim of promoting high standards of corporate behaviour. Specifically, and as will be discussed further in Section 2, the main purpose of the code was to promote a culture of compliance, quality disclosure and accountability in order to provide greater protection for all stakeholders (Omani Code, 2002). Like many emerging countries, Oman has adopted an Anglo-American model in promoting CG standards; the OCGC was drawn mainly from the 1992 UK Cadbury Report, principally in relation to the composition and functions of the board of directors (see Table 2). Arguably, reliance on an Anglo-American model may raise concerns about the ability of such a regime to promote high standards of corporate behaviour, given the nature of the Omani corporate setting.

1.2 Motivation

The Omani context is characterised by strong Islamic religious notions,[1] informal rules and concentrated ownership; these characteristics are expected to have important effects on the adoption and implementation of high CG standards. First, there is an expectation that societies with strong religious notions are more likely to exhibit higher levels of transparency and compliance with regulations (Haniffa and Cooke, 2002; Boytsun *et al.*, 2011). Typically, within the Omani context, individuals appear to rely primarily on religious norms in order to monitor business activities (Rahman, 1998; Kamla *et al.*, 2006). Unlike most previous studies, which were conducted in contexts, where business is not influenced by religious tenets, this study is conducted in Oman, where Shariah Law[2] plays a vital role in business.

In this context, strong Islamic notions applicable to CG, such as transparency, responsibility and accountability, may have important implications for CG compliance and disclosure (Abu-Tapajeh, 2009; Ahmed, 2011a). For instance, the Islamic concepts of "Taklif" and "Hesab" directly relate to a number of theories, such as stewardship, resource dependence and stakeholder theories (Bhatti and Bhatti, 2010). "Taklif" means that a manager, as a responsible person, is a trustee of the firm and should act as a guardian and a deputy of stakeholders (Rahman, 1998; Iqbal and Mirakhor, 2004, Hearn *et al.*, 2011). The principle of "Hesab" (account) indicates that directors, as individuals, have been trusted with resources (Bhatti and Bhatti, 2010); hence, they will be accountable to their creator and punished or rewarded for their actions accordingly in the hereafter (Abu-Tapanjeh, 2009; Ahmad, 2011b). These principles can serve as governance mechanisms that discipline managers and mitigate agency problems. In particular, it can be argued that Shariah law encourages insiders to credibly signal quality information to outsiders by providing extensive information about CG practices and disclosure (Baydoun and Willett, 2000). As a result, Omani managers can be expected to be socially responsible, as encouraged by their inherent Islamic values.

Second, weak legal enforcement means that firms operating in emerging countries are expected to be more affected by informal rules than those operating in the developed world (Allen *et al.*, 2005). In this sense, Oman can be considered a collectivistic country

[1]It is noted that whereas some contextual factors, such ownership concentration are explicitly incorporated into the research design, measured and empirically tested, due to data limitations, others such as Islamic notions and norms are not captured and tested empirically. Due to their observable presence within the Omani context, however, they are normatively relied on as part of the motivation for all three essays. The inability to provide empirical testing of such contextual factors is explicitly acknowledged as part of the study's limitation throughout the three essays and also in the summary and conclusion section, which have been suggested as part of the potential avenues for future research.

[2]Shariah Law is based on the Qur'an and the Prophet Muhammad's teachings, God bless upon him, which serve as guidance for Muslims in all aspects of life (Kamla *et al.*, 2006).

where both formal and informal rules can be expected to have a crucial influence on firms (Moideenkutty *et al*., 2011). Specifically, managers can be significantly influenced by informal rules; family, Arabic custom and tribalism are expected to be more highly prioritised than formal rules and CG mechanisms, such as establishing audit and CG committees (Haniffa and Hudaib, 2006; Metcalfe, 2007; Common, 2008; Boytsun *et al.*, 2011). Thus, social aspects may impact OCGC compliance, if informal rules are more influential than formal rules. For instance, managers who hold powerful positions are expected to act in their families' and tribes' interests; if they do not, they are regarded as 'useless' (Hassab-Elnaby and Mosebach, 2005; Boytsun *et al.*, 2011). They may not be willing to comply with the OCGC because they will be more closely observed and controlled by stakeholders in general and shareholders in particular. Arguably, the potential adverse effects of societal and cultural values may weaken Omani directors' ability to independently monitor managers and encourage firms to disclose higher levels of information about their CG practices.

Finally, different factors, including ownership structure, have been reported to influence firms' motivations to voluntarily provide information on CG practices (Shleifer and Vishny, 1986; Morck *et al*., 1988). Unlike developed countries, where there are diverse ownership structures, a large number of Omani firms have concentrated ownership, predominantly through institutions, which may have important implications for CG compliance and disclosure (Elsayed, 2007; Najib, 2007; Omran *et al*., 2008, Bishara, 2011). As will be discussed further, the OCGC was mainly drawn from the UK code, but the UK CG model tend to be effective in a context in which ownership is widely held or there is a dispersed ownership, and thereby permitting shareholders to have control through takeovers, mergers and acquisitions as mechanisms of corporate control (Rwegasira, 2000). In the case of Oman, high ownership concentration may impact negatively on compliance with the OCGC, especially in a situation, where the market for corporate control is weak. This suggests that the high concentration of ownership renders some external CG mechanisms, such as the market for corporate control and hostile takeovers, ineffective in motivating managers to engage in voluntary CG disclosure (Haniffa and Hudaib, 2006; Gillan, 2006; Chahine and Tohme, 2009; Bishara, 2011). In addition, the high concentration of ownership leads to agency problems inherent in the conflict of interest between large and minority shareholders, as opposed to developed countries, where the conflict tends to be between managers and shareholders (Shleifer and Vishny, 1997; Alves, 2012). Block holders are expected to discourage managers from making CG disclosures, as providing such information may not be helpful in expropriating minority

shareholders. Arguably, the ownership concentration in the Omani context can be expected to limit the OCGC's ability to promote a culture of compliance and quality disclosure, as firms' willingness to voluntarily provide transparent information on CG compliance is expected to be low.

These distinctive features of the Omani context may lead to different results from what is reported in developed countries. Thus, investigating the level and determinants of voluntary CG disclosure in the Omani context may help enhance current understanding of the drivers of corporate voluntary disclosure of CG practices. In spite of the distinctive features of the Omani context, the literature on CG shows that there is a clear paucity of empirical evidence on the level and determinants of voluntary CG disclosure in Oman; hence, the current study is also driven by the dearth of empirical research on Omani CG compliance and disclosure.

There are, however, a few prior studies addressing some aspects of CG in Oman that need to be explicitly acknowledged. The first is a descriptive study by Dry (2003). He addresses the development of CG in Oman, paying particular attention to the Omani code of CG practice. The second study, by Omran *et al.* (2008), includes Oman in a cross-country study. They investigate whether firms with high ownership concentration performed differently from those without concentrated ownership over the period 2000-2002. Their results indicate that ownership concentration does not have a major impact on a representative group of Arab countries' firms' performance. Of close relevance to the current study is a study conducted by Mohamed *et al.* (2009), which examines the reporting of CG practices by Omani listed firms between 2002 and 2006. They find that the level of CG reports provided by Omani listed firms increased from 2002 to 2006. The final study by Malkawi *et al*. (2014) also includes Oman in a cross-country study. They examine CG disclosure in Gulf Cooperation Council's countries (GCC). They report evidence that suggests that Omani firms engage in high level of CG compliance among GCC countries.

As well as being limited in number, studies in the Omani context are limited in scope. Specifically, the current study is different from existing ones in two main aspects. First, previous studies do not examine the level and determinants of compliance with the 2002 OCGC, which is the main purpose of the present study. The first and second prior studies do not consider the level and determinants of voluntary CG disclosure, whereas the third prior study, by Mohamed *et al.* (2009), identifies only whether a particular listed firm includes a CG report in its annual report or not. Similarly, Al-Malkawi *et al*. (2014)'s study mainly examines the levels of compliance among the GCC's firms, including Omani firms, with the 2004 Organisation for Economic Co-operation and Development's guidelines

(OECD), which is different from the current study, where the level of compliance among Omani firms will be measured according to the 2002 OCGC's provisions and other CG laws, such as the Companies Law. Second, the generalisability of prior studies' findings is arguably limited since the samples used by those studies are smaller than the current study's sample. For instance, Omran *et al.* (2008) employ a sample of 304 firms in their cross-country study; only 70 firms were from Oman.[3] The current study employs a sample of 116 Omani listed firms from 2001 to 2011. To the best of the researcher's knowledge, this is the most recent and extensive time period that has been investigated within the Omani context in relation to CG in general and CG compliance and disclosure in particular.

1.3 Research questions and contributions

Given this context, the central objective of this study is to empirically examine the extent to which Omani listed firms disclose CG information, and determinants that may affect such disclosure. In doing so, the study aims to make distinct contributions to the extant literature. First, the current study contributes to the extant literature by providing, for the first time, empirical evidence on the level of voluntary CG disclosure among Omani listed firms in relation to the 2002 Omani CG Code. Second, it provides detailed evidence on traditional ownership structures and internal CG mechanisms that are expected to have a direct impact on the level of voluntary CG disclosure. Importantly, it examines a number of factors which have not been widely investigated in the CG literature, such as board diversity on the basis of nationality, foreign ownership, board diversity on the basis of gender, government ownership, and the presence of a CG committee. Conducting such an empirical study is crucial to improving current understanding of the factors that can have a major influence on the level of voluntary CG disclosure in Oman, where different stakeholders, such as the state, the Muscat Securities Market (MSM) and the CMA, have a keen interest in promoting CG practices.

1.4 Structure of the essay

The remainder of this essay is organised into eight sections. Section 2 addresses the institutional setting and CG in Oman. Section 3 reviews the related literature on voluntary CG disclosure and develops hypotheses. The research deign is described in Section 4, while OLS assumptions and descriptive statistics are discussed in Section 5. Section 6 discusses the empirical findings. Section 7 discusses robustness tests, whilst the final section provides a summary and conclusion.

[3] Al-Malkawi *et al*. (2014) do not specify the number of Omani firms in their data set.

2 CORPORATE GOVERNANCE IN OMAN: BACKGROUND AND INSTITUTIONAL FRAMEWORK

Good CG has been suggested as a solution to the reduction of agency problems (Filatotchev and Boyd, 2009). Consequently, CG policy reforms have been globally pursued to encourage firms to commit to high standards of CG practices (Aguilera and Cuervo-Cazurra, 2009). Observably, attempts at promoting CG in Oman started early compared with its counterparts in MENA region (see Table 1). In 1998, however, Oman was affected by the Asian crisis, and the MSM witnessed a dramatic drop in share prices (Fleety, 2010). The MSM's collapse compelled the government to initiate major economic reforms. The most important aspect of the economic reforms was an attempt to promote a legal and regulatory framework aimed at protecting investors by improving the quality of firms' governance practices (Dry, 2003). The Omani CG regulatory framework can be classified into external and internal bodies. The subsections below briefly discuss the external and internal CG frameworks, as a way of providing the reader useful insights on the operating context and background to this essay, as well as the subsequent two essays.

Table 1: Corporate governance codes in the MENA region

Date of issue	2002	2003	2006	2007	2008	2009	2010
Country	Oman	Turkey	Egypt Lebanon Saudi Arabia	United Arab Emirates	Jordan Morocco Qatar Syria Tunisia	Algeria Palestine	Bahrain Yemen

Source: European Corporate Governance Institute's website.

2.1 THE EXTERNAL CORPORATE GOVERNANCE SYSTEM

Figure 1 below depicts the external CG framework, which involves three important matters. First, the external framework refers to the key financial regulatory and enforcement bodies, which are responsible for the implementation and enforcement of mandatory corporate regulations. Second, it briefly describes the main responsibilities of the external CG bodies. Finally, it shows a number of legislative Laws and instruments that market participants (e.g., firms, banks and pension funds) must comply with. The major regulators that shape this framework include: (i) the Ministry of Commerce and Industry (MCI); (ii) the CMA; and (iii) the MSM. The three regulatory institutions will be briefly discussed consecutively in the following subsections.

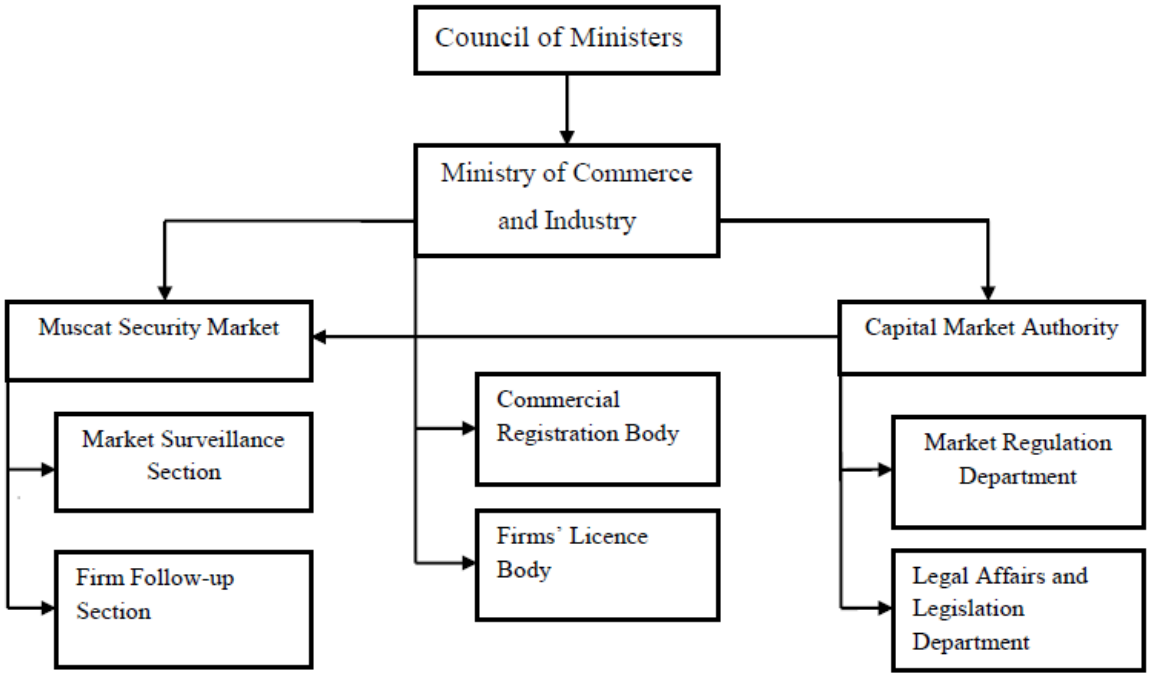

Figure 1: The external CG framework of Oman. Source: Researcher's construction.

2.1.1 Ministry of Commerce and Industry

The MCI was established in 1974 to oversee the statutory regulation of firms. As demonstrated by Figure 1, it has supervisory power over the CMA and the MSM. In particular, the MCI is responsible for governing firms towards proper implementation of the relevant regulations and laws. Mainly, the ministry deals with firms through two main statutory bodies: Commercial Registration Body (CRB) and Firm's Licence Body (FLB). The CRB plays a key role in ensuring that all firms are registered with the MCI. Firms are required by this body to provide detailed CG information in order to be registered. The FLB has regulatory power; firms are required to disclose financial and non-financial details to this body in order to obtain licences and be able to operate in the market.

2.1.2 Capital Market Authority

The CMA was established in 1998 to serve as an independent regulatory and supervisory government body to oversee the MSM. It carries out its functions through two main departments, Market Regulation Department (MRD) and Legal Affairs and Legislation Departement (LALD). Through both departments, the CMA plays a vital role in encouraging a CG disclosure culture among Omani firms, and has issued a number of

legislative instruments. For instance, the *Related Party Transactions* circular was issued in 2001, recommending several rules regulating transactions between firms and boards of directors. In the same year, the *Corporate Governance Rules* circular recommended terms and conditions for electing directors and rules for convening firms' general meetings. More importantly, the CMA issued its code of good CG practice in 2002, which was effectively implemented in the following year.

2.1.3 Muscat Securities Market

The MSM was established in 1988 as a government body responsible for the listing and trading of securities. It is the only formal stock market in Oman that provides information and financial data about listed firms' performance in order to enable investors to make accurate investment decisions. As Figure 1 shows, the MSM deals with firms through two main statutory sections, Market Surveillance Section (MSS) and Firm Follow-up Section (FFS). Both sections ensure transparency of activities and support the market by applying listing requirements and trading rules to listed firms. Among them, the listing provisions have a direct relevance to CG, as listed firms are required to provide detailed CG information, and submit a listing application form with a number of documents. According to these provisions, firms are required to submit quarterly and annual reports to the MSM, and investors can access these reports online through the MSM's website. Importantly, firms are required to provide a separate section on CG and management discussion analysis to the MSM, and are encouraged to comply with the provisions of the 2002 code on a comply-or-explain basis. Firms are advised to comply with the code, but if a firm chooses not to comply with one or more governance provisions, it must explain its non-compliance. By the end of 2014 there were 117 firms listed in the MSM, operating mainly in nine industries, including basic materials, consumer goods, consumer services, financial services, industrial, utilities, health care, telecommunications, and oil and gas.

2.2 The Internal Corporate Governance System

The Omani CG internal framework consists of statutory and corporate laws and a code, including: (i) the 1974 Omani Companies Law; (ii) the 1998 Capital Market Law; and (iii) the 2002 code of good CG practice. The Omani Companies Act and Capital Market Law are considered statutory laws, whereas the 2002 code of CG is viewed as a voluntary regulation. The governance provisions included in the laws and the code are discussed below.

2.2.1 The Companies Act

The 1974 Omani Companies Law, no.4, is regarded as the main statutory commercial law regulating Omani firms. It has been amended several times in accordance with national and international corporate developments. As Wymeersch (2006) indicates that the Companies Act has a considerable number of provisions that govern internal relationships between boards of directors, firms, shareholders and external auditors. The provisions suggested by the Companies Act that are related to each group are discussed consecutively in the following subsections.

With respect to boards of directors, the Companies Act addresses the issue of related party transactions by determining any activities that contain conflicts of interest. Directors are not allowed to engage in such transactions without authorisation from shareholders (Article 108). The Act also requires firms to have a minimum of five directors on their boards (Article 95) in order to ensure effective supervision of managers. Additionally, board directors are not permitted to be members of more than five other boards, and their term of membership in the board of the main firm should not exceed three years (Article 95). These rules aim to ensure that directors will devote enough of their time and professional skills to the firm.

Regarding the firm, Article 97 of the Act stipulates that firms must specify the number of firm shares that an appointed director is permitted to possess. This is to ensure that directors' interests are aligned with shareholders' interests. The Companies Act also requires firms to make their articles of association available to all shareholders (Article 6). Further, firms have to disclose each board director's remuneration to the shareholders. More importantly, the Act requires firms to prepare and disclose: (i) balance sheets; (ii) profit and loss accounts; (iii) board of directors' report; and (iv) an external audit report to their shareholders before the general assembly meeting (Article 101).

The Act grants shareholders various rights, which they should exercise. These include: (i) approving the board of directors' remunerations (Article 101); (ii) appointing an external auditor (Article 120); (iii) attending and voting during general assembly meetings (Article 94); (iv) removing any director from his/her position; and (v) reducing or increasing the firm's capital (Article 84).

Finally, and with reference to the external auditor, under Article 111, the appointed external auditor should be independent and should not serve the firm for a long period of time. The Companies Act also requires the external auditor to verify that firms' records are prepared according to proper accounting standards (Article 112). More importantly, the

external auditor is required to provide a report on the firm's financial position, to be made available to shareholders before the general assembly meeting (Article 113).

Although the Companies Act has several governance provisions that protect shareholders' interests, it does not clearly recognise the importance of different stakeholders, such as employees, debt providers and the community, in improving the profitability and competitiveness of a firm. For instance, stakeholders can play an important role in enhancing monitoring of managers by acting as independent non-executive board directors.

2.2.2 The Capital Market Law

The 1998 Capital Market Act, no.80, is also one of the internal CG systems in Oman. It has been amended several times in response to developments within global and local markets. It was primarily issued in order to re-structure the MSM after its collapse during the Asian crisis. The Act mainly provides corporate provisions on listing and trading of securities. It requires firms to disclose a number of corporate issues. For instance, firms are required to prepare un-audited financial quarterly statements, and disclose them after they are approved by the board of directors. Firms also have to disclose audited annual financial reports, and provide a comparison with the same items for the previous year. The annual report must include: (i) a balance sheet; (ii) an income statement; (iii) a cash flow statement; (iv) a statement on changes in shareholders' equity; and (v) notes on the financial statement (Articles 279 and 284). Under Article 285, firms are required to make their financial statements available to the public by publishing them in two daily newspapers. The Capital Market Act is also important because it provides a number of corporate provisions regarding responsibility and transparency. These provisions take the form of: (i) obligatory quarterly and annual reports; (ii) obligations to publish reports; and (iii) obligations to disclose accurate information. Despite its importance, the Act focuses mainly on corporate disclosure in annual reports, and does not provide governance provisions to regulate the internal relationships between boards of directors, executive management and shareholders, among others.

2.2.3 The 2002 Omani Code of Corporate Governance

As indicated earlier, the OCGC is regarded as the most significant CG policy reform in Oman. It is also a central motivation underpinning the three essays contained in this thesis and thus, it will be discussed in more detail in the following subsections. For brevity, however, subsequent easys will be addressed in detail as will be addressed in this essay, but will be cross-referenced, where appropriate. The discussion will include the

background of the code, CG recommendations proposed by the code, compliance with and enforcement of its proposals, and major achievements and challenges facing the implementation of the code.

2.2.3.1 Background

Alongside Companies Act and Capital Market Law, the Code of good CG practices is the most sophisticated regulation that shapes the Omani internal CG framework. The issuance of the 2002 Code of good CG practices is mainly attributed to two key factors. First, sharp declines in MSM's market value of listed firms in 1997 had a negative impact on the Omani economy in general and firms in particular. The government had to make major corporate policy reforms in order to respond to such negative effects (Fleety, 2010). Second, Oman was also influenced by a worldwide flood of self-regulatory initiatives to establish CG regimes as a remedy for corporate failures. A considerable number of countries, especially developed economies had CG reforms, and attempts to reform CG and disclosure practices in Oman began in June 2001, when the CMA organised a workshop to develop a CG code. This resulted in the formation of a committee comprising representatives of various stakeholder groups (Omani code, 2002). The main objective of this committee was to draft a Code of good CG practices by adapting the best CG practices from around the world that will be applicable to the Omani corporate setting (Omani code, 2002). The second workshop organised by the CMA was in May 2002; at this time the committee presented its proposal to the CMA and obtained approval for its proposed draft (Al-Busaidi, 2008). Based on this draft, the CMA issued the OCGC in June 2002 into effect in January 2003.

According to the OCGC, the main purpose of the code is to promote a CG disclosure culture of transparency and accountability in order to provide greater protection for shareholders' interests. The code applies to all Omani firms listed on the MSM, and foreign firms with statutory residence in Oman are recommended to comply with its provisions as well. A main characteristic of the code is its reliance on self-enforcement, mainly through market forces, to implement and enforce its recommendations. This suggests that the OCGC is similar to a considerable number of national codes, where compliance is on a comply-or-explain basis.

Importantly, the OCGC is based on the 1992 UK's Cadbury Report. This was expected for three main reasons. First, Oman has historic and economic links with the UK, as the country was a British colony for a period of time. Second, it has been argued that emerging countries tend to adopt commonly accepted standards of CG in order to be globally competitive and attract foreign investments (Solomon *et al.*, 2003). In this regard,

Oman is expected to diversify its economy by attracting new investment opportunities. Adopting commonly accepted standards of CG permits Oman to meet foreign investors' expectations by providing investor protection that can encourage international investors to invest in the country. Finally, Oman seems to be influenced by the concept of CG harmonisation, where countries with different types of CG regimes tend to adopt similar CG frameworks to the UK model, rather than having a different system (Solomon *et al.*, 2002).

Although the 2002 OCGC is not as detailed as the 1992 UK code, both share some similarities. Table 2 below summarises and compares the key CG provisions of the two codes. The Omani CG Code is compared with UK one because the CG provisions contained in the Omani Code is drawn predominantly from the UK Code, and rendering comparison appropriate. Both codes have similar CG provisions on board characteristics, including: (i) board structure; (ii) non-executive directors; (iii) independent non-executive directors; and (iv) role duality. For instance, both codes recommend the board of directors conduct a review of the effectiveness of the firm's internal control systems and disclose it to their shareholders in the annual report. Further, they implicitly recognise the need for firms to benefit from external auditing in order to provide transparent information to shareholders.

Despite the similarities, there are differences between the two codes for a number of CG provisions. These provisions include: (i) UK firms are recommended to clearly identify the chairman's responsibilities; (ii) the UK code suggests that firms should establish internal audit functions; and (iii) it recommends that firms establish a number of board sub-committees, including nomination, remuneration and audit committees. Similarly, the OCGC has several provisions on crucial issues not covered by the UK code, including: (i) Omani firms are recommended to provide more transparent information on related party transactions; (ii) the OCGC requires firms to disclose the roles and responsibilities of executive management; and (iii) firms are recommended to provide transparent information related to ownership structure.

In summary, the OCGC represents the most advanced CG policy regime in Oman. Although its CG provisions have been drawn mainly from the 1992 UK Code, its ability to enhance CG practice is expected to be influenced by the Omani context; hence, levels of governance disclosure may be different from what has been documented in developed countries.

Table 2: A comparison of the key corporate governance provisions of the 1992 UK code and the 2002 OCGC

Corporate Governance Provisions	The 1992 Cadbury Report	The 2002 Omani Code
Compliance	Voluntary	Voluntary
Enforcement	Board, institutional investors & external auditor	Board & external auditor
Applicability	Listed firms	Listed firms
Code of Principles	Openness, integrity & accountability	Transparency, responsibility & accountability
Board and Directors		
Board structure	Unitary board system	Unitary board system
Chairperson	Non-executive director	Non-executive director
Non-executive	A minimum of three directors	Majority of board members
Independent	A minimum of two directors	A minimum of two directors
Role duality	Split Chairperson & CEO	Split Chairperson & CEO
Board committees	Nomination, remuneration & audit	Establish audit committee
Board meetings	Frequently & regularly	At least four times a year
Accounting and Auditing		
Accounting reporting	Accounting standards (GAAP)	Accounting standards (IASs)
Internal audit	Establish internal audit function	Not covered
External Auditors & Internal Control		
Internal control system	Establish internal control system	Establish internal control system
External auditing	Appointment & responsibilities	Appointment & responsibilities
Rotation of external auditor	Not specified	Maximum four years
Disclosure and Transparency		
Chairman	Clear responsibilities	Not covered
Executive management	Not covered	Roles and responsibilities
Related party transactions	Not covered	Rules for related party transactions
Ownership structure	Not covered	Distribution of shareholding

Source: Compiled from the 1992 Cadbury Report and the 2002 Omani Code.

2.2.3.2 Corporate Governance Mechanisms Proposed to Firms by the Code

As mentioned earlier, several CG provisions have already been issued by the CMA in the form of circulars, while others appear in the Companies Act. These provisions, in addition to other principles adopted from the 1992 UK's Cadbury Report, have been elaborated in the form of a code that presents the best CG practices. The following discussion reviews the main elements of the code, including: (i) board and directors; (ii) accounting and auditing; (iii) external auditors and internal control systems; (iv) disclosure and transparency; and (v) compliance and enforcement of the code.

i) Board and Directors

As Table 2 demonstrates above, similar to the UK code, the OCGC implicitly recognises the importance of having effective boards, and pays much attention to the directors of boards. It follows the UK code by recommending a unitary board. Omani listed firms are recommended to compose their boards mainly from non-executive and independent directors.[4] Specifically, the OCGC recommends boards should be composed of mostly non-executive directors, as well as a minimum of two independent directors. This is in line with theoretical predictions (e.g., resource dependence theory) that the experience and independence of non-executive and independent directors can add value to firms, as they bring independent judgements of how firms should run, and assist them in acquiring resources.

Further, and in line with the UK code, the OCGC recognises the significant role of Chairpersons in ensuring that the board effectively performs its duties. The OCGC recommends firms split the roles of Chairperson and Chief Executive Officer. This is consistent with theoretical suggestions (e.g., agency theory) that the Chief Executive Officer can be expected to behave opportunistically in order to reap personal benefits at the expense of shareholders.

In addition, the OCGC emphasises the crucial role of the board by suggesting that board directors have a duty to approve interim and annual financial statements, and should report to shareholders about the ongoing concern status of the firm. Also, board directors are required to state in their annual reports that the board has conducted a review of the effectiveness of the firm's internal control systems. Thus, it can be argued that the OCGC's recommendations related to the board of directors are consistent with commonly accepted CG standards, such as the 1992 UK code.

ii) Accounting and Auditing

The OCGC makes limited proposals related to accounting and auditing. With regard to accounting, the OCGC recommends that boards appoint directors who are able to understand financial reports, where at least one director should have expertise in financial accounting and corporate finance. The OCGC also recognises the importance of accounting standards by recommending firms follow International Accounting Standards (IASs) in preparing and reporting their financial reports.

[4]A director is defined as an independent non-executive director "*if he or she or any of his/her first degree family member has not occupied any senior position (such as chief executive officer, general manager or similar posts) in the company for the last two years. Also, he or she should not have had any relations with the company, its parent company or its affiliated or sister companies which could result in financial transactions*" (Omani Code of Corporate Governance, 2002, pp.5-10).

With regard to auditing, unlike the UK code, internal audit functions are not covered by the OCGC. Similarly, of board sub-committees (e.g., remuneration, nomination and risk), only audit committees are recognised by the OCGC. Omani firms are recommended to set up an audit committee comprising at least three non-executive directors, with a majority of them being independent. The OCGC sought to increase the effectiveness of this committee by recommending its members meet at least four times a year, with their attendance disclosed to shareholders in the annual report. The OCGC suggests the committee's duties should include: (i) reviewing annual and quarterly financial reports; (ii) reviewing the adequacy and efficacy of the firm's internal control systems; (iii) evaluating risk management policies; and (iv) proposing contacts and transactions regarding related parties. Hence, the OCGC recognises the important role that the audit committee can play in ensuring reliable and accurate financial reporting.

iii) External Auditors and Internal Control Systems

Similar to the UK code, the OCGC recognises the significant role the external auditor can play as a governance mechanism, and makes several recommendations related to the relationship between firms and external auditors. It requires a firm's general assembly to appoint an external auditor based on recommendations from the firm's board. Importantly, the Omani code distinguishes its CG provisions from the UK code, which does not specify the rotation of external auditors, by recommending that firms should appoint external auditors for a maximum of four consecutive financial years. Further, audit firms are not recommended to provide audit and non-audit services to the same firm. This aims to minimise any negative implications of audit costs, which may in turn reflect on audit quality. According to the OCGC, external auditors are required to report on a number of governance issues, including: (i) the adequacy and efficacy of a firm's internal control systems; (ii) whether a firm is able to carry out its business; (iii) whether a firm has the ability to comply with its internal control systems; and (iv) any financial fraud. Therefore, unlike internal audit, the OCGC seems to heavily emphasise external audit in assisting boards of directors to enforce good CG practices.

iv) Disclosure and Transparency

Similar to the UK code, the OCGC emphasises the need for firms to provide transparent information on CG compliance and disclosure. It recommends firms to adopt a transparent policy regarding remuneration of directors and top executives. In particular, firms are required to disclose details of their directors' and key executives' salaries,

bonuses and stock options. Crucially, the OCGC distinguishes its CG provisions from the UK code by emphasising three main requirements.

First, firms are called to address agency relationships by providing information about related party transactions. In this regard, the OCGC requires firms to disclose details about contracts and transactions that may involve a conflict of interests between agents and principals. Second, firms are required to provide information related to executive management's roles and responsibilities to ensure that its performance is aligned with shareholders' interests. Finally, firms are recommended to disclose a narrative on the distribution of shareholding. This is to inform the providers of capital (potential investors) of whether ownership structures are diffused or not in a particular firm, which may affect their investment decisions. In addition, firms are required to provide a narrative on various CG issues to shareholders in the annual report, including: (i) a professional profile of the external auditor; (ii) a firm's policy in running its activities; (iii) investment opportunities; (iv) financial and operational performance; (v) risks and concerns; (vi) dividends policy; (vii) market price data; (viii) firms' loans; (ix) firms' analysis of its products; (x) penalties and strictures imposed on the firm; and (xi) a firm's vision and expectations to its future. Unlike the UK code, however, the OCGC does not recommend firms disclose information about Chairman's responsibilities. Unclear definitions of Chairman's responsibilities may have significant implications in setting and promoting a firm's CG practices.

v) Compliance and Enforcement of the Code

Similar to the influential 1992 UK Code and many other CG codes that followed it, the implementation of the OCGC's CG recommendations is voluntary (comply or explain) and the code is self-enforced. In this sense, the OCGC leaves the door open for firms to act in accordance with their interests, as it assumes that a firm will provide an explanation for each instance of non-compliance. To encourage voluntary compliance, the OCGC was appended to the MSM's listing rules, and has become part of the listing requirements (Article 50, clause 8). With respect to enforcement, it relies on market forces to ensure that its recommendations are implemented (Keay, 2014). The code assumes that a firm which neither complies nor explains its non-compliance will be penalised by capital market instruments, such as shareholders. Importantly, the OCGC regards boards of directors and external auditors as key in ensuring that firms adopt and implement its provisions. The board of directors, through its committees, especially audit committee, has been given the responsibility to promote CG practices by clearly defining governance arrangements and ensuring that the governance framework adopted by the firm is followed and updated.

Similarly, the OCGC requires external auditors to report to shareholders on the extent to which the firm complies with and applies its provisions.

2.2.3.3 Major Achievements and Weaknesses of the Code

As discussed above, Oman embarked upon significant legal and regulatory reforms to improve CG practices. The publication of the OCGC was the most important of these reforms, and listed firms are recommended to voluntarily comply with its provisions. As illustrated in Table 1, it can be argued that the code was the first code of CG in Arab countries to offer firms a coherent CG framework (Al-Busaidi, 2008). It contributed to promoting a culture of CG compliance and disclosure by recommending a number of internal and external CG mechanisms. Indeed, greater efforts have been made to reform CG practices in Oman, as the concept of CG itself was a new area for Omani society in general and firms in particular. Although the OCGC is less detailed than the UK code, it was an early attempt in the MENA region to provide governance provisions in four key areas, including board and directors, accounting and auditing, external auditors and internal control, and disclosure and transparency.

Despite its reliance on Anglo-American CG codes, especially those recommended by the 1992 UK code, the OCGC has been able to distinguish its provisions from UK code in a number of ways. First, the OCGC offers firms a coherent CG framework that requires firms to provide information in the case of related party transactions. Second, it recognises the importance of executive management by providing clear guidance for its roles and responsibilities. Third, the code specifies how external auditors should be rotated and recommends that firms should not appoint external auditors for more than four years. Finally, it emphasises the need for firms to provide a narrative on the distribution of shareholding.

In spite of its achievements, the OCGC seems to suffer from some weaknesses, and deviates from the UK code in a number of ways. First, while the OCGC recognises the crucial role of an audit committee, it fails to recommend that firms should establish other committees, such as remuneration, nomination, risk and CG committees. The presence of such committees is expected to give the board more independence and assistance in performing its duties effectively. Second, it does not address the important issues relating to internal audit functions. This is different from the UK code, in which firms are recommended to provide detailed account of their internal audit functions and responsibilities. The absence of provisions relating to internal audit and control may increase the potential conflict of interests between audit committee and internal audit functions. Third, it does not offer guidance for shareholders to enable them to evaluate the

effectiveness of boards and board sub-committees. Without such guidance, shareholders may be confronted with the problem of being unable to identify directors that are performing well from those that are not. This can affect shareholders' decisions on critical issues, such as directors' remuneration and nomination. Fourth, it arguably fails to emphasise Islamic values and use them as complementary CG mechanisms. Using Islamic notions could have been expected to increase directors' independence, where true independence is required to ensure that their decisions are in line with shareholders' interests. Finally, the OCGC is unable to relate its provisions to a number of important issues, such as informal rules, ownership structures and social responsibility. The OCGC was unable to introduce provisions that enable firms to mitigate the negative effects of informal rules and encourage both managers and directors to be more committed to CG systems than societal values. Clear provisions on, for example, the definition of an independent director, can be anticipated to reduce directors' tendency to pursue personal relationships at the expense of shareholders' interests. Likewise, governance provisions that encourage diffuse ownership structure could have been expected to encourage firms' to engage in increased voluntary compliance because the market for corporate control will work effectively in a corporate setting with less concentrated ownership. Similarly, the OCGC mainly focuses on shareholders; hence, offering provisions which consider the interests of a larger stakeholder group could have been expected to motivate firms to comply with the OCGC, as stakeholders have great influence on firms.

However, despite the Omani corporate setting and given the OCGC's reliance on the Anglo-American model, the initial theoretical prediction is that adopting high CG standards in the form of code can improve CG practices in general and increase CG disclosure in particular. This needs to be empirically investigated in order to ascertain the extent to which Omani firms provide information on their CG practices.

3 THEORETICAL FRAMEWORK, LITERATURE REVIEW AND HYPOTHESES

The theoretical and empirical literature on CG voluntary compliance[5] and the factors influencing such compliance and disclosure are discussed in this section. Specifically, Subsection 3.1 reviews the most relevant extant theories that aim to explain the determinants of voluntary CG compliance and disclosure, whereas the central theoretical arguments and the extant empirical literature relevant to each determinant are presented in Subsection 3.2.

3.1 THEORETICAL FRAMEWORK

Although corporate and academic interest in CG compliance has increased recently, there is no uniform theoretical framework providing a full explanation of firms' motivations for voluntarily complying with CG practices and disclosure (Carpenter and Feroz, 1992; Deegan, 2002; Eng and Mak, 2003). In this regard, Roberts *et al*. (2005, pp.6) state that "*there are calls for greater theoretical pluralism and more detailed attention to board processes and dynamics*". In particular, researchers such as Filatotchev and Boyd (2009), Ees *et al.* (2009) and Chen and Roberts (2010) have highlighted the need to advance theoretical development by drawing on multiple theoretical perspectives rather the ubiquitous agency theory alone in CG research. In response to these calls, recent empirical studies use a range of individual theories to examine different issues relating to the effect of CG on various aspects of corporate financial decision-making (e.g., Oliveira *et al.*, 2011; Elzahar and Hussainey, 2012; Ntim *et al.*, 2013; Ntim and Soobaroyen, 2013a, b).

While each individual theory is useful in explaining the motivations for voluntary CG compliance and disclosure, the ability of a single theory to provide a complete explanation for different CG mechanisms and impact on corporate outcomes is arguably limited (Carpenter and Feroz, 1992). For instance, agency theory can explain compliance with CG requirements, but its explanatory power is limited as it restricts its assumptions to only shareholders. However, legitimacy theory may explain firms' motivations to comply with CG proposals, as it addresses the interests of different groups of stakeholders. Thus, relying on more than one theory is helpful in gaining a broder explanation and overcoming the inadequacies of individual theories.

Using a range of multiple theories has been suggested as a way to consider the interdependencies of CG practices (Filatotchev and Boyd, 2009). As a result, a multi-theoretical approach is adopted in this study to explain the determinants of voluntary CG

[5]CG compliance is defined in this study as the implementation and disclosure of recommendations proposed by the 2002 Omani CG code in addition to other CG requirements specified by Omani laws in their annual reports.

compliance and disclosure, where the chosen theories are considered as complementary rather than competing perspectives (Carpenter and Feroz, 1992). Importantly, the current study is conscious that combining theories may result in incompatibility problems, but such potential differences among the theories have been minimised as their selection is based on the commonness of their focus, as discussed above (Reverte, 2009a, Oliveira *et al.*, 2011; Chen and Roberts, 2010; Ntim and Soobaroyen, 2013a, b).

Thus, in line with prior studies (e.g., Oliveira *et al.*, 2011; Ntim *et al.*, 2012a, b) which found that combining theories provides richer insights, the present study adopts the theories most commonly used by past studies in its investigation. These theories include agency, resource dependence, legitimacy, and signalling/stakeholder theories. The perspective of each individual theory with respect to voluntary CG compliance and disclosure is discussed briefly in the following subsections.

3.1.1 Agency Theory

Agency theory (AT) is widely used to explain the problems associated with the principal-agent relationship in modern firms. AT has been the principal underlying theory for many past studies on CG compliance and disclosure (Filatotchev and Boyd, 2009). The historical origins of AT date back to Smith (1776), who discussed the nature of the relationship between managers and owners, stating "*the directors of such [joint-stock] companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own. …Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company*" quoted by (Jensen and Meckling, 1976, pp.305). While various scholars (e.g., Berle and Means, 1932; Alchian and Demsetz, 1972; Jensen and Meckling, 1976; Smith and Warner, 1979; Fama, 1980) have contributed to AT, Jensen and Meckling (1976) are regarded as the main contributors and developers of AT.

In this theory, the definition of the agency relationship is "*a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent*" (Jensen and Meckling, 1976, pp.308). Based on this definition, AT predicts that an agency relationship where ownership and control is separate involves two critical problems between principals and agents, including conflict of interest and information asymmetry (Jensen and Meckling, 1976; Jensen, 1986; Hill and Jones, 1992). AT suggests three main reasons for these problems. First, the agent and the principal have different preferences for

making risky decisions (Eisenhardt, 1989). Second, both parties have different objectives and interests (Eisenhardt, 1989). Finally, because the agent and the principal are assumed to be utility maximisers, there is a good reason to believe that the agent may tend to behave opportunistically to reap personal benefits at the expense of principal (Jensen and Meckling, 1976).

AT has sought to align the divergence of interests between agent and principal by introducing the concept of CG. It suggests that the principal can establish appropriate incentives (CG mechanisms) to control the agent (Jensen and Meckling, 1976). AT also emphasises that establishing such mechanisms creates three main agency costs, including monitoring costs (i.e., budget restrictions), bonding costs (i.e., compensation) and residual loss[6] (Jensen and Meckling, 1976). The monitoring and bonding costs can be viewed as governance structures, where the principal expends resources to reduce the agent's self-serving behaviour, and spends resources to guarantee that the agent's actions will not harm the principal (Jensen and Meckling, 1976).

As a result, AT seeks to bring the interests of managers to be aligned with shareholders' interests; hence, reducing the divergence of interests between the two parties. In this regard, AT identifies three ways in which shareholders' wealth may be minimised due to the incurrence of agency costs caused by managers. First, managers may be motivated to expropriate firm resources either by awarding themselves generous benefits derived from pecuniary returns (i.e., remuneration packages) and/or consuming more non-pecuniary utilities (i.e., the physical appointments of the office) (Jensen and Meckling, 1976). Second, they may decide to invest excess cash flows in less profitable projects rather than pay dividends (Jensen and Meckling, 1976; Jensen, 1986). Finally, managers may not use their time, effort and professional skills suitably (Jensen and Meckling, 1976; Jensen, 1986).

To reduce opportunistic managerial behaviour and minimise agency costs, AT suggests establishing internal and external mechanisms. These mechanisms are known today as CG systems (Haniffa and Hudaib, 2006). AT proposes that by incurring both monitoring and bonding costs, shareholders can establish internal CG systems that include: (i) hierarchical board structures (Fama, 1980); (ii) control systems (i.e., internal auditing and budget restrictions) (Jensen and Meckling, 1976); (iii) remuneration systems (i.e., performance targets) (Jensen and Meckling, 1976); and (iv) written contracts (i.e.,

[6]Jensen and Meckling (1976, pp.308) define residual loss as *"The dollar equivalent of the reduction in welfare experienced by the principal due to this divergence is also a cost of the agency relationship*".

operating rules) (Jensen and Meckling, 1976). The external CG systems that AT suggests include the market for corporate control and external auditing (Fama, 1980).

In the context of CG compliance and disclosure, however, AT relies on managerial incentives to explain the need for voluntary CG compliance and disclosure. It posits that disclosing CG practices can contribute internally and externally to shareholder wealth. Internally, by providing more CG information, managers offer shareholders a window through which to continuously monitor their actions. For instance, increased managerial motivation towards superior CG disclosure can assure shareholders that managers are not investing in wasteful projects with excess cash flow instead of paying back dividends (Jensen, 1986), nor awarding themselves excessive compensation and perquisites (Jensen and Meckling, 1976). Externally, increased information about CG practices can decrease information asymmetry and assist in lowering agency costs and lead to lower managerial expropriation, which are caused by the separation of ownership and control (Jensen and Meckling, 1976; Cooke, 1993; Raffournier, 1995; La Porta *et al.*, 2002). Increasing shareholder information, reducing investor uncertainties and minimising agency costs can ultimately maximise shareholders' wealth.

AT assumes that shareholders bear more agency costs in firms with lower levels of CG disclosure than in those with more CG disclosure. This is mainly because they are effectively unable to observe, measure and control managers' performance in the presence of information asymmetry. In addition, due to the divergence of interests between the two parties, AT posits that managers need to provide CG information to reassure shareholders that they are working in line with their interests (Raffournier, 1995). For instance, managers are motivated to disclose CG information to correct any misunderstanding regarding their performance. Such misperceptions may lead to a loss of firm value, which will negatively impact stock compensations.

To sum up, AT assumes that CG compliance and disclosure lead to reduced agency costs and closer alignment between the interests of managers and shareholders. The theory has provided a foundation to launch international (e.g., Organisation for Economic Co-operation and Development Report, 1999) and national (e.g., Omani code, 2002) initiatives which suggest proposals for good CG practices. These initiatives have sought to promote a culture of governance compliance and high-quality disclosure among firms. Due to the voluntary nature of such initiatives, academic researchers continue their efforts to understand firms' motivations for disclosing information on CG practices (Deegan, 2002). Prior studies use AT as a theoretical basis with which to investigate the factors influencing voluntary CG compliance and disclosure in different corporate settings.

3.1.2 Resource Dependence Theory

Resource dependence theory (RDT) provides another view to explain incentives for CG compliance and disclosure. It was mainly developed by Pfeffer and Salancik (1978), who emphasise the influence of external actors (e.g., local communities, government and supplies) on firms' behaviour (Hillman *et al.*, 2009). In particular, RDT has drawn attention to the link between CG and different organisational environments, where firms respond to the demands of external actors whose have resources (e.g., locations, infrastructures, and materials) that firms are largely dependent on in operating their activities (Pfeffer and Salancik, 1978). Firms' resources have been suggested as valuable, rare, cannot be absolutely imitated, and it is difficult to find equivalent subsititutes for the needed resources (Barney, 1991). This makes corporate directors to develop and implement strategies that enable them to control the critical resources in order for firms' activities can be carried out (Castanias and Helfat, 2001; Mathews, 2003). Similarly, since firms are dependent on external actors for obtaining resources, this reliance may result in uncertainty because external actors may withhold resources which in trun force firms to reduce the uncertainty by attempting to control the external actors (Berman *et al.*, 2005). Among strategies available to firms, RDT suggests that firms are motivated to use CG disclosure as a useful strategy to provide information on CG practices in order to gain their own goals (Branco and Rodrigues, 2006). It assumes that firms enjoy unique competitive advantages by obtaining access to the needed resources when they commit to provide high levels of transparent information in the form of CG disclosure (Branco and Rodrigues, 2006; Pfeffer and Salancik, 1978). These advantages include, but not limited to: (i) build community ties with corporate stakeholders; (ii) build reputational capital and improve corporate image; and (iiii) reduce the cost of capital (Botosan, 1997; Fombrun *et al*, 2000; Mallin, 2002; Linsley and Shrives, 2006). Thus, firms may be expected to provide additional information on CG practices in order to generate more commitment and involvement from external actors, which can be helpful in the provision of resources, leading to increased firm value (Ntim *et al*., 2012b). For instance, firms may be able to enhance employees' productivity by disclosing information on remuneration and nomination committees that may allow employees to determine the extent to which their firms are commitment to issues like fair wages and better working place (Branco and Rodrigues, 2006). Similarly, providing additional information on firms' boards' composition (e.g., Non-executive directors and independent directors) may allow firms to mitigate external actors' concerns about the lack of directors' ability to adopt appropriate strategies (Castanias, and Helfat, 2001). Due to their expertise, prestige and contracts, non-

executive directors and independent directors are considered by RDT as having a resource role that contributes to the firm value (Haniffa and Cooke, 2002). For example, a firm with executives who are also directors of financial firms and/or partners in law firm are expected to help in obtaining lower cost of capital and/or get legal advice that otherwise would be costly for the firm (Daily *et al*., 2003). To sum up, RDT considers CG compliance and disclosure as an important strategy for firms to control external actors and obtain needed resources, and failure to provide adequate disclosure of CG practices may limit a firm's ability to secure resources.

3.1.3 Legitimacy Theory

Legitimacy theory (LT) is mainly built on the work of Parsons (1960) and Weber (1978), which addresses the driving forces that constrain, construct and empower firms in performing their operations (Suchman, 1995; Asforth and Gibbs, 1990; Soobaroyen and Ntim, 2013). It introduces the concept that firms operate in the society through a social contract, where they agree to perform a range of socially desired actions in order to legitimise their objectives (Guthrie and Parker, 1989). Firms tend to protect their image of legitimacy by responding to society's norms and values. Thus, failure to meet societal expectations may lead to a legitimacy gap, where the values of the firm are different from those of society (Sethi, 1979).

According to its logical conceptual basis, LT assumes that firms are motivated to voluntarily disclose information on CG practices in order to communicate with society (e.g., shareholders, investors, and local authorities) (Watson *et al.*, 2002). Lindblom (1994) suggests that firms can adopt one of three legitimacy strategies to secure their survival and growth. First, firms may tend to use additional information in order to educate and inform their stakeholders about any changes in their performance. Second, they may adopt voluntary disclosure in order to deflect attention away from critical issues. Finally, providing more information on CG practices may help firms change stakeholders' perceptions and expectations related to their performance without making any serious attempts to improve the performance itself.

These legitimacy strategies suggest that firms have two main incentives to engage in CG disclosure. First, providing information on CG practices is expected to result in good relations with society (stakeholders), which leads to establishing valuable intangible assets (Branco and Rodrigues, 2008). Firms consider these assets as a source of competitive advantage, which can help them distinguish themselves from other competitors (Branco and Rodrigues, 2008). Second, firms disclose further information on CG practices in order to demonstrate their acceptance of social norms and expectations of how firms should act

(Branco and Rodrigues, 2008). Hence, LT relies on social legitimacy to theorise firms' motivations for providing CG information.

3.1.4 Signalling/Stakeholder Theory

Leland and Pyle (1977) and Ross (1977) are regarded as the main contributors of signalling theory (SGT), which is fundamentally concerned with the problem of information asymmetry between insiders (managers) and outsiders (stakeholders). SGT recognises that managers have an advantage by being better informed than stakeholders, and introduces the concept that firms must find ways to credibly signal information to stakeholder or outsiders in order to reduce information asymmetry. Specifically, the SGT model suggests that insiders should rely on voluntary disclosure as a means to minimise information asymmetry, so that outsiders can better evaluate firms and make optimal investment decisions. According to this theory, providing transparent information on CG practices, especially in annual reports, will positively affect stakeholders' perceptions. In contrast, not disclosing information on CG practices may suggest to outsiders either that the firm does not engage in good CG practices or that it has negative information; both possibilities may discourage potential investors from investing.

Thus, firms are motivated to disclose information on CG practices to differentiate themselves from those with less disclosure (Healy and Palepu, 2001). For instance, indicating the presence of independent non-executive directors on the board can be interpreted by stakeholders as a positive signal of a better investment protection policy, which may encourage potential investors to invest in. Similarly, providing detailed information on ownership structures will be interpreted by outsiders as an indicator of firm quality (Ross, 1977; Core, 2001). In particular, disclosing information on managerial ownership can be interpreted as a positive signal, because outsiders expect that managers have optimistic information about the firm's future financial prospects (Ross, 1977). Managers in poor-quality firms will not choose such costly signals to inform outsiders about their firms.

Firms may also tend to send out signals in order to achieve managerial benefits. For instance, managers are motivated to provide information on CG practices in order to avoid the risk of losing their jobs and the cost of litigation resulting from poor performance (Skinner, 1994; Healy and Palepu, 2001). They may use voluntary disclosure to justify that poor firm performance is not due to poor governance, but to other issues that are beyond managers' control. Therefore, by providing additional information on CG practices, SGT suggests that firms signal to stakeholders that they are highly committed to good CG practices and accountability (Certo *et al.*, 2001).

Stakeholder theory (SKT), however, which mainly was introduced by Freeman (1984), provides similar view to SGT to explain incentives for CG compliance and disclosure (Solomon, 2010). It suggests that firms' roles and responsibilities should include all stakeholders (e.g., coustomers, employees, creditors, suppliers and stat) (Freeman, 1984). The essential element of this theory regarding CG disclosure is that because different stakeholders can affect firms' profitability and competitiveness, firms need the support of multiple stakeholders (Letza *et al*., 2004). In this regard, SKT argues that firms are motivated to voluntarily disclose CG information in order to gain the competitive advantage. Using voluntary CG disclosure has been suggested by SKS as a communication between stakeholders and firms that may offer a window for stakeholder to evelute issues that impact negatively on their utilities. For instance, employees may use CG information provided by firms to investigate the extent to which CG systems adopted by firms are able to prevent managers from engaging in earnings management, which may lead to reduce labour costs (D'Souza *et al*., 2000). Hence, SKT emphasises the importance of voluntary CG disclosure as the way of deeling with a broad range of stakeholders with multible conflcting interests (Prior *et al*., 2008).

3.2 PRIOR EMPIRICAL LITERATURE AND HYPOTHESES

As indicated earlier, past studies sought to examine firms' voluntary compliance with CG codes and investigate the factors that determine such compliance, because of the voluntary nature of those codes (Ho and Wong, 2001; Eng and Mak, 2003; Wymeersch, 2006). These studies choose different CG attributes and firm characteristics to conduct such examinations, and obtained mixed results. The present study draws from the theoretical, empirical literature and the Omani context to identify the key factors that may directly influence firm-level voluntary CG disclosure among the Omani listed firms. These factors are classified into two types. First, ownership structure variables, consisting of government ownership, institutional ownership, foreign ownership and block ownership are employed in the regression analysis. Second, board/audit characteristics variables, made up of board size, audit firm size, board diversity in terms of gender and nationality, and the presence of a CG committee are used in the regression analysis.

3.2.1 Ownership Structures Variables

It has been argued that corporate ownership structure is a key determinant of voluntary CG compliance and disclosure (e.g., Eng and Mak, 2003; Huafang and Jianguo, 2007; Ntim *et al.*, 2012a). While most previous studies focus on limited types of ownership, the Omani context offers the current study a great opportunity to examine four

different types of ownership structures in order to determine the relationship between those structures and firm-level voluntary CG disclosure. These structures include government, institutional, foreign and block ownership. The following subsections will briefly set out the central theoretical arguments and extant empirical literature relevant to each type, as well as its relation to voluntary CG compliance and disclosure.

3.2.1.1 Government Ownership (*GOVOWN*)

In many emerging countries where firms are not fully privatised and the state tends to invest heavily in listed firms, for mainly political reasons, government ownership can be considered as an influential factor that affects firm decisions in general and CG disclosure in particular (Laidroo, 2009). Theoretically, Eng and Mak (2003) suggest that firms in which the government holds many shares have profit and non-profit goals; hence, shareholders' interests may not be a primary objective. This may suggest that agency costs would be higher in such firms due to the conflict of interest where firms need to voluntarily disclose more information on CG compliance in order to reduce the divergence of interests between them and shareholders. Similarly, Ghazali and Weetman (2006) argue that the government may pressure firms to provide more information since the state is accountable to stakeholders at large. Hence, political control by government shareholders and the conflict between its interests and shareholders' interests are expected to motivate firms to disclose more information about CG compliance.

In contrast, from an RDT perspective, firms with many government-held shares have easier access to the resources they need, especially those related to financing needs, because they primarily rely on the state when seeking additional financing (Eng and Mak, 2003). Firms take advantage of the government being a major investor and easily raise external funds from local providers at a preferred rate, which may not encourage them to provide high levels of CG disclosure. Similarly, associated political interference in appointing managers and directors may make the market for corporate control less effective in disciplining them, as the government is expected to be a major long-term investor. Thus, a negative relationship is expected between government ownership and voluntary CG disclosure.

Empirically, government ownership has not been widely studied in prior empirical literature to examine its influence on firm-level voluntary CG disclosure (Ntim *et al.*, 2012a). This suggests that the investigation of such a relationship by the current study can contribute to the extant literature. The results in a few prior studies (e.g., Eng and Mak, 2003; Ntim *et al.*, 2012a) are consistent with the positive theoretical predictions regarding this association. For instance, using a sample of 169 firms listed on the Johannesburg

Securities Exchange from 2002 to 2006, Ntim *et al.* (2012a) report empirical evidence that government ownership has a significant positive relationship with CG voluntary compliance and disclosure. Similarly, Eng and Mak (2003) examine the effect of government ownership on firm-level voluntary CG disclosure in a sample of 158 firms listed on the Singapore Stock Exchange. They document empirical evidence that government ownership is associated with higher levels of voluntary disclosure. In contrast, some studies (e.g., Ghazali and Weetman, 2006; Huafang and Jianguo, 2007; Samaha and Dahawy, 2011) report no significant relationship between the two variables. For instance, using a sample of 100 firms listed on the Egyptian Stock Exchange, Samaha and Dahawy (2011) report empirical evidence that government ownership does not have a significant effect on CG voluntary disclosure. Similarly, Ghazali and Weetman (2006) use a sample of 87 Malaysian listed firms in 2001 to investigate the factors influencing Malaysian firms to engage in greater transparency. Among those factors, they report empirical evidence that government ownership is insignificantly associated with the extent of voluntary disclosure.

In Oman, the government has a considerable number of shares in listed firms in different industries, such as basic materials, telecommunications, oil and gas, and financial services, amongst others (Abdulla, 1998). In this view, and in line with the positive theoretical predictions and empirical evidence, Omani firms with large portion of government ownership are expected to be motivated to provide additional voluntary CG disclosure because Omani government has keen interest in improving CG practices. Therefore, the first hypothesis is that:

***H1*:** There is a statistically significant positive association between government ownership and the level of voluntary CG disclosure.

3.2.1.2 Institutional Ownership (*INSOWN*)

It has been suggested that institutional investors holding many shares act as an important CG mechanism for a number of reasons (Diamond and Verrecchia, 1991; Donnelly and Mulcahy, 2008). First, they have the ability and resources to obtain more information than small shareholders (Smith, 1976). Second, they have superior knowledge and expertise when it comes to evaluating a firm's decisions and interpreting the information disclosed in a firm's annual reports (Chung *et al.*, 2002; Bos and Donker, 2004). Finally, their voting power allows them to take action when necessary (Donnelly and Mulcahy, 2008). Hence, institutional investors are strongly motivated to demand detailed information and monitor corporate disclosure policies (Barako *et al.*, 2006a). Healy *et al.* (1999) suggest that firms with more external financing needs tend to disclose

more information in order to attract institutional investors and meet and satisfy their expectations. In turn, institutional shareholders prefer to invest in firms with higher levels of CG disclosure in order to reduce monitoring costs (Bushee *et al.*, 2010).

Prior empirical evidence is generally consistent with a positive association between the percentage of ownership held by institutional investors and firm-level CG disclosure (e.g., Haniffa and Cooke, 2002; Barako *et al.*, 2006a; Laidroo, 2009; Chung and Zhang, 2011; Aggarwal *et al.*, 2011; Ntim *et al.*, 2012a). For instance, using a sample of 12,093 firm-year observations from 2001 to 2006, Chung and Zhang (2011) report US evidence that institutional ownership is positively associated with voluntary governance disclosure. Similarly, using a sample of 43 firms listed on the Nairobi Stock Exchange for the period 1992-2001, Barako *et al.* (2006a) report empirical evidence that the extent of voluntary disclosure is significantly and positively influenced by institutional ownership. Nevertheless, some studies have obtained different results. For instance, Donnelly and Mulcahy (2008) found no significant relationship between institutional ownership and voluntary CG disclosure in a sample of 51 Irish listed firms.

However, in line with the positive theoretical predictions and empirical evidence, institutional ownership is anticipated to encourage Omani firms to provide greater voluntary CG disclosure in order to reduce information asymmetry and monitoring costs. Accordingly, the second hypothesis proposed in this study is:

> ***H2*:** There is a statistically significant positive association between institutional ownership and the level of voluntary CG disclosure.

3.2.1.3 Foreign Ownership (*FOROWN*)

Foreign shareholders are more likely to face higher levels of information asymmetry because of distance and language obstacles (Huafang and Jianguo, 2007). This may suggest that they require greater disclosure in order to reduce asymmetric information and monitor management's actions (Haniffa and Cooke, 2002). In this view, domestic firms with foreign investors are motivated to disclose more information in order to meet foreign investors' expectations. This may be especially true in emerging markets where countries open their stock markets to foreign investors to enhance the efficiency of their capital markets (Huafang and Jianguo, 2007; Elsayed, 2010). Support for this argument is given by Leuz *et al.* (2010), who report evidence that US investors do not invest significantly in countries with weaker disclosure requirements. Further, Aggarwal *et al.* (2011) suggest that foreign institutional investors are regarded as the main exporters and

promoters of good CG practices around the world. They contend that foreign investors help non-US firms improve their levels of CG disclosure.

However, there is no substantial body of international evidence evaluating the influence of foreign ownership on firm-level voluntary CG disclosure (Mangena and Tauringana, 2007). Previous studies (e.g., Haniffa and Cooke, 2002; Barako *et al.*, 2006a; Mangena and Tauringana, 2007; Huafang and Jianguo, 2007) report evidence that foreign ownership impacts positively on firm-level voluntary CG disclosure. For instance, Huafang and Jianguo (2007) report a positive association between increased voluntary disclosure and foreign ownership for a sample of 599 Chinese listed firms. Similarly, using a sample of 167 firms listed on the Kuala Lumpur Stock Exchange, Haniffa and Cooke (2002) provide empirical evidence that foreign ownership impacts significantly and positively on voluntary disclosure among Malaysian listed firms. Given the positive predictions of the theoretical and empirical literature, foreign shareholders are expected to positively influence CG disclosure practices in Oman. Therefore, the third hypothesis of this study is:

***H3*:** There is a statistically significant positive association between foreign ownership and the level of voluntary CG disclosure.

3.2.1.4 Block Ownership (*BLKOWN*)

A common feature in most emerging countries is concentration of ownership, and thereby potentially increasing the severity of agency problems. Agency conflicts can occur when there is separation between ownership and control, as predicted by AT (Jensen and Meckling, 1976). Firms with diffuse ownership structures would potentially have greater conflicts of interest between agent and principal, because extra monitoring is required (Fama and Jensen, 1983). Under these circumstances, the demand for information would be very high in order to alleviate agency costs. In contrast, firms with concentrated ownership are more likely to disclose less information because block holders can more easily access information, and they may use their power to influence management to provide less disclosure to shareholders, as their interests may not coincide with minority shareholders' interests (Shleifer and Vishny, 1997; Laidroo, 2009).

In fact, the influence of ownership concentration on firm-level voluntary CG disclosure has received considerable attention in previous empirical studies, with mixed evidence. In line with the negative perspective of the theoretical literature, a considerable number of past studies report a negative relationship between ownership concentration and voluntary CG disclosure (e.g., Haniffa and Cooke, 2002; Arcay and Vazquez, 2005; Barako *et al.*, 2006a; Bauwhede and Willekens, 2008; Laidroo, 2009; Samaha and

Dahawy, 2011; Ntim *et al.*, 2012a; Samaha *et al.*, 2012). For instance, Haniffa and Cooke (2002) examine the relationship between block ownership and disclosure using a sample of 167 Malaysian firms in 1995. They report empirical evidence that ownership concentration is negatively associated with voluntary disclosure. Similarly, empirical evidence reported by Ntim *et al.* (2012a) is consistent with prior evidence that ownership concentration is negatively associated with the level of voluntary CG disclosure provided by South African listed firms.

In contrast to the negative perspective of the theoretical literature, limited studies offer evidence that ownership concentration impacts positively on voluntary CG disclosure. For example, Huafang and Jianguo (2007) employ 559 firm-year observations in 2002 to investigate the effect of different factors on voluntary disclosure. They report empirical evidence that block ownership, among other examined variables, has a significant positive relationship with Chinese listed firms' voluntary disclosure. Limited studies (e.g., Eng and Mak, 2003; Konijn *et al*., 2011) report no significant association between the two variables. For instance, using a sample of 3,722 firm-year observations during the period 1996-2001, Konijn *et al*. (2011) report US empirical evidence that the presence of block ownership has no statistically significant association with shareholders' rights as measured by a governance disclosure index.

Given the Omani context, where firms have high levels of concentrated ownership and both managers and block shareholders are anticipated to be highly influenced by informal rules, as well as prior studies with negative results, block ownership is anticipated to have a negative influence on voluntary CG disclosure. Accordingly, the fourth hypothesis proposed in this study is:

***H4*:** There is a statistically significant negative association between block ownership and the level of voluntary CG disclosure.

3.2.2 Board and Audit Characteristics

In addition to ownership variables, past studies have examined how CG mechanisms influence CG disclosure, but restrict their investigations to limited CG variables. In contrast, the current study investigates a considerable number of CG variables, including board size, audit firm size, board diversity on the basis of gender and nationality, and the presence of a CG committee. The following subsections will briefly set out the central theoretical arguments and extant empirical literature around each variable and its association to voluntary CG compliance and disclosure.

3.2.2.1 Board Size (*BSIZE*)

The board of directors, as a representative of shareholders' interests, has been suggested to be one of the most effective CG mechanisms to monitor managerial behaviour and reduce agency costs (Jensen and Meckling, 1976; Jensen, 1993). This suggests that CG compliance and disclosure are expected to be significantly affected by the board of directors. Among board characteristics, board size has been examined by prior studies to determine its association with CG compliance and disclosure. Theoretically, the debate on whether boards should be large or small in order to impact positively on corporate disclosure is inconclusive. On the one hand, Jensen (1993) and Lipton and Lorsch (1992) argue that smaller boards are more effective than larger boards in mitigating agency conflicts. Jensen (1993) indicates that as board size becomes larger, it becomes easier for the Chief Executive Officer to dominate the board, causing the board to lose its managerial monitoring power and thus resulting in a negative influence on CG compliance and disclosure. Hence, small boards are expected to impact positively on firms' disclosure because communication, co-ordination and interaction between directors are anticipated to be better than in large boards (Yermack, 1996).

On the other hand, firms with larger boards can enjoy more diversity in terms of members' experience and skills, which impacts positively on firm disclosure (Pearce and Zahra, 1992; Goodstein *et al.*, 1994; Haniffa and Hudaib, 2006). The increased experience and knowledge provided by large boards may suggest that the managerial monitoring power associated with such boards is expected to be greater than on smaller boards, positively influencing firms' level of disclosure.

Empirically, a positive relationship between board size and CG disclosure has been reported by a considerable number of studies (e.g., Lakhal, 2003; Donnelly and Mulcahy, 2008; Kent and Stewart, 2008; Laksmana, 2008; Akhtaruddin *et al.*, 2009; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013). For instance, using a sample of 117 Italian listed firms in 2007, Allegrini and Greco (2013) report empirical evidence that a higher level of voluntary CG disclosure is correlated with larger boards. Ntim *et al.* (2012a) also find similar evidence using a sample of South African listed firms.

In contrast, some past studies document no significant relationship between the two variables. For instance, using a sample of 91 larger Spanish listed firms in 1999, Arcay and Vazquez (2005) investigate the relationship between board size and voluntary CG disclosure and report empirical evidence that no significant association was found. Similarly, Cheng and Courtenay (2006) report empirical evidence that the level of

disclosure is not significantly associated with board size in a sample of 104 Singaporean public firms in 2000.

The OCGC does not recommend any particular number of board members, but the 1974 Omani Companies Act requires boards to have between five and twelve directors. This is expected to give Omani firms flexibility in composing their boards, which to a large extent, is consistent with international recommendations[7] in relation to board size. This may suggest that Omani regulators recognise the importance of board size as an internal CG mechanism. Following the mixed empirical and theoretical suggestions, the study predicts a significant relationship between board size and firm-level CG disclosure without specifying the direction of the coefficient. Thus, the fifth hypothesis proposed in this study is:

***H5*:** There is a statistically significant association between board size and the level of voluntary CG disclosure.

3.2.2.2 Audit Firm Size (*BIG4*)

It is widely noted that most national Companies Laws require firms to obtain a certificate from external auditors confirming that the information in their annual report is a true and fair view (Adelopo, 2011). From both AT and SGT perspectives, an external auditor can contribute to reducing information asymmetries that exist between managers and different types of stakeholders by requiring firms to disclose further information. The external auditor's role in reducing asymmetric information can be expected to be influenced by the audit firm's characteristics (e.g., size, fees, and tenure). In particular, audit firm size has been most investigated in the literature, as the amount of information disclosed in the annual report can significantly influence the external auditor's quality (Haniffa and Cooke, 2005). For instance, and based on SGT assumption, being audited by a large audit firm can be interpreted by stakeholders as a positive signal of a firm having good corporate disclosure policy. This may suggest that large audit firms have better auditing standards than small firms. Proponents of this view argue that larger audit firms are less sensitive to pressure from clients in conflict situations, as well as having superior resources and experience (DeAngelo, 1981; Owusu-Ansah, 1998, Uang *et al.*, 2006). Further, larger audit firms are more likely to be independent and subject to pressure to maintain their reputation and avoid litigation risk, motivating them to require additional disclosure from firms (DeAngelo, 1981; Uang *et al.*, 2006).

[7]Lipton and Lorsch (1992) suggest that boards should be between eight and nine members, with at least two being independent directors.

A positive relationship, however, has been supported by a number of empirical studies (e.g., Bassett *et al.*, 2007; Kent and Stewart, 2008; Adelopo, 2011; Omar and Simon, 2011; Ntim *et al.*, 2012a; Nelson, 2014). For example, using a sample of 965 Australian listed firms in 2004, Kent and Stewart (2008) report empirical evidence of a positive association between compliance with CG rules (governance quality) and larger audit firms. Similarly, using a sample of 121 firms listed on the Amman Stock Exchange in 2003, Omar and Simon (2011) report empirical evidence, consistent with prior studies, that a large audit firm is positively associated with the level of voluntary CG disclosure provided by Jordanian listed firms.

In contrast to the positive findings observed in the above studies, there is other empirical evidence of no significant relationship between firm-level voluntary CG disclosure and audit firm size (e.g., Eng and Mak, 2003; Alsaeed, 2006; Barako *et al.*, 2006a; Aly *et al.*, 2010). For instance, using a sample of 158 Singaporean listed firms in 1995, Eng and Mak (2003) report empirical evidence that the level of voluntary CG disclosure is not influenced by audit firm reputation, indicating no significant relationship. In similar vein, Aly *et al.* (2010) examine the potential impact of audit firm size on corporate internet reporting in Egypt. The authors report empirical evidence of no significant association between firms audited by one of the Big 4 international audit firms and the firm-level corporate internet reporting. However, the OCGC considers the external auditor to be one of the most important CG mechanisms in ensuring that its recommendations can be implemented (see Subsection 2.2.3.2). Therefore, in line with prior studies with positive findings, the sixth hypothesis in this study is:

***H6*:** There is a statistically significant positive association between audit firm size and the level of voluntary CG disclosure.

3.2.2.3 Board Diversity on the Basis of Gender (*GNDR*)

AT and RDT have been used by researchers to explain how board diversity enhance CG practices and corporate disclosure (Bear *et al*., 2010). AT emphasises the board's role in monitoring managers in order to protect shareholders' interests (Eisenhardt, 1989; Fama and Jensen, 1983). This function involves a mix of experience and capabilities that enables the board to monitor managers and assess firm's strategies which in turn impacts on firm's disclosure (Hillman and Dalziel, 2003). RDT highlights the important role of the board in ensuring the provision of resources (Pfeffer and Salancik, 1978). In particular, the board can provide channels for communicating information between the firm and stakeholders which are likely to impact corpoare disclosure (Hillman and Dalziel,

2003). Consequently, researchers have been keen to examine the influence of different types of board diversity (e.g., age, race, occupation and education) on corporate disclosure. To the best of the current study's knowledge, one type of board diversity, namely gender diversity, has not been examined by researchers. Specifically, whether or not the presence of women on a firm's board could be a significant determinant of firm-level voluntary CG disclosure is yet to be examined. This underlines the need to extend the literature to understand the effects of other types of board diversity in improving or impairing firm disclosure policy.

Utilizing AT and RDT, prior studies examine different issues associated with board-gender diversity and report that women directors have influence on firms' boards. Based on their findings, for example, Huse and Solberg (2006) identify five ways that female director may make contributions to corporate boards including: (i) creating alliances; (ii) preparation and involvement; (iii) attending the important decision-making arenas; (iv) taking leadership roles; and (v) being visible. This is supported by Admas and Ferreire (2009, pp.301) who conclude that "*Boards with more female directors are characterized by the potential for greater participation of directors in decision making (through attendance and committee assignments), by tougher monitoring of the CEO (through greater turn-over-performance sensitivity), and by more alignment with the interests of shareholders (through equity-based compensation)*". Thus, it can be argued that female participation on firms' boards is likely to improve CG disclosure. In particular, the presence of female directors has been reported to increase board discussions especially those of issues that are unpalatabley considered by male directors (e.g., Hus and Solberg, 2006). In addition, the participation of female directors has been suggested to provide a greater oversight and monitoring of corporate disclosures (Peni and Vahamaa, 2010). This is further supported by the view that gender diversity on a firm's board can potentially improve CG disclosure because differences in gender may lead to distinctive approaches to information disclosure (Terjesen *et al.*, 2009; Cater *et al.*, 2010). In contrast, the absence of females from boardroom means that firms are not able to benefit from talent pool, and are losing the opportunity to increase board skills, which reflects negatively on CG disclosure volume and quality (Nielsen and Huse, 2010). Hence, the presence of women on a firm's board is likely to result in smoother communication among board directors, leading to a greater flow of information to stakeholders (Gul *et al*., 2011).

Empirically, much attention to gender has focused on its impact on firm performance, with mixed findings (e.g., Rose, 2007; Francoeur *et al.*, 2008; Bqhren and Strqm, 2010; Carter *et al.*, 2010; Dezso and Ross, 2012; Mahadeo, 2012; Vieito, 2012;

Ntim, 2014). Given the absence of empirical evidence on the relation between the presence of women on a firm's board and firm-level voluntary CG disclosure, and in line with a number of studies that have offered evidence that gender presentation on board impacts positively on stock price informativeness (e.g., Gul *et al*., 2011) and corporate social reporting information (e.g., Barako and Brown, 2008), it can be hypothesised that female presence on corporate boards is likely to positively influence the level of voluntary CG disclosure. Hence, the seventh hypothesis in this study is:

> ***H7*:** There is a statistically significant positive association between the presence of women on a firm's board and the level of voluntary CG disclosure.

3.2.2.4 Board Diversity on the Basis of Nationality (*BDIVN)*

Relying on the theoretical perspectives used in developing the above hypothesis, firms are likely to gain competitive advantage by having directors from different nationalities. In this regard, foreign board membership has been suggested as one major approach that is available to emerging countries in order to enhance CG practices (Oxelheim and Randøy, 2003). This is supported by Ramaswamy and Li (2001) who state that "*For firms from emerging economies, there is also the advantage of strategy formulation insights foreign directors might bring along them ….. Foreign directors, having been involved in a variety of managerial positions and activities during various stages of their career, possess information and expertise about the intricacies of different strategic approaches, and may be in a unique position to influence strategic management processes in firms that they oversee*". The advantages associated with the existence of foreign directors on the board are clearly documented in literature. Based on their results, for instance, Choi and Hasan (2005) suggest that there are three main benefits that foreign board representation can offer to corporate boards including: (i) adapting advanced foreign corporate strategies; (ii) providing more independency to the board than local outside directors; and (iii) providing effective monitoring. Therefore, it can be argued that foreign directors' participation on firms' boards is likely to improve CG disclosure. In particular, it has been indicated that the presence of foreigners on the board promotes firms' information disclosure practices (Frias-Aceituno *et al*., 2013). Foreign board representation has been suggested to not only enhancing managerial monitoring, but can also assist firms to gain a better link with stakeholders by improving information disclosures (Ntim and Soobaroyen, 2013a).

Empirically, CG literature does not provide international evidence examine the potential impact of foreign board membership on firm-level voluntary CG disclosure. Most

past studies on corporate disclosure focus on the influence of foreign directors on corporate social responsibility (e.g., Khan, 2010; Khan *et al*., 2013; Ntim and Soobaroyen, 2013a), indicating that firms with foreign directors on the board provide additional corporate social responsibility disclosures. However, there are a large number of individuals of different nationalities holding top leadership positions in the Omani listed firms (Kuehn and Al-Busaidi, 2000). This suggests that the presence of directors of different backgrounds may have important implications for CG disclosure behaviour in Oman, because such individuals are expected to have distinctive values and incentives in adopting policies and making decisions. Therefore, it is anticipated that the presence of non-Omani directors on firms' boards is more likely to motivate firms to provide additional information on CG compliance and disclosure than those with only Omani directors. Thus, the eighth hypothesis in this study is:

> ***H8*:** There is a statistically significant positive association between non-Omani directors on firm's board and the level of voluntary CG disclosure.

3.2.2.5 Corporate Governance Committee (*CGCOM*)

Board committees (e.g., remuneration, nomination, risk, audit and CG committees) have been suggested by CG codes in many countries as mechanisms to enhance CG practices. Among these committees, the establishment of a CG committee is regarded as an important step in raising CG standards. Particularly, the committee plays a key role in ensuring that CG recommendations adopted by a firm are both followed and regularly reviewed. Firms that voluntary establish CG committees may be interpreted by outsiders as having good CG disclosure practices. Arguably, firms with a CG committee are more likely to engage in desirable CG disclosure behaviour than those without such committees.

Unlike other board committees, the empirical research on the relationship between firm-level voluntary CG disclosure and CG committees is scarce. This may suggest that investigating such a relationship would contribute to the literature, especially in Oman, where voluntary CG disclosure determinants have not yet been investigated. Despite the lack of research in this area, Ntim *et al*.'s (2012a) study examines the level and determinants of compliance with the 2002 South African code of CG among listed firms. Using a sample of 169 South African listed firms from 2002 to 2006, they report empirical evidence that the presence of a CG committee is significantly and positively associated with firm-level voluntary CG disclosure.

As indicated in Subsection 2.2.3.2, the OCGC does not require firms to establish a CG committee. A considerable number of Omani listed firms assign a CG committee's

functions to their audit committee; this may imply that those firms recognise the importance of a CG committee even though the OCGC does not recommend it, and are willing to improve their CG quality. Accordingly, the ninth hypothesis proposed in this study is:

***H9*:** There is a statistically significant positive association between the presence of a CG committee and the level of voluntary CG disclosure.

4 RESEARCH DESIGN

This section describes the research design. It provides details on issues relating to data collection and research methodology. Subsection 4.1 describes the sample selection and data sources. Subsection 4.2 discusses the research methodology.

4.1 SAMPLE SELECTION AND DATA SOURCES

The sample used in this study was obtained from firms listed on the MSM in Oman. As of 31 December 2011, there were 168 listed firms on the MSM, whose annual reports can be found and accessed through the MSM's official website, http://w.w.w.msm.gov.om, which was accessed in December 2011. Table 3 illustrates a summary of the sample selection procedure. It shows that the industrial composition of Omani listed firms is grouped into nine industries,[8] including basic materials, consumer goods, consumer services, financials, industrials, utilities, health care, telecommunications, and oil and gas. Panel *A* of Table 3 lists all the firms that were listed on the MSM, shown that 94% of the total MSM population is dominated by basic materials, consumer goods, consumer services, financials and industrials sectors, while the remaining 6% is contributed by utilities, health care, telecommunications, and oil and gas sectors.

4.1.1 The Criteria for Selecting the Sample

Two criteria were set in order for a particular firm to be included in the final sample. First, CG information had to be available for at least one financial year for the firm during the period 2001-2011. Second, financial and stock market information had to be available for at least one financial year during the eleven-year period. These criteria were applied to all listed firms for the following reasons. First, the financial year of 2001 is the first year when data was available to be collected from data sources. Second, the sample ends in the financial year of 2011 because it is the most recent year for which data was available at the time of the data collection. Third, the sample period covers two years before the OCGC was implemented. This helps the current study to ascertain the extent to which the introduction of the OCGC has enhanced CG practices by examining data from before and after 2002, the year of issuing the OCGC. Fourth, unlike many past studies that include only large firms in their samples, including all firms for which there is data available can enhance the generalisability of the current study's results. Finally, the criteria allowed the study to use panel data analysis. The advantages for using such an approach include: (i) unlike time series or cross-sectional data, panel data enables the study to make a large

[8]The industrial groupings are based on DataStream's industrial classification, as the MSM's classification includes only three sectors, namely industrial, financial and services.

number of observations,[9] which increases the degrees of freedom and reduces the collinearity between dependent variables (Hsiao, 1985; Wooldridge, 2009); (ii) distinct from either time series or cross-sectional data, panel data permits the study to control for firm's heterogeneity in individual variables (Gujarati, 2003; Wooldridge, 2009). In this regard, Hsiao (1985, pp.129) emphasises that "*panel data allows us to construct and test more realistic behavioural models which could not be identified using cross-section or time series data alone*"; and (iii) using panel data analysis is in line with prior studies (e.g., Barako *et al.*, 2006a; Tsamenyi *et al*., 2007; Ntim *et al*., 2012a), allowing the current study to make direct comparisons with their results.

Under these criteria, and as Panel *B* of Table 3 shows, firms without significant missing data for the period 2001 to 2011 were selected. Specifically, 48 firms were excluded because they had no available annual reports, and four firms had to be excluded due to insufficient or missing CG or financial information. The final sample includes firms from all the industries (nine sectors) in the MSM's database. Both financial and non-financial firms are included in the sample. This is justified for the following reasons.

First, prior studies exclude financial firms for theoretical reasons, such as the fact that they are subject to additional disclosure requirements; hence, financial firms have been expected to provide more information than firms with fewer regulatory requirements. Empirical evidence supporting the argument that financial firms disclose more information on CG compliance and disclosure is not yet provided in the literature. This may suggest that the current study can contribute to the extant literature by investigating whether there is a significant difference in terms of CG compliance and disclosure between financial and non-financial firms. To do so, the present study will conduct its main analysis on both financial and non-financial firms (1,152 firm years), and a robustness test only on non-financial firms (858 firm years). Second, unlike previous studies conducted in developed countries where excluding financial firms from the dataset do not significantly affect the sample size, the current study's dataset includes 29 financial firms; where excluding them would dramatically drop the sample size by 25%. Third, the inclusion of both financial and non-financial firms in the sample is consistent with a considerable number of prior studies (e.g., Eng and Mak, 2003; Kouwenberg, 2006; Tsamenyi *et al*., 2007; Hossain and Hammami, 2009). Finally, all Omani listed firms, including financial firms, are subject to

[9]The variables used across the three essays have data characteristics ranging from cross-sectional and time series, such as ownership structures and internal CG variables. Since these variables have relatively short number of time series observations and large cross-section observations, unbalanced panel data is ideally suitable for such data's nature, enabling the researcher to gain the most use from the limited availability of data where the number of observations can be increased, as well as benefit from the advantages associated with panel data analysis.

similar CG requirements. The OCGC is applied to all listed firms, requiring them to disclose more information on CG compliance and disclosure.

Therefore, the sampled firms in this study comprise 116 out of 168 firms listed on the MSM, which represents 69% of the total population. Efforts were made to obtain information for the remaining 52 firms; they were contacted by phone and email during the data collection period. They did not respond, leaving the current study with a sample of 116 firms. Details of the names and sectors of these firms are provided in Appendix 1.

Table 3: Summary of the sample selection procedure

Panel A: Industrial composition of firms listed on the MSM available to be sampled as of 31/12/2011		No. of firms	Percentage of firms
Basic materials		30	17.9
Consumer goods		25	14.9
Consumer services		24	14.3
Financial		53	31.5
Industrial		26	15.5
Utilities		5	2.9
Health care		2	1.2
Telecommunications		2	1.2
Oil & Gas		1	0.6
Total firms		168	100.0
Less: Firms with no data available	48		
Firms with missing data	4		
Total excluded firms		52	27.9
Total sampled firms with full data		116	69.0
Panel B: Industrial composition of sampled firms with full data			
Basic materials		22	19.0
Consumer goods		21	18.1
Consumer services		21	18.1
Financial		29	25.0
Industrial		13	11.2
Utilities		5	4.3
Health care		2	1.7
Telecommunications		2	1.7
Oil & Gas		1	0.9
Total sampled firms with full data		116	100.0

Source: Muscat Securities Market website

In addition, the sample size of the present study is larger than those used by Omran *et al*. (2008) and Mohamed *et al*. (2009). For instance, in their cross-country study, Omran *et al*. (2008) consider only 70 Omani firms to investigate the association between ownership concentration and financial performance in three MENA countries, including Oman. Using unbalanced data from 116 firms with 1,152 firm-year observations was considered to be sufficient to make a significant contribution to the extant literature, taking into account the availability, accessibility, funding and time constraints (as the study had to be completed within the timeframe of a PhD registration period).

4.1.2 Data Sources

As indicated above, and as explained further in Subsection 4.2.1.1, two types of data were used in order to conduct this study: CG and financial information. Using a content analysis approach, the current study manually extracted information from firms' annual reports. Four different sources were used to collect the annual reports of sampled firms. These resources are Rest of World Filings of the perfect information Database, the MSM website, DataStream and firms' websites.

4.1.3 Sampling Limitation

As with all research methods, the sample procedure adopted in this study seems to suffer from two main limitations. First, although a sample of 116 firms with 1,152 firm-year observations is considered to be relatively large, using data from a greater number of years could improve the generalisability of the current study's results. As explained earlier, employing more than 116 firms was not possible due to unavailability of data. Second, using other sources of data, such as interim reports and/or different methods of data collection, such as interviews, in addition to annual reports, could improve the quality and quantity of information. Other sources of data were extremely difficult to obtain due to issues of accessibility, funding and time.

4.2 RESEARCH METHODOLOGY

This subsection discusses the research methodology employed in this study that will be used to answer the research questions. In particular, Subsection 4.2.1 will discuss voluntary CG compliance and disclosure measurement. Subsection 4.2.2 will discuss explanatory variables' measurements. Subsection 4.2.3 discusses the justification for choosing firm characteristics and their measurements. Subsection 4.2.4 will discuss the model specification. Finally, Subsection 4.2.5 will discuss a number of statistical tests performed before and after examining the study's hypotheses.

4.2.1 Voluntary Corporate Governance Disclosure Measurement (Dependent variable)

As discussed in Section 1, the current study's objectives are to examine the level and determinants of compliance with the OCGC among listed firms. Hence, the constructed Omani CG index (OCGI) is the independent variable used in this study to investigate the main determinants that drive voluntary CG disclosure among Omani listed firms. In this regard, adopting the CG index as a methodological approach is in line with recent studies (e.g., Hooghiemstra, 2012; Ntim *et al*., 2012a; Allegrini and Greco, 2013)

that examine the level and determinants of CG compliance after many countries issued codes of good CG practice. Prior studies rely on either national (e.g., Dutch CG Code, 1997; Portuguese of best Practice, 1999, King Report II, 2002) or international CG codes (e.g. Organisation for Economic Co-operation and Development Report 1999; Commonwealth principles, 1999) in constructing their CG indices (e.g., Cheung *et al.*, 2007; Hooghiemstra, 2012; Ntim *et al*., 2012a).

As explained further in the following subsections, the current study constructs the *OCGI* in order to perform its analyses. The *OCGI* consists of 72 CG provisions that were mainly extracted from the 2002 OCGC, covering four broad topics: (i) board and directors; (ii) accounting and auditing; (iii) external auditors and internal control systems; (iv) disclosure and transparency. Using the OCGC as a main data source is in line with recent studies (e.g., Hooghiemstra, 2012; Ntim *et al*., 2012a, Samaha *et al.*, 2012; Allegrini and Greco, 2013) that have used national CG codes in constructing CG disclosure indices. Some CG provisions were extracted from the 1974 Companies Act in order to achieve a comprehensive CG index. As discussed in Subsection 2.2, Omani listed firms are required to comply with the OCGC provisions or provide explanations in cases of non-compliance. Appendix 2 provides a definition and data sources for each provision incorporated in the *OCGI*.

The next subsections will discuss the dependent variable's measurement. Specifically, Subsection 4.2.1.1 will discuss the *OCGI*'s data sources. Subsection 4.2.1.2 will discuss commonly used measures of CG disclosure indices and the rationale for adopting a self-constructed index. Subsection 4.2.1.3 will discuss how the *OCGI* was coded. Subsection 4.2.1.4 will discuss the reliability and validity of the *OCGI*. Finally, Subsection 4.2.1.5 will discuss the *OCGI*'s construction limitations.

4.2.1.1 Data Sources for the Omani CG Index Information

Although there are other means by which firms' CG information can be obtained (Hassan and Marston, 2010), this study collects CG data from firms' annual reports. The *OCGI* is selected as a tool to examine voluntary CG disclosure in Omani listed firms' annual reports. The current study uses annual reports as an information source for three main reasons. First, it has been indicated that annual reports contain quantitative and qualitative data, and financial and non-financial information (Marston and Shrves, 1991). Second, it has been suggested that the level of disclosure provided by firms in annual reports is positively associated with the amount of disclosure reported via other media (Lang and Lundholm, 1993). Finally, reliance on annual reports is in line with most previous studies (e.g., Barako *et al.*, 2006a; Ntim *et al*., 2012a; Allegrini and Greco, 2013),

allowing the current study to compare its results with earlier studies. Thus, annual reports can be considered a regular and reliable source of CG information (Lang and Lundholm, 1993; Botosan, 1997). Omani firms' annual reports are audited by external auditors, in accordance with the Omani Companies Act 1974, and contain financial and non-financial information. Furthermore, listed firms are required by the Capital Market Law of 1998 to obtain a certificate from an external auditor indicating whether they have complied with the 2002 Omani Code of CG or not. Arguably, a high degree of credibility can be adequately assured by extracting information from these reports.

4.2.1.2 The Choice between Analysts' Ratings and Self-Constructed Indices

The CG literature shows that there are two commonly used measures of CG disclosure (Beattie *et al.*, 2004; Barako *et al.*, 2006b; Bhagat *et al.*, 2008, Bozec and Bozec, 2012). The first approach is CG disclosure indices developed by researchers that are based on codes of good CG practices; the second approach is CG disclosure rankings developed by independent professional organisations based on analysts' assessments of CG disclosure. Both have strengths and shortcomings. Analysts' CG rankings cover quarterly published information and investors relations in addition to annual reports, whereas researcher-constructed indices cover only annual reports (Lang and Lundholm, 1993; Healy and Palepu, 2001). Analysts' CG rankings are not labour-intensive and can be used for large samples of firms, while researcher-constructed indices are more labour-intensive and are suitable only for small numbers of firms (Botosan, 1997; Beattie and Thomson, 2007). Analysts' CG rankings are reliable, as they are designed by experts, while research-constructed indices are subjected to researcher judgment, which can lead to potential errors (Core, 2001; Francis *et al.*, 2008).

Despite the disadvantages of researcher-constructed indices, the current study adopts this method as a proxy to measure firms' CG disclosure for a number of contextual, theoretical and practical reasons. First, most analysts' CG rankings are designed by international professional organisations; hence, they may not be applicable to the Omani context due to differences in CG regimes. Many of these rankings are out of date and cannot be used due to new regulatory changes (Hassan and Marston, 2010). Second, there are no national professional organisations in Oman, which offer ratings to measure CG disclosure; hence, the present study had to approach analysts directly (Beattie *et al.*, 2004). Third, there is no theory offering criteria for which type of indices to adopt (Marston and Shrives, 1991; Hassan and Marston, 2010). Fourth, unlike analysts' CG rankings, the researcher-constructed index is a direct measure of actual CG disclosure, and covers a wide range of internal CG disclosure items (Lang and Lundholm, 1993; Donnelly and Mulcahy,

2008). Finally, this study follows the recent trend in the literature of employing researcher-constructed indices (e.g., Cheung *et al.*, 2007; Garay and Gonzalez, 2008; Price *et al.*, 2011; Ntim *et al*., 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013), allowing the current study to directly compare results.

As indicated in Subsection 4.2.1, and in line with previous studies (e.g., Krambia-Kapardis and Psaros, 2006; Akkermans *et al.*, 2007; Henry, 2008; Ntim *et al*., 2012a) that rely on national codes of CG in order to construct CG indices, the *OCGI* is constructed mainly based on the 2002 Omani code of CG. Specifically, and in order to capture the intensity of CG disclosure practices, the eight topics contained in the 2002 OCGC were categorised into four broad sections in order to extract CG provisions. This resulted in 72 provisions under four sections: (i) board of directors; (ii) accounting and auditing; (iii) external auditors and internal control systems; and (iv) disclosure and transparency. The present study also includes additional CG provisions that are not contained in the OCGC. Some CG provisions contained in the 1974 Companies Act had to be added to the *OCGI* in order to achieve a comprehensive CG index.

4.2.1.3 The Choice between Binary and Ordinal Coding Schemes

As Cooke (1989) explains, a voluntary CG disclosure index can be scored based on two approaches a: (i) simple binary coding scheme (un-weighted index); and (ii) complex ordinal coding scheme (weighted index). The first approach records the presence or absence of CG provisions by assigning a score of 1 if a particular CG provision is applied, and 0 otherwise, while the second approach records the degree of disclosure by applying a graduated scale, where CG provisions are assigned weightings (e.g., if a firm does not disclose any information it is assigned 0, if it discloses only qualitative information it is assigned a score of 1, and if it discloses quantified information it is assigned a score of 2). Choosing an approach is not easy, because each has advantages and disadvantages. Unlike the complex ordinal coding approach, the simple binary coding scheme neither measures the quality of CG disclosure nor reflects the relative importance associated with each CG provisions (Gompers *et al.*, 2003; Beattie *et al.*, 2004). The use of a simple binary coding scheme results in the major problem that firms are penalised for non-disclosure of irrelevant CG provisions.

Despite these limitations, this study adopts an un-weighted coding scheme to examine the level of voluntary CG disclosure for a number of reasons. First, this approach is considered appropriate because the *OCGI* is designed in a way that enables researcher to check whether its provisions are applied or not. The current study neither measures the quality of CG disclosures, nor the relative impacts of different CG provisions. Instead, it

measures only the presence or absence of voluntary CG disclosure. For instance, a CG provision related to role duality necessitates only assigning a score of 1 if the roles of Chairperson and Chief Executive Officer are split, and 0 otherwise. Second, there is no theoretical framework on which approach should be adopted. The absence of a theoretical framework on which weights can be accurately assigned to different CG provisions makes the un-weighted coding scheme preferable because the present study can avoid making a bias towards one or a set of CG provisions as the case in using of weighted coding scheme (Marston and Shrives, 1991; Botosa, 1997; Owusu-Ansah, 1998). Third, unlike the weighted coding scheme, this approach enables the current study to avoid making judgement to assign a particular provision because it assumes that all provisions are equally important (Owusu-Ansah, 1998). This suggests that the un-weighted coding scheme enables the present study to avoid a situation where the same provision could be weighted differently by different user groups (Owusu-Ansah, 1998; Tsipouri *et al.*, 2004). Arguably, this can increase the reliability of the scoring system because it can be easily replicated by another user group. Fourth, the literature suggests that both schemes lead to similar results (Choi, 1973; Chow and Wong-Boren, 1987; Barako *et al.*, 2006a). Finally, the un-weighted coding scheme has been used in recent studies; hence, it is advisable that the current study uses this approach in order to enable direct comparison with those studies (e.g., Aggarwal *et al.*, 2011; Ammann *et al.*, 2011; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013).

Following prior studies, a CG disclosure score-sheet was designed to code firms on their level of CG disclosure, and the annual reports of the 116 firms were analysed and compared with the *OCGI*'s provisions (see Appendix 3). A score of 1 was assigned if a particular CG provision was applied, and 0 otherwise. To mitigate the problem of penalising firms for not disclosing an item, each firm's annual reports were thoroughly read before starting the coding in order to ensure that all firms disclosed the main items (Cook, 1989; Owusu-Ansah, 1998; Naser *et al.*, 2002). The degree of CG disclosure for each firm was computed and aggregated with the others firms' scores in order to calculate the overall level of disclosure.

4.2.1.4 The Reliability and Validity of the Constructed CG Index

Two important issues around the construction of indices are often questionable, namely reliability and validity. The *OCGI* must be a reliable and valid instrument in order to be able to measure CG disclosure amongst Omani listed firms. Thus, certain required steps were carried out in order to improve the *OCGI*'s reliability and validity. Marston and Shrives (1991, pp.197) states that "*The index scores awarded to companies can be*

considered to be reliable if the results can be replicated by another researcher. Since the scores are extracted from printed annual reports which remain constant over time there is no obstacle to repetition". This suggests that reliability is largely related to two important issues, namely stability and consistency.

Stability refers to the extent to which the measuring procedure allows the researcher to achieve the same results over time (Beattie *et al.*, 2004). Three types of reliability have been suggested: inter-coder reliability, test-retest reliability and internal consistency reliability (Sekran, 2003). The inter-coder reliability cannot be measured here, as the coding was performed by only one researcher whereas the other two types of reliability were tested for. In particular, the test-retest reliability was measured by performing the same measuring procedure used by past studies (e.g., Owusu-Ansah, 1998; Ghazali and Weetman, 2006; Omar and Simon, 2011; Samaha *et al.*, 2012). First, the entire contents of the sampled firms' annual reports were read before coding their CG disclosures. This allowed the researcher to become familiar with the firms' activities, which in turn was helpful in identifying whether a particular CG provision is applicable to the firm or not (Omar and Simon, 2011). Hence, the problem of penalising firms for not disclosing an item was mitigated, as the researcher made sure that the *OCGI*'s provisions are applicable to all firms. Second, the coding was performed for the whole period (11 years) for each sampled firm before moving to the next firm. This allowed the researcher to ensure consistency in reading annual reports, which in turn was helpful in assisting him to code the CG disclosures accurately. Finally, each firm's annual reports were coded twice. The coding of firms was done over a 12-month period, in which the first round of coding lasted eight months (from April 2011 to November 2011) and the second round lasted four months (from December 2011 to March 2012). In the first round of coding, all sampled firms' annual reports were coded (1,152 firm-year observations) under supervision of the researcher's supervisors.[10] All sampled firms' annual reports had to be coded in the second round in order to improve the coding accuracy by identifying and correcting any mistakes or inconsistencies made during the first round of coding. The results of the second round of coding were largely similar to those of the first round of coding; few mistakes and inconsistencies were found. This suggests that stability between the first and second rounds of coding was achieved.

Consistency, however, refers to a situation where the same results can be achieved by another researcher (Beattie *et al.*, 2004). The internal consistency was measured to confirm the *OCGI'*s consistency. The CG literature shows that Cronbach's alpha test is the

[10]The researcher's supervisors are experts in CG and have published extensively in reputable journals, such as Corporate Governance: An International Review.

most popular and used test of CG disclosure indices' reliability. Thus, consistent with prior studies (e.g., Gul and Leung, 2004; Dey, 2008; Sharma, 2014), the internal consistency of the *OCGI* was examined by using Cronbach's coefficient alpha test. Pallant (2010) indicates that a disclosure index is considered to be reliable if Cronbach's coefficient alpha is between 0.7 and 0.8. As illustrated in Table 4, the Cronbach's coefficient alpha for the four categories in the *OCGI* is 0.78, suggesting that a random measurement error is less likely to reduce the power of the empirical tests. The value of Cronbach's alpha indicates that the various CG provisions in the *OCGI* complement each other well in measuring several features of the same variable (Litwin, 1995). Thus, the measuring procedure applied in this study allowed it to achieve the stability and consistency required to consider the *OCGI* a reliable instrument.

Table 4: Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.781	0.691	4

The second issue related to the construction of indices is the validity. Marston and Shrives (1991, pp.198) define validity as "*The index scores can be considered to be valid if they mean what the researchers intended. That is to say, do the index scores have any meaning as a measure of information disclosure?*" This means that the constructed index can be considered a valid instrument if it reflects the purpose of researcher to examin a particular issue. Two main types of validity have been suggested: content validity and construct validity.

Content validity means that the index must include adequate governance provisions that enable the researcher to conduct his/her examination, whereas construct validity refers to a situation where the items included in the index must be totally related to what the researcher attends to examine (Saunders *et al*., 2007). The following measures were applied in order to measure both content validity and construct validity associated with the *OCGI*. First, as has been indicated in Subsection 4.2.1.2, the *OCGI* includes considerable number of CG provisions because its construction was built on the 2002 Omani Code of CG; hence, the content validity is achieved (Beattie *et al.*, 2004). Second, the construction of the *OCGI* was done under the supervision and guidance of the researcher's supervisors. This involved weekly meetings with the supervisors to discuss related issues, during which constructive criticism and suggestions were used to refine the *OCGI*. Third, the construction was guided by CG literature, and the present study covers all areas that have been focused on in prior studies. For instance, in line with most past studies that have paid

close attention to the board of directors and disclosure provisions in constructing their CG indices, 54% and 31% of the *OCGI*'s provisions cover issues related to board and directors, and disclosure and transparency, respectively. Finally, the validity of the *OCGI* was further enhanced by presenting the first draft of the *OCGI* at doctoral conferences, where the researcher benefitted from useful suggestions from academics and experienced researchers, which were helpful in revising the *OCGI*. The above measures allowed the current study to achieve both content validity and construct validity, and the *OCGI* can be considered a valid instrument.

4.2.1.5 The Limitations of the Constructed CG Index

Some limitations appear to be associated with the construction of the *OCGI*, although great efforts were made to improve its reliability and validity. First, as indicated in Subsection 4.2.1.3, the present study constructed an un-weighted index, where CG provisions are assumed to have equal importance. Constructing a weighted index through consulting an independent professional organisation could improve the *OCGI*'s reliability and validity. To the best of the current study's knowledge, there is no Omani professional organisation available to assign weights for the *OCGI*'s provisions.[11] Second, the inter-coder reliability of the *OCGI* could be measured if the coding was performed by the researcher and another coder. Finally, despite the measures taken in this study to ensure high levels of reliability and validity, the coding processes may result in some inherent subjectivity (Beattie *et al.*, 2004). As discussed in Subsection 4.2.1.4, the coding processes were performed carefully, and a high level of reliability was achieved, as indicated by Cronbach's alpha test. Hence, the *OCGI* is considered a reliable and valid instrument to be used as a proxy to measure CG disclosure among Omani listed firms.

4.2.2 Explanatory Variables' Measurements

As indicated in Subsection 3.2, two types of CG variables have been drawn from CG literature to examine their influence on voluntary CG compliance and disclosure among Omani listed firms. These variables include ownership structures and board and audit characteristics variables. The data on these independent explanatory variables were hand-collected from the firms' annual reports. Table 5 presents summary definitions of the dependent (OCGI), independent (explanatory) and control (general) variables employed in this study. How each variable was measured is briefly discussed below.

[11] Efforts have been made to contact a regional independent professional organisation called Hawkamah: The Institute for Corporate Governance located in Dubai in this regard, but no response was received.

The choice of measures related to ownership structures and board and audit characteristics variables is motivated by two main reasons: Firstly, these measures are in line with considerable number of past studies. Second, these measures are subject to the availability of data. As Table 5 shows, government (e.g., Ghazali and Weetman, 2006; Huafang and Jianguo, 2007), institutional (e.g., Donnelly and Mulcahy; 2008; Omar and Simon, 2011) and foreign (e.g., Liang *et al*., 2012) ownerships were measured as a percentage of each type of ownership out of total firm shareholdings, while block ownership (e.g., Hooghiemstra, 2012; Samaha *et al.*, 2012) was measured as a percentage of shares held by shareholders with at least 5% of the total firm shareholdings. With respect to the second type of variable, board size was measured in a similar manner to prior studies (e.g., Barako *et al.*, 2006a; Akhtaruddin *et al.*, 2009) as the total number of directors on the firm's board. Audit firm size (e.g., Bassett *et al.*, 2007; Aly *et al.*, 2010), the presence of a CG committee (e.g., Ntim *et al*., 2012a), board diversity on the basis of gender (e.g., Adams and Ferreira, 2009) were measured as dummy variables. A firm scored 1 if it was audited by one of the Big-4 audit firms (e.g., Deloittes and Touche, Erns & Young, KPMG and PWC), had a CG committee, had at least one woman on its board. If not, a score of 0 was assigned. Board diversity on the basis of nationality was measured as percentage of non-Omani directors to total number of firm's board directors (e.g., Khan, 2010; Ntim and Soobaroyen, 2013a).

4.2.3 Justification for Control Variables

In line with prior disclosure studies, which find that voluntary corporate disclosure is associated with some firm characteristics, the current study also includes a number of control variables. This is expected to mitigate the potential statistical problems associated with omitted variables, such as endogeneity problems. These control variables include firm size, leverage, growth, profitability, year dummy and industry dummy. The choice of these variables was based on theoretical predictions, prior disclosure studies and the availability of data. Table 5 shows how these variables are defined and measured. The following subsections will briefly set out the central theoretical arguments and extant empirical literature around each variable and its relation with voluntary CG compliance and disclosure.

4.2.3.1 Firm Size (*LNTA*)

It is generally accepted that firm size is positively associated with corporate voluntary disclosure. A number of theoretical predictions support the notion that larger firms are more likely to engage in voluntary disclosure than smaller ones. Firth (1979)

identifies three possible reasons for this. First, large firms disclose more information because they can afford the costs associated with collecting and disseminating information, whereas small firms consider such practices costly. Second, because they rely on the stock market for capital finance more than smaller firms, larger firms may have an interest in disclosing information in order to raise capital at a lower cost. Third, smaller firms may prefer to disclose less information, as they may consider that more disclosure will affect their competitiveness with larger firms. In addition, AT predicts a positive relationship between firm size and CG disclosure. Greater agency problems and higher political costs associated with large firms are expected to motivate such firms to provide additional information on CG compliance and disclosure (Jensen and Meckling, 1976; Chow and Wong-Boren, 1987). Similar support is found in RDT and LT, where large firms are predicted to be motivated to voluntarily engage in CG disclosure in order to secure needed resources (Pfeffer and Salancik, 1978) and legitimise their activities (Guthrie and Parker, 1989).

A positive relationship between firm size and voluntary CG disclosure has been reported by a considerable number of studies (e.g., Ho and Wong, 2001; Eng and Mak, 2003; Hossain *et al.*, 2005; Alsaeed, 2006; Florou and Galarniotis, 2007; Donnelly and Mulcahy, 2008; Hossain and Hammami, 2009; Omar and Simon, 2011; Elzahar and Hussainey, 2012; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013). For instance, Allegrini and Greco (2013) have constructed disclosure index on a number of CG measures in order to examine the factors that may have an effect on voluntary CG disclosure. Using a sample of 177 firms listed on the Italian Stock Exchange in 2007, they report empirical evidence that firm size has a significant and positive association with voluntary CG disclosure. Similarly, Samaha *et al.* (2012) examine CG voluntary disclosure determinants in Egypt by considering a set of variables, including firm size. Using a sample of 100 firms listed on the Egyptian Stock Exchange in 2009, they report empirical evidence that larger firms appear to have higher degrees of CG disclosure, suggesting a significant and positive relationship between CG disclosure index and firm size. In this study, as in prior studies (e.g., Ntim *et al.*, 2012a; Samaha *et al.*, 2012), firm size is labelled as *LNTA* and calculated as the natural log of total assets.

4.2.3.2 Growth (*GROWTH*)

Firm growth has been considered by prior studies as an influential factor in corporate disclosure. There are several arguments relating to the potential link between CG disclosure and growth. AT and SGT suggest that firms with higher investment and growth opportunities are expected to suffer considerably from information asymmetry and agency

costs (Jensen and Meckling, 1976; Jensen, 1986; Smith and Watts, 1992; Gaver and Gaver, 1993). This may suggest that firms with higher growth are expected to reduce information asymmetry by providing more information on CG compliance and disclosure. Similarly, according to LT, due to a higher demand for funds, high-growth firms may tend to disclose additional information on CG compliance and disclosure in order to deflect attention away from the high bankruptcy risk associated with their activities. Thus, increased voluntary CG disclosure by such firms is expected in order to attract more investors and enhance their ability to access financing at lower cost (Collett and Hrasky, 2005; Hossain *et al.*, 2005, Khurana *et al.*, 2006). A positive relationship is theoretically predicted between growth and firm-level voluntary CG disclosure.

Empirical support for the above arguments is found in a number of studies (e.g., Hyytinen and Pajarinen, 2005; Laidroo, 2009; Ntim and Soobaroyen, 2013a, b) that offer evidence that firms with higher growth opportunities tend to disclose more governance information. For instance, using a sample of 1,549 Finnish listed and non-listed firms in 1997, Hyytinen and Pajarinen (2005) examine the association between firm-level disclosure quality and availability of external financing. They report empirical evidence that external financing is significantly correlated with firm-level disclosure. Similarly, using a sample of 52 firms listed in three European Stock Exchanges over the period 2000-2005, Laidroo (2009) reports empirical evidence that sales growth has a statistically significant positive relationship with total disclosure score. In this study growth is measured as in prior studies (e.g., Ntim *et al*., 2012a), labelled as *GROWTH* and calculated as current year's sales minus last year's sales to last year's sales.

4.2.3.3 Profitability (*ROA*)

It has been demonstrated theoretically in the literature that profitable firms tend to disclose more information than less profitable firms. In this regard, both AT and SGT indicate that profitability reflects performance; hence, managers in profitable firms have an incentive to provide more detailed information to maintain and justify their position and compensation. Further, profitable firms are motivated to use voluntary CG disclosure to distinguish themselves from less profitable firms (Singhvi and Desai, 1971; Wallace and Naser, 1995; Owusu-Ansah, 1998; Haniffa and Cooke, 2002). The positive prediction is also supported by LT, where managers in profitable firms tend to adopt a voluntary disclosure policy in order to legitimise their continued presence as stewards (Ntim and Soobaroyen, 2013). In contrast, profitable firms may not engage in voluntary CG disclosure, because less engagement permits them to avoid some legal costs (e.g., Tax) and protect their competitiveness (Prencipe, 2004; Huafang and Jianguo, 2007).

The positive theoretical prediction has been supported by a number of empirical studies (e.g., Haniffa and Cooke, 2002; Ghazali and Weetman, 2006; Akhtaruddin *et al.*, 2009; Aly *et al.*, 2010; Omar and Simon, 2011; Samaha and Dahawy, 2011; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Nelson, 2014). For instance, using a sample of 87 firms listed on the Kuala Lumpur Stock Exchange in 2001, Ghazali and Weetman (2006) report empirical evidence that profitability is statistically significantly associated with disclosure index. In contrast, a group of studies report that the relationship between voluntary CG disclosure and profitability is not significant (e.g., Ho and Wong, 2001; Eng and Mak, 2003; Alsaeed, 2006; Barako *et al.*, 2006a; Barako *et al.*, 2006b; Huafang and Jianguo, 2007; Hossain and Hammami, 2009; Allegrini and Greco, 2013; Elzahar and Hussainey, 2012). For example, using a sample of 559 firm-year observations for firms listed on the Shanghai Stock Exchange in 2002, Huafang and Jianguo (2007) construct an index including financial and non-financial information to investigate voluntary corporate disclosure in China. They report empirical evidence suggesting that profitability is not a significant predictor for voluntary CG disclosure. In this study, profitability is measured in line with prior studies (e.g., Ntim *et al*., 2012a), labelled as *ROA* and calculated as the ratio of operating profit to total assets.

4.2.3.4 Leverage (*LVRG*)

It is widely recognised that leverage has a significant impact on various aspects of corporate policy decisions. This suggests that leverage can significantly affect corporate disclosure policy. According to AT, debt financing is affected by agency costs, such as bankruptcy costs, residual loss, and monitoring and bonding expenditures. Firms with high debt in their capital structures face higher agency costs (Jensen and Meckling, 1976). This has important implications mainly for two different stakeholder groups, namely shareholders and debt holders. Equity capital providers will need to collect costly private information to ensure that managers do not expropriate wealth from shareholders by investing in non-profitable projects.

Similarly, creditors will tend to more closely monitor firms in order to ensure they can meet their debt obligations (Smith and Warner, 1979). Arguably, to mitigate these concerns, firms are motivated to provide transparent information on CG compliance and disclosure to enable shareholders to continuously monitor their performance, and assure them that they are not harming their wealth by investing in wasteful projects. Through increased disclosure, firms signal to creditors that they are less likely to circumvent their covenanted payments, and assure them that they can meet debt covenant requirements (Ross, 1977; Schipper, 1981).

Further, highly leveraged firms are inclined to disclose additional information even when they cannot avoid defaulting on debt covenants. This is because more disclosure can improve firms' ability to bargain with creditors in cases of renegotiation where more financing is urgently needed. Support is found in LT and RDT, which suggest that highly leveraged firms are expected to engage in active disclosure practices as a legitimacy strategy to inform debt holders about their performance, and as a response to the demands of external capital providers in order to secure their resources. Based on these theoretical arguments, firms with higher levels of leverage are expected to disclose more detailed information on CG compliance than lower-leveraged firms.

The empirical literature, however, on the relationship between firm-level voluntary CG disclosure and leverage is mixed. Prior empirical studies (e.g., Barako *et al.*, 2006a; Barako *et al.*, 2006b; Alsaeed, 2006; Omar and Simon, 2011) report evidence that leverage impacts significantly and positively on firm-level CG voluntary disclosure. For instance, using a sample of 121 firms listed on the Amman Stock Exchange in 2003, Omar and Simon (2011) investigate the disclosure behaviour of Jordanian listed firms. They report empirical evidence that leverage has a significant positive relationship with the extent of aggregate disclosure. Similarly, Barako *et al.* (2006a) examine the extent of voluntary disclosure and its determinants in Kenya by employing a sample of 54 firms listed on the Nairobi Stock Exchange over 1992-2001. Among those determinants, they report empirical evidence that leverage is significantly and positively associated with the extent of voluntary disclosure.

In contrast, a limited number of studies (e.g., Adelopo, 2011; Mallin and Ow-Yong, 2012) provide empirical evidence of a significant negative relationship. For example, using a sample of 63 listed firms on the Nigerian Stock Exchange in 2006, Adelopo (2011) examines voluntary disclosure practices amongst listed firms. He reports empirical evidence that leverage is significantly and negatively associated with voluntary disclosure. Some studies (e.g., Haniffa and Cooke, 2002; Alkhtaruddin *et al.*, 2009; Ntim *et al.*, 2012a) report an insignificant and positive relationship, while others (e.g., Ho and Wong, 2001; Elzahar and Hussainey, 2012; Samaha *et al.*, 2012; Allegrini and Greco, 2013) report evidence of an insignificant and negative association between the two variables. For instance, using a sample of 105 firms listed on the Bursa Malaysia at the end of 2002, Alkhtaruddin *et al.* (2009) provide empirical evidence that the relation between the extent of CG and voluntary disclosure and leverage is positive, but not statistically significant. In this study, leverage is measured consistently with past studies (e.g., Barako *et al.*, 2006a;

Henry, 2010), labelled as *LVRG* and calculated as the ratio of total debt divided by total assets.

In addition, due to differences in capital structure, business nature and ownership structure, among others, voluntary CG compliance and disclosure are not expected to be identical throughout all industries and financial years (Cook, 1992; Conyon, 1994; Haniffa and Cooke, 2006). With regard to industrial factors, several arguments have been put forward to explain why the level of disclosure differs from one industry sector to another. Firms operating in highly regulated sectors, such as banks and utilities firms, are subjected to rigorous regulations (Owusu-Ansah, 1998) that require them to provide additional disclosure. Similarly, according to LT, firms operating in certain industries, such as gas, oil and consumer goods, may be inclined to disclose further information in order to legitimise their activities (Arcay and Vazquez, 2005; Owusu-Ansah, 1998).

Table 5: Definition of dependent and independent variables

Dependent variable	
OCGI	Omani corporate governance index consisting of 72 governance provisions that take a value of 1 if a particular provision is disclosed, 0 otherwise.
Independent variables	
BLKOWN	Percentage of shares held by shareholders with at least 5% of the total firm shareholdings.
GOVOWN	Percentage of government ownership to total firm ordinary shareholdings.
INSOWN	Percentage of institutional ownership to total firm ordinary shareholdings.
FOROWN	Percentage of foreign ownership to total firm ordinary shareholdings.
BSIZE	The total number of directors on the firm's board.
BIG4	1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise.
CGCOM	1 if a firm has set up a corporate governance committee, 0 otherwise.
GNDR	1 if a firm has a female director on its board, 0 otherwise.
BDIVN	Number of non-Omani directors divided by total number of board members.
Control variables	
LNTA	Natural log of total assets.
ROA (%)	Operating profit to total assets.
GROWTH (%)	Current year's sales minus last year's sales to last year's sales.
LVRG (%)	Book total debt scaled by total assets of a firm.
INDUSTRY	Dummies for each of the eight industries.
YEAR	Dummies for each of the ten years.

In a similar vein, based on SGT, firms operating in some industries may tend to follow dominant firms by providing similar levels of disclosure in order to signal that they are not hiding bad news (Cooke, 1989; Craven and Marston, 1999). Empirical evidence of the impact of industrial factors on voluntary CG disclosure is mixed. Prior studies (e.g., Eng and Mak, 2003; Arcay and Vazquez, 2005; Alsaeed, 2006) report no significant relationship between firm-level voluntary CG disclosure and industrial factors. In contrast, other studies (e.g., Elzahar and Hussainey, 2012; Ntim *et al.*, 2012a) provide empirical evidence that CG compliance and disclosure are affected by industry.

With respect to the financial year factor, firms may voluntarily disclose more information on CG compliance and disclosure in some years compared to others. This can be attributed to firms' willingness to engage in voluntary disclosure and their reactions to the environment in which they operate. For instance, firms affected by the global recession some years ago (i.e., the 2007-2008 global financial crisis) tended to disclose more information in order to correct any misunderstanding regarding their performance. Hence, firms' desire to voluntarily disclose CG information is expected to be different across financial years. This is supported empirically by a number of previous studies (e.g., Barako *et al.*, 2006a; Ntim *et al.*, 2012a). Following past studies, the level of voluntary CG disclosure among Omani listed firms is predicted to be influenced by industrial and financial year factors. Thus, industry and year dummies are included in the model to control for potential unobserved firm-level heterogeneity over the eleven-year period from 2001 to 2011. Specifically, eight industry dummies out of nine industries, along with ten year dummies out of eleven years, are included in all equations used in this study to avoid a dummy-variable trap.

4.2.4 Model Specification

As referred in Subsection 4.1.3, due to a number of issues, such as accessibility, funding and time, a quantitative rather than either qualitative or mixed approach is adopted in this study. However, the hypotheses developed in Subsection 3.2 that will be examined in this study are summarised below.

H_1 There is a statistically significant positive association between government ownership and the level of voluntary CG disclosure.

H_2 There is a statistically significant positive association between institutional ownership and the level of voluntary CG disclosure.

H_3 There is a statistically significant positive association between foreign ownership and the level of voluntary CG disclosure.

H_4 There is a statistically significant negative association between ownership concentration and the level of voluntary CG disclosure.

H_5 There is a statistically significant association between board size and the level of voluntary CG disclosure.

H_6 There is a statistically significant positive association between audit firm size and the level of voluntary CG disclosure.

H_7 There is a statistically significant positive association between board diversity on the basis of gender and the level of voluntary CG disclosure.

H_8 There is a statistically significant positive association between board diversity on the basis of nationality and the level of voluntary CG disclosure.

H_9 There is a statistically significant positive association between the presence of a CG committee and the level of voluntary CG disclosure.

The study employs multiple linear regression analysis and uses Ordinary Least Squares (OLS) as estimation method, where the *OCGI* was regressed on explanatory variables to examine the above hypotheses. Following past studies and assuming that all the predicted relations are linear, the OLS regression equation is specified as follows:

$$OCGI_{it} = \alpha_0 + \beta_1 GOVOWN_{it} + \beta_2 INSOWN_{it} + \beta_3 FOROWN_{it} + \beta_4 BLKOWN_{it} + \beta_5 BSIZ_{it} + \beta_6 BIG4_{it} + \beta_7 CGCOM_{it} + \beta_8 GNDR_{it} + \beta_9 BDIVN_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (1)$$

Where:

OCGI	Un-weighted Omani Corporate Governance Index
α	Constant term
GOVOWN	Government ownership
INSOWN	Institutional ownership
FOROWN	Foreign ownership
BLKOWN	Block ownership
BSIZE	Board size
BIG4	Audit firm size
GNDR	Board diversity on the basis of gender
BDIVN	Board diversity on the basis of nationality
CGCOM	Presence of a CG committee
CONTROLS	Control variables for firm size (LNTA), growth (GROWTH), profitability, (ROA), leverage (LVRG), industry, and year dummies.
ε	Error term

4.2.5 Statistical Analyses

This study conducted a number of statistical analyses in addition to the main analysis in order to take account of various statistical and theoretical issues. These analyses are classified into two types. First, diagnostic analyses were performed before conducting the main analysis, where diverse statistical methods were applied to examine the OLS assumptions. This ensured that the OLS assumptions, namely linearity, normality, multicollinearity, autocorrelation and heteroskedasticity, were met, and demonstrate that OLS is an appropriate estimation method to conduct the main analysis. Second, robustness analyses were conducted after performing the main analysis, where the reported findings

from the main analysis were checked by employing different measures and estimations. This permitted the study to respond to calls in the literature on the extent to which the main findings are robust or sensitive to the use of alternative CG index, random effects model, the inclusion of financial firms and the effect of endogeneity problem. All these analyses will be discussed in detail in the following sections. Specifically, the OLS assumptions will be discussed in the next section, whereas the main and robustness tests will be discussed in Sections 6 and 7.

5 ORDINARY LEAST SQUARES ASSUMPTIONS AND DESCRIPTIVE STATISTICS

As indicated in Subsection 4.2.5, the OLS assumptions must be met before performing the current study's analyses, in order to ensure that OLS is an appropriate estimation method to conduct the analyses. Hence, this section discusses a number of statistical tests and procedures that have been conducted to address the OLS assumptions, namely, linearity, normality, serial correlation and heteroskedasticity; it also presents the descriptive statistics. Subsection 5.1 discusses the OLS assumptions, while descriptive statistics are discussed in Subsection 5.2.

5.1 TESTS OF THE OLS ASSUMPTIONS

Because this study uses panel data, it must first check whether series have unit roots or not (Cizek *et al*., 2005). It is crucial to determine whether a series is stationary[12] or not, because employing non-stationary data can result in spurious results; stationarity can significantly affect series behaviour and properties (Brooks, 2007). As a result, this study tests for a unit root of each used variable by performing the Augmented Dickey-Fuller (ADF) test. The results of this test are presented in Table 6, and indicate that the levels of the series of all variables are non-stationary. Hence, the null hypothesis of a unit root is accepted at the 1% level of significance.

Table 6: Augmented Dickey-Fuller test statistics

Variables	ADF Unit Root Test
OCGI	-5.7541***
GOVOWN	-9.2763***
INSOWN	-9.5214***
FOROWN	-10.4960***
BLKOWN	-10.5810***
BSIZE	-9.5512***
BIG4	-12.7914***
CGCOM	-12.3361***
GNDR	-10.4234***
BDIVN	-11.6302***
GROWTH	-13.0767***
LVRG	-10.1540***
ROA	-12.6456***
LNTA	-7.8817***

Notes: *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *BDIVN* denotes board diversity on the basis of nationality, *GROWT* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size. The asterisk *** indicate significance at the 1% level, respectively.

[12]Brooks (2007, pp.318) defined a stationary series as "*one with a constant mean*, *constant variance* and *constant autocovariances* for each given lag".

Further to the unit root test, the study carried out a raft of statistical tests to examine OLS assumptions. First, because the study sample includes small, medium, and large firms, it was expected that some control variables may have extreme values. This can seriously violate OLS assumptions and lead to spurious results. The effects of outliers were minimized by winsorising all control variables at 5% and 95% levels.[13]

Second, in the case of time series regressions, it has been suggested that the issue of serial correlation can critically violate the standard assumption of OLS, where OLS standard error estimates will be biased downwards relative to the true standard errors (Brooks, 2007). Thus, it was necessary to detect it and find appropriate estimation method to take account of its existence. The Breusch-Godfrey Serial Correlation LM test was used to test for autocorrelation. The results in Table 7 indicate the presence of autocorrelation, where the null hypothesis of no serial correlation is rejected at the 1% level of significance, as the *F*-statistics and *Chi*-Square values suggest. As a result, the study had to adopt the first-order autoregressive model in order to take account of serial correlation (Brooks, 2007).

Table 7: Breusch-Godfrey test for serial correlation

F-Statistics	203.8811***
Obs*R-squared	307.8082***

Notes: The asterisk *** indicate significance at the 1% level.

Third, Table 8 reports the results of the White general test. They suggest that the model suffers from heteroskedasticity, as both the *F*-statistics and *Chi*-Square accept the alternative hypothesis that the model is heteroskedastic at the 1% significance level.

Table 8: Heteroskedasticity test: White test

F-Statistics	3.0983^{***}
Obs*R-squared	720.1588^{***}

Notes: The asterisk *** indicate significance at the 1% level

Fourth, the study checked whether the explanatory variables were highly correlated (multicollinearity problem). This involved a number of statistical techniques that have been

[13]The choice of percentiles of winsorization is motivated by two compelling reasons: Firstly, under low levels of alternate percentiles the data fails to satisfy the normality assumption of OLS regression. In this sense, the regression analysis was conducted before winsoring and after (at 5% and 95% levels) and the findings were largely similar. Hence, the winsorization is used across the three essays in order to meet OLS assumptions. Secondly, the main variables (CG variables), that are examined across the three essays, were not winsorised because they have less extreme values whereas only capital structure' measurements, earnings management's measurements and control variables'measurements were winsorised because they have large extreme values as a result of including small, medium and large firms in the dataset. Finally, there is substantial literature in both statistical and financial field that address outlier problems using this 90 percentile winsorization control. In this regard, Ghosh and Vogt (2012) stat that "*A common procedure has been to replace any data value above the ninety-fifth percentile of the sample data by the ninety-fifth percentile and any value below the fifth percentile by the fifth percentile*".

proposed and used in literature, namely Tolerance statistic (TOL), Variance Inflation Factor (VIF), Pearson's parametric correlation coefficients and Spearman's non-parametric correlation coefficients. Gujarati (2003) indicates that if TOL is near zero, VIF exceeds 10 and the correlation coefficient between two variables is greater than 0.80, then multicollinearity can be expected to be a serious problem. Table 9 shows that the maximum value of VIF is 2.149 and the closer value of TOL is 0.934, indicating no serious problem of multicollinearity. In the same vein, Spearman's non-parametric correlation coefficients and Pearson's parametric coefficients (Table 10) indicate no serious problem of multicollinearity, as the highest coefficient is between board size and firm size, which are (0.455) and (0.391), respectively. These statistical techniques suggest no major violation of the OLS assumptions due to multicollinearity.

Table 9: Multicollinearity test: Tolerance statistic and Variance Inflation Factor

Variables	TOL	VIF
GOVOWN	0.684	1.461
INSOWN	0.714	1.401
FOROWN	0.691	1.448
BLKOWN	0.549	1.823
BSIZE	0.675	1.482
BIG4	0.784	1.275
CGCOM	0.860	1.163
GNDR	0.934	1.071
BDIVN	0.829	1.206
GROWTH	0.875	1.143
LVRG	0.673	1.486
ROA	0.688	1.454
LNTA	0.465	2.149

Notes: *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN*, denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* and *BDIVN* denote board diversity on the basis of gender and nationality, *GROWT* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size.

Finally, it has been suggested that the normality assumption has to be met in order to test single or joint hypotheses using multivariate OLS regression analyses; hence, the study had to test for departures from normality and reduce non-normalities in the variables. In this regard, the study relies on the Jarque-Bera (JB) test of normality, which computes the skewness and skurtosis statistics in order to investigate the extent to which the used variables are normally distributed (Gujarati, 2003).[14] The results of the skewness and kurtosis statistics are presented in Table 14, and indicate that the variables deviate from a normal distribution; hence, the current study acceptss the null hypothesis of non-normality (the rejections are relatively mild compared to the critical values). The study has attempted

[14]Gujarati (2003) indicates that the critical values for accepting kewness and kurtosis are three and zero, respectively.

to reduce non-normalities in the variables by applying different kinds of transformations, such as square root, rank and natural log. The distributions of the transformed variables did not produce better skewness and kurtosis statistics, indicating that the actual variables are more normally distributed than the transformed variables. In such a case, Brooks (2007) suggests that it is desirable to stick with the OLS rather than employ another estimation method that does not require a normality assumption, because OLS's behaviour has been well researched in a variety of circumstances. He also indicates that some types of heteroskedasticity can lead to non-normality in financial data. This may suggest that the effects of non-normality are expected to be less severe because the White test has been used in this study to correct for heteroskedasticity. Further, the study employs a sufficiently large sample, where violation of the normality assumption is expected to be virtually inconsequential (Brooks, 2007). Overall, the statistical tests and procedures imply that any remaining non-linearities, serial correlations, heteroskedasticities, multicollinearities and non-normalities in the used variables are not going to seriously violate the OLS assumptions. This suggests that OLS is an appropriate statistical estimation to conduct the study's analyses.

Table 10: Pearson and Spearman correlation matrices of the dependent and explanatory variables

	OCGI	GOVOWN	INSOWN	FOROWN	BLKOWN	BSIZE	BIG4	CGCOM	GNDR	BDIVN	GROWTH	LVRG	ROA	LNTA
OCGI		0.136***	0.029	0.072**	0.068**	0.038	0.030	0.279***	0.079***	0.026	-0.006	-0.092***	0.180***	0.275***
GOVOWN	0.105***		-0.138***	-0.064**	0.115***	0.081***	-0.004	-0.010	0.052*	-0.136***	-0.066**	-0.105***	0.217***	0.154***
INSOWN	0.015	-0.025		-0.150***	0.314***	-0.053*	-0.011	0.016	-0.019	0.066**	-0.043	0.059*	0.024	-0.187***
FOROWN	0.076***	0.022	-0.029		0.355***	-0.038	-0.007	0.019	0.057*	0.150***	-0.096***	0.046	-0.041	0.087***
BLKOWN	-0.007	0.089***	0.226***	0.339***		-0.273***	-0.160***	-0.009	0.051*	0.168***	0.044	0.084***	-0.114***	-0.206***
BSIZE	0.088***	0.082***	-0.001	0.008	-0.266***		0.258***	-0.053*	0.006	-0.202***	-0.081***	-0.014	0.079***	0.455***
BIG4	0.100***	0.041	0.000	0.020	-0.161***	0.252***		0.110***	0.056*	0.038	-0.073**	-0.034	0.101***	0.369***
CGCOM	0.299***	0.010	0.010	0.000	-0.013	-0.055*	0.110***		0.022	-0.097***	-0.004	-0.193***	0.064**	0.069**
GNDR	0.086***	0.078***	-0.050	0.067**	0.054	0.013	0.056*	0.022		0.087***	0.014	0.046	0.057*	0.113***
BDIVN	0.052*	0.067**	0.042	0.138***	0.179***	-0.305***	-0.003	-0.084***	0.081***		0.011	0.238***	-0.099***	-0.048
GROWTH	0.006	-0.109***	-0.036	-0.128***	0.053*	-0.111***	-0.072**	0.012	0.017	0.012		-0.055*	-0.193***	-0.176***
LVRG	-0.077***	-0.110***	0.044	0.021	0.094***	-0.032	-0.039	-0.177***	0.057*	0.243***	-0.043		-0.355***	0.086***
ROA	0.173***	0.215***	0.035	0.005	-0.128***	0.054*	0.098***	0.069**	0.045	-0.103***	-0.197***	-0.346***		0.170***
LNTA	0.347***	0.136***	-0.163***	0.140***	-0.223***	0.391***	0.377***	0.092***	0.110***	-0.091***	-0.149***	0.044	0.179***	

Notes: the bottom left half of the table presents Spearman's non-parametric correlation coefficient, whilst the upper right half of the table presents Pearson's parametric correlation coefficients. *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* and *BDIVN* denote board diversity on the basis of gender and nationality, *GROWT* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size. The correlation matrix depicts the strength and sign of the relationship amongst the variables. ***, ** and * denote correlation is significant at the 1%, 5% and 10% level, respectively.

5.2 DESCRIPTIVE STATISTICS

This subsection presents descriptive statistics of the variables employed in the model, including the *OCGI* and the explanatory and control variables. Specifically, Subsection 5.2.1 presents the levels of compliance with the *OCGI* based on the full sample. Subsection 5.2.2 reports the levels of compliance with the *OCGI* based on industry type. Subsection 5.2.3 presents a statistical summary of the explanatory variables, while Subsection 5.2.4 reports those related to the control variables.

5.2.1 Descriptive Statistics of the Levels of Disclosure and Compliance with the *OCGI* (Full Sample)

The current study investigates the levels of compliance among the sampled firms with each of 72 internal CG provisions that constitute the *OCGI*. It does this in order to examine the improvement in compliance, and identify the CG provisions and sub-indices that contribute most to the variability in the levels of compliance. This enables it to answer its first research question: What is the level of compliance with the 2002 OCGC, and to what extent has the introduction of the 2002 OCGC improved CG practices in Omani listed firms? Table 11 reports the levels of compliance for each CG provision across the eleven firm years. Two important findings can be concluded from the table.

First, the findings in Row 3 of Table 11 indicate that the aggregate mean scores of the *OCGI* are substantially varied among Omani listed firms across firm years. Similarly, the levels of compliance with each CG provision in each of the eleven years are considerably varied. The level of compliance ranges from 98.6% compliance with the CG provision of whether there is a narrative on financial transactions that may have a conflict of interest, to 0% compliance with the provision of whether an external auditor reports on frauds and firm's compliance with its internal control system. The higher compliance with the party transactions provision may be due to the fact that the Omani Companies Act mandates every firm to report on any activity that involves a conflict of interests. The total non-compliance with the provision of fraud and internal control system may be due to one of three reasons: (i) audit firms may have found no evidence of fraud; (ii) they may intentionally avoid reporting on such an issue in order to retain their clients, being influenced by informal rules, such as family's, tribe's and personal's relationships; and (iii) audit firms may consider such reporting as additional services requiring additional payment beyond audit fees; they tend to not report without getting paid. Table 11 also reports that 85% or more of the sampled firms show comparatively higher compliance levels with 3 (4%) provisions (e.g., establishment of audit committee). In contrast, 50% or less of the sampled firms show relatively

lower compliance levels with 35 (49%) provisions (e.g., disclosing the top five officers' remuneration). Firms also show intermediate compliance levels with the 34 (47%) remaining provisions (e.g., classification of board directors), ranging between 53% and 82%.

Second, Table 11 shows that aggregate compliance levels increased from 6.78% in 2001 to 60.93% in 2009, with a slight decrease after 2009, which is consistent with prior studies (e.g., Akkermans *et al*., 2007; Ntim *et al*., 2012a) that compliance with CG provisions improves over time. It is clearly observed that firms reported on their CG structures in much more detail than they did before the issuing of the 2002 OCGC. This is further supported by Figure 2, which shows a comparison of the levels of compliance with the *OCGI* using computed means and yearly increases/decreases expressed as a percentage. The aggregated CG score of the *OCGI* was relatively low in 2001 and 2002, whereas 2003 witnessed a dramatic increase after the 2002 OCGC was effectively implemented. Panel *A* of Table 11 shows that the increasing levels of compliance continue in the following years, reaching 47.89% on average over the eleven years. This finding is consistent with past studies conducted in similar emerging countries that report low levels of compliance. For instance, an average level of 52% is reported by Tsamenyi *et al*. (2007), who examine the level of voluntary CG compliance among Ghanaian listed firms. Similarly, Adelopo (2011) reports evidence that the average level of CG compliance was 44% among Nigerian listed firms. Albu and Girbina (2015) report empirical evidence that there are a modest percentage of Romanian listed firms that provide high levels of CG disclosure.

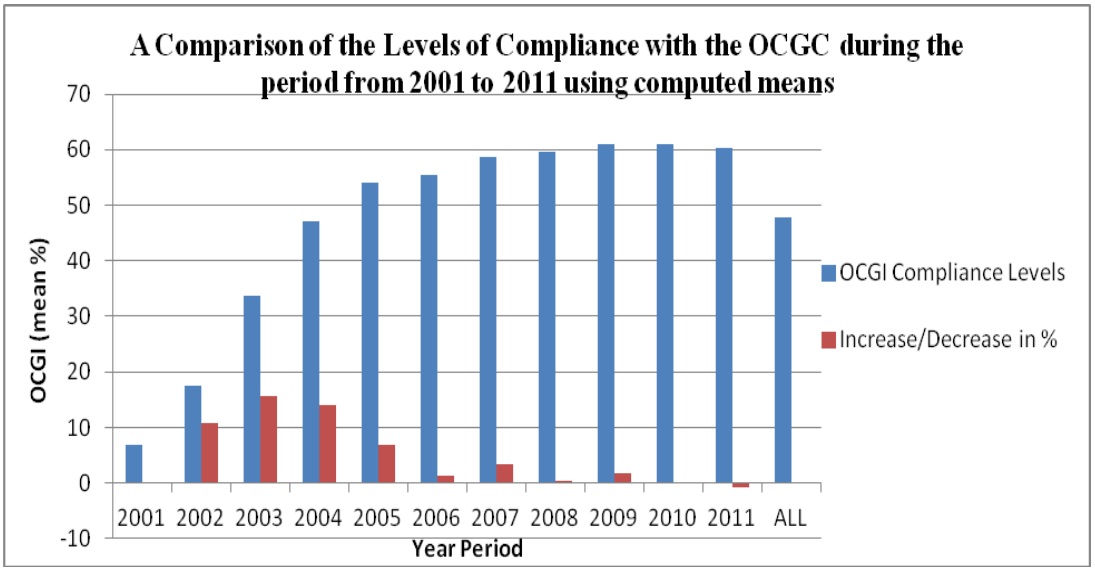

Figure 2: The levels of compliance with the OCGI based on the full sample

Table 11: The level of compliance with the OCGC provisions among the Omani sampled firms (%)

		Pre-2003			Post-2003 (after OCGC was issued)										
	Omani corporate governance index (72 Provisions)	**2001**	**2002**	**Average**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Average**	**Avg. of 11 Years**
	Yearly average of the level of compliance	**6.8**	**17.4**	***12.1***	**33.6**	**47.2**	**54.0**	**55.4**	**58.6**	**59.6**	**60.9**	**61.1**	**60.2**	***54.44***	**47.89**
	1. Board and Directors														
1	The board of directors' number	1.1	31.3	***16.2***	61.9	87.3	97.9	95.2	98.2	98.2	100.0	100.0	100.0	***93.2***	**79.2**
2	Directors' Classification.	0.0	22.9	***11.5***	50.5	74.5	84.2	83.7	86.5	86.0	87.7	87.8	94.5	***81.7***	**68.9**
3	Role Duality	2.1	30.2	***16.2***	59.8	87.3	97.9	96.2	98.2	97.4	99.1	99.1	99.1	***92.7***	**78.8**
4	Board's independence	0.0	27.1	***13.5***	58.8	85.3	95.8	96.2	96.4	94.7	95.6	96.5	97.3	***90.7***	**76.7**
5	Majority of board's directors	0.0	29.2	***14.6***	55.7	87.3	96.8	97.1	99.1	98.2	99.1	99.1	100.0	***92.5***	**78.3**
6	Membership of directors on other firms' boards	0.0	13.5	***6.8***	43.3	72.5	82.1	86.5	83.8	85.1	90.4	90.4	89.1	***80.4***	**67.0**
7	Membership of directors on other firms' boards	0.0	15.6	***7.8***	43.3	73.5	83.2	87.5	85.6	86.0	91.2	91.3	90.0	***81.3***	**67.9**
8	Frequency of board meetings	0.0	28.1	***14.1***	58.8	87.3	94.7	95.2	98.2	97.4	100.0	98.3	98.2	***92.0***	**77.8**
9	Board meetings' dates	0.0	22.9	***11.5***	59.8	87.3	94.7	95.2	98.2	99.1	99.1	99.1	99.1	***92.4***	**77.7**
10	Individual directors' meetings attendance	0.0	24.0	***12.0***	59.8	87.3	96.8	95.2	99.1	99.1	100.0	98.3	100.0	***92.8***	**78.1**
11	Directors' meetings at general assembly	0.0	20.8	***10.4***	50.5	75.5	89.5	87.5	92.8	95.6	94.7	94.8	90.0	***85.7***	**72.0**
12	Board of directors' remuneration	0.0	8.3	***4.2***	20.6	36.3	48.4	53.8	60.4	62.3	65.8	67.0	64.5	***53.2***	**44.3**
13	Top five officers' remuneration	0.0	0.0	***0.0***	1.0	2.9	3.2	1.9	5.4	3.5	1.8	1.7	2.7	***2.7***	**2.2**
14	Board service contracts	0.0	3.1	***1.6***	12.4	14.7	14.7	19.2	30.6	33.3	35.1	37.4	50.9	***27.6***	**22.9**
15	Approving financial statement	41.5	47.9	***44.7***	61.9	58.8	73.7	65.4	91.9	92.1	96.5	95.7	96.4	***81.4***	**74.7**
16	Going concern	11.7	17.7	***14.7***	17.5	17.6	24.2	24.0	59.5	80.7	94.7	95.7	87.3	***55.7***	**48.2**
17	Review of internal control systems	1.1	8.3	***4.7***	34.0	48.0	58.9	59.6	81.1	86.0	87.7	87.8	90.0	***70.4***	**58.4**
18	Directors' nomination	1.1	14.6	***7.8***	38.1	62.7	67.4	70.2	77.5	82.5	80.7	80.9	76.4	***70.7***	**59.3**
19	Remuneration committee's existence	0.0	0.0	***0.0***	4.1	3.9	6.3	8.7	10.8	10.5	11.4	12.2	11.8	***8.9***	**7.2**
20	Remuneration committee's terms & reference	0.0	0.0	***0.0***	3.1	3.9	6.3	7.7	9.9	9.6	10.5	10.4	10.9	***8.1***	**6.6**
21	Remuneration committee's composition	0.0	0.0	***0.0***	3.1	3.9	6.3	7.7	9.9	9.6	9.6	10.4	10.9	***8.0***	**6.5**
22	Remuneration committee's chairperson	0.0	0.0	***0.0***	3.1	3.9	6.3	7.7	9.9	9.6	9.6	9.6	9.1	***7.7***	**6.3**
23	Remuneration committee's majority of its members	0.0	0.0	***0.0***	3.1	3.9	5.3	6.7	9.0	8.8	8.8	8.7	8.2	***6.9***	**5.7**
24	Remuneration committee's remuneration	0.0	0.0	***0.0***	3.1	3.9	4.2	5.8	7.2	7.0	7.0	7.8	5.5	***5.7***	**4.7**
25	Remuneration committee's directors meetings	0.0	0.0	***0.0***	3.1	4.9	6.3	6.7	8.1	7.9	10.5	11.3	10.0	***7.7***	**6.3**
26	Nomination committee's existence	0.0	0.0	***0.0***	0.0	1.0	1.1	1.9	3.6	3.5	4.4	4.3	6.4	***2.9***	**2.4**
27	Nomination committee's terms & reference	0.0	0.0	***0.0***	0.0	1.0	1.1	1.0	3.6	3.5	4.4	4.3	6.4	***2.8***	**2.3**

	Continuation: Table 11	**2001**	**2002**	**Average**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Average**	**Avg. of 11 Years**
28	Nomination committee's composition	0.0	0.0	***0.0***	0.0	1.0	1.1	1.0	3.6	3.5	4.4	4.3	6.4	***2.8***	**2.3**
29	Nomination committee's chairperson	0.0	0.0	***0.0***	0.0	1.0	1.1	1.0	3.6	3.5	4.4	4.3	6.4	***2.8***	**2.3**
30	Nomination committee's majority of its members	0.0	0.0	***0.0***	0.0	1.0	1.1	1.0	3.6	3.5	4.4	4.3	6.4	***2.8***	**2.3**
31	Nomination committee's remuneration	0.0	0.0	***0.0***	0.0	0.0	0.0	0.0	2.7	2.6	3.5	3.5	4.5	***1.9***	**1.5**
32	Nomination committee's directors meetings	0.0	0.0	***0.0***	0.0	0.0	0.0	1.0	3.6	3.5	4.4	4.3	4.5	***2.4***	**1.9**
33	Risk Committee's existence	0.0	10.4	***5.2***	20.6	38.2	47.4	50.0	49.5	50.0	53.5	54.8	57.3	***46.8***	**39.3**
34	Risk Committee's terms & reference	0.0	9.4	***4.7***	20.6	38.2	47.4	49.0	48.6	50.0	53.5	54.8	56.4	***46.5***	**38.9**
35	Risk Committee's composition	0.0	9.4	***4.7***	20.6	38.2	46.3	49.0	48.6	49.1	52.6	53.9	56.4	***46.1***	**38.6**
36	Risk Committee's chairperson	0.0	9.4	***4.7***	20.6	38.2	46.3	49.0	48.6	49.1	52.6	53.9	56.4	***46.1***	**38.6**
37	Risk Committee's majority of its members	0.0	8.3	***4.2***	20.6	37.3	47.4	49.0	49.5	50.0	53.5	53.9	55.5	***46.3***	**38.6**
38	Risk Committee's remuneration	0.0	9.4	***4.7***	20.6	37.3	46.3	49.0	48.6	48.2	51.8	53.9	54.5	***45.6***	**38.2**
39	Risk Committee's individual directors meetings	0.0	9.4	***4.7***	21.6	38.2	47.4	49.0	48.6	49.1	52.6	53.9	55.5	***46.2***	**38.7**
	Section 2: Accounting and Auditing														
40	Audit Committee's existence	0.0	31.3	***15.6***	62.9	85.3	96.8	97.1	97.3	97.4	98.2	98.3	99.1	***92.5***	**78.5**
41	Audit Committee's terms & reference	0.0	20.8	***10.4***	52.6	76.5	89.5	88.5	88.3	89.5	90.4	90.4	90.9	***84.0***	**70.7**
42	Audit Committee's composition	0.0	21.9	***10.9***	51.5	79.4	86.3	91.3	89.2	90.4	91.2	92.2	92.7	***84.9***	**71.5**
43	Audit Committee's chairperson	0.0	22.9	***11.5***	53.6	81.4	92.6	95.2	93.7	93.9	94.7	96.5	96.4	***88.7***	**74.6**
44	Audit Committee's majority of its members	0.0	21.9	***10.9***	54.6	79.4	93.7	95.2	93.7	93.9	95.6	94.8	93.6	***88.3***	**74.2**
45	Audit Committee's remuneration	0.0	9.4	***4.7***	47.4	77.5	92.6	90.4	93.7	87.7	95.6	96.5	91.8	***85.9***	**71.1**
46	Audit Committee's individual directors meetings	0.0	16.7	***8.3***	52.6	79.4	93.7	93.3	92.8	92.1	98.2	96.5	93.6	***88.0***	**73.5**
	3 ***Section 3: External Auditors & Internal Control Systems***														
47	Internal control systems	0.0	0.0	***0.0***	0.0	0.0	0.0	1.0	0.9	0.9	0.9	0.9	0.0	***0.5***	**0.4**
48	Compliance with internal control systems	0.0	0.0	***0.0***	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	***0.0***	**0.0**
49	Ability of the firm to carry out its activities	8.5	9.4	***8.9***	13.4	7.8	5.3	10.6	9.0	8.8	7.9	8.7	11.8	***9.3***	**9.2**
50	Frauds	0.0	0.0	***0.0***	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	***0.0***	**0.0**
	Section 4: Disclosure & Transparency														
51	Ownership structure	84.0	89.6	***86.8***	92.8	97.1	98.9	100.0	99.1	98.2	99.1	99.1	99.1	***98.2***	**96.1**
52	Industry structure and development	14.9	28.1	***21.5***	48.5	71.6	76.8	83.7	85.6	85.1	89.5	86.1	77.3	***78.2***	**67.9**
53	Investment opportunities	7.4	22.9	***15.2***	47.4	67.6	68.4	83.7	82.0	80.7	84.2	80.9	76.4	***74.6***	**63.8**
54	Financial and operational performance	42.6	53.1	***47.8***	74.2	86.3	96.8	98.1	98.2	95.6	99.1	97.4	99.1	***93.9***	**85.5**
55	Risks and concerns	5.3	20.8	***13.1***	46.4	68.6	70.5	84.6	89.2	90.4	90.4	87.0	85.5	***79.2***	**67.1**

	Continuation: Table 11	2001	2002	Average	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average	Avg. of 11 Years
56	General performance	0.0	9.4	***4.7***	30.9	48.0	58.9	62.5	66.7	67.5	68.4	70.4	65.5	***59.9***	**49.8**
57	Certificate from external auditor	1.1	3.1	***2.1***	29.9	45.1	89.5	95.2	98.2	98.2	100.0	100.0	98.2	***83.8***	**69.0**
58	Chapter on CG	0.0	28.1	***14.1***	60.8	87.3	97.9	98.1	100.0	99.1	100.0	100.0	100.0	***93.7***	**79.2**
59	Compliance/non-compliance	1.1	22.9	***12.0***	46.4	72.5	88.4	86.5	85.6	87.7	87.7	87.8	79.1	***80.2***	**67.8**
60	Penalties and strictures	1.1	24.0	***12.5***	48.5	78.4	84.2	84.6	90.1	87.7	87.7	89.6	84.5	***81.7***	**69.1**
61	Related party transactions	93.6	97.9	***95.8***	97.9	98.0	100.0	100.0	99.1	99.1	100.0	100.0	99.1	***99.3***	**98.6**
62	Market price data	0.0	16.7	***8.3***	50.5	78.4	90.5	88.5	90.1	93.0	93.0	93.9	92.7	***85.6***	**71.6**
63	External auditor's profile	0.0	21.9	***10.9***	51.5	84.3	97.9	96.2	100.0	98.2	99.1	100.0	100.0	***91.9***	**77.2**
64	Dividend Policy	40.4	54.2	***47.3***	53.6	61.8	61.1	67.3	69.4	69.3	71.1	72.2	69.1	***66.1***	**62.7**
65	Firm's loan	78.7	81.3	***80.0***	82.5	84.3	82.1	83.7	85.6	80.7	83.3	81.7	76.4	***82.3***	**81.8**
66	Publishing results online	0.0	1.0	***0.5***	11.3	21.6	28.4	32.7	36.9	36.0	36.0	37.4	40.9	***31.2***	**25.7**
67	Convertible instruments	0.0	2.1	***1.0***	9.3	20.6	21.1	21.2	25.2	28.1	29.8	27.8	28.2	***23.5***	**19.4**
68	Sending half- yearly results to shareholders	0.0	6.3	***3.1***	17.5	29.4	35.8	33.7	32.4	33.3	32.5	33.0	6.4	***28.2***	**23.7**
69	Firm's analysis of products	17.0	24.0	***20.5***	43.3	52.0	64.2	59.6	59.5	60.5	61.4	57.4	37.3	***55.0***	**48.7**
70	Outlook future	28.7	44.8	***36.8***	62.9	81.4	88.4	88.5	94.6	89.5	93.0	92.2	89.1	***86.6***	**77.5**
71	Management discussion & analysis	0.0	16.7	***8.3***	35.1	53.9	61.1	64.4	69.4	64.9	70.2	71.3	73.6	***62.6***	**52.8**
72	Disclosure of directors' biography	0.0	0.0	***0.0***	0.0	1.0	1.1	1.0	36.0	50.0	56.1	61.7	67.3	***30.5***	**24.9**

Similarly, the statistics in Panels *B, C, D* and *E* of Table 12 suggest that there is a substantial degree of dispersion in the distribution of each sub-index. For instance, the board and directors' sub-index ranges from 0% to 97.44%, with an average of 38.59%. Further, Omani firms appear to have on average: (i) higher compliance with both accounting and auditing provisions (75.37%) and disclosure and transparency provisions (64.04%); (ii) an intermediate level of compliance with board and directors provisions (38.59%); and (iii) a lower level of compliance with external auditors and internal control systems provisions (2.43%). Although Omani listed firms have shown some degree of compliance, the findings in Table 12 make clear that compliance with the 2002 OCGC is generally low. However, the current study further investigates the extent to which the levels of compliance before and after the implementation of the 2002 OCGC are significantly different. This was achieved by using *t-test* technique, where these levels were examined before and after 2003. Panel *F* of Table 12 reports the results of this test. These results reject the null hypothesis that the levels of compliance before and after implementing the OCGC have equal means at the 1% level of significance. Rather, these results lead the current study to accept the alternative hypothesis that the introduction of the 2002 OCGC has had some positive impact in encouraging Omani firms to engage in more CG practices, as the average *OCGI* scores for the period 2001 to 2002 are significantly lower than for the later period. In addition, the findings in Panel *A* of Table 14 show wide variability in compliance levels. The aggregate mean scores range from 1.3900 to 88.8900, with an average of 47.89 complying with 72 CG provisions for the period 2001 to 2011. The standard deviation of the *OCGI* is 21.7746, indicating that there is relative variation in compliance with the *OCGI* provisions among the sampled firms. The wide variability in the levels of compliance is expected to result from three main factors.

First, the high scores for particular provisions are influenced by other governance regulations, such as the Omani Companies Act and the Capital Market Law. For instance, in order to ensure effective board supervision, the Companies Act requires firms to have a minimum of five directors on their boards. Thus, a considerable number of sampled firms comply with the provision regarding the number of directors (79.2%). Second, as reported by previous studies, firms take time to comply with all CG provisions. This can be observed from Tables 11 and 12, which show the levels of compliance gradually improve from one year to the next. For instance, the average level of compliance with the provision of directors' classification from 2001 to 2011 is 0%, 22.9%, 50.5%, 74.5%, 84.2%, 83.7%, 86.5%, 86.0%, 87.7%, 87.8% and 94.5%. Third, compliance was lower for 35 out of 72 provisions. These lower levels could be related to the weakness of the Omani external CG framework, including the CAM and MSM, in encouraging

firms to engage in better CG practices. Further, some CG provisions, such as convertible instruments, may not be applicable to all firms, as is suggested by prior studies (e.g., Bozec and Bozec, 2012). External CG mechanisms, such as market for corporate control, seem to have no/less of a role (because of high ownership concentration) in encouraging Omani managers and directors to voluntarily disclose additional information on CG practices.

The skewness (-0.9200) and kurtosis (2.6976) statistics show that the *OCGI* is not normally distributed, rejecting the null hypothesis that the *OCGI* is symmetrically and mesokurtically distributed. However, the non-normality of the *OCGI* is relatively mild and not expected to harm the OLS assumptions, as the statistics of both skewness and kurtosis are close to accepted values (i.e., 0 and 3 respectively). As discussed in Subsection 5.1, Gujarati (2003) indicates that a variable with perfectly normal distribution is unlikely to be found in the real world, and as long as a variable is close to the critical value, then the OLS will not be seriously violated. The Spearman's non-parametric correlation coefficients and Pearson's parametric coefficients presented in Table 10 show the statistical correlation between the *OCGI* and the independent variables. For instance, the Pearson's parametric correlation coefficients indicate that the *OCGI* is positively and significantly associated with government ownership, foreign ownership, board size, audit firm size, CG committee, board diversity on the basis of gender and nationality, profitability and firm size. In contrast, the *OCGI* has a negative significant relationship with leverage, and no significant relationship with institutional ownership, block ownership and growth. The present study finds similar results using Spearman's non-parametric correlation. This indicates that Omani firms with the following characteristics are motivated to comply with the OCGC and provide information about their CG structures: large government ownership, foreign ownership, large board size, having an established CG committee, having female directors, having non-Omani directors, being more profitable, being large and being audited by one of the big four audit firms.

Table 12: Summary descriptive statistics of levels of compliance with corporate governance disclosure index (*OCGI*) and sub-indices (%)

	All	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Panel A: *All provisions contained in the Omani corporate governance index (OCGI)*												
Mean	47.8974	6.7819	17.4190	33.6627	47.2222	54.0351	55.3686	58.6336	59.6248	60.9284	61.0749	60.1768
Median	54.1667	5.5556	8.3333	41.6667	50.0000	54.1667	55.5556	58.3333	59.0278	59.7222	59.7222	59.7222
STD	21.7747	2.3565	16.7201	21.7550	17.4887	11.5620	10.9602	10.7947	9.9774	9.9513	9.9535	9.2303
Min	1.3889	1.3889	2.7778	1.3889	1.3889	4.1667	6.9444	34.7222	34.7222	34.7222	30.5556	33.3333
Max	88.8889	12.5000	62.5000	73.6111	75.0000	77.7778	77.7778	88.8889	87.5000	88.8889	87.5000	84.7222
Panel B: *Board & Directors*												
Mean	38.5884	1.5276	11.0577	25.0330	37.0538	43.0499	43.8856	48.0480	49.4602	50.9447	51.2821	51.9114
Median	41.0256	1.2821	2.5641	28.2051	35.8974	38.4615	41.0256	46.1538	48.7179	51.2821	53.8462	53.8462
STD	21.8379	1.7362	16.1583	20.4284	17.4004	13.9938	13.3751	14.8256	13.8301	14.2274	14.4050	13.6839
Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	20.5128	25.6410	25.6410	17.9487	20.5128
Max	97.4359	7.6923	58.9744	71.7949	74.3590	79.4872	76.9231	97.4359	97.4359	97.4359	97.4359	97.4359
Panel C: *Accounting & Auditing*												
Mean	75.3720	0.0000	20.6845	54.6392	79.8319	92.1805	92.9945	92.6641	92.9825	94.8622	95.0311	94.0260
Median	100.0000	0.0000	0.0000	71.4286	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
STD	38.9407	0.0000	34.8000	44.4166	35.9808	17.4053	17.0077	18.1587	16.3762	14.6141	14.2912	13.3202
Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	28.5714
Max	100.0000	0.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000
Panel D: *External Auditors & Internal Control Systems*												
Mean	2.4300	2.3900	2.3400	3.3500	1.9600	1.3200	2.8800	2.4800	2.4100	2.1900	2.3900	2.9500
Median	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD	7.7670	7.3950	7.3250	8.5610	6.7540	5.6120	8.7490	8.2260	8.1260	7.8430	8.0930	8.1080
Min	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max	50.0000	25.0000	25.0000	25.0000	25.0000	25.0000	50.0000	50.0000	50.0000	50.0000	50.0000	25.0000
Panel E: *Disclosure & Transparency*												
Mean	64.0349	19.0522	30.3977	47.7976	63.1462	71.0048	73.3392	76.9451	77.5917	78.7081	78.4980	74.7521
Median	72.7273	18.1818	22.7273	54.5455	68.1818	72.7273	77.2727	77.2727	77.2727	77.2727	77.2727	77.2727

Continuation: Table 12

	All	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
STD	24.3873	6.6750	18.4114	24.4262	20.7058	13.5908	12.8886	11.3299	11.6433	11.6212	11.8488	11.1949
Min	4.5455	4.5455	9.0909	4.5455	4.5455	13.6364	18.1818	40.9091	36.3636	36.3636	36.3636	40.9091
Max	100.0000	40.9091	81.8182	86.3636	100.0000	95.4545	95.4545	95.4545	100.0000	100.0000	100.0000	95.4545

Panel F: Corporate governance compliance before and after releasing the Omani code

	Years 01-02	Years 03-05	Years 06-08	Years 09-11	Years 03-11
Mean	12.156	44.950	57.945	60.734	54.956
T-test		20.521***	43.201***	48.538***	36.198***
STD	13.103	19.342	10.693	9.703	15.221
Min	1.389	1.389	6.944	30.556	1.389
Max	62.500	77.778	88.889	88.889	88.889

In sum, the key conclusion is that despite the initial theoretical prediction that the OCGC would effectively encourage firms to adopt better CG measures, CG compliance among Omani listed firms is still low. Further, evidence from the above discussion suggests that, contrary to the expectation that the OCGC's reliance on an Anglo-American model may not lead to improved CG standards in Oman due to the large differences between Omani and developed countries, the voluntary OCGC was able to promote CG practices of Omani listed firms to some extent. Further, these findings are consistent with prior studies showing that, contrary to general concerns about the ability of voluntary codes to improve CG standards in a particular setting, Omani firms have shown some positive response to the voluntary OCGC's recommendations. In this regard, Aguilera and Cuervo-Cazurra (2009, pp.376) state that "*Despite the criticisms that the codes' voluntary nature limits their ability to improve governance practices, codes of good governance appear to have generally improved the governance of countries that have adopted them, although there is the need for additional reforms*". Thus, the current study's findings are in line with theoretical and empirical literature claiming that the aim of promoting high standards of corporate behaviour can be achieved through adopting voluntary CG codes of good practices.

5.2.2 Descriptive Statistics of the Levels of Discolsure and Compliance with the OCGI (Industry Type)

Corporate governance compliance and disclosure have been suggested to differ across different industry groups (e.g., Elzahar and Hussainey, 2012; Ntim *et al*., 2012a). As discussed in Subsection 4.1.1, most prior studies exclude financial firms from their datasets, arguing that such firms are subject to more disclosure requirements than non-financial firms. The current study seeks to ascertain whether industry groups can explain the variability in the levels of compliance with the *OCGI*. In particular, following the suggestion in the literature that financial firms tend to have a high degree of CG compliance and disclosure, the current study seeks to understand the extent to which this suggestion applies to emerging countries like Oman, where financial and non-financial firms seem to behave identically due to weak enforcement. In this regard, Table 13 shows describtive statistics of the levels of disclosure and compliance with the *OCGI* based on industry type. Generally, the statistics in Panels *A*, *B*, *C*, *D*, *E*, *F*, *G*, *H*, and *I* of this table suggest that the aggregate mean scores of the *OCGI* are substantially varied among Omani listed firms across firm industry. These findings are further discussed in below.

Table 13: Descriptive statistics of levels of compliance based on industrial groups

	Mean	T-Test	Std. Dev	Minimum	Maximum
Panel A: Basic Materials (BM)	***48.680***	***0.271***	***20.680***	***2.780***	***76.390***
2001	6.945	4.114***	1.961	4.170	11.110
2002	21.783	1.101	19.178	2.780	62.500
2003	39.197	0.382	21.307	4.170	65.280
2004	51.242	1.168	14.275	4.170	75.000
2005	54.551	0.797	9.795	37.500	73.610
2006	55.820	0.505	8.987	45.830	75.000
2007	57.513	0.603	10.229	38.890	76.390
2008	58.712	0.417	9.925	37.500	75.000
2009	60.227	0.835	9.684	37.500	75.000
2010	60.037	1.375	9.649	36.110	75.000
2011	59.722	1.229	9.820	37.500	76.390
Panel B: Consumer Goods (CG)	***46.149***	***0.970***	***20.987***	***2.780***	***77.780***
2001	34.504	0.238	28.861	2.780	77.870
2002	30.069	0.014	25.127	2.780	65.280
2003	44.299	1.112	19.547	4.170	68.060
2004	48.819	0.756	16.971	6.940	68.060
2005	49.227	0.111	17.104	4.170	65.280
2006	49.338	0.633	16.893	4.170	66.670
2007	47.600	1.191	21.586	5.560	73.610
2008	47.410	1.742*	21.174	6.940	73.610
2009	50.190	1.223	20.317	4.170	73.610
2010	51.830	0.255	17.627	5.560	76.390
2011	52.924	0.140	13.842	6.940	69.440
Panel C: Consumer Services (CS)	***49.342***	***0.589***	***20.016***	***1.390***	***88.890***
2001	33.255	0.369	29.108	4.170	88.890
2002	33.563	0.398	25.849	4.170	87.500
2003	41.912	0.747	19.685	5.560	66.670
2004	46.219	0.324	18.006	5.560	66.670
2005	52.205	0.366	13.002	8.330	66.670
2006	54.028	0.159	12.567	5.560	68.060
2007	52.181	0.446	17.588	6.940	75.000
2008	54.894	0.436	14.119	4.170	70.830
2009	55.903	0.175	14.766	2.780	76.390
2010	57.916	0.814	16.378	1.390	88.890
2011	57.272	0.610	17.482	1.390	87.500
Panel D: Financials (FI)	***48.128***		***24.428***	***1.390***	***84.720***
2001	36.666		30.500	1.390	84.720
2002	30.183		28.868	4.170	80.560

Continuation: Table 13					
Panel D: Financials (FI)	Mean	T-Test	Std. Dev	Minimum	Maximum
2003	36.333		26.149	4.170	81.940
2004	44.069		23.787	5.560	80.560
2005	49.942		23.034	6.940	83.330
2006	53.124		23.138	4.170	77.780
2007	54.645		20.396	5.560	75.000
2008	56.944		17.863	4.170	76.390
2009	56.745		17.543	6.940	76.390
2010	53.272		21.392	5.560	84.720
2011	53.666		19.657	5.560	84.720
Panel E: Health Care (HE)	***38.160***	***1.821***	***21.112***	***5.560***	***63.890***
2001	6.250	1.385	0.975	5.560	6.940
2002	31.945	0.083	33.396	8.330	55.560
2003	28.470	0.408	28.482	8.330	48.610
2004	25.690	1.048	26.516	6.940	44.440
2005	31.250	1.093	28.482	11.110	51.390
2006	47.220	0.353	13.746	37.500	56.940
2007	46.525	0.549	14.729	36.110	56.940
2008	50.000	0.537	11.780	41.670	58.330
2009	48.610	0.640	11.781	40.280	56.940
2010	53.475	0.013	14.729	43.060	63.890
2011	62.500	0.441	0.000	62.500	62.500
Panel F: Industrials (IN)	***48.853***	***0.291***	***22.233***	***2.780***	***80.560***
2001	21.475	1.568	23.389	2.780	68.060
2002	21.794	0.913	22.760	4.170	69.440
2003	45.406	1.059	22.718	5.560	73.610
2004	49.884	0.736	19.753	8.330	75.000
2005	51.966	0.268	17.741	11.110	77.780
2006	54.281	0.160	13.996	36.110	77.780
2007	56.018	0.209	15.391	34.720	80.560
2008	59.606	0.470	12.416	47.220	80.560
2009	60.880	0.745	11.709	47.220	80.560
2010	61.575	1.250	12.554	38.890	80.560
2011	62.807	1.313	11.149	45.830	76.390
Panel G: Oil and Gas (OG)	***36.362***	***1.583***	***16.372***	***8.330***	***51.390***
2001	8.330	0.911	0.000	8.330	8.330
2002	15.280	0.507	0.000	15.280	15.280
2003	11.110	0.946	0.000	11.110	11.110
2004	40.280	0.156	0.000	40.280	40.280
2005	38.890	0.471	0.000	38.890	38.890

Continuation: Table 13					
Panel G: Oil and Gas (OG)	Mean	T-Test	Std. Dev	Minimum	Maximum
2006	45.830	0.310	0.000	45.830	45.830
2007	45.830	0.425	0.000	45.830	45.830
2008	47.220	0.535	0.000	47.220	47.220
2009	47.220	0.534	0.000	47.220	47.220
2010	48.610	0.214	0.000	48.610	48.610
2011	51.390	0.114	0.000	51.390	51.390
Panel H: Telecommunications (TE)	***63.117***	***1.836***	***6.772***	***48.610***	***69.440***
2001	0.000	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000
2005	63.888	0.594	0.000	63.890	63.890
2006	59.720	0.280	0.000	59.720	59.720
2007	59.722	0.713	0.000	59.722	59.722
2008	69.444	0.688	0.000	69.440	69.440
2009	68.055	0.633	0.000	68.060	68.060
2010	54.166	0.304	7.856	48.610	59.720
2011	64.583	0.770	4.910	61.110	68.060
Panel I: Utilities (UT)	***45.547***	***0.591***	***20.954***	***2.780***	***65.280***
2001	29.512	0.442	26.383	5.560	56.940
2002	35.646	0.313	25.015	6.940	52.780
2003	35.647	0.044	21.260	11.110	48.610
2004	54.166	0.723	2.401	52.780	56.940
2005	58.336	0.619	6.053	54.170	65.280
2006	57.406	0.316	2.118	55.560	59.720
2007	57.870	0.269	4.242	54.170	62.500
2008	55.556	0.132	6.364	50.000	62.500
2009	39.816	1.479	31.492	4.170	63.890
2010	40.743	0.921	33.139	2.780	63.743
2011	41.666	0.938	32.658	4.170	63.890

Notes: The t-test in Column 3 is the independent samples t-test for equality of means. The mean differences in Panels *A, B, C, E, F, G, H* and I test for equality means between basic materials, consumer goods, consumer services, financials, health care, industrials, oil and gas, telecommunications, utilities and financial firms, respectively. A mean difference with (***), (**) and (*) indicates that the null hypothesis that the means are equal is rejected at the 1%, 5%, and 10%, respectively. Std. Dev denotes standard deviation.

Panels *A* to *I* of Table 13 illustrate descriptive statistics for each industry group across the eleven years, with the eight industrial groups compared to the financial group. Specifically, the *t-test* in Column 3 examines whether financial firms' average levels of CG compliance are significantly different from the other eight industries. This enables the current study to either

reject or accept the null hypothesis that there is no significant difference between financial and non-financial firms in terms of complying with CG standards. Further, in order to account for the suggestion in the literature that CG compliance is improving over time, the current study computes compliance levels for each industry group for each sampled year. This allows it to confirm its descriptive statistics based on full data; the findings indicate that CG compliance has improved over time.

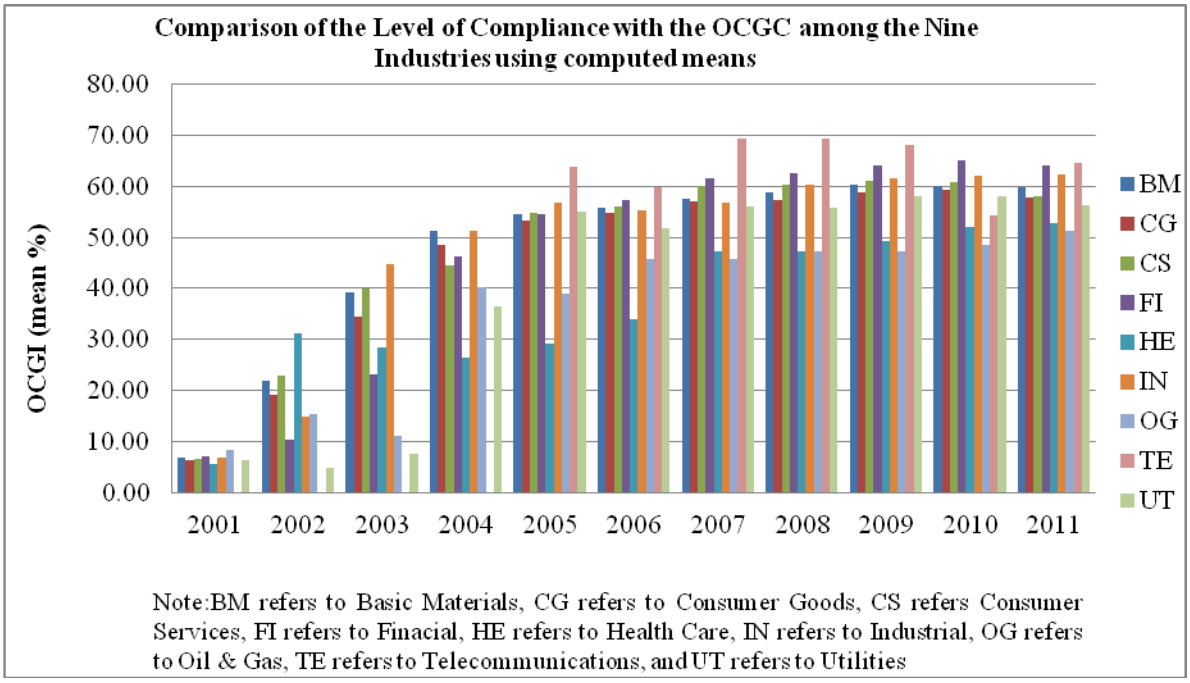

Figure 3: The levels of corporate governance compliance by industry group

Three main conclusions can be drawn from Table 13 and Figure 3. First, both show that basic materials, consumer goods, consumer services, financials, health care, industrials, oil and gas, telecommunications and utilities firms complied with 48.68%, 46.15%, 49.34%, 48.13%, 38.16%, 48.85%, 36.36%, 63.12% and 45.55% of the *OCGI*, respectively. This indicates that firms in telecommunication and consumer services industries tend to comply more with the *OCGI*'s provisions than those in the other industry groups. In contrast, health care and oil and gas groups appear to have lower levels of CG compliance. This is contrary to the LT's prediction that firms in certain industries, such as oil and gas, may be more motivated to comply with CG standards than other firms in order to legitimise their activities (Owusu-Ansah, 1998; Arcay and Vazquez, 2005). Second, similar to the results for the full sample, Table 13 and Figure 3 show that the level of compliance for each industry group has increased over time, confirming the suggestion in the literature that CG compliance takes time to improve. For instance, the average compliance of consumer goods firms increased from 34.50% in 2001 to 52.92% in 2011, and the

aggregate mean scores range from 2.78 to 77.78, with an average of 46.15 complying with 72 CG provisions for the period 2001 to 2011. Third, Column 3 of Table 13 reports *t-test* statistics indicating that the means of the nine industrial groups are not statistically significantly different from the financial industrial group. This suggests that the null hypothesis that there is no significant difference between financial and non-financial firms is accepted. In conclusion, the findings based on industry group are in line with theoretical expectations and prior empirical evidence that firms operating in different industries tend to have different levels of CG compliance and disclosure.

5.2.3 Descriptive Statistics of Explanatory Variables

Panel *B* of Table 14 presents descriptive statistics for the independent variables. The current study makes a number of observations.

Table 14: Descriptive statistics of the dependent, explanatory and control variables

Variable	Mean	Median	Std.Dev	Skewness	Kurtosis	Minimum	Maximum
Panel A: Dependent variable							
OCGI	47.8973	54.1667	21.7746	-0.9200	2.6976	1.3900	88.8900
Panel B: Explanatory variables							
GOVOWN	5.5173	0.0000	13.4804	3.1670	13.2821	0.0000	75.2558
INSOWN	20.3921	12.4205	22.6782	1.0529	3.2718	0.0000	90.8500
FOROWN	10.4591	0.0000	20.0972	2.0946	6.8656	0.0000	90.1300
BLKOWN	54.8402	56.5927	24.3699	-0.3106	2.4292	0.0000	99.4700
BSIZE	7.3437	7.0000	1.7885	0.7651	3.1554	4.0000	13.0000
BIG4	0.7100	1.0000	0.4539	-0.9259	1.8574	0.0000	1.0000
CGCOM	0.1588	0.0000	0.3656	1.8665	4.4839	0.0000	1.0000
GNDR	0.1770	0.0000	0.3819	1.6918	3.8622	0.0000	1.0000
BDIVN	0.0858	0.1111	0.0738	-0.0795	1.4452	0.0000	0.2500
Panel C: Control variables							
GROWTH	0.7858	0.6735	0.4408	0.9024	3.0564	0.1990	1.8570
LVRG	0.3300	0.2678	0.2937	0.6378	2.2736	0.0001	0.9530
ROA	0.0573	0.0504	0.0980	0.0161	2.7295	-0.1368	0.2500
LNTA	16.6222	16.4242	1.4732	0.5497	2.6375	14.4500	19.9400

Notes: *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *BDIVN* denotes board diversity on the basis of nationality, *GROWT* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size. Std.Dev denotes standard deviation. The skewness and kurtosis are used as measures to test for normality assumption.

First, the mean of government ownership is 5.517, revealing that the Omani state hold shares in almost 6% of sampled firms. This percentage is relatively high and is expected to have an impact on the willingness of firms to comply with CG standards and provide additional information on their CG structures. In this regard, both the Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 10 indicate that firms with significant government ownership tend to comply more with the *OCGI* than those with no government

ownership. Second, the institutional ownership variable ranges from 0.0000 to 0.9085, with average of 20.3921. The standard deviation of institutional ownership is 22.6782, suggesting that there is significant variation in this variable.

Third, foreign ownership has a mean of 10.4591 and ranges from 0.0000 to 0.9013, with a standard deviation of 20.0972. This may suggest that the presence of foreign ownership may have a crucial role in encouraging local firms to comply with CG requirements. This is supported by both the Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 10, indicating that foreign ownership is significantly and positively correlated with the *OCGI*.

Fourth, the mean percentage of block ownership is about 55%, indicating a higher level of ownership concentration. Over the 1,152 firm-year observations, block ownership ranges from 0.0000 to 0.9947, with a standard deviation of 24.3699. The high average of block ownership may suggest that low voluntary CG compliance is expected, as the market for control will not be working effectively in firms with a large portion of block investors compared with those with diffuse ownership.

Fifth, board size ranges from 4 to 13 directors, with an average of 7. This meets the *OCGI*'s provision that a firm's board should have at least five directors. It is also in line with the Omani Companies Act requirement, but contrary to Lipton and Lorsch's (1992) recommendation that boards should have between eight and nine members in order to work efficiently. This may suggest that board size seems to have less of an effect on firms' CG disclosure. The board size average is in line with some prior studies in emerging countries. For example, Akhtaruddin *et al*. (2009) investigate CG compliance in Malaysia and report empirical evidence that board size ranges from 3 to 14 directors, with an average of 7.97.

Sixth, most firms (71%) use the services of the big audit firms. This finding is consistent with some past studies conducted in emerging countries. For instance, Barako *et al*. (2006a) report that 75% of Kenyan firms are audited by one of the big international audit firms. Both Pearson's parametric and Spearman's non-parametric correlation matrices indicate that the association between audit firm size and the *OCGI* is significant and positive.

Seventh, the average percentage of 0.1588 suggests that about 16% of Omani listed firms have a CG committee. This may imply that firms with CG committees are more likely to engage in CG practices than those with no CG committees. The Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 10 support this finding by showing that CG committee has a significant and positive relationship with the *OCGI*. This finding is consistent with Ntim *et al*. (2012a), who find that the presence of a CG committee is significantly

and positively associated with South African CG index, as indicated by both Pearson and Spearman statistics.

Finally, gender and nationality as measures of board diversity have average of 17% and 8%, respectively. These statistics may suggest that the presence of both female and non-Omani directors on firms' boards can increase the level of disclosure provided by these firms. This is supported by both the Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 10 indicating that gender and nationality have a significant and positive association with the *OCGI*.

5.2.4 Descriptive Statistics of Control Variables

Summary descriptive statistics of control variables, namely growth, leverage, profitability and firm size, are presented in Panel *C* of Table 14. First, Omani firms appear to have: (i) superior investment and growth opportunities, as indicated by average sales growth of 78%, with a minimum value of 19% and a maximum value of 185.7%; (ii) an intermediate level of debt in their capital structures, as suggested by average leverage of 33%, with a minimum value of 0% and a maximum value of 95%; (iii) a lower level of profitability, with an overall mean for the entire sample period of 5.7%, a minimum value of -13.7% and a maximum value of 25%; and (iv) an average firm size of 16.6%, with a minimum value of 14.5% and a maximum value of 19.9%. Second, each control variable has a relatively large standard deviation and its skewness and kutosis statistics are relatively mild compared to the critical values. The Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 10 show that profitable and large firms have a significant and positive relationship with the *OCGI*, whereas growth firms appear to have no significant association with the *OCGI*. In contrast, leveraged firms seem to have a significant and negative relationship with the *OCGI*.

6 EMPIRICAL RESULTS AND DISCUSSION

This section presents the empirical results of the determinants of CG disclosure and discusses whether the observed cross-sectional differences in voluntary CG disclosures can be explained by ownership structure and board/audit characteristics. In particular, Table 16 reports the OLS results of the *OCGI* on explanatory and control variables, while Table 15 provides a summary of all hypotheses and findings to facilitate comparison. Table 16 includes three analyses. First, in order to examine only the effect of ownership structure, separate from other explanatory variables, Columns 3 and 4 of Table 16 report the results of multivariate regression of the *OCGI* on ownership structure and control variables alone. The probability of *F-Stat* is statistically significant at the 1% level of significance, suggesting that the null hypothesis that the coefficients of ownership variables in addition to control variables are equal to zero is rejected. The adjusted R^2 is 0.77, suggesting that approximately 78% of variability in the *OCGI* is jointly explained by these variables. The coefficients on these variables indicate that government, institutional and foreign ownership, and firm size, have a positive relationship with the *OCGI* at least at the 10% significance level. In contrast, block ownership and leverage are significant and negatively associated with the *OCGI*, whereas growth has no significant effect on the *OCGI*.

Second, only board and audit characteristics, in addition to control variables, were examined in order to see their effects on the *OCGI* separately from the rest of the explanatory variables: these results are reported in Columns 5 and 6 of Table 15. The null hypothesis that the estimated coefficients of board features, audit firm size and control variables are equal to zero is rejected, as reported by the *F-Stat*, which is statistically significant at the 1% level. The adjusted R^2 indicates that about of 78% of the changes in the *OCGI* are explained by this model. Among these variables, only board size, presence of a CG committee and firm size are significant and positively related to the *OCGI* at least at the 5% level of significance.

Third, Columns 7 and 8 of Table 16 report the results of multivariate regression of the *OCGI* on nine CG variables and the control variables to see the joint effect of all variables on the *OCGI*. The *F-Stat* is statistically significant at the 1% significance level, suggesting that ownership, board characteristics and control variables are not equal to zero. This means that the null hypothesis that there is no relationship between these variable and the *OCGI* is rejected. The adjusted R^2 is 0.78, indicating that 78% of variability in the *OCGI* is jointly explained by these variables. The signs of all the coefficients remain unchanged for the complete sample, with few changes in the level of significance and magnitude. In particular, block ownership, which was significant at 1%, is now statistically significant at 5%. Board size, which was statistically significant at 5%, is now significant at 10%. Leverage, which was statistically significant at 5%,

is now no longer statistically significant. Board diversity on the basis of nationality, which was statistically insignificant, is now significant at the 10% level of significance. Despite these changes, all the remaining variables still have a statistically significant relationship with the *OCGI*. These changes may be caused by the interrelated relationships between the nine explanatory and four control variables, in addition to year and industry dummies.

Overall, the analysis of the explanatory variables suggests that government ownership, institutional ownership and foreign ownership, board size, presence of a CG committee and board diversity on the basis of nationality have significant and positive relationships with the *OCGI*, while block ownership is significantly and negatively associated with the *OCGI*. In contrast, audit firm size and board diversity on the basis of gender have no significant association with the *OCGI*. These results are further discussed in the following subsections. Specifically, Subsection 5.1 discusses the empirical results of the explanatory variables, and Subsection 5.2 discusses the empirical results of the control variables.

Table 15: A summary of all hypotheses and findings for the voluntary corporate governance disclosure

Dependent variable			The Omani Corporate Governance Index (OCGI)								
Explanatory variables			Ownership variables			Board/Audit variables			All		
Governance Variables	Hyp. No	Expe-cted sign	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status
Government ownership	1	+	+	Significant (1%)	Accepted	-	-	-	+	Significant (1%)	Accepted
Institutional ownership	2	+	+	Significant (5%)	Accepted	-	-	-	+	Significant (5%)	Accepted
Foreign ownership	3	+	+	Significant (10%)	Accepted	-	-	-	+	Significant (10%)	Accepted
Block ownership	4	-	-	Significant (1%)	Accepted	-	-	-	-	Significant (5%)	Accepted
Board size	5	-/+	+	-	-	+	Significant (5%)	Accepted	+	Significant (10%)	Accepted
Audit firm size	6	+	+	-	-	+	Insignificant	Rejected	+	Insignificant	Rejected
Board diversity on the basis of gender	7	+	-	-	-	-	Insignificant	Rejected	-	Insignificant	Rejected
Board diversity on the basis of nationality	8	+	+	-	-	+	Insignificant	Rejected	+	Significant (10%)	Accepted
Presence of a CG committee	9	+	+	-	-	+	Significant (1%)	Accepted	+	Significant (1%)	Accepted

Note: Column 1 presents the ninth variables that are represented the ninth tested hypotheses. Columns 2 to 12 present information relating to hypotheses one to nine with regard to the Omani corporate governance index.

Table 16: The OLS regression findings of the voluntary corporate governance compliance determinants

		Ownership variables		Board/Audit variables		All	
Independent variables	Ex.Sig	Coef.	Sign	Coef.	Sign	Coef.	Sign
Panel A: CG variables							
GOVOWN	+	0.1192	0.0028***	-	-	0.1134	0.0034***
INSOWN	+	0.0561	0.0116**	-	-	0.0483	0.0222**
FOROWN	+	0.0533	0.0625*	-	-	0.0534	0.0570*
BLKOWN	-	-0.0684	0.0054***	-	-	-0.0581	0.0139**
BSIZE	-/+	-	-	0.6396	0.0389**	0.5482	0.0761*
BIG4	+	-	-	0.5042	0.5822	0.4672	0.6109
CGCOM	+	-	-	8.3165	0.0000***	8.0640	0.0000***
GNDR	+	-	-	-1.0181	0.3764	-0.9215	0.4313
BDIVN	+	-	-	8.8042	0.1032	10.1850	0.0640*
Panel B:Control variables							
GROWTH		0.8069	0.3367	0.5601	0.5013	0.5519	0.5011
LVRG		-2.9407	0.0570*	-2.2006	0.1509	-2.1052	0.1712
ROA		1.7809	0.6379	2.8460	0.4423	1.5133	0.6848
LNTA		1.9879	0.0000***	1.8592	0.0003***	1.7430	0.0006***
2001		-45.3556	0.0000***	-43.8104	0.0000***	-44.1863	0.0000***
2002		-35.9472	0.0000***	-34.6664	0.0000***	-34.9676	0.0000***
2003		-20.5132	0.0000***	-19.7059	0.0000***	-19.8645	0.0000***
2004		-6.7457	0.0000***	-6.3876	0.0000***	-6.4359	0.0000***
2006		2.2123	0.0143**	2.3264	0.0088***	2.2984	0.0104***
2007		4.6645	0.0002***	4.8656	0.0001***	4.8892	0.0001***
2008		5.5705	0.0001***	5.4663	0.0001***	5.5015	0.0001***
2009		6.3483	0.0002***	6.3448	0.0001***	6.3311	0.0001***
2010		6.7663	0.0000***	6.6069	0.0000***	6.5364	0.0000***
2011		7.4169	0.0000***	6.5076	0.0002***	7.0290	0.0001***
Basic materials		11.2711	0.0096***	10.6286	0.0114**	10.4629	0.0157**
Consumer services		11.9094	0.0071***	9.4404	0.0262**	10.2129	0.0204**
Consumer goods		12.6755	0.0036***	9.8332	0.0201**	11.2096	0.0098***
Financials		9.3048	0.0340**	6.2185	0.1464	7.1416	0.1034
Health care		0.3994	0.9505	0.8756	0.8908	0.7232	0.9097
Industrials		13.7723	0.0019***	10.4353	0.0138**	11.6719	0.0080***
Telecommunications		4.5210	0.3970	4.1133	0.4986	2.6096	0.6476
Utilities		2.4751	0.6469	-0.4762	0.9281	-0.4840	0.9265
Constant		11.4095	0.1771	7.3147	0.3684	10.1784	0.2220
Adj. R^2		0.7746		0.7797		0.7823	
F-Stat		147.3170***		146.4208***		130.0811***	
Durbin-Watson Stat.		2.0849		2.0966		2.0926	
Number of observations		1152		1152		1152	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN) and foreign ownership (FOROWN) are measured as percentage of government, institutional and foreign ownership to total firm ordinary shareholdings. Block ownership (BLKOWN) is measured as percentage of shares held by shareholders with at least 5% of the total firm shareholdings. Board size (BSIZE) is measured by the total number of directors on the firm's board. Audit firm size (BIG4) is measured as dummy variable where a firm takes 1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise. The presence of corporate governance committee (CGCOM) is measured as dummy variable where a firm takes 1 if a firm has set up a corporate governance committee, 0 otherwise. Board diversity on the basis of gender (GNDR) is measured as dummy variable where a firm takes 1 if a firm has a female director on its board, 0 otherwise. Board diversity on the basis of nationality (BDIVN) is measured as number of non-Omani directors divided by total number of board members. Growth (GROWTH) is measured by current year's sales minus last year's sales to last year's sales. Leverage (LVRG) is measured as book total debt scaled by total assets of a firm. Profitability (ROA) is measured as operating profit to total assets. Firm size (LNTA) is measured by natural log of total assets. In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

6.1 EMPIRICAL RESULTS OF EXPLANATORY VARIABLES

Panel *A* of Table 16 reports the empirical results of the ownership variables and board and audit characteristics. First, the coefficient on government ownership is positive and statistically significant at the 1% level of significance. This means that *H1*, that there is a statistically significant and positive relationship between government ownership and the level of CG disclosure, is supported. This finding suggests that, contrary to the view that Omani firms with large portion of government ownership may be less motivated to provide additional voluntary CG disclosure because they are anticipated to be strongly politically connected as the case in many emerging countries (Samaha and Dahawy, 2011), Omani firms where large stakes of shares are held by the government disclose more CG information than those with non-government ownership. Theoretically, the significant and positive coefficient on government ownership is consistent with the prediction that because agency costs would be higher in such firms, as the state has interests in both profit and non-profit projects, firms with state ownership need to voluntarily disclose more information in order to reduce the divergence of interests between the government and shareholders. The highly significant effect of government ownership is further supported by the view that the government as a shareholder considers itself as accountable to stakeholders at large, and is thus expected to place pressure on firms to provide additional CG information (Ghazali and Weetman, 2006). The positive effect of government ownership indicates that state ownership serves as a substitute CG mechanism that motivates firms to disclose information on their CG practices. Empirically, however, this finding is consistent with limited studies (e.g., Eng and Mak, 2003; Ntim *et al*., 2012a). This finding is also inconsistent with other studies (e.g., Ghazali and Weetman, 2006; Huafang and Jianguo, 2007; Samaha and Dahawy, 2011) that report evidence of no significant effect of government ownership on voluntary CG compliance and disclosure.

Second, there is a statistically significant and positive association between institutional ownership and the *OCGI* at the 5% level of significance, which means that *H2* is supported. This finding implies that Omani firms with institutional investors tend to disclose more CG information than those with no institutional ownership. This finding in line with the theoretical prediction that institutional shareholders ensure high levels of CG disclosure, as they are motivated to demand more information in order to monitor managers (Barako *et al.*, 2006a). The positive effect of institutional ownership is further supported by the expectation that institutional shareholders do not prefer to invest in firms with lower levels of disclosure, as this will increase monitoring costs (Bushee *et al.*, 2010). Empirically, this finding is in line with a considerable

number of past studies (e.g., Haniffa and Cooke, 2002; Barako *et al.*, 2006a; Laidroo, 2009; Chung and Zhang, 2011; Aggarwal *et al.*, 2011; Ntim *et al*., 2012a), and contrary to Donnelly and Mulcahy (2008), who report no significant association between institutional ownership and the level of voluntary CG disclosure.

Third, the coefficient on foreign ownership is positive and statistically significant at the 10 % level of significance. The *H3* that there is a statistically significant and positive relationship between foreign ownership and firm-level voluntary CG disclosure is empirically supported. This finding indicates that foreign investors help local firms to improve their levels of CG disclosure. Theoretically, this finding is in line with the prediction that because foreign investors face a higher level of information asymmetry compared with domestic firms, as a result of distance and language obstacles, they require more information in order to reduce asymmetric information, which motivates local firms to provide additional information to attract such investors (Haniffa and Cooke, 2002; Huafang and Jianguo, 2007). This is also consistent with the view that foreign investors do not prefer to invest in countries with weaker disclosure requirements (Leuz *et al.*, 2010). Despite limited studies on foreign ownership, this finding is consistent with prior studies (e.g., Haniffa and Cooke, 2002; Barako *et al.*, 2006a; Mangena and Tauringana, 2007; Huafang and Jianguo, 2007).

Fourth, unlike the three ownership structures examined in this study, block ownership has a significant and negative relationship with firm-level voluntary CG disclosure. In particular, the coefficient on block ownership is negative and statistically significant at the 5% level of significance, suggesting that *H4* is empirically supported. This finding shows that firms with block holders tend to disclose less CG information than those with no concentration of ownership. This finding in line with the theoretical prediction that block holders do not encourage firms to provide additional information as this affects their ability to expropriate minority shareholders. This is what usually happens in emerging countries where the conflict of interest tends to be between block holders and minority shareholders rather than between managers and shareholders (Shleifer and Vishny, 1997; Aleves, 2012). This finding also supports the current study's argument that the high level of ownership concentration (55%) in Oman, predominantly through institutions with highly complicated cross-holdings, has a crucial impact on CG compliance and disclosure. The negative effect of block ownership is consistent with previous studies (e.g., Bauwhede and Willekens, 2008; Laidroo, 2009; Samaha and Dahawy, 2011; Ntim *et al*., 2012a; Samaha *et al*., 2012). In contrast, this finding is different from prior studies that report evidence of a positive effect (e.g., Huafang and Jianguo, 2007) and no significant effect (e.g., Eng and Mak, 2003; Konijn *et al*., 2011).

Fifth, board characteristics, including board size, CG committee and board diversity on the basis of nationality, are found to be statistically significant and positively associated with the *OCGI*. The coefficient on board size is statistically positive at the 10% level of significance, indicating that larger boards tend to impact positively on firm disclosure. This is in line with the theoretical expectation that larger boards enjoy a greater diversity of experience and skills than smaller boards, which enables them to encourage firms to provide additional information on their CG compliance. The positive finding lends empirical support to previous studies (e.g., Laksmana, 2008; Akhtaruddin *et al*., 2009; Ntim *et al*., 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013). In contrast, it does not lend empirical support to the results of Arcay and Vazquez (2005) and Cheng and Courtenay (2006), who report empirical evidence that the level of disclosure is not statistically significantly associated with board size.

The model finds a statistically significant and positive association between the presence of a CG committee and firm-level voluntary CG disclosure at the 1% significance level. The statistically significant and positive finding indicates that *H9* is empirically supported. This finding suggests that firms with CG committees appear to disclose more CG information than those with no CG committees. It offers support to the theoretical prediction that a CG committee encourages firms to adopt good CG disclosure practices. Empirically, it supports the results of Ntim *et al.* (2012a), who find that South African listed firms significantly enhance their CG disclosure by establishing CG committees.

The statistically significant and positive (at the 10% level of significance) coefficient on board diversity on the basis of nationality lends empirical support to *H8*, that the presence of non-Omani directors on firms' boards impacts positively on the *OCGI*. This finding implies that firms who have non-Omani directors tend to provide more CG information than those who have only Omani directors. Theoretically, this finding is in line with the prediction that having directors of different nationalities, with distinctive values and incentives in adopting policies and making decisions, can improve CG disclosure. Empirically, the significant and positive finding does not lend empirical support to the results of Adelopo (2011), who report empirical evidence that CG disclosure by Nigerian firms is not significantly associated with the presence of non-Nigerian directors.

Finally, unlike the above explanatory variables, audit firm size and board diversity on the basis of gender have no explanatory power in explaining the variations in firm-level voluntary CG disclosure. Although the coefficient on audit firm size is positive, it is not statistically significant, so *H6* is rejected, that audit firm size impacts significantly and positively on the level of voluntary CG disclosure. This finding lends empirical support to prior studies (e.g., Eng and

Mak, 2003; Alsaeed, 2006; Barako *et al.*, 2006a; Aly *et al.*, 2010). Similarly, the insignificant relationship between board diversity on the basis of gender and the *OCGI* leads the present study to reject *H7*, that there is a statistically significant positive association between the presence of women on a firm's board and the level of voluntary CG disclosure. This finding suggests that the presence of female directors on firms' boards does not contribute to Omani firms' disclosure policies.

6.2 EMPIRICAL RESULTS OF CONTROL VARIABLES

Panel *B* of Table 16 reports the empirical results of the control variables. First, the model finds a statistically insignificant association between growth, leverage and profitability, and the level of voluntary CG disclosure. The coefficient on growth is positive and insignificant, indicating that firms with superior investment and growth opportunities do not provide additional information on their CG practices. This finding lends empirical support to past studies (e.g., Ntim *et al*., 2012a). The result for leverage shows that leverage is negatively and insignificantly correlated with the *OCGI*. This is in line with previous studies (e.g., Ho and Wong, 2001; Elzahar and Hussainey, 2012; Samaha *et al.*, 2012; Allegrini and Greco, 2013). The coefficient on profitability suggests an insignificant impact of profitability on firm-level voluntary CG disclosure. This is consistent with prior studies (e.g., Ho and Wong, 2001; Eng and Mak, 2003; Alsaeed, 2006; Barako *et al.*, 2006a; Huafang and Jianguo, 2007; Hossain and Hammami, 2009; Allegrini and Greco, 2013; Elzahar and Hussainey, 2012).

Second, unlike the above control variables, firm size has a significant and positive relationship with firm-level voluntary CG disclosure. In particular, the coefficient on firm size is positive and statistically significant at the 1% level of significance. This finding indicates that larger firms appear to disclose more information on CG practices than smaller firms. The significant positive finding is in line with past studies (e.g Florou and Galarniotis, 2007; Donnelly and Mulcahy, 2008; Hossain and Hammami, 2009; Omar and Simon, 2011; Elzahar and Hussainey, 2012; Ntim *et al*., 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013). `

Finally, the estimated coefficients for the year and industry variables show that all firm year dummies and most industry dummies are significantly associated with the *OCGI*. Specifically, years 2001 to 2004 have a significant and negative relationship with the level of voluntary CG disclosure, whereas years 2006 to 2011, basic material sector, consumer goods sector, consumer services sector, and industrial sector are significantly and positively associated with the *OCGI*. These findings lend support to previous studies (e.g., Barako *et al*., 2006a; Elzahar and Hussainey, 2012; Ntim *et al*., 2012a) claiming that CG compliance and disclosure differ across years and industries.

To conclude, this section has discussed the results of the explanatory and control variables in order to investigate their abilities in explaining the variations in firm-level voluntary CG disclosure. Tables 15 and 16 show the findings of the nine hypotheses examined in this study in addition to those related to control variables. The findings are consistent with theoretical and empirical literature. They indicate that ownership structure has a significant impact on firm-level voluntary CG disclosure. Government, institutional and foreign ownership are significantly and positively associated with the *OCGI* whereas block ownership has a significant and negative relationship with the level of voluntary CG disclosure. These findings are in line with literature suggesting that ownership structures can either encourage or discourage firms from engaging in CG compliance (Shleifer and Vishny, 1986; Morck *et al*., 1988). As argued in this study, ownership concentration in the Omani context limits firms' willingness to voluntarily provide transparent information on CG compliance. The findings also suggest that board characteristics impact significantly and positively on firm-level voluntary CG disclosure. Board features including board size, the presence of a CG committee and board diversity on the basis of nationality have a significant and positive association with the *OCGI*, whereas board diversity on the basis of gender has an insignificant relationship. Unlike most explanatory variables examined in this study, audit firm size has no power in explaining the variability in the *OCGI*.

Overall, this study provides empirical evidence related to its second research question: What are the major factors that influence voluntary CG disclosure behaviour among Omani listed firms? It examines variables that are often considered in literature (e.g., block ownership, institutional ownership, board size, audit firm size), as well as variables that have not been widely investigated in the CG literature, such as board diversity on the basis of nationality and gender, foreign and government ownership and the presence of a CG committee.

7 ROBUSTNESS ANALYSES

This section discusses whether the results reported in Section 6 are robust or sensitive to alternative models and estimations. Specifically, as mentioned in Subsection 4.2.5, the current study carried out a number of robustness analyses in order to check the extent to which its main results are robust or sensitive to: (i) the use of an alternative CG index; (ii) omitted variables that differ across firms but do not change over time; (iii) financial firms; and (iv) endogeneity problem. Subsection 7.1 reports results based on a weighted CG index. Subsection 7.2 reports results based on the random-effects model. Subsection 7.3 reports results based only on non-financial firms. Subsection 7.4 reports results based on a lagged structure model. Subsection 7.5 reports results based on a two-stage least squares (2SLS) model. To facilitate comparison, both the main results and the robustness tests' results are presented in the same table. Despite observable minor sensitivities in the magnitude of the coefficient and the level of significance, all tests suggest that the main results are robust. Further discussion on these analyses is provided below.

7.1 RESULTS BASED ON AN ALTERNATIVE CORPORATE GOVERNANCE PROXY

As indicated in Subsection 4.2.1.3, the CG index used in this study to measure CG disclosure among Omani listed firms consists of 72 CG provisions divided into four sub-indices, which are equally weighted, but the number of provisions differ across the four sub-indices, leading to different weights being assigned to each sub-index: board and directors (54%); accounting and auditing (10%); external auditors and internal control systems (6%); and disclosure and transparency (30%). Thus, to check whether the main results are robust or sensitive to the weighting of the four sub-indices, the current study follows prior studies' procedure in constructing a weighted CG index (e.g., Beiner *et al.*, 2006; Ntim *et al*., 2012a). An alternative CG index, called *WOCGI*, was constructed, in which each sub-index was awarded equal weight of 20%. The un-weighted *OCGI* in equation (1) was replaced by the *WOCGI*, and the findings are reported in Table 17.

Columns 5 and 6 of Table 17 report the results of the weighted CG index along with the main results reported in Columns 3 and 4 of the same table. Overall, the statistical results of both analyses are generally similar. The null hypothesis that the coefficients of the nine CG variables and the control variables are equal to zero is rejected, as the *F-Stat is* statistically significant at the 1% level of significance. The adjusted R^2 indicates that about 77% of variability in the *WOCGI* is jointly explained by this model. The model predicts that ownership structure, board

size, CG committee and firm size are significantly associated with the *OCGI*. These results are discussed below, with particular focus on the main sensitivities of this analysis.

7.1.1 Empirical Results of Ownership Structure

The direction of the coefficients on ownership variables has not changed from the un-weighted CG index, while the statistical level of significance of a few variables has changed. In particular, the coefficient on block ownership, which was statistically significant at 5%, is now statistically significant at the 1% level.

7.1.2 Empirical Results of Board and Audit Characteristics

Consistent with the results of the main model, board features show similar direction and level of significance, except that board diversity on the basis of nationality, which was statistically significant, is now no longer statistically significant.

7.1.3 Empirical Results of Control Variables

Similar to the results of the main model, the direction and significance level of the coefficients on growth, leverage and profitability are insignificantly associated with the *WOCGI*. The coefficient on year 2006, which was statistically significant at 1%, is now statistically significant at the 10% level. The coefficients on basic materials and consumer goods sectors, which were satistically significant at 5%, are now significant at the 10% level. Similarly, the coefficients on consumer services and industrial sectors, which were statistically significant at the 1% level, are now statistically significant at the 5% and 10% , respectively.

Table 17: The results based on weighted corporate governance index

		Un-weighted index		Weighted index	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: Explanatory variables					
GOVOWN	+	0.1134	0.0034***	0.0953	0.0090***
INSOWN	+	0.0483	0.0222**	0.0435	0.0319**
FOROWN	+	0.0534	0.0570*	0.0394	0.0753*
BLKOWN	-	-0.0581	0.0139**	-0.0540	0.0091***
BSIZE	-/+	0.5482	0.0761*	0.4565	0.0934*
BIG4	+	0.4672	0.6109	0.1503	0.8694
CGCOM	+	8.0640	0.0000***	6.4323	0.0000***
GNDR	+	-0.9215	0.4313	-1.0467	0.3447
BDIVN	+	10.1850	0.0640*	8.3673	0.1431
Panel B:Control variables					
GROWTH		0.5519	0.5011	0.4445	0.5789
LVRG		-2.1052	0.1712	-1.3880	0.3490
ROA		1.5133	0.6848	0.2505	0.9474
LNTA		1.7430	0.0006***	1.0748	0.0092***
2001		-44.1863	0.0000***	-43.8392	0.0000***
2002		-34.9676	0.0000***	-34.5881	0.0000***
2003		-19.8645	0.0000***	-19.0690	0.0000***
2004		-6.4359	0.0000***	-6.2853	0.0000***
2006		2.2984	0.0104***	2.0690	0.0640*
2007		4.8892	0.0001***	3.4337	0.0084***
2008		5.5015	0.0001***	3.6913	0.0072***
2009		6.3311	0.0001***	4.4806	0.0012***
2010		6.5364	0.0000***	4.5988	0.0010***
2011		7.0290	0.0001***	5.0412	0.0004***
Basic materials		10.4629	0.0157**	8.9448	0.0650*
Consumer goods		10.2129	0.0204**	8.5707	0.0792*
Consumer services		11.2096	0.0098***	9.8793	0.0419**
Financials		7.1416	0.1034	4.5954	0.3438
Health care		0.7232	0.9097	-0.9434	0.8742
Industrials		11.6719	0.0080***	9.2456	0.0602*
Telecommunications		2.6096	0.6476	1.5228	0.8227
Utilities		-0.4840	0.9265	0.6185	0.9117
Constant		10.1784	0.2220	22.4387	0.0034***
Adj. R^2		0.7823		0.7714	
F-Stat		130.0811***		122.2312***	
Durbin-Watson Stat.		2.0926		2.0439	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), board diversity on the basis of gender (GNDR), board diversity on the basis of nationality (BDIVN), growth (GROWTH), leverage (LVRG), profitability (ROA), firm size (LNTA). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.2 RESULTS BASED ON THE RANDOM-EFFECTS MODEL

The second robustness check is derived from the concern that unobserved firm-level characteristics may impact on voluntary CG disclosure due to differences in the opportunities and challenges that firms face (Chung and Zhang, 2011; Ntim *et al*., 2012a), which simple OLS regression may not be able to control for (Gujarati, 2003). The Hausman test was performed to identify which model is most suitable to use (fixed or random effects model). The Hausman test's result (not reported here) accepts the null hypothesis that the random-effects model is appropriate. Thus, the main analysis was replicated using a random-effects model, as specified in equation (1). The results of this analysis are reported in Columns 5 and 6 of Table 18, in addition to the results of the main analysis reported in Columns 3 and 4 of the same table. These results remain essentially unchanged. The *F-Stat* suggests that the null hypothesis that there is no significant difference between observed and predicted values is rejected. The adjusted R^2 test is 0.75, indicating that 75% of the variability in the *OCGI* is explained by this model. Generally, Columns 5 and 6 of Table 18 show that ownership structure and board features remain significant determinants of variation in the *OCGI*. The key differences between the results based on the main model and those of the random-effects model are discussed below.

7.2.1 Empirical Results of Ownership Structure

Most ownership variables that have been predicted to be significantly associated with the *OCGI* in the main model still show a significant relationship, except foreign ownership, which was statistically significant at the 10% level and is now no longer statistically significant. The level of significance of governance and institutional ownership remain unchanged, whereas block ownership, which was statistically significant at 5%, is now statistically significant at the 1% level of significance.

7.2.2 Empirical Results of Board and Audit Characteristics

The sign on the coefficients of board size, audit firm size, CG committee and board diversity on the basis of gender and nationality have not changed, but the level of significance of some variables has changed. Specifically, the coefficients on board size and board diversity on the basis of nationality, which were statistically significant at the 10% level, are now statistically significant at the 1% and 5% levels of significance, respectively.

7.2.3 Empirical Results of Control Variables

Panel *B* of Columns 5 to 6 of Table 18 shows that growth, leverage, profitability and firm size remain unchanged, whereas a limited number of sensitivities is observed related to year and

industry dummies. First, all year dummies remain statistically significant at the same level of significance found by the main model, except the coefficient on year 2006, which was statistically significant at 1%, is now no longer statistically significant. Second, the coefficients on basic materials and consumer goods, which were statistically significant at 5%, are now statistically significant at the 10% level. Finally, the coefficients on consumer services and industrials sectors, which were statistically significant at 1%, are now statistically significant at the 5% level.

Table 18: The results of the random-effects model

		Simple OLS		Random-effects	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: Explanatory variables					
GOVOWN	+	0.1134	0.0034***	0.0973	0.0077***
INSOWN	+	0.0483	0.0222**	0.0516	0.0167**
FOROWN	+	0.0534	0.0570*	0.0149	0.5132
BLKOWN	-	-0.0581	0.0139**	-0.0553	0.0096***
BSIZE	-/+	0.5482	0.0761*	0.8526	0.0015***
BIG4	+	0.4672	0.6109	0.4419	0.6199
CGCOM	+	8.0640	0.0000***	7.1108	0.0000***
GNDR	+	-0.9215	0.4313	-0.1515	0.8872
BDIVN	+	10.1850	0.0640*	14.3472	0.0139**
Panel B:Control variables					
GROWTH		0.5519	0.5011	-0.1874	0.8304
LVRG		-2.1052	0.1712	-0.2394	0.8776
ROA		1.5133	0.6848	3.9356	0.3471
LNTA		1.7430	0.0006***	1.6354	0.0001***
2001		-44.1863	0.0000***	-45.3246	0.0000***
2002		-34.9676	0.0000***	-35.5446	0.0000***
2003		-19.8645	0.0000***	-19.5252	0.0000***
2004		-6.4359	0.0000***	-6.2671	0.0000***
2006		2.2984	0.0104***	1.5036	0.2974
2007		4.8892	0.0001***	4.5533	0.0016***
2008		5.5015	0.0001***	5.5846	0.0001***
2009		6.3311	0.0001***	6.5183	0.0000***
2010		6.5364	0.0000***	6.3050	0.0000***
2011		7.0290	0.0001***	6.0026	0.0001***
Basic materials		10.4629	0.0157**	10.4743	0.0492*
Consumer goods		10.2129	0.0204**	10.5915	0.0475*
Consumer services		11.2096	0.0098***	10.7424	0.0431**
Financials		7.1416	0.1034	6.5278	0.2166
Health care		0.7232	0.9097	-0.6409	0.9234
Industrials		11.6719	0.0080***	12.1545	0.0206**
Telecommunications		2.6096	0.6476	4.2673	0.5116
Utilities		-0.4840	0.9265	0.3749	0.9504
Constant		10.1784	0.2220	9.9356	0.2150
Adj. R^2		0.7823		0.7526	
F-Stat		130.0811***		113.8605***	
Durbin-Watson Stat.		2.0926		1.2299	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), board diversity on the basis of gender (GNDR), board diversity on the basis of nationality (BDIVN), growth (GROWTH), leverage (LVRG), profitability (ROA), firm size (LNTA). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.3 RESULTS BASED ON NON-FINANCIAL FIRMS

Although a number of past studies include both financial and non-financial firms in their analyses, most past studies exclude financial firms, arguing that they are subject to additional disclosure requirements. As discussed in Subsection 4.1.1, the main analysis was based on both financial and non-financial firms (1,152 firm years); therefore, in order to account for the suggestion in the literature that financial firms should be excluded from in the current study's data set as the inclusion of them may lead to different results, the present study re-runs the main regression specified in equation (1) using only non-financial firms (858 firm years). This enables the current study to accept the null hypothesis that there is no significant difference in terms of CG disclosure between Omani financial and non-financial listed firms, as shown in Table 19. This may be attributed to weak corporate regulations and enforcement, as the case in most emerging countries, where both types of firms behave largely the same. The *F-Stat* is significant at the 1% level of significance, so the null hypothesis that the coefficients of nine CG and control variables are not different from zero is rejected. The adjusted R^2 indicates that about 78% of the variability in the *OCGI* is jointly predicted by the model. Overall, Columns 5 to 6 of Table 19 report the results of this analysis, indicating that the main results remain essentially unchanged. Government, foreign and block ownership, board size, presence of a CG committee and board diversity on the basis of nationality remain statistically significant in predicting the *OCGI*. These results suggest several conclusions, which are discussed below.

7.3.1 Empirical Results of Ownership Structure

Two cases of sensitivities have been observed. First, the statistical significance of the coefficient on government ownership, which was statistically significant at 1%, is now statistically significant at 5%. Second, the coefficient on institutional ownership, which was statistically significant at 5%, is now no longer statistically significant. Despite these sensitivities, the sign and the level of significance of block ownership is remains unchanged.

7.3.2 Empirical Results of Board and Audit Characteristics

The coefficients on board features and audit firm size are in line with those reported by the main model; except for limited number of sensitivities regarding the level of significance. Specifically, the coefficients on board size and board diversity on the basis of nationality, which were statistically significant at 10%, are now statistically significant at the 5% significance level.

7.3.3 Empirical Results of Control Variables

Limited cases of sensitivities have been found. The coefficients on firm size, which was statistically significant at 1%, is now statistically significant at 5% level. The coefficients on consumer services and industrial sectors, which were statistically significant at 1%, are now statistically significant at 5% level. The coefficient on year 2006, which was statistically significant at 1%, is now no longer statistically significant.

Table 19: The results based only on non-financial firms

		Financial and non-financial		Non-financial	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: Explanatory variables					
GOVOWN	+	0.1134	0.0034***	0.0894	0.0332**
INSOWN	+	0.0483	0.0222**	0.0326	0.1917
FOROWN	+	0.0534	0.0570*	0.0483	0.0794*
BLKOWN	-	-0.0581	0.0139**	-0.0630	0.0137**
BSIZE	-/+	0.5482	0.0761*	0.7335	0.0388**
BIG4	+	0.4672	0.6109	0.8572	0.4075
CGCOM	+	8.0640	0.0000***	6.9388	0.0000***
GNDR	+	-0.9215	0.4313	-1.8207	0.2199
BDIVN	+	10.1850	0.0640*	15.0437	0.0358**
Panel B:Control variables					
GROWTH		0.5519	0.5011	0.2349	0.7981
LVRG		-2.1052	0.1712	-2.9159	0.1330
ROA		1.5133	0.6848	6.2307	0.1938
LNTA		1.7430	0.0006***	1.1924	0.0323**
2001		-44.1863	0.0000***	-43.7971	0.0000***
2002		-34.9676	0.0000***	-32.3843	0.0000***
2003		-19.8645	0.0000***	-16.0912	0.0000***
2004		-6.4359	0.0000***	-5.2493	0.0001***
2006		2.2984	0.0104***	1.9150	0.1369
2007		4.8892	0.0001***	4.3876	0.0045***
2008		5.5015	0.0001***	5.5055	0.0008***
2009		6.3311	0.0001***	6.7596	0.0001***
2010		6.5364	0.0000***	6.3127	0.0002***
2011		7.0290	0.0001***	6.7671	0.0001***
Basic materials		10.4629	0.0157**	12.5855	0.0255**
Consumer goods		10.2129	0.0204**	12.3604	0.0296**
Consumer services		11.2096	0.0098***	12.8406	0.0227**
Financials		7.1416	0.1034	-	-
Health care		0.7232	0.9097	3.6657	0.5982
Industrials		11.6719	0.0080***	13.8831	0.0149**
Telecommunications		2.6096	0.6476	6.6418	0.3908
Utilities		-0.4840	0.9265	2.3459	0.7202
Constant		10.1784	0.2220	15.8907	0.1193
Adj. R^2		0.7823		0.7752	
F-Stat		130.0811***		96.1266***	
Durbin-Watson Stat.		2.0926		2.1332	
Number of observations		1152		858	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), board diversity on the basis of gender (GNDR), board diversity on the basis of nationality (BDIVN), growth (GROWTH), leverage (LVRG), profitability (ROA), firm size (LNTA). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.4 RESULTS BASED ON THE LAGGED STRUCTURE MODEL

The presence of endogenity has been suggested as a serious problem that can affect empirical results (Larcker and Rusticus, 2010). This problem occurs when one or more variables are associated with the error term (Wooldridge, 2009). Three expected causes have been suggested, namely measurement errors, omitted variables and simultaneity (Larcker and Rusticus, 2010). Researchers are advised to address this problem by checking the extent to which their results are affected by the presence of endogenity. Following such recommendations, the current study uses alternative econometric models and statistical approaches in order to check how far its empirical results are influenced by endogenity problems. First, panel data was used instead of cross-sectional or time-series data in order to mitigate the simultaneity problem (Borsch-Supan and Koke, 2002). Second, the *OCGI* as a measurement of CG was constructed by the researcher rather than using analysts' CG rankings in order to mitigate the problem of measurement errors (Larcker *et al*., 2005). Finally, lagged structure and *2SLS* models were used to address some concerns associated with endogenity, such as omitted variables and simultaneity. The analyses related to lagged structure and 2SLS models are further discussed below.

Following past studies (e.g., Larcker and Rusticus, 2010; Ntim *et al.*, 2012b; Ntim *et al.*, 2013), the current study addresses simultaneity problems that may arise from lagged CG disclosure practices. The lagged structure model as an alternative estimation method is adopted in which all explanatory and control variables are lagged by one period, as specified in the following equation.

$$\begin{aligned} OCGI_{it} = {} & \alpha_0 + \beta_1 GOVOWN_{it-1} + \beta_2 INSOWN_{it-1} + \beta_3 FOROWN_{it-1} + \beta_4 BLKOWN_{it-1} \\ & + \beta_5 BSIZ_{it-1} + \beta_6 BIG4_{it-1} + \beta_7 CGCOM_{it-1} + \beta_8 GNDR_{it-1} + \beta_9 ETNSTY_{it-1} + \\ & \sum_{i=1}^{n} \beta_i CONTROLS_{it-1} + \varepsilon_{it-1} \end{aligned} \quad (2)$$

Where all variables remain the same as in equation (1), except that a one-year lag was introduced for each variable. The results of this analysis are presented in Table 20, and the key conclusions from this analysis are discussed below.

Columns 5 to 6 of Table 20 report the results based on the estimated lagged OCGI-CG structure. The *F-Stat* is statistically significant at the 1% level of significance, suggesting that the alternative hypothesis that the coefficients of the included variables are not equal to zero is accepted. The adjusted R^2 indicates that about 66% of the variability in the *OCGI* is explained by this model. Overall, the results predicted by the lagged structure model are largely consistent with those reported by the un-lagged structure model. The relationships between the *OCGI* and

ownership and board and audit characteristics remain essentially unchanged. These results are further discussed below, with a particular focus on the sensitive results.

7.4.1 Empirical Results of Ownership Structure

Two main cases of sensitivities can be observed. First, the statistical significance level of the coefficients on government and institutional ownership has changed. Specifically, the coefficients on government and institutional ownership, which were statistically significant at 1% and 5%, are now statistically significant at 5% and 1%, respectively. Second, the coefficient on foreign ownership, which was statistically significant at 10%, is now no longer statistically significant.

7.4.2 Empirical Results of Board and Audit Characteristics

Although the direction of the coefficients on board size, audit firm size, CG committee and board diversity on the basis of gender and nationality has not changed, there are some sensitivities related to the level of significance. In particular, the coefficients on board size and board diversity on the basis of nationality, which were statistically significant at10% level, are now statistically significant at 5% and 1%, respectively.

7.4.3 Empirical Results of Control variables

The significance level on the coefficients of growth, leverage, profitability and firm size remain the same as those based on the un-lagged structure model, whereas year and industry dummies show changes, but remain largely similar to those reported by the un-lagged structure model. Specifically, the coefficients on year 2004 and year 2010, which were statistically significant at 1%, are now no longer statistically significant. The coefficients on years 2006 to 2008, which were statistically significant at 1%, are now statistically significant at 10%, 5% and 5% levels, respectively. The coefficient on basic materials, which was statistically significant at 5% level, is now no longer statistically significant. The coefficients on consumer goods, consumer service and industrial sectors, which were statistically significant at 5%, 1% and 1% levels, are now statistically significant at10% levels, respectively.

Table 20: The results of the lagged structure model

		Un-lagged structure		Lagged structure	
Independent variables	Exp. Sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: Explanatory variables					
GOVOWN	+	0.1134	0.0034***	0.0722	0.0338**
INSOWN	+	0.0483	0.0222**	0.0883	0.0000***
FOROWN	+	0.0534	0.0570*	0.0197	0.3866
BLKOWN	-	-0.0581	0.0139**	-0.0519	0.0139**
BSIZE	-/+	0.5482	0.0761*	0.5280	0.0398**
BIG4	+	0.4672	0.6109	0.9841	0.2946
CGCOM	+	8.0640	0.0000***	3.9228	0.0004***
GNDR	+	-0.9215	0.4313	-0.4522	0.6574
BDIVN	+	10.1850	0.0640*	16.4919	0.0035***
Panel B:Control variables					
GROWTH		0.5519	0.5011	-0.4103	0.6526
LVRG		-2.1052	0.1712	-2.5423	0.1038
ROA		1.5133	0.6848	2.9617	0.5217
LNTA		1.7430	0.0006***	1.9107	0.0000***
2001		-44.1863	0.0000***	-35.7732	0.0000***
2002		-34.9676	0.0000***	-20.6602	0.0000***
2003		-19.8645	0.0000***	-6.0398	0.0000***
2004		-6.4359	0.0000***	-1.1233	0.5300
2006		2.2984	0.0104***	3.2320	0.0705*
2007		4.8892	0.0001***	3.6126	0.0412**
2008		5.5015	0.0001***	4.4980	0.0108**
2009		6.3311	0.0001***	4.7978	0.0060***
2010		6.5364	0.0000***	1.3536	0.4441
2011		7.0290	0.0001***	-45.2071	0.0000***
Basic materials		10.4629	0.0157**	6.3588	0.1145
Consumer goods		10.2129	0.0204**	7.0395	0.0835*
Consumer services		11.2096	0.0098***	6.9982	0.0839*
Financials		7.1416	0.1034	3.2519	0.4213
Health care		0.7232	0.9097	-3.7999	0.4407
Industrials		11.6719	0.0080***	7.7441	0.0607*
Telecommunications		2.6096	0.6476	5.0573	0.4058
Utilities		-0.4840	0.9265	-1.4432	0.7542
Constant		10.1784	0.2220	13.4511	0.0468*
Adj. R^2		0.7823		0.6558	
F-Stat		130.0811***		71.6850***	
Durbin-Watson Stat.		2.0926		1.2035	
Number of observations		1152		1036	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), board diversity on the basis of gender (GNDR), board diversity on the basis of nationality (BDIVN), growth (GROWTH), leverage (LVRG), profitability (ROA), firm size (LNTA). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.5 RESULTS BASED ON THE 2SLS MODEL

In order to further account for potential endogeneities that may arise as a result of omitted variables, the current study adopts 2SLS methodology, which has been used by past studies (e.g., Ntim *et al.*, 2013). Following recommendations in the literature (Beiner *et al*., 2006), the Durbin-Wu-Hausman exogeneity test was conducted in order to test for the presence of endogeneity, which involves two stages (the results of both stages are not reported here). In the first stage, and

as specified in equation (3), the *OCGI* is regressed on control variables where its predicted value is saved as *P-OCGI*.

$$OCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (3)$$

Where the *OCGI* and *CONTROLS* remain the same as defined in equation (1).

In the second stage, the *OCGI* is regressed on *P-OCGI* and control variables as follows:

$$OCGI_{it} = \alpha_0 + \beta_2 P - OCGI_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (4)$$

The test rejects the null hypothesis of no endogeneity problem, as *P-OCGI* is statistically significantly (0.009) associated with the *OCGI*, indicating the presence of endogeneity (Larcker and Rusticus, 2010). Therefore, following Ntim *et al.*'s (2013) procedure, the 2SLS was conducted to check the extent to which the main results are affected by endogeneity. In the first stage, the nine CG variables are expected to be determined by all control variables. Thus, each of the nine CG variables was regressed on control variables and the predicted value of each CG variable is saved. In the second stage, the equation (1) is re-estimated by replacing the nine CG variables with their predicted values as follows:

$$\begin{aligned} OCGI_{it} = {} & \alpha_0 + \hat{B}_1\, GOVOWN_{it} + \hat{B}_2\, INSOWN_{it} + \hat{B}_3\, FOROWN_{it} + \hat{B}_4\, BLKOWN_{it} + \hat{B}_5 \\ & BSIZE_{it} + \hat{B}_6\, BIG4_{it} + \hat{B}_7\, CGCOM_{it} + \hat{B}_8\, GNDR_{it} + \hat{B}_9\, BDIVN_{it} + \\ & \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

Where all variables remain the same as defined in equation (1), except that the predicted values from the first stage for the nine CG variables are included in the model instead of their actual values. The results of this analysis are presented in Table 21; they show that the results provided by the OLS model are robust to potential endogeneities that may arise due to omitted variables. Columns 5 to 6 of Table 20 indicate that the null hypothesis that the coefficients of the included variables are equal to zero is rejected, as the *F-Stat* is statistically significant at the 1% level of significance. The adjusted R^2 shows that about 78% of variability in the *OCGI* is driven by CG and control variables. Overall, the 2SLS's results suggest that ownership structure, board size, CG committee, board diversity on the basis of nationality and firm size are significant determinants of the *OCGI*. The results of 2SLS are discussed below, with more focus on sensitive results.

7.5.1 Empirical Results of Ownership Structure

The signs on the coefficients related to ownership are the same as those reported by the OLS model. The statistical significance levels of the coefficients on the four variables show some changes, but remain statistically significant at least at 5% level of significance. Specifically, the coefficients on institutional ownership and block ownership, which were statistically significant at 5% level, are now statistically significant at 1% level of significance. Similarly, the coefficient on foreign ownership, which was statistically significant at 10%, is now statistically significant at 5% level of significance.

7.5.2 Empirical Results of Board and Audit Characteristics

The direction on the coefficients of this group of variables is consistent with those of the OLS model, except for audit firm size, which was positive and is now negative, but remains statistically insignificant. Limited sensitive cases related to the level of significance can be observed. The coefficients on board size and board diversity on the basis of nationality, which were statistically significant at 10%, are now statistically significant at 1% level.

7.5.3 Empirical Results of Control variables

Consisting with the OLS results, the 2SLS model predicts that growth, leverage and profitability are insignificant determinants of the *OCGI*, whereas firm size is still a significantly positive determinant. Limited cases of sensitivities can be observed from the 2SLS's results. First, the coefficient on year 2006, which was statistically significant at 1%, is now no longer statistically significant. Second, the coefficient on financials sector, which was statistically insignificant, is now statistically significant at 10% level. Finally, the coefficients on year 2007, basic materials sector and consumer goods sector, which were statistically significant at 1%, 5% and 5%, are now statistically significant at 5%, 1% and 1% levels of significance, respectively.

Table 21: The results of the two stage least squares model

		OLS		2SLS	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: Explanatory variables					
GOVOWN	+	0.1134	0.0034***	0.1481	0.0067***
INSOWN	+	0.0483	0.0222**	0.0890	0.0001***
FOROWN	+	0.0534	0.0570*	0.0801	0.0202**
BLKOWN	-	-0.0581	0.0139**	-0.0994	0.0001***
BSIZE	-/+	0.5482	0.0761*	0.8185	0.0071***
BIG4	+	0.4672	0.6109	-1.1854	0.2154
CGCOM	+	8.0640	0.0000***	7.7668	0.0000***
GNDR	+	-0.9215	0.4313	-1.0327	0.3027
BDIVN	+	10.1850	0.0640*	17.8880	0.0042***
Panel B:Control variables					
GROWTH		0.5519	0.5011	0.5192	0.5499
LVRG		-2.1052	0.1712	-1.9824	0.1849
ROA		1.5133	0.6848	2.1603	0.6246
LNTA		1.7430	0.0006***	1.7612	0.0000***
2001		-44.1863	0.0000***	-45.1239	0.0000***
2002		-34.9676	0.0000***	-35.2596	0.0000***
2003		-19.8645	0.0000***	-19.5439	0.0000***
2004		-6.4359	0.0000***	-6.5715	0.0001***
2006		2.2984	0.0104***	1.0314	0.5377
2007		4.8892	0.0001***	3.8823	0.0194**
2008		5.5015	0.0001***	4.6331	0.0051***
2009		6.3311	0.0001***	5.4569	0.0009***
2010		6.5364	0.0000***	5.4921	0.0010***
2011		7.0290	0.0001***	5.8915	0.0007***
Basic materials		10.4629	0.0157**	10.7017	0.0048***
Consumer goods		10.2129	0.0204**	10.9629	0.0043***
Consumer services		11.2096	0.0098***	11.7219	0.0023***
Financials		7.1416	0.1034	7.6733	0.0451*
Health care		0.7232	0.9097	1.6079	0.7304
Industrials		11.6719	0.0080***	12.3460	0.0016***
Telecommunications		2.6096	0.6476	2.2478	0.7028
Utilities		-0.4840	0.9265	-0.7040	0.8716
Constant		10.1784	0.2220	9.5969	0.1386
Adj. R^2		0.7823		0.7799	
F-Stat		130.0811***		104.7816***	
Durbin-Watson Stat.		2.0926		2.0883	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), board diversity on the basis of gender (GNDR), board diversity on the basis of nationality (BDIVN), growth (GROWTH), leverage (LVRG), profitability (ROA), firm size (LNTA). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

8 SUMMARY AND CONCLUSIONS

As discussed in Section 2, Oman started efforts at promoting CG practices earlier than other countries in the MENA region. These attempts began with a number of legislative instruments issued by the CMA, such as the *Related Party Transactions* circular and another circular of CG rules. More importantly, Oman issued its voluntary code of CG for listed firms in 2002, which is considered the most advanced CG policy regime in Oman. By issuing this code, the Omani government has sought to establish a CG system as a remedy for corporate failures, such as those during the 1997 Asian crisis. The CG regime was designed to provide greater protection for all stakeholders by promoting a culture of compliance, quality disclosure and accountability (Omani Code 2002). Like many CG codes around the world, the OCGC is built upon the Anglo-American model, where firms' compliance is voluntary and based on a 'comply or explain' rule. Given its voluntary nature, the ability of the OCGC to enhance CG practices is subject to Omani firms' desire to comply with its provisions (Core, 2001; Healy and Palepu, 2001; Aguilera and Cuervo-Cazurra, 2009). A considerable number of its proposals are drawn from the 1992 UK Cadbury Report, primarily those relating to the composition and functions of the board of directors. This study examines the extent to which adopting this code can provide high standards of CG practices, given the nature of the Omani corporate setting. In this context, Omani managers and directors are expected to be influenced by informal rules, such as family, Arabic custom and tribalism.

Similarly, the high concentration of ownership seems to prevent compliance with the OCGC's provisions. Thus, examining the level and determinants of voluntary CG disclosure in the Omani context becomes an important empirical issue, requiring investigation in order to understand firm voluntary CG compliance and disclosure behaviour. The Omani context is characterised by religous notions, informal rules and concentrated ownership, which may suggest that its CG practices are different from those in developed countries. Unlike past studies looking at Oman (e.g., Mohamed *et al.*, 2009; Al-Malkawi *et al.*, 2014), the current study has constructed a CG index based on the 2002 Omani CG Code, and uses a large sample of Omani listed firms to empirically conduct its investigation. In a similar vein, and distinct from most prior studies examining the determinants of CG compliance (e.g., Ntim *et al.*, 2012a; Samaha *et al.*, 2012), the present study examines a number of determinants which have not been extensively examined in the CG literature, such as foreign ownership and board diversity on the basis of gender and nationality.

A summary of the study's results, which have been discussed in Sections 5, 6 and 7, is provided in this section. Specifically, Subsection 8.1 provides a summary of the empirical results

related to the level of voluntary compliance and disclosure with the 2002 OCGC. Subsection 8.2 summarises the empirical results of determinants of voluntary CG disclosure with the 2002 OCGC, whereas Subsection 8.3 provides a summary of these results based on sensitivity analyses. Subsection 8.4 discusses the policy implications and recommendations coming out of these results. Subsection 8.5 discusses the contributions of this study. The study's limitations and suggestions for further research are highlighted in Subsections 8.6.

8.1 RESULTS RELATED TO THE LEVEL OF VOLUNTARY CORPORATE GOVERNANCE COMPLIANCE AND DISCLOSURE

This subsection provides a summary of the empirical results related to the level of voluntary compliance and disclosure with the 2002 OCGC that are discussed in Subsections 5.2.1 and 5.2.2. In these subsections, the study seeks to answer its first research question; namely, what is the level of voluntary compliance and disclosure with the 2002 OCGC among Omani listed firms? It also attempts to answer four sub-questions: (i) To what extent did the introduction of the 2002 OCGC improve CG practices among Omani listed firms?; (ii) Which CG provisions do Omani firms comply with most?; (iii) Is there a significant difference between financial and non-financial firms in terms of providing CG disclosure?; and (iv) To what extent does reliance on the Anglo-American model lead to improved CG standards in Oman?. The answer of these questions are summarised below.

First, the study finds that aggregate compliance levels increased from 6.78% in 2001 to 60.17% in 2011, which is in line with past studies (e.g., Akkermans *et al*., 2007; Ntim *et al*., 2012a) that found that compliance with CG provisions improved over time. The aggregate mean scores range from a minimum of 1.39 % to a maximum of 88.89%, with an average of 47.89% complying with 72 CG provisions examined in this study over 2001 to 2011. On the one hand, the results suggest that, contrary to general concerns about the ability of voluntary codes to improve CG standards in a particular setting, Omani firms have shown some positive response to the OCGC's recommendations. On the other hand, and in spite of the initial theoretical prediction that the OCGC would promote a culture of compliance, quality disclosure and accountability, the results clearly indicate that CG compliance and disclosure among Omani listed firms is generally low. Second, the results suggest that the introduction of the 2002 OCGC has had some positive impact in enhancing good CG practices among Omani firms, as the levels of compliance and disclosure after its implementation are significantly higher than before the code was effectively implemented. The level of compliance and disclosure was relatively low in 2001 and 2002, whereas 2003 witnessed a dramatic increase as the OCGC was effectively implemented, and compliance increased in the following years.

Third, the results indicate that firms have shown higher compliance and disclosure levels (85% or more) with 3 out of 72 CG provisions that constitute the *OCGI*. Based on the four sub-indices, the level of compliance and disclosure appears to be higher in accounting and auditing sub-index (75.37%) followed by disclosure and transparency (64.04%) and board and directors (38.59%) whereas external auditors and internal control systems sub-index shows lower level of compliance and disclosure (2.43%). Fourth, the results imply that financial firms do not provide more CG information than non-financial firms. The results based on industry group suggest that firms operating in the telecommunication and consumer services industries provide more information on CG compliance and disclosure than firms in all other industries. Finally, contrary to the expectation that the OCGC's reliance on an Anglo-American model may not improve CG practices due to the large differences between Oman and developed countries, the results show that the OCGC was able to promote CG practices of Omani listed firms to some extent.

8.2 RESULTS RELATED TO VOLUNTARY CORPORATE GOVERNANCE COMPLIANCE AND DISCLOSURE DETERMINANTS

The results relate to the nine hypotheses tested for the factors that may affect voluntary CG compliance and disclosure that were discussed in section 6 are summarised in this Subsection. The first hypothesis was examining whether there is a statistically significant positive relationship between government ownership and firm-level of voluntary CG disclosure. The coefficient on government ownership is positive and statistically significant at the 1% level of significance, indicating that Omani firms with large proportion of government ownership seemed to disclose more CG information than those with non-government ownership. Theoretically, this result is consistent with the prediction that firms with state ownership need to voluntarily disclose more information in order to reduce the divergence of interests between the government and shareholders. Further, it suggests that state ownership serves as a substitute CG mechanism that motivates firms to disclose information on their CG structures. Empirically, this result in line with some prior studies (e.g., Eng and Mak, 2003; Ntim *et al*., 2012a) and contrasts with others (e.g., Ghazali and Weetman, 2006; Huafang and Jianguo, 2007; Samaha and Dahawy, 2011).

The second hypothesis was testing whether there is a statistically significant positive relationship between institutional ownership and level of voluntary CG disclosure. The model predicted a statistically significant and positive association between institutional ownership and level of voluntary CG disclosure at the 5% level of significance. This result implies that Omani firms with institutional investors tend to disclose more CG information compared to those with

no institutional ownership. This is in line with the theoretical prediction that institutional shareholders ensure high levels of CG disclosure, as they are motivated to demand information as a way to monitor managers. This result supports the empirical evidence provided by prior studies (e.g., Barako *et al.*, 2006a; Laidroo, 2009; Chung and Zhang, 2011; Aggarwal *et al.*, 2011), but not Donnelly and Mulcahy's (2008) study, which reports no significant relationship between institutional ownership and level of voluntary CG disclosure.

The third hypothesis was examining whether there is a statistically significant positive relationship between foreign ownership and level of voluntary CG disclosure. The coefficient on foreign ownership is positive and statistically significant at the 10% level of significance, indicating that foreign investors investing in local firms assisted Omani firms in improving their levels of CG disclosure. Theoretically, this result in line with the prediction that local firms are motivated to provide additional information in order to attract foreign investors, who require extra information in order to reduce asymmetric information as a result of distance and language obstacles. Empirically, this result is consistent with some past studies (e.g., Haniffa and Cooke, 2002; Barako *et al.*, 2006a; Huafang and Jianguo, 2007; Mangena and Tauringana, 2007).

The fourth hypothesis examined whether there is a statistically significant negative relationship between block ownership and level of voluntary CG disclosure. The coefficient on block ownership is negative and statistically significant at the 5% level of significance. This result suggests that, unlike other ownership structures, firms with block holders tended to disclose less CG information than those without ownership concentration. This is consistent with the theoretical prediction that block holders tend to discourage firms from disclosing additional CG information, as this improves their ability to expropriate minority shareholders (Shleifer and Vishny, 1997; Aleves, 2012). It also supports the current study's argument that the level of CG compliance and disclosure is expected to be significantly affected by high levels of concentration ownership (55%), predominantly through institutions with highly complicated cross-holdings. Empirically, this result is in line with some prior studies (e.g., Laidroo, 2009; Samaha and Dahawy, 2011; Ntim *et al*., 2012a; Samaha *et al.*, 2012) and inconsistent with others (e.g., Eng and Mak, 2003; Huafang and Jianguo, 2007; Konijn *et al*., 2011).

The fifth hypothesis tested whether there is statistically significant relationship between board size and level of voluntary CG disclosure. The coefficient on this determinant is statistically positive at the 10% level of significance, indicating that firms with larger boards appear to disclose more CG information than those with smaller boards. The positive relation is in line with the theoretical prediction that greater diversity in terms of directors' experience and skills increases firms' CG compliance and disclosure. This result lends empirical support to some

past studies (e.g., Laksmana, 2008; Akhtaruddin *et al.*, 2009; Ntim *et al*., 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013), but not those conducted by Arcay and Vazquez (2005) and Cheng and Courtenay (2006), who report empirical evidence that board size has no significant influence on the level of voluntary CG disclosure.

The sixth hypothesis examined whether there is a statistically significant positive relationship between audit firm size and level of voluntary CG disclosure. Although the coefficient on this determinant is positive, the model predicted that audit firm size has no power in explaining variations in firm-level voluntary CG disclosure. Theoretically, this result is inconsistent with the theoretical prediction that firms audited by a large audit firm disclose more CG information than those audited by a small audit firm. This result is similar to those reported by prior studies (e.g., Eng and Mak, 2003; Alsaeed, 2006; Barako *et al.*, 2006a; Aly *et al.*, 2010).

The seventh hypothesis hypothesis tested whether there is a statistically significant positive relationship between board diversity on the basis of gender and level of voluntary CG disclosure. The coefficient on this factor is negative and statistically insignificant, rejecting the theoretical prediction that the presence of female board directors can contribute to the level of voluntary CG disclosure.

The eighth hypothesis examined whether there is a statistically significant positive relationship between board diversity on the basis of nationality and level of voluntary CG disclosure. There is a statistically significant and positive coefficient on board diversity on the basis of nationality, at the 10% level of significance. This implies that firms that appoint non-Omani directors to their boards appear to disclose more CG information than those with only Omani directors. Theoretically, this result is consistent with the prediction that CG disclosure can be increased by having directors from different ethnicities, with distinctive values and incentives. Empirically, this result is inconsistent with Adelopo (2011), who report empirical evidence that board diversity on the basis of nationality does not have a significant impact on the level of voluntary CG disclosure

The final hypothesis examined whether there is a statistically significant positive relationship between the presence of a CG committee and the level of voluntary CG disclosure. The coefficient on CG committee is positive and statistically significant at the 1% level of significance, suggesting that firms with CG committees provide more information on CG compliance and disclosure than those with no CG committees. This result is in line with the theoretical prediction that CG committees can help firms comply with good CG practices, for example by providing more CG information. This result lends empirical support to the results of

Ntim *et al.* (2012a), who report empirical evidence that CG committees impact significantly and positively on South African listed firms' disclosures.

8.3 RESULTS BASED ON THE ROBUSTNESS ANALYSES

As discussed in Section 7, a number of sensitivity analyses have been carried out to check the extent to which the main results are robust or sensitive to different measures and estimations. These analyses include the use of an alternative CG index, a random-effects model, as well as analyses examine the possibility that the inclusion of financial firms in the main study's analysis may lead to different results, and analyses examine different endogeneity problems. Overall, the results of these analyses suggest that the study's results are robust. These results are summarised below.

First, in order to account for the likelihood that using a weighted CG index may result in misleading results, an alternative CG index was constructed, in which each sub-index in *OCGI* was scored by awarding similar weight of 20 per cent. The results of this analysis indicate that the main model's results are not sensitive to the CG weighted index. Second, in order to account for unobserved firm-level features that may affect firms' voluntary CG disclosure, the main analysis was replicated using a random-effects model. The results of this analysis are essentially consistent with those reported by the main model. Third, in order to account for the possibility that the inclusion of financial firms in the current study's data set may lead to different results, the main equation was re-regressed using only non-financial firms (858 firm years). The results remain similar to the results based on financial and non-financial firms (1,152 firm years). Fourth, to check the extent to which the main results are affected by the presence of endogenity problems, lagged structure as an alternative estimation was used to address some concerns associated with endogenity, such as simultaneity that may arise from lagged CG disclosure practices. The results predicted by the lagged structure model are largely consistent with those reported by the un-lagged structure model. Finally, in addition to lagged structure, the widely used 2SLS technique was employed to further check the possibility of endogenity problems that may arise as a result of omitted variables. The results imply that the main results are not significantly sensitive to endogenity problems.

8.4 POLICY IMPLICATIONS AND RECOMMENDATIONS

Given the unique aspects of the Omani corporate setting and the absence of empirical evidence, the main purpose of this study is to investigate whether and to what extent publicly listed Omani firms voluntarily comply with and disclose recommended good CG practices, and examine whether the observed cross-sectional differences in such voluntary CG disclosures can

be explained by traditional ownership structures and board and audit characteristics. The results indicate that although Omani listed firms show some degree of compliance, CG disclosure and compliance with the 2002 OCGC is generally low. In addition, the results suggest that firms with higher government ownership, larger boards, institutional ownership, a CG committee, higher foreign ownership and non-Omani directors disclose considerably more than others. In contrast, the results suggest that an increase in block ownership significantly reduces voluntary CG disclosure. These results have a number of policy implications and suggest some recommendations for policy makers, firms, investors and regulatory authorities in emerging countries in general and Oman in particular. These implications and recommendations are discussed in the following subsections. Specifically, Subsection 8.4.1 discusses the policy implications and recommendations related to compliance with the OCGC, whereas those related to determinants of compliance with the OCGC are discussed in Subsection 8.4.2.

8.4.1 Compliance with the OCGC: Implications and Recommendations

Three important policy implications and recommendations can be concluded from the results reported in Subsections 5.2.1 and 5.2.2.

First, evidence that CG standards in Omani listed firms are generally improving imply that efforts by the various stakeholders of CG, such as the CMA and the MSM, have had a positive influence on CG practices. The relatively low and limited convergence in CG practices among Omani listed firms, however, suggests that there is a need for the CMA and MSM to further enhance compliance and enforcement. Establishing a ‘compliance and enforcement’ unit to that will continuously monitor corporate disclosures, including those relating to CG practices, may be a step in the right direction. The evidence implying that the OCGC has improved CG practices and thus firm value offers shareholders, especially government, foreign and institutional shareholders, a strong impetus to actively monitor CG standards to improve their firms. Second, the improvement in CG voluntary disclosure suggests that adopting high standards of CG in the form of code can improve CG practices in emerging countries, even when legal enforcement is weaker. Emerging countries who have not yet issued CG codes, such as Libya, are encouraged to adopt one in order to improve firms’ compliance and disclosure. Third, firms have shown lower or zero compliance with 35 out of 72 provisions, where only 50% or less of sampled firms complied with these provisions. For instance, firms rarely provide information on directors’ biography, experience and responsibilities. Similarly, and among the four sub-indices, the lower level of compliance was with external auditors and internal control systems sub-index (2.43%). This seems to suggest that either there is low compliance with these provisions or these provisions are inappropriate or irrelevant to many firms. Unlike larger firms, smaller firms may

not be able to afford the costs involved in implementing CG provisions. Smaller and newly listed firms may also find that some CG provisions are not relevant to their activities. For instance, firms are recommended by the OCGC to disclose information on their convertible Instruments. Thus, one way for Omani policy makers and regulatory authorities to increase overall compliance is to work on these provisions. They may need to differentiate between large and small firms in determining applicability of CG provisions when they revise the OCGC, as this can allow small firms to have CG structures that fit with their activities. Further, more effective co-operation and co-ordination among the key financial regulatory and enforcement bodies that constitute the external Omani CG system can enhance legal enforcement, which in turn improves compliance.

8.4.2 Determinants of Compliance with the OCGC: Implications and Recommendations

A number of policy implications and recommendations can be drawn from the results associated with examining the determinants of compliance with the OCGC. First, the level of CG compliance and disclosure increases in firms with relatively many shares held by the government, indicating a significant effect of government ownership. This is contrary to concerns that firms with state ownership do not disclose additional CG information because they are highly politically connected. The result implies that state ownership serves as a substitute CG mechanism that motivates firms to provide further information on their CG structures, with the state considering itself to be accountable to stakeholders at large. This may encourage individual investors to invest in such firms, as they can expect more information to help them make optimal investment decisions. In contrast, the absence of the state as a major investor in firms is expected to be seen as an indication of poor CG practices, which may not motivate investors to invest in such firms.

Second, Omani firms with institutional ownership have higher levels of CG compliance and disclosure than those with no institutional ownership, suggesting that institutional investors have a strong impetus to actively monitor CG standards, which in turn enhances CG practices within firms. This result implies that outsiders may consider firms with institutional ownership as having higher levels of CG standards. This is because they aware that institutional shareholders do not prefer to invest in firms with lower levels of disclosure, as this will increase monitoring costs (Bushee *et al.*, 2010). In this regard, one way to ensure high levels of CG disclosure is that Omani policy makers may encourage investors to invest through institutions instead of making individual investments.

Third, voluntary disclosure increases with foreign ownership, indicating that foreign investors can assist domestic firms to improve their levels of CG disclosure. This finding suggests that, consistent with the expectation that foreign investors face higher levels of information asymmetry because of distance and language obstacles, local firms provide additional information in order to attract foreign investors. Unlike other countries in which there are restrictions on foreign ownership, Oman provides an example of how allowing foreign investment can lead to improved CG practices in general and CG compliance and disclosure in particular. Policy makers in other emerging countries, such as Saudi Arabia, may be encouraged to relax restrictions on foreign investors in order to benefit from resulting high CG standards.

Fourth, firm-level voluntary CG disclosure is lower in firms with block ownership, indicating that block holders do not encourage firms to provide additional information on CG compliance and disclosure. This result suggests that the concentration of ownership (55%) in Oman, mainly through institutions with highly complicated cross-holdings, does not perform its function as a substitute for good CG practices. Instead, it serves as an obstruction to compliance with the OCGC in general and disclosure in particular. Evidence of decreasing compliance with the OCGC implies that enforcement needs to be further strengthened. For instance, one way in enhance compliance might be for the CMA to establish a compliance and enforcement unit.

Fifth, firms with larger boards provide more CG information than those with smaller boards. This means that increased managerial monitoring associated with larger boards results in additional voluntary disclosure, which is contrary to the view that larger boards are often characterised by poor monitoring. In this sense, Omani policy makers may be motivated to introduce CG provisions that encourage firms to have large boards in order to improve their levels of CG disclosure.

Sixth, the insignificant relationship between audit firm size and firm-level voluntary CG disclosure indicates that external auditors have no influence in ensuring that Omani listed firms voluntarily comply with the OCGC. This is contrary to the theoretical prediction that the level of disclosure in annual reports can be considerably influenced by audit firm size. The finding may result from the fact that the OCGC recommends external auditors report on limited governance issues (see Appendix 1, provisions 47 to 50). Hence, Omani policy makers may be encouraged to introduce additional CG provisions that grant external auditors greater monitoring powers to require firms to disclose more information on their CG compliance.

Seventh, the insignificant relationship between board diversity on the basis of gender and firm-level voluntary CG disclosure suggests that the presence of women on firm boards has no significant impact on the level of voluntary CG disclosure. This is inconsistent with the

theoretical prediction that firms with women on their boards engage more in voluntary CG disclosure than those with no female directors. The insignificant effect of gender on CG compliance may be due to poor representation of female directors, as many of the sampled firms have no women on their boards. Thus, Omani policy makers may suggest CG provisions that facilitate the participation of female directors in order to benefit from a wide pool of talent bringing different skills and experience into the boardroom. For instance, a CG recommendation that requires firms to have a boardroom diversity policy may be a step in this direction.

Eighth, the relationship between board diversity on the basis of nationality and firm-level voluntary CG disclosure is significant, indicating that the presence of non-Omani directors on firms' boards impacts positively on firm compliance levels. This is in line with the theoretical prediction that having directors of different nationalities, with distinctive values and incentives, can improve CG disclosure. Omani policy makers may be motivated to introduce CG provisions that regulate board directors' appointment procedures in order to remove all employment barriers restricting non-Omani directors from being appointed.

Finally, firm-level voluntary CG disclosure increases with the presence of a CG committee. This suggests that firms willing to monitor their compliance with the OCGC by voluntarily setting up CG committees disclose more than firms that do not establish CG committees. The significant effect of a CG committee is consistent with the theoretical expectation that firms with CG committees engage in good CG practices in general and exhibit a higher propensity to engage in desirable CG disclosure behaviour in particular. In this regard, and in order to continuously monitor compliance with the OCGC, Omani policy makers may be motivated to introduce a CG recommendation requiring firms to set-up CG committees.

8.5 CONTRIBUTIONS

As discussed in section 1, previous cross-country studies that include some Omani listed firms in their samples either investigate firm-level CG reporting (e.g., Mohamed *et al.*, 2009) or use a CG index based on international codes, such the 2004 OECD code, to examine the level of CG compliance (e.g., Al-Malkawi *et al*., 2014). These studies do not examine whether and to what extent Omani firms voluntarily comply with CG recommendations proposed by the 2002 OCGC, nor do they investigate factors that drive such compliance. Distinctively, the current study uses a self-constructed CG index based on the 2002 OCGC as a proxy to measure firm-level CG compliance and disclosure among Omani listed firms. In this regard, a review of literature suggests that a considerable number of studies investigating the effectiveness of voluntary CG codes in improving governance standards are concentrated on developed countries. Thus, examining voluntary CG compliance and disclosure in different cultural, regulatory, CG

and institutional contexts is essential, as voluntary compliance with CG codes can be expected to vary across cultural contexts.

Similarly, a large number of prior studies investigating voluntary compliance determinants have been conducted in developed countries, where institutional structures and corporate settings are largely similar, whereas limited evidence is reported from emerging countries in general and Oman in particular. Hence, investigating the factors driving voluntary compliance and disclosure in a non-developed country like Oman, where empirical evidence is rare, is crucial in providing a broader picture of voluntary CG compliance and disclosure behaviour. As a result, empirical evidence on whether and to what extent Omani listed firms voluntarily comply with OCGC provisions, and the factors that might influence their compliance, can offer a more understanding of recent Omani CG reforms. This study thus makes a number of distinct and new contributions to the extant literature.

First, by employing one of the largest and most extensive hand-collected data sets to date on CG compliance and disclosure in emerging countries (i.e., a sample of 116 Omani listed firms from 2001 to 2011, with 1,152 firm year observations), the current study offers the first empirical evidence on the effectiveness of CG reforms in Oman. Specifically, it provides detailed evidence on the level of compliance with the 2002 OCGC by listed firms. Unlike several prior studies that include only large firms in their samples, this study includes all firms with sufficient data, in order to enhance the generalisability of the results and avoid size bias. Similarly, distinct from many past studies that rely on either time series or cross-sectional data, this study uses panel data in order to mitigate the effect of multicollinearity, control unobserved heterogeneity among variables and increase the degree of freedom. In line with a limited number of past studies in emerging countries, the current study's results indicate that compliance with the 2002 OCGC is relatively low. Despite the expectation that the introduction of the 2002 OCGC would facilitate uniformity and convergence of CG practices, the results suggest that CG standards in Omani listed firms still differ widely over the eleven years investigated.

Second, this study provides evidence that adopting commonly accepted standards of CG, such as those proposed by the 1992 UK Cadbury Report, can improve CG practices in emerging countries. Although legal enforcement in Oman is weaker as the case in many emerging states, the evidence suggests that Omani listed firms have complied voluntarily, to some extent, with the OCGC, whose provisions are mainly drawn from the 1992 UK code. Therefore, concerns that emerging countries' reliance on an Anglo-American model of CG regimes may not promote CG standards are unjustified, at least in the case of Oman.

Third, following the suggestion that CG can be better examined by a composite CG index, this study provides a self-constructed CG index consisting of 72 CG provisions divided into four broad categories, namely board of directors, accounting and auditing, external auditors and internal control systems, and disclosure and transparency, through which various issues associated with CG in the Omani corporate setting can be examined. This can assist Omani researchers, policy makers and others who prefer to use a self-constructed index, largely due to the questionable applicability of analysts' CG indices in different CG regimes.

Fourth, consistent with literature suggesting that different ownership structures can either encourage or discourage firms from CG compliance, this study provides empirical evidence on why and how a traditional ownership structure influences the level of CG compliance and disclosure in Omani listed firms. It fills a gap in the existing literature by offering evidence on the influence of government and foreign ownership on firm-level CG compliance and disclosure (which has not been widely examined in literature) along with institutional and block ownership. Specifically, it shows that while government, institutional and foreign ownership affects firm-level CG compliance and disclosure positively, firms with block ownership disclose considerably less than others.

Fifth, unlike many past studies that restrict their investigation to limited CG variables, this study offers evidence on how and why board characteristics affect the level of CG compliance and disclosure among Omani listed firms. In particular, it fills a gap in the existing literature by offering evidence on the effects of board diversity on the basis of gender and nationality, and the presence of a CG committee, on the level of CG compliance and disclosure. Consistent with theoretical expectations, the results suggest that compliance with the OCGC is higher in firms with non-Omani directors and those with CG committees, whereas board diversity on the basis of gender has no significant influence on firm-level CG compliance and disclosure.

Sixth, the study contributes to literature in order to arrive at uniform theoretical framework that can be used to explain firms' motivations to voluntarily comply with CG standards by articulating a multi-theoretical framework that includes most related theories, namely agency, recourse dependence, legitimacy and signalling/stakeholder theories. This methodology is useful in predicting hypotheses and interpreting results, especially in complex corporate contexts like Oman, whose distinctive features are expected to result in mixed predictions on voluntary codes' ability to encourage firms to increase their disclosure.

Seventh, while most studies exclude financial firms because they are subject to additional disclosure requirements, the study offers empirical evidence that there is no significant difference in CG compliance and disclosure between financial and non-financial Omani listed firms. This

may lead researchers to reconsider excluding financial firms from their data sets, especially researchers who conduct their studies in emerging countries, where corporate regulations and enforcements are anticipated to be weaker.

Finally, distinct from a considerable number of previous studies, this study offers empirical evidence on whether the observed cross-sectional differences in voluntary CG disclosures can be explained by ownership structure and board and audit characteristics using alternative models and estimations. A number of analyses conducted to check the extent to which the main results are robust or sensitive to alternative CG index, omitted variables that differ across firms, but do not change over time, financial firms and endogeneity problems.

8.6 LIMITATIONS AND AVENUES FOR FUTURE RESEARCH

Similar to any other empirical study, this study has a number of limitations that must be acknowledged. First, although the study has sought to avoid survivorship bias by limiting its analysis to unbalanced panel data, there may be a problem associated with the sample size; 52 firms were excluded because of unavailable data, which may limit the generalisability of the results. Further, although the study has made great efforts to increase the sample size by approaching four different data sources, namely Rest of World Filings of the perfect information Database, MSM website, Database and firms' websites, approaching other sources, such as government sources, may be helpful to obtain more information for firms with missing or unavailable data. However, as indicated in Subsection 4.1.1, the sampled firms in this study are 116 firms out of 168 listed on the MSM, which represents 69% of the total population. The useable sample is comparatively larger than those used by prior studies conducted in Oman, and large enough to make a significant contribution to the literature. The study also takes into consideration the availability, accessibility, funding and time constraints, as it had to be completed within the timeframe of a PhD registration period. Second, although the study has sought to gain a high degree of credibility by relying on annual reports, using other sources of information, such as analyst reports, could assist in overcoming the unavailability of data. Third, although great efforts were made to improve the reliability and validity of the *OCGI*, as indicated in Subsection 4.2.1.5, the *OCGI* was coded by the researcher, whose subjectivity may have influenced the coding of the index. Fourth, while the study was motivated by Omani contextual issues relating to Islamic religious, societal and cultural values, due to lack of appropriate data, it fails to empirically examine how and why Omani context-specific factors can impact on the level of disclosure and compliance with the *OCGI*. It does, however, examine some of the most influential explanatory variables, including four types of ownership, especially concentrated ownership and board/audit characteristics. Further, although the study includes a number of

control variables, it is acknowledged that other factors may have impact on firms' disclosure, which due to lack of data might have been inadvertently omitted. Fifth, the study relies only on quantitative analysis in examining its hypotheses; using both quantitative and qualitative analyses may be more helpful in interpreting the results. Finally, although a sample of 116 listed firms and 1,152 firm-year observations is considered large enough to generalise the results, including both listed and non-listed firms could have improved the generalisability of the findings. Given the above limitations, future studies could consider one or more of the following suggestions. First, searching for additional sources of data and using other media sources are expected to enhance the generalisability of the results. Second, examining some explanatory variables related to Omani contextual, societal and cultural especially the impact of Islamic religious values, in addition to other control variables, may offer a more understanding of how they may affect recent CG reforms. Third, using mixed-methods research, namely quantitative and qualitative, may eliminate some of the limitations of quantitative research. Finally, including both listed and non-listed firms in the sample is expected to improve the generalisability of the results.

Empirical Essays on Corporate Governance and Corporate Decisions in Emerging Economies: The Case of Oman

Essay 2

The Effect of Corporate Governance on Capital Structure and Seasoned Equity/Debt Offerings in Emerging Economies: Evidence from Omani Listed Firms

ABSTRACT

This essay empirically examines the impact of corporate governance (CG) separately on: (i) capital structure (CS) decisions; and (ii) the choice of financing, namely equity issuance (EISSUE) in subsequent seasoned equity offerings (SEOs) by listed firms. Employing one of the largest and extensive dataset to-date on CG and CS in an emerging economy (i.e., a sample of 116 Omani listed firms from 2001 to 2011 and 1,152 firm year observations) and a broad CG index consisting of 72 CG provisions, the study finds that, on average, better CG firms tend to employ lower levels of leverage, but tend to issue equity over debt than their poorly-governed counterparts. First, the results suggest that CG index, government ownership, institutional ownership, foreign ownership, board size, audit firm size and CG committee are negatively related to CS, whereas block ownership and CS are positively associated. Second, the results indicate that CG index, institiutional ownership and audit firm size impact positively on EISSUE, while government ownership, foreign ownership, block ownership, board size and CG committee are negatively related to EISSUE. The study's results are fairly robust across a number of econometric models that sufficiently account for alternative CG and CS proxies, as well as different endogeneity problems. Overall, its findings are generally consistent with the predictions of a multi-theoretical framework that incorporates insights from irrelevance, trade-off, pecking order, signalling, market timing and agency theories.

Keywords: Corporate governance; capital structure; equity issuance; multi-theoretical approach; emerging economies; Oman; endogeneity.

1 INTRODUCTION

1.1 Background

A considerable number of firms have been exposed to financial distress and even bankruptcy following the recent financial crisis of 2007-2008 (Adams, 2012; Erkens *et al*., 2012; Greenglass *et al*., 2014). This situation has directed more attention to the importance of CS decisions[15] and effectiveness of CG mechanisms[16] (Ellili and Farouk, 2011; Essen *et al*., 2013). CS decisions are crucial to firms because they can impact directly on their operational and financial performance (Abor and Biekpe, 2005). In other words, the choice between debt, equity and a mixture of both is essential, and as such a decision may have either positive or negative effects on a firm's value. Managers often face a trade off between the use of debt and equity to meet their external financing needs, as well as employing different levels of debt in order to arrive at an optimal CS. Thus, poor CS can lead firms to suffer financially or go bankrupt, while better CS may enhance firm value. Consequently, researchers have been keen to investigate the factors that drive CS decisions.

Weak CG structures on the other hand, have been commonly suggested as one of the possible causes of the financial distress because it has direct influence on corporate policy decisions (Miglani *et al*., 2015). In particular, and because CS involves a number of agency problems amongst stakeholders, CG has been suggested as mechanisms that can reduce agency problems that are often associated with CS (Essen *et al*., 2013). A large number of studies have investigated the association between CG and firm performance (e.g., Bozec and Bozec, 2012; Renders and Gaeramynck, 2012). In contrast, studies analysing the extent to which firm-level CG drives CS and the choice of financing are limited. In addition, most of prior studies have been undertaken in developed countries that share similar institutional characteristics (e.g., Bhojraj and Sengupta, 2003; Mande *et al*., 2012), with little empirical research on firms listed in emerging countries in general, and the MENA region in particular (e.g., Abor, 2007; Hussainey and Aljifri, 2012). As a result, and in the light of continuing debate in the literature on CG as an influential factor of corporate policy decisions, this essay sets out to examine two important issues, namely the determinants of: (i) CS; and (ii) the choice of financing in Oman.

Since the pioneering work of Modigliani and Miller (1958), a number of theories have emerged to answer the question of what determines CS. These include theories based mainly on tax considerations (Modigliani-Miller theorem 1963 and trade-off theories) and non-tax driven theories (pecking order, signalling, market timing and agency theories). For instance, pecking

[15] See Rajan and Zingales (1995) for an overview of the different definitions of capital structure.
[16] See Gillan (2006) for a detailed overview of corporate governance structures.

order theory predicts that firms prefer to use their internal funds to finance new projects, and tend to use external sources only if the need for additional financing cannot be avoided. Similarly, signalling theory argues that firms tend to use more debt to send a signal to outsiders that they have good future financial prospects; otherwise, they would not use additional debt, as this may lead to the risk of bankruptcy. Agency theory suggests that CG is a significant determinant of CS and the choice of financing. Specifically, it predicts that poorly governed firms tend to use a higher level of debt as a substitute mechanism for weaker governance mechanisms. This suggests that debt can be used as a governance device in mitigating the conflict of interest amongst different stakeholders and reduce agency costs associated with free cash flow available to managers. In addition, and unlike pecking order and signalling theories, agency theory offers support for the concept that better governed firms are more likely to issue equity rather than debt in financing their investment opportunities. Based on its assumptions, it can be argued that better governed firms may be targeted by equity investors who are willing to pay more for such firms' shares because the cost of equity is reduced by effective CG in place, while the effect of CG on the cost of debt is assumed to be relatively small because debt holders would not entirely rely on CG mechanisms to protect themselves from agency risk, as they have more direct protective mechanisms like debt covenants and collateral. This can increases the willingness of firms to issue equity rather than debt in meeting their external financing needs. More recently, market timing theory has also challenged traditional theories by providing an explanation for equity issuance. It predicts that firms tend to issue equity when their firms' value appears to be overvalued by irrational investors.

These theories offer researchers different theoretical predictions and explanations with which to examine the effect of different determinants on CS and the choice of financing (e.g., Degryse *et al*., 2012; Benkraiem and Gurau, 2013; Dang, 2013). Most of these studies focus on firms' characteristics, with little research investigating whether CG has a role to play in CS and the selecting of financing (e.g., Rijal and Bahadur, 2010; Haque *et al*., 2011; Jiraporn *et al*., 2012). Despite the lack of international evidence on the effect of CG on CS, differences in institutional features, CG structures and a country's financial system, among other factors, corporate policy decisions in general and CS and the choice of financing in particular may be expected to differ from what is reported in developed countries (Rajan and Zingales, 1995; Booth *et al.*, 2001, Boateng, 2004). As a result, examining the influence of CG mechanisms on CS and the choice of financing in emerging countries, where empirical studies are scarce, may be fundamental in expanding our understanding of firms' financial decision-making behaviour.

Therefore, this study aims to investigate various aspects of corporate financial behaviour in an emerging country – Oman. As has been mentioned in the first essay, and in line with international CG developments, the Omani government initiated a series of major economic reforms aimed at making its economy less vulnerable to financial crises. CG reforms were a major part of those reforms, which are intended to protect investors, creditors and shareholders, amongst other stakeholders (Dry, 2003). In this regard, Oman started its CG reforms by introducing a new Capital Market Law in 1998, as well as amending the Companies Act several times (Fleety, 2010). The establishment of Capital Market Authority (CMA) in 1998 as the main regulatory body played a vital role in issuing a number of legislative instruments. Among those, the voluntary code of good CG was issued in 2002 for listed firms, and is regarded as a major CG reform aimed at improving CG practices in Oman. This code contains a considerable number of CG recommendations (e.g., board of directors, CG disclosure and external auditors) that were introduced to help Omani firms reduce agency problems, including those associated with CS and the choice of financing. Thus, firms with greater compliance with the code are expected to have different CS patterns than those of firms with poor compliance.

1.2 Motivation

This study focuses on Oman due to its unique characteristics, which distinguish it from other developed countries. These features are: religious notions, informal rules and concentration of ownership.[17]

First, and as opposed to firms that operate in developed countries, Omani firms operate in a context where business activities are influenced by Shariah law[18] (Rahman, 1998; Kamla *et al.*, 2006, Safieddine, 2009; Judge, 2010; Hearn *et al*., 2012). In this regard, it is expected that CS and the choice of financing made by Omani firms might be different from those in other countries where religion has no role in business. For example, CS in conventional firms is more likely to be in favour of shareholders because firms follow the goal of maximisation of the shareholders' wealth (Crnigoj and Mramor, 2009). In contrast, managers, shareholders and capital providers in Oman may influence firms to make their CSs in line with Shariah principles (Maali *et al*., 2006; Ba-Abbad and Ahmad-Zaluki, 2012; Hassan *et al*., 2012). It has been suggested that Shariah Law has clear principles on corporate decision-making processes in general, and how CS should be constructed in particular (Lewis, 2005). For instance, Shariah Law prohibits interest (Riba) on

[17]As indicated in Essay 1, although religious notions and informal rules are normatively relied on as part of the motivation for this study, they are not empirically tested due to data limitation.

[18]Shariah Law is based on the Qur'an and the Prophet Mohammed's teachings, which serve as guidance for Muslims in all aspects of life (Kamla *et al*., 2006).

loans and deposits, and offers alternative approaches of financing, such as "Mudaraba"[19] (profit-sharing) and "Musyarakah" (joint-ventures), amongst others[20] (Al-Ajmi *et al*., 2009, Khaldi and Hamdouni, 2011; Hassan *et al*., 2012). This may have important implications for CS. For example, Omani firms may not employ high levels of debt in their CSs, and may instead engage in the Musyarakah system. This may permit them to gain a lower cost of capital because both capital provider and the firm share risk, profit and loss. Firms may also be motivated to adopt this system as it enables them to reduce the likelihood that the capital provider can push them into bankruptcy if they fail to make profits. Further, greater monitoring power often associated with capital providers is expected to play a crucial role in reducing managers' ability to engage in excessive perquisite consumption. This suggests that a capital provider can serve as a substitute governance mechanism to debt financing in reducing the conflict of interest between agents and principals. Arguably, and based on Islamic teachings, Muslim managers are expected to have different views from those of non-Muslim managers in making CS decisions.

Second, unlike developed business environments, the Omani corporate setting is characterised by social aspects, where managers' incentives are anticipated to be driven by informal networks. Managers in these firms have greater support from family, tribe and personal relationships, and they use this power to protect themselves from employment risk (Chahine and Tohme, 2009; Boytsun *et al*., 2011). This may suggest that informal networks may affect the relationship between CG and CS, which in turn may have important implications for CS. For instance, managers in such firms may tend to carry debt at a sub-optimal level in order to enjoy free cash, as they do not worry about employment risk, because their positions are guaranteed by informal networks. Arguably, it is expected that Omani firms may not tend to employ debt financing as a useful governance mechanism in mitigating the conflict of interest between agent and principal. This may be because the additional risk generated by the use of debt is not expected to serve as further motivation for managers to maximise shareholders' interests in order to reduce their employment risk as managers protect themselves by informal networks. In addition, informal networks can have important implications for the choice of financing. For example, managers often have close relationships with political leaders and bank officers (Abdulla, 1998; Fan *et al*., 2011; Haque *et al*., 2011). This may motivate them to issue debt over equity, as they can easily obtain loans from local providers at favourable rates by taking advantage of informal networks, as well as use close relationships with political leaders to borrow

[19]The Mudaraba system (profit-sharing) is where firms and the capital provider share the profit, but only the capital provider bears all losses.

[20]There are other financing forms that are offered by Shariah Law, such as Murabaha (deferred payment sale), Bai' Salam (forward sale) and Istina (contract manufacturing). See Chong and Liu (2009) for a detailed overview of these Islamic financing forms.

from the government at lower rates (Friend and Lang, 1988; Dewenter and Malatesta, 2001). Arguably, it is expected that informal networks may render CG weak, which can limit its ability to enhance corporate policy decisions in general and impact negatively on its role in influencing CS and the selection of financing in particular.

Finally, distinct from developed countries, the Omani corporate setting is further characterised by high ownership concentration (Omran *et al.*, 2008, Bishara, 2011). Prior empirical evidence is generally consistent with a positive perspective of the theoretical literature in relation to the impact of block ownership on CS. In this sense, Oman offers a good setting to examine the extent to which ownership concentration drives CS and the choice of financing. This is due to the fact that Omani block holders are also expected to be influenced by informal networks which assign more importance to family, tribal and personal relationships than to CG mechanisms. For instance, and unlike agency theory predictions, Omani firms with large block holders might not tend to use debt financing as a governance mechanism in order to discipline managers. This may be attributed to block holders' powerful role in appointing managers, which gives them a greater ability to monitor managers to act in line with their interests, as well as to eliminate those with poor performance and replace them. Thus, Omani large block holders' role in influencing CS is expected to be different from that predicted by CS theories and found by past empirical results in developed countries.

Arguably, the combination of characteristics indicated above may suggest that the impact of CG on CS and the choice of financing in the Omani context may be different from that observed in developed countries. Therefore, analysing the extent to which firm-level CG drives CS and the choice of financing becomes empirical issue.

There is, however, an apparent lack of empirical studies examining CS determinants. For instance, Hussainey and Aljifri (2012) indicate that analysis of the influence of CG on CS is limited in emerging countries in general and Gulf Cooperation Council countries[21] (GCC) in particular. There are a few studies on CS in Oman that need to be acknowledged. Abdulla (1998) was the first study to shed light on the determinants of CS policy followed by Omani listed firms. Using a survey approach to investigate the factors that managers in 58 Omani listed firms considered the most significant in influencing CS, he reported evidence that the majority identified risk, liquidity, cash outflow commitments and active management as important factors of CS. Omet and Mashharawe (2002) examined the determinants of CS for four countries, including Oman. Using a sample of 38 Omani listed firms, they provide evidence that firm size, profitability and growth are significant factors of CS. Similarly, Sbeiti (2010) investigated the

[21]Gulf Cooperation Council countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

determinants of CS in three countries, including Oman. He reported empirical evidence that firm size, profitability and tangibility were found to be the most significant determinants of CS in Omani listed firms.

It can be clearly observed that prior studies in Oman have been limited in both number and scope. In this regard, the current study differs from the above studies in a number of ways. First, while this study seeks to specifically examine the impact of CG on CS and the choice of financing, existing studies examine general CS determinants, which is a different focus from the present study. Second, despite differences in focus, existing studies use smaller sample sizes than the current study, arguably limiting generalizability of their findings. Finally, the period under investigation in this study is more recent and relatively longer (2001-2011) than the periods examined in existing studies, which arguably strengthens the generalizability of the current study's results. To the best of the study's knowledge, there is no published study in Oman that examines the relationship between CG mechanisms and both CS and the selection of financing.

1.3 Research questions and contributions

The main purpose of this study is to examine two important issues, namely the determinants of: (i) CS; and (ii) the choice of financing. It investigates how effective the CG measures suggested by the Omani voluntary code in addition to other CG mechanisms proposed by other laws, such as Companies Act are in mitigating agency problems associated with CS. Specifically, using a one of largest and extensive sample of Omani listed firms from 2001 to 2011, the study empirically examines the extent to which firm-level CG, ownership structures and board and audit characteristics influence CS, as well as the corporate decision (choice) to issue equity or debt in SEOs firms. In doing so, the study seeks to extend the growing body of literature on the impact of CG on managerial decision-making behaviour, and make new contributions to the admittedly limited literature on the nature of the association between CG and each of CS and the choice of financing. First, the study provides empirical evidence of the influence of firm-level CG on CS, and whether public firms with better governance structures will choose equity or debt in meeting their financing needs. Finally, it provides insights into the extent to which board and audit characteristics and traditional ownership structures influence CS and the choice of financing. Arguably, this can expand our understanding of Omani firms' CS, and the role that CG reforms is expected to play in this regard.

1.4 Structure of the essay

The rest of this study is organised as follows. The next section addresses the institutional framework for the Omani financial system. Section 3 reviews CS theories and prior literature, and develops hypotheses. Research design is presented in the section 4. The OLS assumptions and descriptive statistics are reported in section 5. The empirical results are reported in section 6. Robustness tests are presented in section 7. The final section reports a summary conclusion.

2 THE INSTITUTIONAL FRAMEWORK OF THE OMANI FINANCIAL SYSTEM

This section discusses the institutional framework relating to the Omani financial system. As indicated earlier, the choice between debt, equity or a mixture of both is a crucial financial decision for firms in financing their activities. A country's financing system allows firms to select from among a number of CS' alternatives, such as arranging lease financing, using warrants, issuing convertible bonds, signing forward contracts and trading bond swaps (Abor, 2007). Thus, differences between countries' financing systems may lead to different ways of constructing firm CS.

In Oman, the banking sector is the key component of the financing system, where lenders and borrowers can exchange funds (Sangeetha, 2012, Rath *et al.,* 2014). Importantly, the Omani banking system is different from systems in developed countries in two main ways which are expected to have important implications on firms' financing choices. First, it consists of conventional commercial banks and Islamic banks; the credit policies of both types are different. Islamic banks offer alternative financing approaches, such as "Mudaraba" (profit-sharing), "Musyarakah" (joint-ventures), "Murabaha" (deferred payment sale), "Bai' Salam" (forward sale) and "Istina" (contract manufacturing) (Al-Ajmi *et al*., 2009, Khaldi and Hamdouni, 2011; Hassan *et al*., 2012). Second, bond markets and mutual funds markets are less developed which renders conventional commercial banks play the important role in the Omani corporate financial system (Sbeiti, 2010). The Omani banking system will be briefly discussed below.

Figure 4 depicts the Omani banking system. The Central Bank of Oman (CBO) is the foremost institution of the country's monetary and banking system. Thus, the institutional framework of the Omani banking system falls under the jurisdiction of the CBO. The CBO was established in 1974, when Sultan Qaboos bin Said signed the Banking Law and it was amended in 2002 in accordance with national and international economic developments (The Central Bank of Oman's official website). Similar to other central banks around the world, the CBO performs traditional functions (e.g., acts as a depository agency for the Omani state; issues national currency; grants licenses to new banks) that have significant impact on the economy in general and the corporate sector in particular. Specifically, it regulates different types of banks that supply firms with needed funds. These banks are classified into four groups: commercial banks, specialised banks, non-bank finance and Islamic banks (Central Bank of Oman, 2014). As of 31 December 2013, there were sixteen commercial banks, of which seven were local (e.g., Bank Muscat; Bank Sohar) and nine were branches of foreign banks (e.g., Standard Chartered bank; Bank of Baroda) (Central Bank of Oman, 2014). These banks provide funds to firms through 493

branches operating in the country (Central Bank of Oman, 2014). Importantly, of the seven local banks, six offer Islamic services through dedicated windows (Central Bank of Oman, 2014).

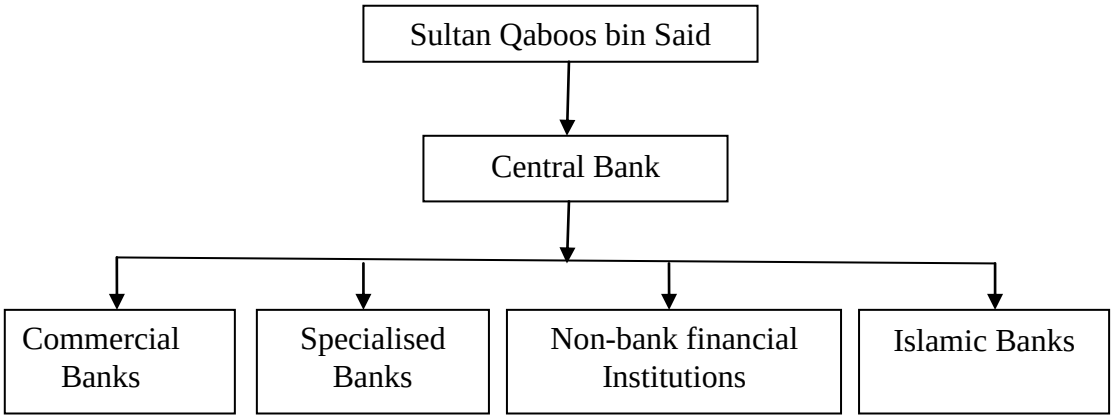

Figure 4: The Banking System of Oman. Source: Researcher's construction.

In addition to the commercial banks, there are two specialised banks, six non-bank finance institutions and two Islamic banks. The two specialised banks are the Oman Housing Bank and the Oman Development Bank, which provide small and medium-sized firms with new or additional financing, whereas the six non-bank finance institutions are either savings or investment institutions engaged in leasing, hire purchase, debt factoring and similar asset-based financing activities (Central Bank of Oman, 2014). The two Islamic banks, namely Bank Nizwa and Al lzz Islamic Bank offer fully Shariah-complaint services; firms may be encouraged to finance their investment opportunities through these banks in order to signal to outsiders that their financing policies are aligned with Shariah principles.

Furthermore, the Omani firms may finance their investment opportunities by issuing shares. In this regard, the Muscat Securities Market (MSM) offers a place where stocks can be bought or sold by listed firms and investors. Since its establishment in 1988, the MSM has been the only formal stock market in Oman that oversees the trade of shares and bonds. By December 2014, the number of listed firms had reached 117. This suggests that Oman has a small capital market. To sum up, the Omani financing system offers several sources of financing for firms, although they are not as organised as they may be available in advanced economies.

3 CAPITAL STRUCTURE THEORIES, LITERATURE REVIEW AND HYPOTHESES

The theoretical and empirical literature will be reviewed in this section. Specifically, this section will be divided into two main subsections. In the first subsection, a number of theories that have been developed to explain CS and the choice of financing will be discussed. The second subsection will set out the central theoretical arguments and the extant empirical literature that attempts to link CG mechanisms with CS and the selection of financing. The second subsection will be further divided into two main parts. The first part will focus on the impact of CG mechanisms on CS, whereas the influence of CG structures on the choice of financing will be the focus of the second part.

3.1 CAPITAL STRUCTURE: REVIEW OF TRADITIONAL THEORIES

Academic research on CS determinants has existed for more than five decades, and this topic remains one of the most debated issues in the financial literature. The pioneering work of Modigliani and Miller (1958) is regarded as the basis for the major theories that have been advanced by scholars to answer the question of what determines CS. These theories propose different predictions and explanations for a considerable number of factors claimed to have a potential impact on CS, as well as how firms choose their financing in order to fund their investment opportunities. Accordingly, a large number of empirical studies have emerged to examine the ability of these theories to explain CS and the choice of financing.

Despite the existence of CS theories, the empirical literature suggests that no single theory can provide a full explanation of CS behaviour (Myers, 2001). Hence, researchers tend to adopt a multi-theory approach in conducting their empirical studies.[22] In line with prior studies, the current study seeks to benefit from theoretical insights provided by available theories to investigate the extent to which firm-level CG, internal CG structures and ownership structures drive both CS and the selection of financing. Following Harris and Raviv (1991), theories related to CS can be grouped into two broad categories. First, theories based mainly on tax considerations include Modigliani-Miller theorem 1958, Modigliani-Miller theorem 1963 and trade-off theory. Second, non-tax driven theories consist of pecking order, signalling, market timing and agency theories. It should be emphasised that these theories are not mutually exclusive and each one assists the current study to provide answers to the research questions. In the next subsections, both categories will be discussed in order to determine the relative

[22]See subsection 3.1 of Essay 1 for more overview of the advantages associated with multi-theoretical approach.

importance of these theories and identify different aspects of CS and the choice of financing as proposed by each theory.

3.1.1 Theories Based on Tax Considerations

Taxes and bankruptcy costs have been used by researchers as major explanations for firms' use of leverage[23] and choice of financing. The following subsections review CS theories that are based on these proposed factors.

3.1.1.1 Modigliani-Miller Theorem 1958: The Irrelevance of Capital Structure

The theoretical research on CS determinants started with the theory proposed by Modigliani and Miller (1958). They introduced their irrelevance proposition indicating that there is no advantage associated with debt financing for a firm; hence, firm financing decisions are not relevant to firm value. This proposition was proved under efficient and perfect market assumptions of no tax, transaction cost, information asymmetry or bankruptcy cost, but its validity would not hold in the real world, where all these elements exist. This proposition has been criticised. One line of criticism has been that how changes in CS would be irrelevant to firm value. Despite criticism, the theory opened the door for researchers to utilise its conceptual basis to develop other CS theories. Indeed, the scope of CS determinants has been extended by researchers to include other factors, such as tax debt benefits, non-debt tax shields, bankruptcy costs and more recently CG.

3.1.1.2 Modigliani-Miller Theorem 1963: The Impact of Tax Debt Benefits

Due to irrelevance theory imperfections, Modigliani and Miller (1963) corrected the assumption related to tax in their earlier model of 1958, ceteris paribus. They acknowledged that, as debt interest payments are tax deductible, tax benefits associated with debt can lead to an increase in firm value. This suggests that firms are encouraged to increase their value by employing high levels of debt in order to enjoy a tax shield. This model was also criticised for overestimating of benefits associated with debt in the sense that debt financing shapes almost all firms' CS, with no role of equity financing. In addition, it has been argued that tax benefits associated with debt can be challenged and may not have a very significant value to firms. For instance, Miller (1977) argues that due to firms paying out a large amount of their income to the owners in the form of taxable interest payments, the personal income tax disadvantage is offset by tax advantages. This implies that the gain from leverage would completely vanish or even

[23]The terms "leverage" and "capital structure" are used interchangeably. They refers to the mix of different types of securities (e.g., long-term debt, common stock, preferred stock) issued by a firm in order to finance its assets.

become negative. Thus, Miller (1977) concludes that the value of a firm and its CS are independent from each other, which is in line with the CS irrelevance theory proposed by Modigliani and Miller (1958).

In contrast to the debt tax advantages argument, DeAngelo and Masulis (1980) introduce non-debt corporate tax shields that imply the existence of optimal CS for all firms. They argue that firms may not need to use more debt in order to enjoy debt tax shields because the benefits of non-debt tax shields (e.g., depreciation, investment tax credit) can substitute tax benefits associated with debt. This suggests that the benefits associated with debt financing would be reduced when depreciation and/or investment tax credits are available to firms. DeAngelo and Masulis (1980) conclude that the presence of non-debt tax shields will result in a market equilibrium in which all firms have internal optimal CS because of the interaction of personal and corporate tax treatment of both debt and equity. This may have important implications for firms. For instance, firms with a high proportion of tangible assets are expected to employ lower levels of leverage because depreciation deductions can be used as a substitute for debt to obtain attractive tax shields.

3.1.1.3 Trade-off Theory: The Impact of Tax Debt Benefits and Bankruptcy Costs

Subsequent studies (e.g., Kraus and Litzenberger, 1973; Scott, 1976; Kim, 1978) have argued that employing high levels of leverage in order to enjoy debt tax shields is unrealistic because such assumption fails to take into account the detrimental effects of increased use of debt on firm value. These studies introduce the concept of bankruptcy cost and its role for CS. For instance, Kraus and Litzenberger (1973) argue that firm value and CS can only be independent in complete and perfect markets. They conclude that because bankruptcy is a market imperfection, more debt may lead firms to bankruptcy when their debt obligation exceeds their earnings. In contrast to the assumption of zero bankruptcy, Scott (1976) also suggests that optimal CS exists and that firms can issue high levels of debt as long as they have enough assets to use as collaterals in the case of liquidation to secure debt. Obviously, this implies that firms would not be able to use infinite levels of debt because more debt increases the probability that they will face bankruptcy costs.

In addition, Kim (1978) argues that optimal CS is achieved when firm optimal debt is less than firm debt capacity. Particularly, and due to firms being subject to different types of bankruptcy costs, including both indirect (e.g., reduction in sales, higher production costs, difficulty in accessing capital markets) and direct (lawyers', accountants' and other professionals' fees, and time lost) (Baxter, 1967; Kim,1978; Warner, 1977; Haugen and Senbet, 1978), maximum debt capacity, defined as the maximum level of debt that a firm can borrow from

capital markets, can be reached by firms well before 100% debt financing is used. Kim (1978) concludes that optimal CS can be achieved by balancing the benefits of debt tax shields and the potential costs of bankruptcy.

The role of tax benefits and bankruptcy for the relevance of CS is central to the static trade-off theory. This theory assumes that optimal CS is determined by trading off corporate tax benefits of debt against bankruptcy costs, ceteris paribus (Myers, 1984). Based on this theory, a firm with higher potential bankruptcy costs compared to its expected debt benefits should not employ higher levels of debt, and vice versa. In this sense, risky firms, and firms with large intangible assets and higher growth opportunities, among others, are more likely to borrow less because the probability of bankruptcy costs is expected to be higher in such firms. The theory, however, has different implications for optimal CS. For instance, firms ought to set a target debt-to-value in order to achieve optimal CS, and gradually move closer towards this ratio until they arrive at their set targets (Myers, 1984). Another implication is that small firms are more likely to move away from their optimal ratios because of adjustment costs associated with reverting towards their optimal ratios (Barclay and Smith, 1999).

Despite its logical conceptual basis, the theory has been criticised over a number of issues. First, it has been indicated that the theory does not take into account the costs involved in adjusting to the optimal debt ratio, which may prevent firms from achieving their targets or optimal debt ratios (Myers, 1984). Second, it has been argued that it is difficult for firms to offset between debt benefits and bankruptcy costs because they would not completely be able to determine and measure the indirect type of bankruptcy costs (Baxter, 1967; Warner, 1977). Third, Haugen and Senbet (1978) argue that it is not accurate to suppose that tax subsidy is offset against bankruptcy costs to reach optimal CS because firms can avoid bankruptcy costs through informal reorganisation. Building on the empirical findings of Higgins and Schall (1975) and Van Horne (1976), who argue that bankruptcy costs do not exist in the presence of perfect markets, Haugen and Senbet (1978) propose that transaction cost, instead of bankruptcy cost, should be offset with tax subsidy because bankruptcy costs are trivial relative to tax subsidies, and because bankruptcy can be avoided by purchasing outstanding debt through selling new shares. Finally, although dividends are not tax deductible whereas interest payments are, the theory does not consider equity financing along with debt in its model. Firms are only encouraged to issue debt, which is inconsistent with the real world, where firms tend to issue debt, equity or a mixture of both.

3.1.2 Non-Tax Driven Theories

In addition to taxes and bankruptcy costs, other researchers consider information asymmetry and agency conflict as the main explanations for both a firm's use of debt and its choice of financing. The following subsections review CS theories that are based on these proposed factors.

3.1.2.1 Pecking Order Theory

Pecking order theory (POT) has sought to explain CS and the selection of financing by focusing on one of the frictions omitted in the Modigliani and Miller (1963) model. Thus, the central friction in POT is the asymmetric information between managers and new investors. Considering the fact that managers have more information than investors, POT has attempted to offer an alternative model that would be better able to describe firms' financing behaviour. This model was mainly developed by Myers (1984) and Myers and Majuf (1984), who argue that debt and free cash flow are negatively associated because retained earnings (internal finance) are the most preferred source of financing by firms. They have built their model based on the empirical findings of Donaldson (1961), who argues that firms prefer to use their internal funds to finance new projects and tend to use external sources only if the need for additional financing cannot be avoided. POT introduced the notion that asymmetric information has relative importance in shaping firms' financing hierarchy. Therefore, it supposes that firms would follow a pecking order in making their CSs. The first choice is to use internal sources of financing; if internal sources are unavailable or insufficient then they tend to issue debt. The second choice is to issue equity if there is a greater need for additional external financing and if the use of more debt can be considered riskier for the firm. POT justifies this order by arguing that debt financing has lower information costs compared with equity financing, where new investors and managers have asymmetric knowledge about the firm. Specifically, POT assumes that new investors who are less informed believe that managers tend to issue equity when their firms are overvalued. Prior studies (e.g., Dittmar and Thakor, 2007; DeAngelo *et al.*, 2010; Dong *et al.*, 2012) support this assumption by reporting empirical evidence that stock prices decline when firms announce the issuing of new shares. Therefore, POT predicts that managers tend to avoid issuing equity because they recognise that new investors may under-price their firms' shares due to a lack of information with which to assess a firm's risk (Myers, 1984); hence, issuing equity should be the last choice in raising external funds in order to protect old shareholders' interests.

Overall, and according to the financing hierarchy predicted by POT, firms are more likely to rely initially and primarily on debt financing in seeking additional financing when their internal source of financing is not sufficient in order to minimise asymmetric information costs

(Myers, 1984). In this view, POT has a number of implications for firms. For instance, firms with high profitability and/or dividend payout ratios are not expected to rely on debt to fund their investment projects because they have substantial internal funds and their demand for additional financing is limited. However, firms with higher growth opportunities and risky firms are anticipated to depend on debt in financing their investment opportunities because their retained earnings are not sufficient to meet their external financing needs.

In spite of its attempt to provide a new model in explaining firms' financing behaviour, POT has a number of limitations (Fama and French, 2002; Frank and Goyal, 2003). For instance, unlike trade-off theory, it does not consider the optimal CS for the firm; hence, no optimal debt ratio is suggested (Frank and Goyal, 2009). Another concern is that its logical conceptual basis restricts the analysis to the impact of information asymmetry between managers and new investors on firm's CS and choice of financing, and ignores the implications of asymmetric information between managers and old shareholders. Arguably, the existence of asymmetric information between managers and old shareholders may also influence managers' decisions to issue equity or debt. For example, old shareholders may force managers to issue debt. Debt financing can be used by old shareholders as governance mechanism to force managers to engage in acts that maximise their wealth where managers become less able to control for free cash available (Jensen, 1986).

3.1.2.2 Signalling Theory

Similar to POT, signalling theory (SGT) is based on information asymmetry, where outside investors, among others, can rely on a firm's actions in order to minimise such problem. The theory introduced the concept that CS is one way in which a firm's actions can provide information about the firm to outsiders. It was mainly developed by Leland and Pyle (1977) and Ross (1977), who argue that managers take advantage of being better informed regarding their firms' value to signal their firms' information to outsiders.

In Ross' (1977) model, debt is suggested to act as a signal to outsiders about firms' financial prospects that are known only to insiders. In this view, outsiders consider a firm that does not take on more debt as a firm with no good future financial prospects, because they recognise that managers have unfavourable information about the firm, and taking on more debt can lead them to bankruptcy risks. A firm's decision to take on more debt will be interpreted by outsiders as the firm having good future financial prospects. Further, debt issuance may signal to outsiders that the firm does not want additional shareholders to share potential profit with (Ryen *et al.*, 1997; Koch and Shenoy, 1999). Therefore, this model formalised the notion that a firm's

debt level allows outsiders to distinguish between high and low quality firms, where low quality firms cannot adopt more debt as this will expose them to bankruptcy risks.

In addition, the Leland and Pyle's (1977) model argues that CS can also be affected by information asymmetry through managerial ownership or percentage of shares held by insiders. They assume that managerial ownership level can also act as a signal to outsiders about a firm's quality and its true value. In this regard, firms with higher managerial ownership are more likely to be good quality firms, as managers are expected to have positive information about the firm's future financial prospects, and outsiders respond accordingly. In contrast, managers in poor quality firms will not imitate their counterparts in good quality firms by choosing such costly signals to transfer information to outsiders. This implies that good quality firms are more likely to have high managerial ownership. The proportion of ownership held by insiders also indicates that such firms are more likely to have larger debt capacity. Unlike poorly managed firms, these firms tend to employ higher levels of leverage in order to meet their external financing needs because insiders have positive information regarding the firms' future financial prospects.

The common conclusion from these two models that present signalling theory is that any meaningful changes in CS will be seriously considered by outsiders as a signal of future firm performance, and they will respond accordingly (Hussainey and Aljifri, 2012). Regardless of its attempt to shed more theoretical insights into CS and the choice of financing, SGT does not consider a number of issues, including: (i) optimal leverage ratio; and (ii) the role of information asymmetry regarding existing shareholders and the impact of this on both CS and capital issuance. More importantly, and even though it is costly, there is a probability that managers in poorly managed firms may tend to imitate other managers in good firms by holding a high percentage of shares to signal their firms' quality to outsiders, especially in family and initial public offerings firms. Arguably, the assumption that the proportion of managerial ownership acts as signal of a firm's quality, and hence the firm can employ more debt in its CS, may not apply for all firms.

3.1.2.3 Market Timing Theory

Market timing theory (MTT) is regarded as the most recent theory developed to explain how firms make their CSs. MTT has challenged the traditional theories, trade-off and POT, by introducing the concept that links equity issuance with stock market performance. It was formalised by Baker and Wurgler (2002), who argue that managers tend to issue equity when their firms' value appear to be overvalued by irrational investors. Their hypothesis is built on the empirical findings of four different types of studies (Baker and Wurgler, 2002), including: (i) studies of actual financing decisions, which report evidence that managers tend to issue equity

over debt when their firms' market value is high and repurchase equity when the market value of their firms appears to be low; (ii) studies of long-run stock returns following CS, which provide evidence that managers tend to issue equity when their firms' cost of equity becomes relatively low and repurchase equity when the cost of equity becomes high; (iii) studies of earnings forecasts, which report evidence that managers are more likely to issue equity when they recognise that investors are too enthusiastic about their firms' future financial prospects; and (iv) survey studies, which provide evidence that managers consider equity market prices as the most important factor in making their decisions to issue equity or debt. This evidence of market timing has motivated Baker and Wurgler (2002) to provide an alternative hypothesis that explains how CS and financing choices are made by firms.

Baker and Wurgler (2002) not only present their theory, but also test it within a US setting. In their empirical analysis, they use market-to-book ratio as a proxy for weighted average of past stock performance to test their hypothesis. They report evidence which is in line with their assumption that market-to-book ratio and leverage are negatively correlated. Specifically, firms with low debt tend to raise their funds when their market values are high whereas firms with high debt tend to the adverse. In this regard, the major implication of MTT is that firms choose the form of financing depending on their historical stock market performance (Baker and Wurgler, 2002). Further, firms with a large proportion of financing deficit are anticipated to issue equity when the cost of equity is low and issue debt if the cost of equity is high (Baker and Wurgler, 2002). Another implication is that firms with higher growth opportunities, which have high market valuation, are more likely to reduce their levels of leverage in order to retain their financial flexibility (Myers, 1977). In contrast, firms with low market valuation would repurchase equity or issue debt in order to increase their levels of leverage (Baker and Wurgler, 2002).

This theory has inspired a number of studies (e.g., Welch, 2004; Leary and Rober, 2005; Alti, 2006; Hovakimian, 2006; Huang and Ritter, 2009) examining the consequences of equity market timing on CS, with mixed results. Despite its modernity, and like the other CS theories, MTT has a number of limitations (Mahajan and Tartaroglu, 2008). First, unlike trade-off theory, but similar to POT, this theory does not predict optimal CS. Second, a number of studies (e.g., Leary and Rober, 2005; Alti, 2006; Mahajan and Tartaroglu, 2008) report evidence that its explanatory power to explain firms' propensity to issue equity is limited to the short-run. Finally, other studies argue that there is no negative relationship between the weighted average of a firm's past stock performance and its CS. For instance, Hovakimian (2006) argues that the effect of market timing on CS is not persistent and that there is no negative relationship between market-to-book ratio and CS, and what Baker and Wurgler (2002) found resulted from the dual role of

market-to-book ratio as a proxy for weighted average which also reflects firms' growth opportunities.

3.1.2.4 Agency Theory

Agency theory (AT) presents agency costs as another important determinant for CS and the choice of financing that arises from a divergence of stakeholders' interests. The theory was mainly developed by Jensen and Meckling (1976), who argue that firms can arrive at an optimal CS by trading off agency costs against the benefits of debt. Further, it predicts that firms can choose between equity and debt by trading off between agency costs of debt and equity.

With respect to CS, Jensen and Meckling (1976) built their theory on the assumption that debt financing can be affected by agency costs, such as bankruptcy costs, residual loss, and monitoring and bonding expenditures. The theory assumes that these costs are mainly derived from two types of conflict – either between managers and shareholders or between shareholders and debt holders.

The first agency problem arises when managers' stake in the residual claims is smaller than that of shareholders. In this case, managers are expected to increase their wealth at the expense of shareholders by engaging in excessive perquisite consumption. The theory offers two ways to reduce this problem: (i) increasing the percentage of equity owned by managers in the firm, which may motivate managers to align their self-managerial interests with shareholders' interests, especially with regard to investment decisions; and (ii) the use of debt financing. Specifically, debt financing can be used by firms to mitigate agency problems and reduce agency costs in two ways. First, Grossman and Hart (1982) argue that the use of debt may increase the risk of bankruptcy. The additional risk may serve as further motivation for managers to maximise shareholders' interests in order to reduce their employment risk. Second, Jensen (1986) suggests that debt financing can be used by firms as a useful CG mechanism to mitigate such conflict. In this sense, employing high levels of debt can result in less free cash available for managers to control because debt commits them to making fixed interest payments.

Unlike prior theories, AT shows that CG is a significant determinant of CS and the choice of financing. In particular, Jensen (1986) introduced the concept that links CG to CS. According to his assumption, managers may tend to employ sub-optimal levels of leverage that allow them to expropriate wealth from shareholders because more debt imposes constraints on their managerial discretion. Arguably, managers' use of a sub-optimal level of leverage will largely be dependent on the strength of their firms' CG, because CG mechanisms have been designed to minimise agency conflicts (Jiraporn *et al.*, 2012). Specifically, AT assumes that managers in poor CG firms, which are expected to suffer more from agency problems, are motivated to employ

sub-optimal levels of leverage in order to enjoy free cash flow. It posits that higher levels of leverage can serve as a substitute mechanism for weaker governance mechanisms. This implies that leverage and governance quality are inversely associated where firms with poor CG are more in need of employing high levels of leverage in order to alleviate agency costs and align managers' interests with shareholders' interests.

Due to debt financing, however, the second agency problem can arise. In particular, shareholders expropriate wealth from debt holders by investing in very risky projects with high expected returns. In this case, most of the gains will be captured by diversified shareholders, whereas the cost will be borne by debt holders (Jensen and Meckling, 1976). This leads debt holders to protect themselves through restrictive covenants and monitoring devices which at the same time help create another type of agency cost related to debt (Smith and Warner, 1979).

With regard to the choice of financing, AT assumes that a firm's choice of financing can be affected by two types of agency costs: those of equity and debt. Thus, firms can make their decisions by trading off costs of debt against costs of equity (Jensen and Meckling, 1976). In this regard, firms are expected to choose debt over equity in financing their investment opportunities when agency costs of debt are lower than agency costs of equity, and vice versa. The theory supposes that agency costs related to equity financing are mainly derived from the conflict of interest between managers and shareholders, whereas debt financing results from the conflict of interest between shareholders and debt holders.

The former conflict can occur when a firm decides to raise capital from equity finance in order to finance its project. Managers recognise that benefits associated with equity financing will largely go to diversified shareholders if the investment succeeds, and they bear the cost otherwise. In this case, managers may tend to misuse the funds offered by shareholders in order to achieve their interests at the expense of shareholders. Hence, the cost of attempts to minimise such behaviour, such as management compensation, share option and management ownership, among others, are regarded as agency costs of equity financing. As indicated earlier, the latter conflict takes place in situations where firms choose debt financing to raise capital in order to meet their external financing needs. As shareholders diversify their portfolios, they prefer to invest in risky investments with high expected returns that may not be consistent with debt holders' interests. In this regard, debt holders are aware that the benefits related to debt financing will mostly go to diversified shareholders if the investment succeeds, and they bear the cost if the investment goes bad. Therefore, the cost of efforts to align shareholders' interests with those of

debt holders, such as restrictive covenants and convertibility options, are a fraction of agency costs of debt (Smith and Warner, 1979).

To sum up, AT addresses CS through its assumption, that CS is determined by agency costs due to the divergence of interests between different stakeholders. It suggests that agency costs associated with debt (e.g., monitoring, bonding and residual loss), which derive from both types of agency conflict, should be traded off against the benefits of debt (e.g., debt tax shields and lower information costs) in order to achieve optimal CS. Further, it predicts that a firm's choice of financing can be made by trading off costs of debt (e.g., restrictive covenants and convertibility options) against the costs of equity (e.g., management compensation, share option and management ownership). In addition, the theory draws attention to the role that CG can play in influencing firms' choice of financing, as CG has been designed to mitigate agency problems and in turn reduce agency costs. It is argued in the literature that CG is able to reduce agency costs related to both equity and debt, but its influence on equity financing is more direct compared to its influence on debt financing for a number of reasons (Mande *et al.*, 2012). First, shareholders' interests can be better protected from opportunistic actions taken by managers through good CG (Jensen and Meckling, 1976). Second, CG reduces monitoring costs associated with providing credible financial information to equity holders (Ajinkya *et al.*, 2005). Finally, debt holders are not in need of CG as much as shareholders are, because they have effective protective devices to protect their interest (Chava *et al.*, 2010). Thus, CG minimises agency costs to a degree where firms prefer equity issuance over debt financing (Mande *et al.*, 2012). However, researchers have been motivated by AT to link internal CG structures along with traditional ownership structures with both CS and the choice of financing.

The following subsections will develop the current study's hypotheses. Specifically, hypotheses related to ownership structures, firm-level CG and internal CG mechanisms will be developed in order to conduct the empirical part of this study. In doing so, the present study relies on the above theories and a considerable number of empirical studies to set out the central theoretical arguments that link CG with both CS and the choice of financing. In particular, subsection 3.2.1 reviews the literature on CS, whereas literature on the choice of financing is reviewed in subsection 3.2.2.

3.2 PRIOR EMPIRICAL LITERATURE AND HYPOTHESES

As previously explained, few studies (e.g., Abdulla, 1998; Omet and Mashharawe, 2002; Sbeiti, 2010) has investigated the determinants of CS in Omani listed firms. To the best of the study's knowledge, there is no published study analysing the extent to which firm-level CG

drives CS and the choice of financing among Omani listed firms. However, past studies conducted in other corporate settings (e.g., Haque *et al.*, 2011; Ba-Abbad and Ahmad-Zaluki, 2012; Hussainey and Aljifri, 2012; Mande *et al.*, 2012) investigate a considerable number of factors that different CS theories suggest may impact on CS and the choice of financing. Despite an extensive body of empirical research, studies analysing the extent to which CG drives CS and the choice of financing are limited. A small number of studies have investigated the association between CG and CS, and they report evidence that some CG attributes play a role in influencing firms to employ lower or higher levels of debt, as well as issuing equity or debt in seeking new or additional financing (e.g., Jong *et al*., 2008; Akhtar and Oliver, 2009; Delcoure, 2007, Mande *et al.*, 2012).

3.2.1 Prior Empirical Literature and Hypotheses: Capital Structure

In line with the literature, the current study draws from CS theories, previous studies and Omani context to identify factors, especially CG mechanisms, which may have a direct impact on CS among Omani listed firms. In particular, the selected explanatory variables that are investigated in this study are chosen for two main reasons. First, CS theories and prior studies have shown that these factors are the most closely correlated with CS. Second, data limitations force the present study to not include other CG factors that have been examined in the literature. In this study, the following determinants will be used to develop the study's hypotheses. These determinants are classified into two main themes. First, ownership variables, including: (i) government ownership; (ii) institutional ownership; (iii) foreign ownership; and (iv) block ownership. Second, CG variables, including: (i) firm-level CG; (ii) board size; (iii) the presence of a CG committee; and (iv) audit firm size. The two themes are discussed in the following subsections.

3.2.1.1 Ownership Variables

Prior studies have examined the effect that ownership structures have on firms' financial behaviour. In particular, it is often argued that shareholders' rights can affect CS (Friend and Lang, 1988; Berger, 1997). In this view, ownership structures are suggested to play an important role in mitigating asymmetric information and agency costs associated with CS (Jensen and Meckling, 1976; Myers and Majluf, 1984; Jensen, 1986). Therefore, the relationship between ownership structures and CS has been investigated by a number of studies. The next subsections will briefly set out the central theoretical arguments regarding the link between the ownership variables and CS, as well as reviewing empirical studies and subsequently developing hypotheses for each type of ownership structure.

(i) Government ownership (GOVOWN)

Asymmetric information is expected to be higher in firms with government ownership than those with non-government ownership. This is justified by the fact that government interests are not always in line with shareholders' interests. Managers who are usually appointed by the government have interests in profit and non-profit goals, whereas shareholders have interests only in maximising their wealth (Shleifer and Vishny, 1997; Eng and Mak, 2003). In this view, managers in these firms have greater support from the government and use this power to entrench themselves from a variety of risks. For instance, managers are motivated to use more leverage, as they are not worried about their employment risk or bankruptcy if they fail to make profits because the government guarantees their positions, as well as bearing a large portion of potential losses. In contrast, and in order to enjoy free available cash, managers in such firms may engage in excessive perquisite consumption by carrying debt at a sub-optimal level because their positions are guaranteed by the government, and the market for corporate control will not be effective in disciplining them as the government is expected to be the major long-term investor.

However, the existing literature has presented limited evidence of the effect of government ownership on CS. Prior empirical evidence is generally consistent with the positive association between government ownership and CS (e.g., Gul, 1999; Al-Sakran, 2001; Dewenter and Malatesta, 2001; Li *et al.*, 2009; Liu *et al.*, 2011; Alipour *et al*., 2015). For instance, using pooled cross-sectional observations of firms listed on the Shanghai Stock Exchange from 1990 to 1995, Gul (1999) provides empirical evidence that government ownership is positively correlated with debt ratio. Similarly, using a sample of 1,111 Chinese listed firms from 2002 to 2009, Liu *et al*. (2011) report a positive impact of government ownership on CS. In contrast to the positive findings observed in the above studies, there is less empirical evidence of no significant relationship between government ownership and CS. For example, using a sample of 71 UAE listed firms in 2006, Hussainey and Aljifri (2012) report empirical evidence that government ownership has no significant effect on CS. In Oman, the government, as in many emerging countries, has a considerable number of shares in listed firms. Therefore, analysing the extent to which government ownership drives CS becomes empirical. In line with the positive perspective of the above argument and consistent with the positive empirical evidence, the first hypothesis is that:

> ***H1.*** There is a statistically significant positive association between government ownership and the debt-to-equity ratio.

(ii) Institutional ownership (INSOWN)

The greater monitoring power usually associated with institutional investors has been suggested to play a crucial role in reducing managers' ability to engage in excessive perquisite consumption and forcing managers to make decisions in line with shareholders' interests (Shliefer and Vishny, 1986). This may suggest that institutional investors with a large stake of shares can have an impact on CS (Crutchley *et al.*, 1999). Theoretically, it has been argued that large institutional investors have the ability and resources to obtain more information than individual investors, as well as having knowledgeable experts whose can professionally evaluate firms' CSs (Smith, 1976; Lev, 1988; Chung *et al.*, 2002; Bos and Donker, 2004). More importantly, large institutional investors can use their voting power against harmful amendments that could lead to reduce shareholder wealth (Shleifer and Vishny, 1986; Donnelly and Mulcahy, 2008). In this regard, firms with large institutional ownership may tend to employ lower levels of leverage because their higher communication and monitoring dispense of them the use debt financing to reduce agency problems (Hsu and Wang, 2013). In contrast, it can be argued that large institutional investors may force managers to use higher levels of debt because the higher level of leverage will convince institutional investors that managers have less free cash to control as debt commits them to paying fixed interest payments, and hence they will be less able to engage in excessive perquisite consumption.

Empirically, limited research has been conducted to investigate the relationship between firm-level CS and institutional ownership. Previous empirical evidence is generally consistent with a negative association between the percentage of ownership held by institutional investors and firm-level CS (e.g., Chaganti and Damanpour, 1991; Bathala *et al.*, 1994; Grier and Zychowicz, 1994; Crutchley and Jensen, 1996; Al-Najjar and Taylor, 2008; Hussainey and Aljifri, 2012; Michaely and Vincent, 2012; Hsu and Wang, 2013). For instance, Hsu and Wang (2013) examined the relationship between institutional ownership and CS using a sample of 624 listed firms on the Taiwan Stock Exchange during the period 2005 to 2011. They report evidence that institutional ownership is negatively associated with firm-level CS. Similarly, Michaely and Vincent (2012) report US evidence that firms with large institutional investors, on average, have relatively low leverage ratios. There has been little evidence of different results. For example, using US data from two-year periods (1983-1987; 1989-1993), Crutchley *et al.* (1999) report evidence that institutional ownership impacted positively on debt only in the 1983-1987 period. Using a sample of 41 Jordanian listed firms over 2001 to 2005, Al-Fayoumi and Abuzayed (2009) also report evidence that institutional ownership is positively, but not significantly related to CS. In consistent with the negative theoretical prediction and in line with negative empirical

evidence, however, it can be hypothesised that institutional ownership is more likely to influence negatively on CS as follows:

> ***H2.*** There is a statistically significant negative association between institutional ownership and the debt-to-equity ratio.

(iii) Foreign ownership (FOROWN)

Due to the increase in international trade, foreign investors are expected to play an important role in corporate policy decisions. In particular, it has been suggested that foreign ownership can affect CS. Theoretically, prior literature provides both positive and negative predictions regarding the relationship between foreign ownership and firm-level CS. On the one hand, foreign shareholders may tend to force firms to employ higher levels of leverage as a governance device to control managerial self-interest, because they face higher levels of information asymmetry compared with domestic shareholders, resulting from distance and language obstacles (Jensen and Meckling, 1976; Huafang and Jianguo, 2007). Further, firms with a large proportion of foreign ownership may tend to use more debt because they can rely on foreign shareholders' reputation and relationships to have access to international markets (Le and Phung, 2013). More importantly, and despite many countries in emerging markets opening their stock markets to foreign investors, considerable number of them do not allow foreign investors to own more than 49%, which may limit the monitoring role of foreign ownership (Le and Phung, 2013). This may mean that foreign ownership may not be a substitute for debt (Jensen, 1986; Kochhar, 1996; Jiraporn *et al.*, 2012). Thus, firms with many foreign investors may need to use debt financing to increase their monitoring of managers. On the other hand, firms with large foreign ownership are anticipated to have good CG practices in order to meet the expectations of foreign investors (Leuz *et al.*, 2010; Aggarwal *et al.*, 2011). Arguably, foreign ownership can serve as a substitute mechanism for debt in reducing the conflict of interest between managers and shareholders (Jensen, 1986). Hence, firms with a large proportion of foreign ownership might not need to use more debt as governance mechanism as managers are monitored through different CG measures.

However, there is no substantial body of international evidence evaluating the influence of foreign ownership on firm-level CS. In line with the negative perspective of the theoretical literature, a number of empirical studies (e.g., Suto, 2003; Li *et al.*, 2009; Gurunlu and Gursoy, 2010, Anwar and Sun, 2015) report a negative relation between firm-level CS and foreign ownership. For instance, using a sample of 417,068 firm-year observations over 2000 to 2004, Li

et al. (2009) report evidence that foreign ownership in non-listed Chinese firms is negatively related to different measures of leverage. Similarly, using data from Turkish firms, Gurunlu and Gursoy (2010) provide evidence that foreign ownership impacts negatively on CS. In contrast, Le and Phung (2013) document empirical evidence showing a positive effect of foreign ownership on Vietnamese listed firms' CS. Their finding does not support the monitoring role of foreign ownership. In contrast to both the positive and negative findings observed in the above studies, Zou and Xiao (2006) report evidence that foreign ownership does not have important influences on the CS of Chinese firms. In Oman, firms with large portion of shares held by foreign investors are likely to use lower levels of leverage because foreign ownership is expected to be considered as alternative governance mechanism that enables local firms to mitigate the critical influence of informal networks where managers and directors are anticipated to be driven by family, tribe and personal relationships, leading to avoid the additional risk that could be resulted from employ higher levels of leverage. Hence, in line with the negative theoretical and empirical literature, the third hypothesis proposed in this study is:

> ***H3.*** There is a statistically significant negative association between foreign ownership and the debt-to-equity ratio.

(iv) Block ownership (BLKOWN)

Previous studies indicate that concentration of ownership can play an important role in improving CG by increasing the level of monitoring of managers. For instance, Berger *et al*. (1997) report evidence that agency conflicts are reduced when there are increases in block ownership. Roberts and Yuan (2006) suggest that managerial efficiency can be enhanced by large shareholders. Thus, the ownership of block holders can be expected to determine the level of leverage. Large shareholders are more motivated than dispersed shareholders to monitor and discipline managers in order to protect their investments (Friend and Lang, 1988; Mehran, 1992). Corporate debt can be used by block holders as additional governance mechanism to prevent managers from engaging in managerial self-interest. In particular, the voting power of block holders gives them greater ability to act as an internal CG device in order to prevent managers from adjusting the level of debt finance to meet their own interests (Brailsford *et al.*, 2002). In this view, managers in firms with high concentrated ownership may be forced by block holders to use higher debt levels in order to act in line with block holders' interests. This does not conflict with the fact that adopting more debt may result in bankruptcy risk because large shareholders diversify their investments (Sheikh and Wang, 2012). An inverse relation, however, between the level of debt ratio and block ownership can also be expected. Large shareholders have both the

motivation and the voting power to monitor and discipline managers. For example, block holders can eliminate and replace poorly performing managers (Shleifer and Vishny, 1997). Arguably, the presence of large shareholders serves as a signal to outsiders that the managerial self-interest problem is mitigated (Wiwattanakantang, 1999). Thus, firms with high concentrated ownership might not need to adopt high levels of leverage because the presence of block ownership seems to be a substitute for the function of debt in disciplining and monitoring managers. In this view, the relationship between block ownership and debt ratio is expected to be negative.

In line with a positive expectation of the theoretical literature, a number of studies have offered evidence that ownership concentration impacts positively on CS (e.g., Mehran, 1992; Brailsford *et al.*, 2002; Fosberg, 2004; Cespedes *et al.*, 2010; Sheikh and Wang, 2012; Ganguli, 2013). For instance, using a sample of 124 manufacturing firms over 1973 to 1983, Mehran (1992) provides empirical evidence that block ownership and CS are positively correlated. Similarly, Brailsford *et al*. (2002) examined the relation between the presence of block shareholders and CS by using 49 firms listed on the Australian Stock Exchange and report that block ownership has a positive impact on Australian firms' CSs. Sheikh and Wang (2012) use 155 non-financial listed firms on the Karachi Stock Exchange during 2004 to 2008 to provide empirical evidence that block ownership is significantly and positively correlated to both total and long-term debt ratios. In contrast, prior studies that found negative evidence are very rare. For instance, using a sample of 694 Western Europe firms during the period 2002-2006, Santos *et al*. (2014) report evidence that block ownership and debt ratio are negatively correlated. Using a sample of 375 Malaysian listed firms during 1995 to 1999, Suto (2003) provides empirical evidence consistent with the notion that a higher concentration of ownership mitigates agency conflict by solving managerial self-interest, and shows that block ownership is negatively related to debt ratio.

In Oman, due to block holders are expected to assign more importance to family, tribe and personal connections than to CG measures, they may use their powers to discipline managers, by eliminating those with poor performance and replace them, instead of relying on higher levels of leverage. In the meantime, managers are expected to use sub-optimal level of debt in order to enjoy free cash where block holders may not be able to force managers to employ higher levels of leverage because managers entrench themselves by informal networks that guarantee their positions. Both cases suggest that the effect of ownership concentration on CS is expected to be negative. Therefore, the fourth hypothesis of this study is:

> ***H4.*** There is a statistically significant negative association between block ownership and the debt-to-equity ratio.

3.2.1.2 Corporate Governance Variables

A limited number of prior studies have investigated how CG mechanisms can influence firms' financing patterns (Hussainey and Aljifri, 2012). The next subsections will briefly set out the central theoretical arguments that link CG variables and corporate financial behaviour. The empirical evidence is also reviewed in order to develop the study's hypotheses. Due to data limitations, the study limits its hypotheses to the following CG variables, including CG index, board size, a presence of a CG committee and audit firm size.

(i) Firm-level composite corporate governance index (OCGI)

Despite the limited number of studies on the relationship between CG and CS, most prior empirical literature has examined individual CG mechanisms rather than firm-level CG (Haque *et al.*, 2011). This may suggest that the association between CG and CS is still not entirely clear (Jiraporn *et al.*, 2012). Previous studies (e.g., Agrawal and Knoeber, 1996; Cyert *et al.*, 2002; Karamanou and Vafeas, 2005; Bowen *et al.*, 2008) argue that it is imperative to examine CG mechanisms as an integrated system instead of testing them independently because some of them can complement or substitute each other. In response to these calls, the present study measures CG by employing the CG index (OCGI) based on the 2002 Omani code of CG in order to investigate how CS is influenced by aggregated CG quality. As predicted by AT, debt financing can be used as CG mechanism in mitigating agency conflicts between ownership and control (Jensen and Meckling, 1976). Specifically, managers will be less able to engage in excessive perquisite consumption because debt commits them to paying fixed interest payments, leaving less free cash available for them to control (Jensen, 1986). Arguably, managers are more likely to carry debt at a sub-optimal level because they can enjoy available free cash and protect themselves from additional constraints (Jiraporn *et al.*, 2012). In this view, poor CG firms need more debt to act as a CG mechanism compared with firms with better CG. Therefore, leverage is expected to be higher in poor CG firms (i.e., higher leverage substitutes for weaker CG structures) in order to alleviate agency costs and align managers' interests with shareholders. As a result, the association between CS and CG is anticipated to be negative.

Prior limited empirical evidence (e.g., Jiraporn and Gleason, 2007; Florackis and Ozkan, 2009; Rijal and Bahadur, 2010; Haque *et al.*, 2011; Jiraporn *et al.*, 2012) is generally consistent with the negative expectation of the theoretical literature in examining the association between CG and leverage. For instance, Jiraporn *et al*. (2012) investigate the link between CG and leverage and report evidence that leverage and governance quality are inversely related. Similarly, Haque *et al*. (2011) examine the relationship between firm-level CG and the CS pattern of Bangladeshi listed firms. They provide evidence that poor CG firms have higher levels of debt

financing. Jiraporn and Gleason (2007) draw similar conclusions that the strength of shareholders' rights impacts negatively on CS. Given the negative predictions of the theoretical and empirical literature, it can be hypothesised that firm CG is more likely to negatively influence CS. Hence, the fifth hypothesis of this study is:

> ***H5.*** There is a statistically significant negative association between firm-level corporate governance and the debt-to-equity ratio.

(ii) Board size (BSIZE)

It is widely accepted that the board of directors is one of the most effective internal CG mechanisms, with an effective role in alleviating different types of agency problems and ensuring that firms operate efficiently and competitively (Jensen and Meckling, 1976; Jensen, 1993). In particular, the board is viewed as the highest decision-making body responsible for providing clear strategies to guide managers in structuring CS (Hussainey and Aljifri, 2012; Sheikh and Wang, 2012). Due to its importance, the relation between a firm's board size and its CS has been investigated in the literature to explore whether firms with large boards tend to have higher or lower levels of leverage, and the results are inconclusive. Theoretically, firms with larger boards can enjoy more diversity in experience and skills than firms with smaller boards, which allows them to effectively mitigate agency conflicts between ownership and control (Pfeffer, 1972; Jensen and Meckling, 1976; Klein, 2002). Further, Berger *et al*. (1997) argue that firms with larger boards of directors are more likely to put more pressure on managers to improve firm performance. This suggests that such firms may not need to use more debt in order to monitor managers to act in line with shareholders' interests. Arguably, firms with larger boards are expected to follow low leverage policies, reflecting a negative relationship between larger board size and leverage. In contrast, larger boards are more vulnerable to being dominated by managers where managers can exert pressure on boards of directors (Jensen, 1993). This suggests that firms with larger boards may need to employ higher levels of leverage in order to mitigate such pressure and align agents' interests with those of principals' interests.

Empirically, the negative relationship has been reported by a number of studies (e.g., Mehran, 1992; Berger *et al.* 1997; Al-Najjar and Hussainey, 2011). For example, using a sample of 379 UK listed firms around the period 1991 to 2002, Al-Najjar and Hussainey (2011) report a negative association between board size and CS. In contrast, and in line with the positive expectation of the theoretical literature, other studies (e.g., Wen *et al.*, 2002; Abor, 2007; Sheikh and Wang, 2012) have offered empirical evidence that board size is positively related to CS. For

instance, using a sample of 155 Pakistani public firms during 2004 to 2008, Sheikh and Wang (2012) report evidence indicating that the coefficient of board size is statistically significant and positively related to both total debt and long-term debt ratios. However, and in contrast to the negative and positive findings observed in the above studies, there exists other empirical evidence of no significant relationship between board size and CS. For example, using a sample of 71 UAE listed firms in 2006, Hussainey and Aljifri (2012) report evidence that board size has no significant effect on CS. Hence, and in view of mixed theoretical and empirical literature, the sixth hypothesis proposed in this study is:

> ***H6.*** There is a statistically significant association between board size and the debt-to-equity ratio.

(iii)Corporate governance committee (CGCOM)

Board committees (e.g., remuneration, nomination, risk, audit and CG committees) are considered to be good internal CG mechanisms that assist the board in performing its duties and making decisions that lead to improvement in the firm's value. In particular, a CG committee can play a very important role in ensuring that CG recommendations adopted by the firm are both followed and regularly reviewed. In this sense, it has been argued that firms that establish CG committees are expected to have better CG practices than those that do not set up CG committees (Core, 2001; Ntim *et al.*, 2012a, b). In light of continuing debate in the CS literature on the determinants of CS, one element of board committees, namely the presence of a CG committee, has not been examined by researchers. Specifically, whether or not the presence of a CG committee could be a significant determinant of firm-level CS is yet to be examined. AT assumes that poorly governed firms are anticipated to have higher levels of leverage because this leverage is used to discipline managers to engage in less excessive perquisite consumption and act in line with shareholders' interests, as they will have less free cash free available to control. In this view, firms with CG committees are more likely to exhibit fewer propensities to engage in higher levels of leverage compared with those that do not establish CG committees. This is because these firms consider the presence of a CG committee as a substitute for debt that can align managers' interests to be in line with shareholders' interests. Arguably, a CG committee-CS relation is more likely to be negative.

Given the fact that no empirical studies on the relationship between the presence of a CG committee and CS exist, Oman provides a good setting to examine this relation. In particular, the 2002 Omani code of good CG requires listed firms to only establish audit committees, but several listed firms have recognised the CG committee's importance by either setting up a CG committee

or assigning a CG committee's functions to an audit committee. However, considering the negative predictions of the theoretical literature and the absence of empirical evidence, it can be hypothesised that the presence of a CG committee is more likely to negatively influence CS as follows:

> ***H7.*** There is a statistically significant negative association between the presence of a CG committee and the debt-to-equity ratio.

(iv) Audit firm size (BIG4)

The external auditor has been suggested to be one of the most effective CG mechanisms to reduce information asymmetries that exist between managers and shareholders, hence reducing agency costs (Jensen and Meckling, 1976; Watts and Zimmerman, 1983). One important issue related to the role of the external auditor in mitigating information asymmetry is the external auditor's quality, which can be significantly influenced by audit firm size (DeAngelo, 1981). In this view, larger audit firms are more likely to provide higher audit quality than smaller firms because they have more resources and experience, and care very much about their reputation as providers of quality audits (DeAngelo, 1981; Owusu-Ansah, 1998; Uang *et al.*, 2006). The experience, knowledge and financial strength that larger audit firms have improves their independence and ability to reduce information asymmetries, as well as moral hazard and adverse selection problems, which may well be greater for firms audited by smaller audit firms. This suggests that audit firm size can be considered a significant CG determinant of firm-level CS. Theoretically, and as predicted by POT, firms whose suffer from information asymmetry are expected to have higher levels of leverage because of lower agency costs associated with debt (Myers, 1984; Myers and Majluf, 1984). This is further supported by SGT, which assumes that managers will use more leverage when the level of asymmetric information is greater in order to signal that their firms are in a good financial position. Arguably, firms audited by larger audit firms are more likely to be less affected by the problem of information asymmetry; hence, they are expected to have lower levels of leverage.

Empirically, the relationship between audit firm size and CS is not widely investigated in the literature. For instance, using a sample of 71 UAE listed firms in 2006, Hussainey and Aljifri (2012) report evidence that audit firm size has no significant effect on CS. Given the limited international evidence on the effect of audit firm size on CS, Oman also provides a good context to examine this effect. In particular, the 2002 Omani code of good CG recognises the importance of external auditors by requiring listed firms to obtain a certificate from them indicating a number of governance issues, including: (i) adequacy and efficacy of a firm's internal control systems; (ii) whether a firm has the ability to carry out its business; and (iii) the firm's ability to comply

with its internal control systems. Further, Omani listed firms are required by Capital Market Law to obtain a certificate from external auditor on their CG practices. However, it can be hypothesised that audit firm size is more likely to negatively influence CS as follows:

H8. There is a statistically significant negative association between audit firm size and the debt-to-equity ratio.

3.2.2 Prior Empirical Literature and Hypotheses: The Choice of Financing

While previous studies have examined certain factors that explain a firm's choice between equity and debt (e.g., Marsh, 1982; Hovakimian *et al.*, 2001; Elliott *et al.*, 2008), the impact of CG structures on the choice of financing has received little attention from researchers. Thus, and similar to subsection 3.2.1, this subsection is divided into two parts. The first part addresses ownership variables, including: (i) government ownership; (ii) institutional ownership; (iii) foreign ownership; and (iv) block ownership. The second part addresses CG variables including: (i) firm-level CG; (ii) board size; (iii) the presence of a CG committee; and (iv) audit firm size.

3.2.2.1 Ownership Variables

The influence and monitoring power of different types of shareholders have been suggested to play an important role in improving CG (Donnelly and Mulcahy, 2008; Leuz *et al.*, 2010; Aggarwal *et al.*, 2011), which in turn affects corporate policy decisions in general and the choice of financing in particular. The next subsections will briefly set out the central theoretical arguments and empirical literature regarding the link between a number of ownership structures and equity issuance (the choice of financing).

(i) Government ownership (GOVOWN)

The CS literature on the determinants of a firm's choice to issue equity or debt shows that one type of ownership structure, namely government ownership, has not been examined by previous studies. Specifically, whether or not the existence of large government ownership could be a significant determinant of a firm's choice is yet to be examined. Firms with greater government ownership are expected to suffer more from asymmetric information. This is because the government has interests in profit and non-profit goals; thus, shareholders' interests may not be the primary objective for the government (Shleifer and Vishny, 1994; Eng and Mak, 2003). Agency costs would be higher in such firms due to the conflict of interest between shareholders and managers, who are usually appointed by the government. As predicted by AT, these firms are expected to use debt financing in order to reduce the conflict of interest. Managers of these firms

are also motivated to issue debt over equity for the following reasons: (i) they can easily obtain loans from local providers at favourable rates by taking advantage of the government being a major investor in these firms (Dewenter and Malatesta, 2001); (ii) they can borrow from the government itself at lower rates (Friend and Lang, 1988); (iii) information costs associated with debt are lower (Myers, 1984); and (iv) because these firms are interested in profit and non-profit goals, they recognise that new investors may consider them less attractive; hence, issuing equity will not be a good decision to obtain external financial sources. Empirically, CS literature does not provide international evidence examine the potential impact of government ownership on the choice of financing. Despite the luck of evidence, the ninth hypothesis is as follows:

> ***H9.*** There is a statistically significant negative association between government ownership and equity issuance.

(ii) Institutional ownership (INSOWN)

It is widely recognised that institutional ownership has influence and monitoring power to improve CG and reduce agency costs. Using a sample of 1,005 industrial bond issues over 1991 to 1996, Bhojraj and Sengupta (2003) report evidence that institutional ownership plays a crucial role in reducing managers' opportunism and hence promoting CG. Thus, it can be argued that institutional investors are more able to influence firms to issue equity or debt in order to finance their activities compared with individual investors, for the following reasons.

First, institutional holdings have the ability and resources to obtain more information than other small investors (Smith, 1976). Second, they have superior knowledge and expertise with which to interpret and evaluate firms' decisions (Chung *et al.*, 2002; Bos and Donker, 2004). Finally, their voting power allows them to monitor management decisions (Donnelly and Mulcahy, 2008). This suggests that agency costs would be lower in firms with a large stake of institutional investors because institutional investors can serve as a useful governance device to reduce agency costs and align managerial interests with those of shareholders (Jensen and Meckling, 1976; Jensen, 1986; Bathala *et al.*, 1994). In this view, and unlike POT's predication, equity issuance would be less costly in the presence of institutional investors, which may motivate firms to issue equity over debt in order to attract new equity capital providers who will not need to collect costly private information, as institutional holdings reduce information asymmetry. In contrast, firms with large institutional ownership may tend to issue debt in place of equity because institutional investors might force firms to issue debt finance in order to increase their monitoring. Issuance of debt can offer institutional investors the opportunity to ensure that managers have less free cash to control because debt commits managers to paying fixed interest

payments, as well as preventing managers from being able to engage in excessive perquisite consumption.

However, there is no substantial body of international evidence evaluating the influence of institutional ownership on firms' choice to issue equity capital or debt finance. For instance, using 379 listed firms on the American Stock Exchange from 1976 to 1985, Brous and Kini (1994) report evidence that firms with large institutional investors tend to take equity issuance decisions. Similar evidence reported by Mande *et al*. (2012) indicates that firms issuing equity tend to have large institutional investors. Given the positive theoretical predictions and empirical evidence, the next hypothesis is as follows:

> ***H10.*** There is a statistically significant positive association between institutional ownership and equity issuance.

(iii) Foreign ownership (FOROWN)

As they are becoming prominent shareholders in firms around the world, foreign investors are expected to affect corporate policy decisions. In particular, a firm's choice to issue equity or debt in order to finance its activities can be also influenced by foreign ownership. Theoretically, higher information asymmetry associated with foreign ownership because of distance and language obstacles results in foreign investors especially needing to monitor managerial self-interest (Huafang and Jianguo, 2007). As predicted by AT, large foreign shareholders may tend to use debt as a governance device, hence forcing firms to issue debt over equity (Le and Phung, 2013). In addition, firms may prefer to issue debt as opposed to equity because they take advantage of foreign investors' reputation and relationships to have easy access to international capital markets.

However, previous studies (Gillan and Starks, 2003; Leuz *et al.*, 2010; Aggarwal *et al.*, 2011) suggest that foreign institutional investors are more willing to invest in firms with good CG practices. Consequently, firms with large foreign ownership are more likely than domestic firms to engage in good CG practices in order to meet foreign investors' expectations. In this view, firms may tend to issue equity in place of debt because they recognise that potential investors consider them a good investment opportunity compared with poorly governed firms. Potential investors are expected to pay a premium for well governed firms, which motivate such firms to issue equity instead of debt. Moreover, firms with large foreign ownership perform relatively better than other domestic firms, which can raise their market share. This may encourage such firms to issue equity over debt, as they expect additional investors to invest in their firms. Empirically, the relationship between foreign ownership and firm's choice of finance has not

been yet examined by previous studies. Hence, in view of mixed theoretical literature and the absence of empirical evidence, the next hypothesis proposed in this study is:

> ***H11.*** There is a statistically significant association between foreign ownership and equity issuance.

(iv) Block ownership (BLKOWN)

Block ownership has been documented by both theoretical and empirical studies to impact on managers' actions (e.g., Berger *et al.*, 1997; Roberts and Yuan, 2006). This suggests that block ownership can significantly affect firms' choice between equity and debt. Block holders have easier access to information, and they may use their voting power to influence management to issue equity or debt when firms seek new or additional financing. Further, block holders can lose more from managerial self-interest than small shareholders (Shleifer and Vishny, 1986; Cyert *et al.*, 2002); hence, they have greater incentives to monitor and discipline managers. In this view, block holders have been suggested to improve the quality of governance in order to protect their investments (Friend and Lang, 1988; Mehran, 1992). Theoretically, debt financing can be used by block holders to reduce opportunistic managerial actions and increase their monitoring of managers. Thus, firms may be forced by block holders to issue debt over equity in financing their investment opportunities. This may result in block holders facing a high level of bankruptcy risk, but this can be mitigated by diversifying their portfolio of investments (Sheikh and Wang, 2012). The influence of block ownership on firms in terms of issuing debt over equity is also supported by the possibility that block holders do not prefer to share potential profits (Ryen *et al.*, 1997; Koch and Shenoy, 1999) or control rights (Cespedes *et al.*, 2010) with new shareholders. Further, and in cases where many shares owned by banks, firms may be forced to borrow from banks and issue debt in order to obtain new or additional financing (Cespedes *et al.*, 2010).

In contrast, firms with large shareholders may tend to issue equity as opposed to debt. Arguably, the presence of block holders is considered as an internal CG mechanism that can be used to monitor and discipline managers. Thus, it is expected that block holders are more likely to encourage firms to engage in good CG practices in order to protect their investments (Mande *et al.*, 2012). In this view, firms with large shareholders can be seen as attractive investments by outsiders whose are willing to pay high share prices in order to invest in such firms. Hence, firms may take advantage of block ownership by issuing equity in place of debt in order to signal that the adverse selection problems are reduced as a result of the presence of block holders.

However, there is no international evidence examining the influence of block ownership on the choice of finance. Therefore, the current study contributes to the continuing theoretical and

empirical debate on how firms select between financing instruments in meeting their external financing needs. In Oman, because block holders are expected to be influenced by informal rules, debt financing may not be used by them as governance mechanism. Instead, they are expected to use their powers in appointing managers to monitor and discipline managers. Further, the high concentration of ownership renders some external CG mechanisms, such as the market for corporate control, ineffective in motivating managers to engage in better CG practices. This may discourage new investors to buy shares in such firms, which in turn does not motivate firms to issue equity. Considering these expectations, the relationship between ownership concentration and the choice of financing is needed to be investigated. Thus, the next hypothesis in this study is:

H12.
There is a statistically significant association between block ownership and equity issuance.

3.2.2.2 Corporate Governance Variables

Good internal CG structures can be expected to influence debt or equity issuance when a firm seeks new or additional financing. The evidence regarding the relationship between CG structures and debt or equity financing is rare. For instance, Mande *et al.* (2012) argue that better-governed firms are more likely to issue equity over debt in meeting their external financing needs. The next subsections will briefly present the theoretical basis that links internal CG structures with firms' choice of financing, along with empirical evidence.

(i) Firm-level composite corporate governance index (OCGI)

Since the separation between ownership and control, managers are motivated to act at the expense of shareholders' interests (Jensen and Meckling, 1976). Related literature suggests that CG is able to mitigate different sorts of agency conflicts. In particular, whether firms should issue debt or equity in order to finance their investments can raise a potential conflict of interest between managers and shareholders among others. In this view, CG has been suggested to reduce agency costs associated with both equity and debt issuances. On the one hand, Mande *et al.* (2012) argue that CG can mitigate agency conflict of interest to a level where firms can choose equity issuance over debt issuance. CG frameworks protect equity investors from opportunistic managers by providing good mechanisms to monitor managers in order to ensure that they make efficient investment decisions. Thus, equity capital providers will not need to collect costly private information because CG reduces information asymmetry by encouraging managers to disclose financial and non-financial information to equity investors, in addition to other stakeholders (Cohen *et al.*, 2004).

On the other hand, effective CG can also protect debt holders from adverse selection and moral hazard of managers as managers may tend to make decisions that conflict with debt holders' interests. In this regard, debt holders are expected to offer firms a lower cost of debt when CG is present, which reduces the possibility of default risk and bankruptcy (Bhojraj and Sengupta, 2003). Thus, better governed firms may tend to issue debt in place of equity. Arguably, the influence of CG on firms in terms of issuing equity capital is more direct compared to its impact on debt finance. This may be justified by the fact that the effect of CG on the cost of debt is assumed to be relatively small because debt holders would not entirely rely on CG mechanisms to protect themselves from agency risk, as they have more direct protective mechanisms, like debt covenants and collateral (Stiglitz and Weiss, 1981; Chava *et al.*, 2010; Mande *et al.*, 2012). In contrast, equity holders utilise more CG mechanisms (e.g., board of directors, CG disclosure and external auditors) to protect their investments, as they have no other protective devices comparable to debt holders. Effective CG can assist firms in reducing the cost of equity, which in turn increases their willingness to issue equity rather than debt, as well as increasing the willingness of investors to supply funds (Cohen *et al.*, 2004; Mande *et al.*, 2012). Further, better governed firms may tend to issue equity as they recognise that equity investors prefer to invest in such firms and are willing to pay more for shares of firms that are better governed (Leuz *et al.*, 2010). However, the empirical literature relating to the association between CG and firms' choice is rare. For instance, using a sample of 2,049 firm-year observations, Mande *et al*. (2012) report US empirical evidence that firms with good CG tend to choose equity over debt. In line with positive theoretical predictions and empirical evidence, the next hypothesis is as follows:

> ***H13.*** There is a statistically significant positive association between firm-level corporate governance and equity issuance.

(ii) Board size (BSIZE)

As indicated earlier, there is consensus in the literature that the board of directors is essential to ensuring good governance. This is due to the fact that an effective board is expected to mitigate agency problems and improve firm performance. In this sense, the board is expected to play a crucial role in alleviating potential conflict between managers and shareholders over a firm's choice of external financial resources. Theoretically, the debate over whether the size of the board should be larger or smaller in order to ensure good governance, which may arguably affect firms' choice to issue equity or debt, is still ongoing. A number of studies (e.g., Jensen, 1993; Lipton and Lorsch, 1992; Yermack, 1996; Cheng, 2008) argue that small boards are more connected with strong governance, whereas other studies (e.g., Pearce and Zahra, 1992;

Goodstein *et al.,* 1994; Haniffa and Hudaib, 2006) claim that larger boards are more closely associated with good governance. Despite the relative uniqueness of having larger boards with diverse experience and skills, firms with larger boards can easily be dominated by the Chief Executive Officer, as well as having problems related to coordination and communication compared with firms with smaller boards (Jensen, 1993; Lipton and Lorsch, 1992). Arguably, firms with small boards are more likely to issue equity capital over debt finance because they recognise that equity capital is attracted by good CG in place, which is presented by small boards.

Empirically, and in spite of Mande *et al*.'s (2012) study, individual studies investigating CS determinants have not considered board size as a potential factor influencing firms' choice of financing. Using a sample of 2,049 US firm-year observations during the period 1998 to 2006, Mande *et al.* (2012) investigated the possible relationship between board size and issuing equity capital. Their univariate tests' results indicate that firms issuing equity tend to have smaller boards. Hence, it can be hypothesised that board size is likely to influence firms' choice to issue equity capital or debt finance as follows:

> ***H14.*** There is a statistically significant association between board size and equity issuance.

(iii) Corporate governance committee (CGCOM)

The functions of the CG committee are mainly to assist the board to fulfil its responsibilities. Limited related literature (e.g., Core, 2001; Ntim *et al.*, 2012a) suggests that firms with CG committees are expected to be more able to reduce the conflict of interest between managers and shareholders by ensuring that CG provisions adopted by a firm are both followed and regularly reviewed. In this sense, and as has been argued in the literature that the influence of CG on firms to issue equity capital is more direct compared to its impact on debt finance (Mande *et al.*, 2012), it can be argued that the presence of a CG committee may result in firms tending to issue equity over debt. In contrast, AT suggests debt financing policy as governance mechanism in mitigating agency conflict between ownership and control (Jensen and Meckling, 1976). Arguably, a CG committee may encourage firms to use debt issuance as a useful governance mechanism in order to support other CG mechanisms already in place.

However, the empirical literature does not provide any international evidence identifying the presence of a CG committee as a factor determining a firm's choice to issue equity capital or debt finance in order to finance their activities. In line with the view that the influence of CG on firms in terms of issuing equity capital is more direct compared to its impact on debt finance; hence, the next hypothesis in this study is:

H15. There is a statistically significant positive association between the presence of a CG committee and equity issuance.

(iv) Audit firm size (BIG4)

It is widely accepted that high-quality auditors play a crucial role in protecting shareholders from opportunistic managers by providing better monitoring of firms' financial statements (Becker *et al.*, 1998; Francis *et al.*, 1999). Arguably, firms audited by large audit firms are expected to have less asymmetric information than those audited by small audit firms. This may be explained by the fact that larger audit firms require more disclosure than smaller firms because they are concerned about their reputation as providers of quality audits, and are less sensitive to clients' pressure in conflict situations (DeAngelo, 1981; Owusu-Ansah, 1998; Uang *et al.*, 2006). Further, the higher audit quality provided by large audit firms is expected to mitigate the information asymmetry between managers and suppliers of capital. In this view, audit firm size can be suggested to have an impact on a firm's decisions between equity and debt. Arguably, audit firm size can influence both equity and debt issuances, but its effect on equity issuance is more direct compared to its impact on debt finance. Creditors consider external auditors' reports to be useful and crucial information when they evaluate firms, as well as the amount of investment or loans that are going to be granted to firms (Gomez-Guillamon, 2003). Unlike debt holders, and despite the market for corporate control, equity holders utilise more external auditors to protect their investments, as they have no external protective devices. Thus, firms audited by larger audit firms are considered by equity investors as having better CG. Because these firms are aware that investors are willing to pay more for better governed firms' shares, they are more likely to issue equity over debt in order to raise part or all of the finance required to undertake investment projects.

However, and despite Chang *et al*.'s (2009) study, individual studies investigating the choice of security issuance determinants have not considered audit firm size as a potential CG factor influencing firm's choice of financing. Chang *et al*. (2009) report evidence that firms audited by Big Six audit firms are more likely to issue equity over debt than those audited by non-Big six firms. Given the lack of empirical evidence, the next hypothesis proposed in this study is:

H16. There is a statistically significant association between audit firm size and equity issuance.

4 RESEARCH DESIGN

This section considers the research design. It will discuss a number of issues related to data and research methodology, including the rationale for methodological choices. Specifically, this section is divided into main subsections. Subsection 4.1 describes the sample selection and data sources. Subsection 4.2 discusses the research methodology.

4.1 SAMPLE SELECTION AND DATA SOURCES

The main objective of this subsection is to describe the sample selection procedure, the types of data employed and the sources of data used in order to answer the research questions. Specifically, this subsection is further divided into three subsections. Subsection 4.1.1 describes the sample selection procedure. Subsection 4.1.1.1 explains the criteria for selecting the sample. Subsection 4.1.2 addresses data sources.

4.1.1 Sample Selection

As discussed in Section 1, the main objective of this study is to empirically investigate the determinants of CS and the choice of finance among Omani listed firms. The selected sample used to undertake this study was obtained from firms listed on MSM, Oman. As of 31 December 2011, there were 168 listed firms on the MSM, whose annual reports can be found and accessed through the MSM's official website. Table 22 presents a summary of the sample selection procedure. Panel *B* of Table 22 shows that the industrial composition of Omani listed firms is based on nine industries,[24] including basic materials, consumer goods, consumer services, financial, industrial, utilities, health care, telecommunications, and oil and gas. It displays all the firms that were listed on the MSM and indicates that 94% of the total MSM population is dominated by basic materials, consumer goods, consumer services, financials and industrials industries whereas about 6% of the total MSM population is contributed by utilities, health care, telecommunications, and oil and gas.

4.1.1.1 The Criteria for Selecting the Sample

In selecting firms, the current study has set specific criteria in order for a particular firm to be included in the final sample. First, a firm must have the required CG data for at least one year during the period 2001 to 2011, inclusive. Second, financial accounting information must be available for at least one year during the period 2001 to 2011, inclusive. This criterion was set for the following reasons; first, the financial year of 2001 is the first year when data was available to

[24]See Appendix 1 for a full list of all Omani listed firms employed in this study.

be collected from the sources used. Second, the sample ends in the financial year 2011 because it is the most recent year for which data was available. Finally, using a 11 year data set distinguishes the current study from those that use one year cross-sectional data, which may help in ascertaining whether the CG frameworks-CS link holds over time.

Under these criteria, and as Panel *A* of Table 22 shows, firms without significant missing data for the period 2001 to 2011 were selected. Specifically, 48 firms were excluded because they had no annual reports available, and four firms had to be excluded due to insufficient or missing CG or accounting information. The sampled firms in this study are 116 firms out of 168 listed on the MSM, which represents 69% of the total population.

Prior studies exclude financial firms from their samples for theoretical reasons, such as those firms are heavily regulated and their leverage may not be interpreted like those of non-financial firms. The prior studies do not provide empirical evidence to support this argument. In emerging country like Oman where its corporate setting is characterised by concentrated ownership and weak enforcement of corporate regulations (Albu and Girbina, 2015), it is expected that financial firms do not behave significantly differently from non-financial firms. Therefore, the current study seeks to investigate whether there is a significant difference in CG' influence on CS and the choice of financing between financial and non-financial firms in a non-developed country like Oman. This will allow the present study to contribute to the extant literature by providing empirical evidence to confirm or reject the null hypothesis that there is no significant difference in terms of the influence of CG on each of CS and the choice of financing between financial and non-financial among Omani listed firms. In doing so, the study relies on 116 non-financial and financial firms in order to examine its hypotheses, and then uses 87 non-financial firms to check the extent to which the reported results (based on all firms) are robust or sensitive to financial firms.

The sample of 116 firms is large enough to perform the empirical part of this study. In particular, a sample of 116 firms is larger than the samples of previous Omani studies. Omet and Mashharawe (2002) employed a sample of 38 Omani listed firms over the period 1996 to 2001, whereas Sbeiti (2010) used only 42 listed firms for the period 1998-2005 to investigate CS determinants. Due to availability, accessibility, funding and time constraints (as the study had to be completed within the timeframe of a PhD), unbalanced data from 116 firms with 1,152 firm-year observations was considered to be sufficient to make a significant contribution to the extant literature.

Table 22: A summary of sample selection and distribution of sampled firms by industry

Panel A: Sample selection process	
Criteria	No. of firms
Total listed firms on the MSM as of 31/12/2011	168
Less: Firms have no data available	(48)
Firms have missing data	(4)
Final sample used	116
Panel B: Distribution of firms by industry	
Sector	No. of firms
Basic materials	22
Consumer goods	21
Consumer services	21
Financial	29
Industrial	13
Utilities	5
Health care	2
Telecommunications	2
Oil & Gas	1
Total	116

Source: Muscat Securities Market's website

4.1.2 Data Sources

This study employs two categories of data. These include CG, and both financial and accounting information. Although firms may use other media to disclose their information, this study relies mainly on firms' annual reports[25] as a source of data for the same reasons that have been indicated in essay 1 (see Subsection 4.2.1.1). These reports are audited by external auditors in accordance with the Omani Companies Act, and contain financial and non-financial information. Furthermore, listed firms are required by the Capital Market Law to obtain a certificate from an external auditor indicating whether they complied with the 2002 Omani code of CG or not. Arguably, a high degree of credibility can be adequately assured by relying on these reports to extract the required information. Therefore, CG and ownership variables were manually extracted from the sampled firms' annual reports whereas financial information was obtained from Database. The required information was obtained from four main sources: (i) the Rest of World Filings of the Perfect Information Database, (ii) DataStream, (iii) firms' websites and (iv) MSM's website. Firms with missing reports were contacted by telephone and/or e-mail in order to obtain their missing reports.

4.2 RESEARCH METHODOLOGY

This subsection discusses the research methodology. Specifically, subsection 4.2.1 will define the dependent variables for the two research questions. The issues that will be covered include the proxies used to measure Omani listed firms' CS and whether these measurements

[25]Omani listed firms are required to provide annual reports containing the following: (i) balance sheet; (ii) profit and loss; (iii) cash flow statement; (iv) CG chapter; (v) auditor report on financial statement; (vi) auditor report on CG; (vii) management discussion and analysis; (viii) notes of financial statement; and (ix) chairman's report.

should be based on book or market values. Further, equity issuance as a dependent variable for the choice of financing will be discussed. Subsection 4.2.2 will discuss CG and ownership structures proxies used as independent variables. Subsection 4.2.3 will discuss the justification for control variables. Subsection 4.2.4 will discuss the model specification for both CS and the choice of financing. Subsection 4.2.5 will refer to the issues that need to be tested before and after examining the study's hypotheses.

4.2.1 Definition of Dependent Variables

The study uses two dependent variables to answer the two research questions. Capital structure is used as the first dependent variable to examine CS determinants (the first research question), whereas equity issuance is the second dependent variable used to investigate the choice of financing determinants (the second research question). This subsection defines the dependent variables and explains how they were measured. It is further divided into two subsections. Subsection 4.2.1.1 defines the dependent variable of CS. Subsection 4.2.1.2 defines the dependent variable of choice of financing.

4.2.1.1 The Dependent Variable: Capital Structure

As mentioned above, the first dependent variable in this study is firm capital structure (FCS). There are two methodological issues that need to be addressed in relation to the *FCS* as a dependent variable, including: (i) the choice of the *FCS* measurement; and (ii) book or market values to be used for the *FCS* measurement.

(i) Capital Structure Measurement

The literature shows that different measures have been designed to measure the *FCS*. Three measures are used in this study to examine the *FCS*. These measures are: (i) total debt (main measure); (ii) short-term debt; and (iii) long-term debt (robustness analyses). The main measure has been chosen for three main reasons. First, there is no theoretical framework on which measurement should be used to calculate the *FCS*. Second, there is no consensus within the literature on a particular measurement being the best proxy for the *FCS*. Third, the current study 's main objective is to examine the extent to which CG has influence on the impact of debt financing on shareholders' equity. The use of debt-to-equity ratio is believed to aid the current study to better understand to what extent good CG structures are helpful in assisting shareholders with respect to debt financing. In this regard, Rajan and Zingles (1995) suggest that the objective of the CS's analysis is regarded as the basis on which researchers can select a particular measure of CS. Arguably, this measure is considered as a good measurement in the CG context where managers may tend to employ higher levels of debt that lead to seriously damage shareholders'

equity. Further, Gilligan and Wright (2008) stat that "*The ratio of total bank debt to equity invested is an approximate measure of this risk. Since the detailed structure of the loan package in any particular transaction is not usually publicly available at the time of a transaction, the ratio of total debt total equity is used by many commentators as a measure of the aggregate financial risk in the buy-out market*". Third, the choice of this measure in line with considerable number of prior studies in general and CG literature in particular (e.g., Bradley *et al.*, 1984; Titman and Wessels, 1988; Jordan *et al.*, 1998; Gul and Kealey, 1999; Brailaford *et al*., 2002; Zeitun and Tian, 2007; Hasan and Butt, 2009; Lazarides and Pitoska, 2009; Cheung *et al.*, 2010; Saad, 2010; Al-Najjar and Hussainey, 2011; Hussainey and Aljifri, 2012; Uddin and Hassan, 2013, Agyei and Owusu, 2014; Tuncay, 2014). Thus, the total debt ratio will be used as a main measurement of CS whereas long and short-term ratios will be used as alternative measurements in order to check whether using alternative definitions of CS may result in different results.

(ii) Book or Market Values for Capital Structure Measurement

The second methodological issue is whether the *FCS* measures should be based on book or market values. Despite the fact that CS theories are mostly based on market values of debt (Sweeney *et al.*, 1997; Bowman, 1980; Arnold, 2005), a considerable number of empirical studies use book debt ratio to measure the *FCS*, as well as to examine those theories (e.g., Friend and Lang, 1988; Rajan and Zingles, 1995; Ozkan, 2001; Baker and Wurgler, 2002). Firm's CS measures are defined based on book values in this study rather than market values, for the following reasons. First, data limitations force the current study to measure the *FCS* based on book values rather than market values. Second, prior evidence (e.g., Sweeney *et al.*, 1997; Bowman, 1980) indicates that the high correlation between book and market values indicates that misspecification due to book value of debt is usually very small. Hence, the reliance on book leverage instead of market leverage would not be a serious limitation (Fama and French, 2002; Leary and Roberts, 2005). Third, unlike firms in developed countries, commercial banks are regarded as the main external sources of finance for Omani firms because bond market is inactive (Sbeiti, 2010). Thus, firms must provide guarantees in the form of fixed assets in order to obtain loans. Arguably, fixed assets are usually priced at book value; hence, book-value measures of leverage are considered to be more appropriate than market values. Finally, in line with prior studies (e.g., Al-Ajimi *et al.*, 2009; Ba-Abbad and Ahmad-Zaluki, 2012), the *FCS* measures are defined based on book value, which can assist in comparing the findings of the current study with those of prior studies. Therefore, the dependent variable, *FCS*, is measured by book total debt (main analysis), short-term debt and long-term debt (robustness analyses) scaled by the total equity of a firm.

4.2.1.2 The Dependent Variable: The Choice of Financing

The second dependent variable in this study is the choice of financing. Based on the concept that, on average, firms with better CG tend to issue equity over debt and following Mande *et al*. (2012), equity issuance (EISSUE) represents the choice of financing in this study, and it is measured as a dummy variable that takes a value of 1 if a firm issues equity, and a value of 0 if a firm issues debt. Further, and in line with prior studies (e.g., Frank and Goyal, 2003; Kayhan and Titman, 2007; Chang *et al.*, 2009), the current study adopts a cash flow approach in order to measure the *EISSUE* because cash flow accounts could yield less noise in constructs compared to the balance sheet approach (Kayhan and Titman, 2007).

4.2.2 Corporate Governance Measurements

As discussed in essay 1 (see Subsection 4.2.1) and as illustrated in Table 2, firm-level CG is measured by the *OCGI* (e.g., Jiraporn *et al*., 2012; Mande *et al*., 2012), whereas board size (BSIZE) is the number of board members at the end of the financial year (e.g., Barako *et al*, 2006a; Donnelly and Mulcahy, 2008; Samaha *et al.*, 2012). Similarly, and consistent with past studies (e.g., Aly *et al.*, 2010; Chau and Gray, 2010; Mande *et al*., 2012; Ntim *et al.*, 2012a), CG committee (CGCOM) and audit firm[26] (BIG4) were measured as dummy variables taking a value of 1 if the firm has a CG committee, and 0 otherwise, as well as a value of 1 if a firm is audited by one of the big four auditing firms, and 0 otherwise. In addition to firm-level CG and internal CG variables, prior studies consider the impact of different types of ownership structure on the *FCS* and the *EISSUE*. As indicated in Subsections 2.2.1.1 and 2.2.2.1 and due to data limitations, this study focuses on four types of ownership structure: government ownership, institutional ownership, foreign ownership and block ownership. In this regard, ownership variables were measured in line with previous studies. Specifically, and as presented in Table 23, government ownership (GOVOWN), institutional ownership (INSOWN) and foreign ownership (FOROWN) were measured in as a percentage of each type of ownership, out of total firm shareholdings (e.g., Haniffa and Cooke, 2002; Chung and Zhang, 2011; Elzahar and Hussainey, 2012; Ntim *et al.*, 2012a). Block ownership (BLKOWN) is measured by the total number of shares held by large owners who have at least 5% of the total firm's shares (e.g., Eng and Mak, 2003; Barako *et al.*, 2006a; Samaha *et al.*, 2012).

[26]A big audit firm is defined as one of the following audit firms: Deloitte & Touche, Ernst & Young, KPMG and PricewaterhouseCoopers.

4.2.3 Justification for Control Variables

In addition to both CG and ownership variables, the current study includes a number of control variables in order to reduce omitted variables. Specifically, this subsection is further divided into three parts. The first part justifies the inclusion of control variables that are related to the *FCS*, whereas the second part justifies those that are linked to the *EISSUE*. The final part defines the control variables.

4.2.3.1 Justification for Control Variables: Capital Structure

Following prior research and due to data limitations, firm size, growth, profitability, tangible assets, dividend policy and business risk are considered the *FCS*'s control determinants.

(i) Firm size (LNTA)

There is general consensus in prior studies on the influence of firm size on the *FCS* (e.g., Hussainey and Aljifri, 2012; Dang, 2013), but the nature of the relation is not yet clear. Different theoretical explanations have been offered to clarify whether large firms tend to employ higher or lower levels of leverage in making their CSs. On the one hand, large firms are expected to use more leverage because they are relatively more diversified and less subject to bankruptcy risk (Titman and Wessels, 1988; Rajan and Zingales, 1995). This is also supported by the fact that large firms can enjoy better access to credit markets, as well as a lower cost of debt because of their reputation, and relatively large tangible assets can be used as guarantees to capital suppliers in order to obtain new or additional financing (Frank and Goyal, 2003; Al-Ajmi *et al.*, 2009; Hussainey and Aljifri, 2012). Further, and as predicted by tax benefits theory, large firms are anticipated to employ higher levels of leverage because they are encouraged to fully benefit from tax shields more than small firms (Modigliani and Miller, 1963; Miller, 1977). On the other hand, and as predicted by POT, firms who suffer from information asymmetry are expected to have higher levels of leverage because of lower agency costs associated with debt (Myers, 1984; Myers and Majluf, 1984). In this view, large firms are more likely to be less subject to the problem of information asymmetry, because they provide more disclosure to outsiders than smaller firms (Fama and Jensen, 1983; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Elzahar and Hussainey, 2012). Arguably, large firms may tend to employ lower levels of leverage in making their CSs. Further, and as predicted by SGT, large firms are more closely observed by outsiders, possibly resulting in using less leverage in order to signal to potential investors, among others, that they have good financial prospects (Ellili and Farouk, 2011).

However, a positive relationship between firm size and the *FCS* has been reported by a considerable number of studies (e.g., Rajan and Zingales, 1995; Omet and Mashharawe, 2002;

Sbeiti, 2010; Noulas and Genimakis, 2011; Al-Najjar and Hussainey, 2011; Xu, 2012; Hussainey and Aljifri, 2012; Dang, 2013). For instance, Hussainey and Aljifri (2012) report evidence that firm size is one among only three factors driving the financing decisions of UAE listed firms. In the same vein, Dang (2013) reports evidence that target leverage is significantly and positively related to firm size by using a panel of firms in three countries, namely the UK, France and Germany over the period 1980 to 2007. Within GCC context, using a cross-country sample of 142 firms from three countries, including 42 non-financial Omani listed firms, Sbeiti (2010) reports evidence that firm size is significantly and positively related to leverage among Omani listed firms. In contrast, support for a negative relationship is found in a few studies which provide empirical evidence that large firms may tend to employ lower levels of leverage in making their CSs. For instance, Nunkoo and Boateng (2010) report evidence that long-term debt ratio is negatively associated with firm size. Within Omani context, Omet and Mashharawe (2002) report Omani evidence that firm size is negatively and significantly related to long-term debt ratio. A limited number of studies report no significant relationship between firm size and *FCS* (e.g., Kim and Sorensen, 1986; Barton and Gordon, 1988). Using a sample of 279 US firms, for example, Barton and Gordon (1988) report evidence that firm size had no significant influence in explaining the *FCS,* although this could be a result of the fact that they restrict their sample to only the largest firms.

(ii) Growth (GROWT)

Because internal sources of finance are often insufficient to assist firms to fund their investment opportunities, managers have to find new or additional financing in order to enable their firms to grow. This suggests that growth can be considered an influential factor in firms' decisions to employ higher or lower levels of leverage. Theoretically, and as assumed by POT, high-growth firms may tend to use higher levels of leverage because of a higher demand for funds; they may also be able to generate enough earnings to allow them to afford greater debt ratios (Noulas and Genimakis, 2011). In contrast, firms with growth opportunities may employ lower levels of leverage because they take into consideration the high probability of bankruptcy risk associated with debt (Myers, 1977; Williamson, 1988; Harris and Raviv, 1991). Hence, it can be argued that firms with growth opportunities would tend to use lower leverage ratios (Bevan and Danbolt, 2002). As a result, the association between firm growth and CS is anticipated to be negative.

The empirical evidence, however, on the relationship between firm growth and the *FCS* is mixed. Support for a positive predication is found in a number of prior studies which provide empirical evidence that firms with higher growth opportunities tend to employ higher levels of

leverage (e.g., Bhaduri, 2002; Cassar and Holmes, 2003; Al-Najjar, 2011; Hussainey and Aljifri, 2012; Benkraiem and Gurau, 2013). For instance, using a sample of 86 non-financial Jordanian firms for the period 1994 to 2003, Al-Najjar (2011) provides evidence that firm growth and leverage have a positive and significant relationship. Similarly, using 2,222 firm-year observations of French listed firms over the period 2003 to 2006, Benkraiem and Gurau (2013) provide empirical evidence that growth is positively and significantly associated with long-term debt ratio. Empirical evidence provided by Sbeiti (2010), who examined CS determinants in the CGC context, is also in line with the above studies and shows that Omani growth firms employ higher levels of leverage. Omet and Mashharawe (2002) confirm the above finding by conducting a cross-country sample of 148 firms from four Arab countries, including 38 Omani quoted firms, indicating that Omani firms tend to have high leverage ratios. In contrast, a group of studies report an adverse relation between growth and the *FCS* (e.g., Rajan and Zingles, 1995; Ozkan, 2001; Antoniou *et al.*, 2008; Nunkoo and Boateng, 2010; Sbeiti, 2010; Xu, 2012; Dang, 2013). For example, using a sample of 390 UK firms over 1984 to 1996, Ozkan (2001) reports evidence that the coefficient of growth as measured by market-to-book ratio is negative and statistically significant in examining its influence on leverage. Also, using a sample of 2,102 firms in the UK, France and Germany over 1980 to 2007, Dang (2013) provides evidence that both firm growth and leverage are negatively and significantly related across the three countries. Contrary to the positive and negative findings observed in the above studies, other studies find mixed evidence (e.g., Jordan *et al.*, 1998; Chittenden *et al.*, 1996; Ellili and Farouk, 2011; Ba-Abbad and Ahmad-Zaluki, 2012). For instance, using a sample of 3,480 UK listed and unlisted firms over 1989 to 1993, Chittenden *et al.* (1996) provide evidence that growth is related to both long-term and total debt ratios, but does not relate to short-term debt ratio.

(iii) Profitability (ROA)

Profitability has been suggested by prior studies to influence the financial behaviour of firms. In particular, researchers have used different theories to investigate whether profitable firms employ more or less leverage in making their CSs. From a POT's perspective, and due to asymmetric information, firms prefer to use internal financial sources generated from corporate operations as the first financial option in financing their investment opportunities (Myers, 1984; Myers and Majluf, 1984). Consequently, profitable firms are expected to employ less leverage because they have more retained earnings that can be used to finance large portions of their investments. In contrast, AT and trade-off theories provide opposing predictions of profitable firms' financing behaviour. AT assumes that firms with excess cash flow are more likely to face a situation where managers may engage in excessive perquisite consumption in order to enjoy

available free cash (Jensen and Meckling, 1976; Jensen, 1986). In this view, profitable firms may tend to employ high levels of leverage as a governance device in order to ensure that managers have less free cash to control, as debt commits managers to making fixed interest payments and hence they will be less able to engage in excessive perquisite consumption (Jensen, 1986). In the same vein, trade-off theory argues that firms may use more leverage in order to exploit the tax deductibility of interest payments (Modigliani and Miller, 1963). Accordingly, firms with excess earnings may be induced to have more debt in their CSs in order to enjoy tax shields. The positive relation between profitability and leverage is also supported by the fact that profitable firms can easily obtain loans with better terms because debt holders consider them as better able to repay their financial obligations on time, which gives them preferability in lenders (Petersen and Rajan, 1994; Elliott *et al.*, 2008). Thus, profitable firms may be encouraged more than less profitable firms to add more debt in their CSs in financing their investment opportunities.

However, prior empirical studies (e.g., Cassar and Holmes, 2003; Feidakis and Rovolis, 2007; Al-Ajmi *et al.*, 2009; Noulas and Genimarkis, 2011; Degryse *et al.*, 2012; Hussainey and Aljifri, 2012; Xu, 2012; Benkraiem and Gurau, 2013; Dang, 2013; Wagner, 2015) are largely consistent with POT's predication that profitable firms are more likely to employ lower levels of leverage in their CSs. For instance, using a sample of manufacturing firms over the period 1989 to 2004, Xu (2012) reports US evidence that profitability and leverage are significantly and negatively related. Similarly, using an unbalanced panel of 5,171 US firms from 1987 through 2003, Wald and Long (2007) provide evidence that US profitable firms have a significant and negative relationship with leverage. Consistent with the above studies, using a sample of 142 firms from four Arab countries operating in GCC countries over the period 1998 to 2005, including 42 Omani quoted firms, Sbeiti (2010) provides Omani evidence that profitable Omani firms tend to employ less leverage. Similarly, using a cross-country sample of 148 firms from four Arab countries during the six-year period (1996-2001), including 38 non-financial Omani listed firms, Omet and Mashharawe (2002) report additional evidence that profitability has a negative and significant sign for Omani listed firms.

(iv) Tangible assets (TNGAS)

It has been demonstrated in the literature that firms with a high proportion of tangible assets are more likely to employ further leverage in making their CSs. According to AT, shareholders of leveraged firms are willing to make risky investments because they diversify their investments and desire to maximise their wealth, which creates a conflict of interest with debt holders, who may lose their capital (Jensen and Meckling, 1976). In this situation, debt holders use tangible assets as collateral, among other protective devices, to mitigate such opportunistic

behaviour and protect their capital in the case of bankruptcy. Thus, corporate managers can be forced to use debt funds for safe investments in order to avoid losing firm assets, in addition to their jobs. This suggests that tangible assets increase a firm's capacity to employ higher levels of leverage because lenders can secure their capital against a firm's assets. In addition, and based on trade-off theory, firms with more tangibility are more able to have more leverage because the cost of bankruptcy is relatively lower compared to the benefits of debt, as tangible assets will lose only a small portion of their value (Kraus and Litzenberger, 1973). In contrast to the positive prediction, tangibility and leverage have been suggested to be negatively rather than positively associated. It is argued that firms are expected to benefit from corporate tax shields by employing higher levels of leverage (Modigliani and Miller, 1963). Equally, firms may use other types of corporate tax code to enjoy corporate tax shields. In this view, DeAngelo and Masulis (1980) argue that firms with a high proportion of tangible assets may tend to employ lower levels of leverage because depreciation deductions can be used as a substitute for debt to obtain attractive tax shields.

Support for the positive prediction, however, is found in a considerable number of empirical studies (e.g., Titman and Wessels, 1988; Al-Najjar and Taylor, 2008; Nunkoo and Boateng, 2010; Xu, 2012; Drobetz *et al.*, 2013; Dang, 2013), while other studies (e.g., Bevan and Danbolt, 2002; Noulas and Genimakis, 2011; Degryse *et al.*, 2012; Benkraiem and Gurau, 2013; Campenhout and Caneghem, 2013) report mixed relationships. For instance, using a sample of 7098 firm-year observations during the period 1996 to 2004, Nunkoo and Boateng (2010) investigate whether tangibility, among other factors, has an effect on the *FCS*. They report empirical evidence that tangibility has significant and positive influence on Canadian firms listed on the Toronto Stock Exchange. Using an error correction model to examine the *FCS*, Dang (2013) tests the influence of tangibility on CS for firms operating in the UK, France and Germany. He reports evidence that the collateral value of assets has a positive effect on the *FCS* for the three countries under investigation. Within Omani context, Sbeiti (2010) finds a positive and insignificant relationship between tangibility and leverage among Omani listed firms while Omet and Mashharawe (2002) report evidence that tangibility has a positive and statistical significant influence on long-term debt ratio.

With respect to mixed relationships, Bevan and Danbolt (2002) report evidence that tangibility is significantly associated with long-term debt ratio, but is significantly and negatively correlated with total and short-term debt ratios. Similarly, Benkraiem and Gurau (2013) provide French evidence that the influence of tangibility is significant and positive on long-term debt ratio, but negative on total and short-term debt ratios over the period 2003 to 2006.

(v) Dividend policy (DIVPO)

It is apparent that a firm's dividend policy affects free cash flow, which in turn affects its investment decisions. Firms with more free cash flow may have to decide to use excess cash to pay out dividends and/or to finance new investments. Specifically, a firm's tendency to employ lower or higher levels of leverage is expected to be influenced by its dividend policy. Theoretically, and as predicted by SGT, firms with higher dividend payments may tend to employ more leverage because dividend payments can be considered as a signal of better financial health (Bhaduri, 2002). This suggests that such firms can easily access capital markets, because higher dividend payments represent their capacity to meet future obligations (Frank and Goyal, 2009; Hussainey and Aljifri, 2012). In contrast, and due to the agency problem, where shareholders seek to gain dividends while managers prefer not to declare dividends in order to enjoy free cash, a firm can use its dividend policy to reduce this problem (Jensen *et al.*, 1992). In this view, firms with higher dividend payments may tend to use lower levels of leverage because dividend payments can serve as a substitute mechanism to debt financing in order to mitigate agency costs associated with free cash flow available to managers (Jensen *et al.*, 1992; D'Souza, 1999; DeAngelo *et al.*, 2004). Managers in such firms will be less able to engage in managerial self-interest, as free cash flow is distributed to shareholders in the form of dividends (Jensen, 1986). In addition, POT presumes that firms that suffer from higher information asymmetry would employ more leverage when internal sources are not sufficient, because of the lower information costs associated with debt (Myers, 1984; Myers and Majluf, 1984). In this sense, firms have been suggested to use their dividend policy to deliver information about their future prospects to the market (Hussainey and Walker, 2009). Arguably, firms with higher dividend payments may not tend to use higher levels of leverage in their CSs because they are less sensitive to information asymmetry (John and Williams, 1985; Miller and Rock, 1985).

A limited number of studies have examined the empirical link between dividend policy and level of leverage. Prior literature (e.g., Jensen *et al.*, 1992; Aivazian *et al.*, 2003; Frank and Goyal, 2009; Hussainey and Aljifri, 2012; Jiraporn *et al.*, 2012) supports the theoretical prediction of a negative relationship between dividend policy and leverage. For instance, using a sample of US firms for the period 1950 to 2003, Frank and Goyal (2009) report evidence that firms with higher dividend payments have lower levels of leverage. Similarly, Aivazian *et al.* (2003) use a sample of US and emerging markets firms to provide empirical evidence that dividends are inversely associated with debt. In contrast, Chang and Rhee (1990) report empirical evidence that dividend policy and leverage are strongly and positively related.

(vi) Business risk (BSRK)

Although there is consensus in the literature that business risk is one of the most important determinants of CS, existing theoretical studies offer mixed answers to the question of whether firms with higher business risk should employ lower levels of leverage in their CSs. According to trade-off theory, firms with more variable cash flows and higher business risk are expected to use less leverage for two main reasons. First, they face higher costs of financial distress, which increases the probability of bankruptcy (Kale *et al.*, 1991). Prior studies (e.g., Bradley *et al.*, 1984; Mackie-Mason, 1990; Miguel and Pindado, 2001) report empirical evidence that financial distress cost and debt ratios are inversely associated. Second, risky firms would not be encouraged to use more debt in order to benefit from tax shields because more debt increases the risk of bankruptcy (Modigliani and Miller, 1963; Frank and Goyal, 2009). In addition, the cost of debt is higher for firms with higher business risk as they are anticipated to suffer more from asymmetric information because creditors, among others, would not be able to accurately predict future earnings by using a firm's available information (DeAngelo and Masulis, 1980; Chang and Rhee, 1990).

In contrast, POT predicts that high information asymmetry in firms with higher business risk leads to an increase in debt ratios because lower information costs are associated with debt (DeAngelo and Masulis, 1980; Myers, 1984; Myers and Majluf, 1984). Moreover, firms with more variable cash flows are in need of external financial sources to periodically finance their activities (Frank and Goyal, 2009). This may suggest that managers in such firms tend to employ higher levels of leverage in making their CSs. Support to this argument is given by Myers (1977, pp.167), who concludes that "*We have an interesting, perhaps surprising, conclusion. The impact of risky debt on the market value of the firm is less for firms holding investment options on assets that are risky relative to the firms' present assets. In this sense we may observe risky firms borrowing more than safe ones*".

However, the empirical literature on the influence of business risk on leverage has received considerable attention in prior studies, with mixed evidence. In line with the negative expectation of the theoretical literature, a number of empirical studies report a negative business risk-*FCS* relationship (e.g., Fried and Lang, 1988; Jensen *et al.*, 1992; Abor, 2007; Akhtar and Oliver, 2009; Al-Ajmi *et al.*, 2009; Al-Najjar and Hussainey, 2011; Ganguli, 2013). For instance, using a sample of 356 Japanese firms during the period 1992 to 2003, Akhtar and Oliver (2009) include business risk, among other factors, in their model to analyse CS determinants and report evidence that Japanese multinational firms with higher business risks have lower levels of leverage. In contrast, Kim and Sorensen (1986) provide evidence that firms with high operating

risk have more leverage. Further, an opinion-based survey conducted by Abdulla (1998) suggests that Omani managers regard risk as one of five factors that determine Omani firms' leverage. Contradicting both negative and positive predictions, other previous empirical studies (e.g., Al-Fayoumi and Abuzayed, 2009; Frank and Goyal, 2009; Benkraiem and Gurau, 2013) report evidence of no significant relationship between business risk and leverage. For example, using 2,222 firm-year observations, Benkraiem and Gurau (2013) report evidence that volatility of earnings does not influence the CS of French firms. Further, Kale *et al.* (1991) investigate the role of business risk in determining the *FCS*. They provide US evidence that the relationship between business risk and leverage is roughly U-shaped, which means that business risk has a differential effect on the level of leverage, initially decreasing and eventually rising.

4.2.3.2 Justification for Control Variables: The Choice of Financing

Prior studies have found that a firm's choice of financing is further influenced by a number of firm characteristics. The next subsections will briefly set out the central theoretical arguments and empirical literature regarding the relationship between certain specific firm attributes and a firm's choice of financing. Similarly, these variables were selected based on theoretical predictions, data availability and consistent with prior studies.

(i) Firm size (LNTA)

It is commonly recognised that large firms are more likely to employ more external financial (Hussainey and Aljifri, 2012; Dang, 2013) in financing their investment opportunities. Hence, firm size can be considered a crucial factor in explaining whether firms tend to choose equity or debt to meet their external financing needs. Theoretically, large firms may issue debt in place of equity for the following reasons: (i) a 1ower probability of bankruptcy as they diversify their portfolio of investments; hence, they can bear high debt ratios (Titman and Wessels, 1988; Rajan and Zingales, 1995); (ii) a better reputation and relatively large tangible assets, which enable them to enjoy better access to credit markets and gain a lower cost of debt (Frank and Goyal, 2003; Al-Ajmi *et al.*, 2009; Hussainey and Aljifri, 2012); and (iii) they may desire to benefit from tax shields which permit them to reduce their taxable profit, whereas dividends are not deductible if they issue equity (Modigliani and Miller, 1963; Miller, 1977). In contrast, large firms have been reported to be less sensitive to asymmetric information because they disclose more information to investors (e.g., Donnelly and Mulcahy, 2008; Allegrini and Greco, 2013; Ntim *et al.*, 2012a; Samaha *et al.*, 2012). In this sense, large firms use disclosure policy as a useful internal governance mechanism to reduce agency costs and align managerial interests with those of shareholders (Jensen and Meckling, 1976; Jensen, 1986; Bathala *et al.*, 1994). Arguably, new investors may consider large firms to be attractive investments because they will not need to

collect costly private information. This can motivate such firms to issue equity over debt, as they expect that potential investors are willing to pay a premium for their shares. Further, large firms' share prices are expected to be higher than small firms because they perform relatively better, which may encourage them to issue equity in place of debt, as new investors are expected to invest in better performing firms.

However, the influence of firm size on firms' choice of financing has received little attention in previous empirical studies. For instance, Chang *et al.* (2006) employ 35,697 firm-year observations over 1985 to 2000 and report evidence that larger firms are considered less risky and tend to issue more debt than equity. Similarly, Elliott *et al.* (2008) report evidence that larger firms choose debt over equity. Mande *et al.* (2012) examine the effect of firm size on a firm's selection of financing by using a sample of 2,049 US firms. They report evidence that issuing equity is significantly and negatively related to firm size.

(ii) Growth (GROWT)

Firms with greater opportunities for growth tend to seek new or additional financing to fund their investment opportunities because internal sources are often insufficient to meet the higher demand for funds. Hence, managers in such firms have to decide whether their external needs can be obtained by issuing equity or debt. Theoretically, it is argued that firms with higher growth are more sensitive to asymmetric information because managers, as insiders, have more information than shareholders in making investment decisions (Jensen and Meckling, 1976). Due to asymmetric information, such firms recognise that investors will discount the price of their shares if they issue equity, which makes debt financing more attractive for them than equity capital (Myers, 1984). This assumption is also supported by the argument that equity issuance will mean that new investors can acquire higher gains from new investments compared to actual shareholders, which may lead firms to issue debt rather than equity in order to please existing shareholders. Further, managers in such firms may engage in moral hazard situations by making risky investments, creating a conflict of interest between agents and different stakeholders, including both shareholders and lenders (Jensen and Meckling, 1976; Myers, 1984). Hence, debt issuance may be chosen by growth firms in order to reduce managers' opportunism and align managerial interests with those of shareholders, among others (Jensen and Meckling, 1976; Jensen, 1986; Bathala *et al.*, 1994).

In addition, and as predicted by SGT, firms with higher growth may issue debt to signal that they are optimistic about their investment earnings and do not prefer new shareholders to share potential profits (Ross, 1977; Ryen *et al.*, 1997; Koch and Shenoy, 1999). In contrast, firms with growth opportunities may avoid debt issuance to maintain their financial flexibility, as well

as to preserve their borrowing ability for the future (Kayhan and Titman, 2007). In addition, firms with higher growth appear to perform relatively better than non-growth firms. Due to their better performance, new investors may be encouraged to invest in such firms, which in turn motivate the firms to issue equity relative to debt.

However, previous empirical literature investigating the influence of firm growth on a firm's selection of finance is limited (e.g., Hovakimian *et al.*, 2001; Kayhan and Titman, 2007; Elliott *et al.*, 2008; Mande *et al.*, 2012). Using a sample of 2,049 US firms during the period 1998 to 2006, for instance, Mande *et al.* (2012) report evidence that growth is significantly and positively related to equity issuance.

(iii) Profitability (ROA)

Profitability is a firm characteristic that has been identified by prior literature as influencing corporate policy decisions. Because profitable firms have sufficient internal resources, their financing behaviour may be different from that of less profitable firms. Hence, profitability can be considered as determinant of issuing debt or equity for firms when they seeking new or additional financing. Theoretically, more profitable firms are anticipated to issue debt rather than equity for the following reasons. First, in line with POT, firms with excess earnings tend to use their internal resources for capital investment, and, if they need additional financing, then debt capital will be issued as a second choice (Myers, 1984; Myers and Majluf, 1984). Second, based on AT, debt issuance provides profitable firms with a useful CG mechanism that allows them to reduce the agency costs associated with free cash flow available to managers (Jensen, 1986). Third, firms with excess earnings are more likely than less profitable firms to issue debt in order to benefit from tax shields (Modigliani and Miller, 1963). Finally, due to their excess earnings that assist them in repaying their financial obligations on time, profitable firms are preferred by lenders, which motivate them to issue debt instead of equity (Petersen and Rajan, 1994; Elliott *et al.*, 2008).

In contrast, firms with more profitability may tend to issue equity over debt. Prior studies report evidence that profitable firms provide more detailed information (e.g., Akhtaruddin *et al.*, 2009; Ntim *et al.*, 2012a; Samaha *et al.*, 2012). This suggests that profitable firms are less sensitive to asymmetric information, which may motivate them to issue equity over debt because they recognise that new investors would prefer to invest in firms where there is no need to collect costly information. Further, new investors can be induced to invest in firms with excess earnings because they expect high levels of dividends, which in turn encourage profitable firms to issue equity rather than debt when seeking new or additional financing.

Empirically, the relation between profitability and capital issuance has not been extensively investigated in the literature. Using a sample of 3,781 public equity issues and 5,391 debt issues over the period 1980 to 1999, Elliott *et al.* (2008) report US evidence that profitable firms tend to issue debt over equity. Similarly, using 39,387 firm-year observations covering the period 1979-1997, Hovakimian *et al.* (2001) provide US evidence that profitable firms issue debt rather than equity. In contrast to the above studies, Mande *et al.* (2012) provide evidence that profitability has statistical insignificant impact on equity issuance by examining 2,049 US equity and debt issuances over the period 1998 to 2006.

(iv) Tangible assets (TNGAS)

The financing behaviour of firms has been studied by researchers in order to investigate the factors that may drive such behaviour. In particular, equity or debt issuance decisions can be influenced by tangible assets. Theoretical predictions have been offered to support the notion that firms with a high proportion of tangible assets can be expected to issue debt over equity. Due to the conflict of interest between shareholders and debt holders, lenders use tangible assets as collateral to reduce the opportunistic behaviour of shareholders who are keen to make risky investments at the expense of debt holders. In this view, tangible assets can serve as a useful governance device to reduce agency costs and align debt holders' interests with those of shareholders (Jensen and Meckling, 1976; Jensen, 1986). This implies that firms with a high proportion of tangible assets are more able to borrow at lower interest rates because lenders secure their capital against firms' assets, which ultimately encourages such firms to issue debt rather than equity (Scott, 1977; Dang, 2013). In the same view, firms with more collateral are preferred by lenders because they face lower financial distress, and are less sensitive to bankruptcy (Dang, 2013). In contrast, firms with more tangible assets can arguably be considered by investors to be a good investment opportunity because they have lower financial distress and bankruptcy costs (Dang, 2013). This may motivate such firms to issue equity over debt in order to satisfy investors who desire to minimise their risks when making investment decisions. Further, firms with more tangible assets can be expected to issue equity over debt because they less need to debt tax shields as depreciation can be a substitute for debt advantage (Elliott *et al.*, 2008).

However, the relationship between tangibility and equity or debt issuance decisions has not been extensively investigated in the literature. Prior studies are in line with the argument that firms with a high proportion of tangible assets are more likely to issue debt over equity (e.g., Chang *et al.*, 2006; Elliott *et al.*, 2008). For instance, Chang *et al.* (2006) provide evidence that debt issuance is positively associated with tangibility only in smaller firms. Similarly, in their

investigation of a firm's choice of financing, Elliott *et al.* (2008) report evidence that US firms with more tangibility tend to issue debt in place of equity.

(v) Dividend policy (DIVPO)

Uncertainty surrounding the factors that drive a firm's choice of financing directs researchers to examine different firm characteristics. Specifically, dividend policy can be expected to influence firms' selection of equity or debt in meeting their external financing needs. On the one hand, SGT hypothesises that the likelihood of debt financing increases with higher dividend payments. In this sense, firms use dividends to signal that they are in better financial health and are capable of meeting future obligations (Bhaduri, 2002; Hussainey and Aljifri, 2012). This may motivate them to issue debt over equity as they can easily have access to capital markets and obtain loans on more favourable terms. In addition, as firms with higher dividend payments are assumed to have excess cash, POT predicts that internal sources would be their first choice to finance their investment opportunities, and if the cash is not sufficient they will issue debt because it has lower information costs compared with equity issuance (Myers, 1984; Myers and Majluf, 1984).

On the other hand, firms with higher dividend payments may tend to issue equity rather than debt. Potential investors who are willing to pay a premium price for firms with better CG (Gillan and Starks, 2003; Leuz *et al.*, 2010; Aggarwal *et al.*, 2011) may consider firms with higher dividend payments as less sensitive to the agency problem because such firms use dividends as a governance mechanism to reduce agency costs associated with free cash flow (Jensen *et al.*, 1992; D'Souza, 1999; DeAngelo *et al.*, 2004). Further, firms recognise that they are targeted by new investors because they are less sensitive to information asymmetry as they use dividend policy to transfer information about their future prospects to the market (Hussainey and Walker, 2009). Thus, the high premium for well governed firms paid by new investors may motivate firms with higher dividend payments to issue equity over debt.

Little empirical literature exists, however, relating to the association between dividend policy and firms' choice of financing. Jensen *et al.* (1992) examine the determinants of cross-sectional differences in insider ownership, debt and dividend policies and report evidence that equity financing is more attractive than debt financing for firms with higher dividend payments. On the contrary, Chang *et al.* (2006) provide evidence that only larger firms with high dividend payout ratios tend to adopt debt issuance in financing their investment opportunities.

(vi) Business risk (BSRK)

Empirical literature shows that a firm's characteristics play an important role in determining its policy decisions. In particular, a firm's issuance choice can be expected to be driven by business risk when it seeks new or additional financing. Theoretically, firms with higher business risk are more likely to issue debt over equity for the following reasons. First, since they have insufficient internal sources, as well as suffering from high information asymmetry (DeAngelo and Masulis, 1980; Chang and Rhee, 1990), debt issuance is predicted by POT as the best choice of financing due to the lower information costs associated with it (DeAngelo and Masulis, 1980; Myers, 1984; Myers and Majluf, 1984). Second, because these firms suffer from variable cash flows, debt issuance would allow them to increase cash flows through tax shields as opposed to equity issuance, where dividends are not tax deductible (Modigliani and Miller, 1963; Frank and Goyal, 2009). Finally, since these firms are more likely to suffer from adverse selection (Frank and Goyal, 2009), AT assumes that such firms are expected to use debt financing in order to reduce the conflict of interest between shareholders and managers, where the latter may engage in moral hazard situations by making risky investments (Jensen and Meckling, 1976). Even though the likelihood of equity financing decreases with business risk because of higher costs of financial distress that increase the probability of bankruptcy (Kale *et al.*, 1991), firms with higher business risk may be forced to issue equity in order to avoid paying fixed interest payments if they chose debt issuance as they suffering from volatile cash flows while dividend payments can be controlled in the case of chosen equity issuance.

The empirical literature, however, relating to the association between business risk and choice of financing is limited. Using a sample of 748 UK listed firms over the period 1959 to 1970, Marsh (1982) investigated how firms select between financing instruments and reported evidence that risky firms tend to issue equity. In a similar vein, other studies (e.g., Shyam-Sunder and Myers, 1999; Chang *et al.*, 2009; Mande *et al.*, 2012) examine the relation between financial deficits and a firm's issuance choice. They report evidence that firms with higher financial deficits tend to issue debt over equity when financing their investment opportunities. For example, using a sample of 2,049 US firms from 1998 to 2006, Mande *et al.* (2012) provide evidence that the probability of issuing equity is higher for firms with lower financial deficits.

4.2.3.3 Definition of Control Variables

The control variables in this study are measured based on prior studies and the availability of data. As illustrated in Table 23, firm size (LNTA) is measured by computing a natural log of total assets (e.g., Samaha *et al.*, 2012; Essen *et al.*, 2013; Dang, 2013). Profitability (ROA) is

measured as a ratio of operating profit to total assets (e.g., Abor, 2007; Baglioni and Colombo, 2013; Nakano and Nguyen, 2013). Growth (GROWTH) is calculated by Tobin's Q as the market value of equity plus the book value of total assets minus the book value of equity divided by the book value of total assets (e.g., Zeitun and Tian,2007, Jiraporn, 2012). Tangible assets (TNGAS) are measured as fixed assets divided by total assets (e.g., Al-Najjar and Taylor, 2008; Haque *et al.*, 2011; Noulas and Genimakis, 2011). Dividend policy (DIVPO) is measured as annual dividends per share divided by earnings per share (e.g., Crutchley *et al.*, 1999; Al-Najjar and Taylor, 2008; Hussainey and Aljifiri, 2012). Business risk[27] (BSRK) is measured as the ratio of standard deviation of earnings before interest and taxes to total assets (e.g., Bradley *et al.*, 1984; Delcoure, 2007Al-Ajmi *et al.*, 2009).

Table 23: Definition of dependent and independent variables

Dependent variables	
FCS	Firm capital structure is measured by book total debt scaled by total equity.
EISSUE	Equity issuance is measured as a dummy variable that takes a value of 1 if a firm issues equity and a value of 0 if it issues debt.
Independent variables	
OCGI	Omani corporate governance index consisting of 72 provisions that take a value of 1 if a particular provision is disclosed, and 0 otherwise; scaled to a value between 0% and 100%.
GOVOWN	Percentage of government ownership to total firm ordinary shareholdings.
INSOWN	Percentage of institutional ownership to total firm ordinary shareholdings.
FOROWN	Percentage of foreign ownership to total firm ordinary shareholdings.
FOROWN	Percentage of foreign ownership to total firm ordinary shareholdings.
BLKOWN	Percentage of shares held by shareholders with at least 5% of the total firm shareholdings.
BSIZE	Total number of directors on the board of a firm
BIG4	1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise.
CGCOM	1 if a firm has set up a corporate governance committee, 0 otherwise.
Control variables	
LNTA	Natural log of total assets.
ROA (%)	Operating profit to total assets.
GROWT (%)	Tobin's Q defined as the market value of equity plus the book value of total assets minus the book value of equity divided by the book value of total assets.
TNGAS (%)	Fixed assets divided by total assets.
DIVPO (%)	Dividends per share divided by earnings per share
BSRK (%)	Standard deviation of earnings before interest and taxes to total assets.
INDUSTRY	Dummies for each of the nine industries: basic materials, consumer goods, consumer services, financial, industrial, utilities, health care, telecommunications, and oil and gas.
YEAR	Dummies for each of the ten years from 2001 to 2011 inclusive.

In addition, and in line with previous studies (e.g., Boateng, 2004; Ellili and Farouk, 2011; Haque *et al.*, 2011; Elzahar and Hussainey, 2012; Jiraporn *et al.*, 2012; Wagner, 2015), an industry dummy is included as a control for differences in CS and the choice of financing across

[27] The present study was unable to measure business risk based on beta because of data limitations. According to trade-off theory, higher earnings variability increases the possibility of default. It suggests that examining the earnings volatility offers investors the ability to ascertain whether a firm goes to a default (riskier) or not. Thus, and given the data limitation, business risk is measured using the standard deviation of earnings scaled by the total assets.

different industries. Specifically, eight industry dummies out of nine major industries are included in any single equation in order to avoid a dummy-variable trap. Finally, it is indicated that CS and the choice of financing change over time. Therefore, and in line with prior studies (e.g., Song, 2005; Li *et al.*, 2009; Jiraporn *et al.*, 2012; Benkraiem and Gurau, 2013), the current study controls for time in order to capture the potential changes in CS and the choice of financing over the eleven-year period. Similarly, ten dummies out of eleven are included in any single equation in order to avoid a dummy-variable trap.

4.2.4 Model Specification

The current study conducts unbalanced panel data analysis to answer its research questions for the following reasons. First, in line with prior studies (e.g., Abor, 2007; Ba-Abbad and Ahmad-Zaluki, 2012) and because the determinants of CS change over time, panel data enables the study to capture the driving forces behind the financing decisions of firms more successfully than time series or cross-sectional techniques (Hsiao, 1985; Wooldridge, 2009). Second, panel data allows the study to improve the efficiency of econometric estimates by reducing the multicollinearity problem and increasing the degree of freedom (Hsiao, 1985; Gujarati, 2003; Antoniou *et al.*, 2008). Further, unlike either time series or cross-sectional techniques, panel data permits the study to control for firm's heterogeneity in individual variables (Gujarati, 2003; Wooldridge, 2009). In this regard, Hsiao (1985, pp.129) emphasises that "*panel data allows us to construct and test more realistic behavioural models which could not be identified using cross-section or time series data alone*". Finally, the eleven-year data (1,152 firm-year observations) can ensure that sufficient series is achieved to conduct the study's statistical and robustness analyses. In addition, and in line with prior studies (e.g., Haque *et al.*, 2011; Hussainey and Aljifri, 2012; Mande *et al.*, 2012), this study relies on quantitative analysis to investigate determinants of both CS and the choice of finance. In doing so, the study uses two different regression analyses. First, multiple linear regression analysis is applied in order to answer the first research question for two main reasons: (i) it allows the current study to examine the impact of more than one independent variable on the *FCS*; and (ii) it permits to control for many other determinants that simultaneously influence the *FCS*. Ordinary Least Squares estimation (OLS) will be used to test the *FCS* behaviour among Omani listed firms and the *FCS* will be regressed on a number of explanatory variables in order to test the following hypotheses.

H_1 There is a statistically significant positive association between government ownership and the debt-to-equity ratio.

H_2 There is a statistically significant negative association between institutional ownership and the debt-to-equity ratio.

H_3 There is a statistically significant negative association between foreign ownership and the debt-to-equity ratio.

H_4 There is a statistically significant negative association between block ownership and the debt-to-equity ratio.

H_5 There is a significant negative association between firm-level corporate governance and the debt-to-equity ratio.

H_6 There is statistically significant association between board size and the debt-to-equity ratio.

H_7 There is a statistically significant negative association between the presence of a CG committee and the debt-to-equity ratio.

H_8 There is a statistically significant negative association between audit firm size and the debt-to-equity ratio.

Examining these hypotheses will permit the current study to ascertain whether variations in the *FCS* can be explained by CG variables, as has been argued by theories and reported by prior empirical studies, assuming that all relationships are linear. The OLS regression equation (1) is indicated as follows:

$$\begin{aligned} FCS_{it} = {} & \alpha_0 + \beta_1 OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

Where:

FCS	Firm capital structure
α	Constant term
OCGI	Omani corporate governance index
GOVOWN	Government ownership
INSOWN	Institutional ownership
FOROWN	Foreign ownership
BLKOWN	Block ownership
BSIZE	Board size
BIG4	Audit firm size
CGCOM	Presence of a corporate governance committee
CONTROLS	Control variables for firm size (LNTA), growth (GROWTH), profitability (ROA), tangible assets (TNGAS), dividend policy (DIVPO), business risk (BSRK), industry, and year dummies.
ε	Error term

Second, due the nature of the second dependent variable and following Mande *et al.*'s (2012) methodology, the logistic regression analysis is applied in order to answer the second research question. Specifically, equity issuance, *EISSUE*, represents the choice of financing in this study, and it is measured as a dummy variable that takes a value of 1 if a firm issues equity, and a value of 0 if a firm issues debt. Thus, the *EISSUE* as a binomial variable will be regressed on explanatory variables in order to test the following hypothesis.

H_9 There is a statistically significant negative association between government ownership and equity issuance.

H_{10} There is a statistically significant positive association between institutional ownership and equity issuance.

H_{11} There is a statistically significant association between foreign ownership and equity issuance.

H_{12} There is a statistically significant association between block ownership and equity issuance.

H_{13} There is a statistically significant positive association between firm-level corporate governance and equity issuance.

H_{14} There is a statistically significant association between board size and equity issuance.

H_{15} There is a statistically significant positive association between the presence of a CG committee and equity issuance.

H_{16} There is a statistically significant association between audit firm size and equity issuance.

Testing these hypotheses will allow the present study to determine whether or not the choice of financing can be driven by CG variables, as has been suggested by theories and found by previous empirical studies. The formula of this model is expressed by the following equation (2).

$$\begin{aligned} EISSUE_{it} = {} & \alpha_0 + \beta_1 OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

Where:

EISSUE	Equity issuance
α	Constant term
OCGI	Omani corporate governance index

GOVOWN	Government ownership
INSOWN	Institutional ownership
FOROWN	Foreign ownership
BLKOWN	Block ownership
BSIZE	Board size
BIG4	Audit firm size
CGCOM	Presence of a corporate governance committee
CONTROLS	Control variables for firm size (LNTA), growth (GROWTH), profitability (ROA), tangible assets (TNGAS), dividend policy (DIVPO), business risk (BSRK), industry, and year dummies.
ε	Error term

There is one methodological issue that needs to be addressed when including many variables in both models. It may be argued that having many variables might cause statistical problems, such as multicollinearity, heteroscedasticity and autocorrelation. In this regard, Curwin and Slater (1994, pp.280) indicate that employing too many variables is better than using too few. They conclude that "*it is prudent to build a model with too many variables rather than too few, since the problem of increased variance may be easier to deal with than with the problem of biased predictions*". Further, all variables included in the current study have central theoretical arguments linking them directly to the two issues under investigation, and ignoring one of them may limit the current study's ability to analyse the extent to which firm-level CG drives CS and the *EISSUE*. In spite of limited studies investigating the effect of CG on the *FCS* and the *EISSUE*, the literature shows that prior studies (e.g., Haque *et al.*, 2011; Jiraporn *et al.*, 2012; Hussainey and Aljifri, 2012) have examined a limited number of CG variables to investigate their effect on the *FCS*, arguably limiting our understanding of firms' financial decision-making behaviour. For instance, Hussainey and Aljifri (2012) include four CG mechanisms as explanatory variables in their model to examine CG's impact on CS. Haque *et al.* (2011) employ CG index and concentration ownership as CG variables to investigate the influence of firm-level CG and ownership on CS. Similarly, Jiraporn *et al.* (2012) use only CG index as an explanatory variable to examine how the quality of CG can impact on CS. In contrast, more explanatory variables are included in this study (eight CG variables) than in prior studies, arguably expanding our understanding of the effect of CG on firms' financial decision-making behaviour. As the present study relies on both theoretical and empirical literature in selecting its explanatory variables, and based on the above discussion, the inclusion of eight CG variables in addition to eight control variables in both models should not cause any serious problems.

4.2.5 Statistical Tests

Briefly, and before examining the above hypotheses, various statistical analyses will be conducted, as will be discussed in the next Section, in order to assess different issues. The OLS assumptions will be tested in order to ensure that the OLS is statistically appropriate estimation to perform the current study's analyses. After examining the present study's hypotheses, several of sensitivity analyses, as will be discussed in Section seven, will be carried out to test the robustness of the obtained results. In this regard, the present study checks whether the reported findings are robust or sensitive to alternative measures and estimations including: the use of weighted CG index, the use of alternative measures of CS, financial firms, unobserved firm-level characteristics, whether there are differences in the main results with respect to the period of examination and endogeneity problem.

5 THE OLS ASSUMPTIONS AND DESCRIPTIVE STATISTICS

This section focuses on the OLS assumptions and descriptive statistics. It explains how the OLS assumptions were met, and reports detailed descriptive statistics for dependent, explanatory and control variables of *FCS* and *EISSUE* models.

5.1 TESTS OF THE OLS ASSUMPTIONS

As indicated earlier, the current study uses the OLS as the main estimation technique for the analysis of the determinants that drive CS. In doing so, all the assumptions regarding multicollinearity, autocorrelation, normality, homoskedasticity and linearity had to be tested before applying the model. Similar to Essay 1, a number of statistical procedures were followed in this study to check the validity of the OLS assumptions and perform other statistical procedures to resolve any problems associated with meeting these assumptions. Variables were tested for unit root or stationarity by using the Augmented Dickey-Fuller (ADF) test in order to accept or reject the null hypothesis that a variable has a unit root. Table 24 reports the results of this test, suggesting that the null hypothesis is accepted at least at the 1% level of significance, as all variables have no unit root.

Table 24: Augmented Dickey-Fuller test statistics

Variables	ADF Unit Root Test
FCS	-11.5472***
EISSUE	-17.8929***
OCGI	-5.7541***
GOVOWN	-9.2719***
INSOWN	-9.5214***
FOROWN	-10.4960***
BLKOWN	-10.5810***
BSIZE	-9.5512***
BIG4	-12.7914***
CGCOM	-12.3361***
GROWTH	-13.0767***
ROA	-12.6456***
LNTA	-7.8817***
TNGAS	-8.3101***
DIVPO	-15.1862***
BSRK	-10.9194***

Notes: *FCS* denotes the firm-level capital structure, *EISSUE* denotes equity issuance, *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GROWTH* denotes firm growth, *ROA* denotes return on asset the measure of profitability, *LNTA* denotes firm size, *TNGAS* denotes tangible assets, *DIVPO* denotes dividend policy, *BSRK* denotes business risk. The asterisk *** indicate significance at the 1% level.

After determining stationarity, linearity, serial correlation, heteroskedasticity, normality and multicollinearity were tested, and the results from these tests are reported below. First, *FCS* measures and control variables were winsorised at the 5% and 95% levels in order to limit the effects of outliers, as their presence can violate the OLS assumptions.

Second, the Breusch-Godfrey Serial Correlation LM test was used to detect the presence of autocorrelation (serial correlation), and the results of this test are presented in Table 25. The results indicate the presence of serial correlation, as both the *F*-statistics and *Chi*-Square reject the null hypothesis of no serial correlation at the 1% level of significance.

Table 25: Breusch-Godfrey test for serial correlation

F-Statistics	7.2732***
Obs*R-squared	14.7962***

Notes: The asterisk *** indicate significance at the 1% level.

Third, the White general test was performed to test for heteroskedasticity. Table 26 reports the results of this test, indicating that the *FCS* model is heteroskedastic, as both the *F*-statistics and *Chi*-Square reject the null hypothesis of no homoskedasticity at the 1% level of significance.

Table 26: Heteroskedasticity test: White test

F-Statistics	1.5477***
Obs*R-squared	523.8164***

Notes: The asterisk *** indicate significance at the 1% level

In order to avoid unbiased and consistent coefficient estimates as a result of serial correlation and heteroskedasticity, the present study used the first-order autoregressive method in order to take account of serial correlation, and employ standard error estimate that has been modified to account for homoskedasticity following White test (Brooks, 2007). Thus, the current study can be confident that the issues of serial autocorrelation and heteroskedasticity in the *FCS* model have been resolved.

Fourth, the present study tested the *FCS* model for normality using standardised skewness and kurtosis. As illustrated in Table 29, the results of skewness and kurtosis statistics reject the null hypothesis that the variables are symmetrically and mesokurtically distributed. As explained in Essay 1, efforts have been made to reduce non-normalities in the variables by using different types of transformation, such as rank, natural log and square root, but no transformation created better results than those based on the actual variables. Brooks (2007, PP.164) indicates that the violation of the normality assumption is '*virtually inconsequential if sample sizes are sufficiently*

large'. This means that any remaining non-normality would not be a major problem causing serious violation of the OLS assumptions, as the current study has one thousand one hundred and fifty-two (1,152) firm-year observations. Further, the skewness and kurtosis statistics for the *FCS* are similar to those reported by previous studies (e.g., Brailsford *et al*., 2002; Omet and Mashharawe, 2002; Mazur, 2007; Antoniou *et al.*, 2008; Al-Ajmi *et al*., 2009, Sbeiti, 2010). Thus, any remaining non-normality would be statistically mild.

Finally, the current study constructs a correlation matrix among all variables in order to test for multicollinearity. In particular, the Pearson's parametric correlation coefficients and Spearman's non-parametric correlation coefficients were used to check for the relation among explanatory variables. Table 28 illustrates that there is no serious multicollinearity among variables, as the magnitude of both parametric and non-parametric correlation coefficients is relatively low. The highest coefficient is between firm size and each of board size (0.455) and business risk (0.409), as indicated by Pearson's parametric and Spearman's non-parametric correlation coefficients, respectively. Further, multicollinearity was tested by computing the Tolerance (TOL) and Variance Inflation Factor (VIF) statistics. The results from Table 27 reveal that the maximum Tolerance is 0.875 and the maximum VIF is 1.823, suggesting that there are no severe multicollinearity problems in the current study (Gujarati, 2003). Overall, the diagnostics for the OLS assumptions indicate that the OLS is statistically appropriate as a main estimation method to perform OLS regression analyses, despite any remaining linearity, auto-correlation, heteroskedasticity, normality and multicollinearity in the variables.

Table 27: Multicollinearity test: Tolerance statistic and Variance Inflation Factor

Variables	TOL	VIF
OCGI	0.789	1.267
GOVOWN	0.789	1.267
INSOWN	0.714	1.401
FOROWN	0.691	1.448
BLKOWN	0.549	1.823
BSIZE	0.675	1.482
BIG4	0.784	1.275
CGCOM	0.860	1.163
GROWTH	0.875	1.143
ROA	0.688	1.454
LNTA	0.465	2.149
TNGAS	0.574	1.742
DIVPO	0.817	1.223
BSRK	0.754	1.326

Notes: *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN*, denotes block ownership, *BSIZE* denotes the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GROWTH* denotes firm growth, *ROA* denotes profitability, *LNTA* denotes firm size, *TNGAS* denotes tangible assets, *DIVPO* denotes dividend policy, *BSRK* denotes business risk.

Table 28: Pearson and Spearman correlation matrices of the dependent and explanatory variables

	FCS	EISSUE	OCGI	GOVOWN	INSOWN	FOROWN	BLKOWN	BSIZE	BIG4	CGCOM	GROWTH	ROA	LNTA	TNGAS	DIVPO	BSRK
FCS		0.005	-0.095***	-0.127***	0.049*	0.024	0.101***	-0.017	-0.039	-0.195***	0.079***	-0.429***	0.045	-0.034	-0.151***	-0.154***
EISSUE	0.000		0.206***	-0.008	0.049*	0.006	-0.084***	0.087***	0.062**	0.062**	0.017	0.076***	0.210***	0.204***	0.046	-0.134***
OCGI	-0.126***	0.218**		0.155***	0.015	0.076**	-0.007	0.088***	0.100***	0.299***	0.008	0.171***	0.347***	0.107***	0.089***	-0.129***
GOVOWN	-0.048	-0.008	0.154***		-0.031	0.047	0.109***	0.085***	0.062**	0.048	0.001	0.218***	0.154***	-0.042	0.135***	-0.074**
INSOWN	0.044	0.034	0.029	-0.062**		-0.029	0.226***	-0.001	0.000	0.010	0.044	0.037	-0.163***	0.017	-0.032	0.041
FOROWN	0.058**	-0.023	0.072**	0.038	-0.150***		0.339***	0.008	0.020	0.000	0.025	0.013	0.140***	-0.074**	0.047	0.026
BLKOWN	0.082***	-0.074**	0.068**	0.118***	0.314***	0.355***		-0.266**	-0.161***	-0.013	0.012	-0.124***	-0.223***	-0.242***	-0.155***	0.126***
BSIZE	0.020	0.075**	0.038	0.094***	-0.053*	-0.038	-0.273***		0.252***	-0.055*	-0.026	0.058*	0.391***	0.088***	0.230***	-0.182***
BIG4	-0.026	0.087***	0.030	0.062**	-0.011	-0.007	-0.160***	0.258***		0.110***	-0.057*	0.099***	0.377***	0.107***	0.125***	-0.094***
CGCOM	-0.209***	0.062**	0.279***	0.048	0.016	0.019	-0.009	-0.053*	0.110***		-0.046	0.070**	0.092***	0.029	-0.029	0.052*
GROWTH	0.081***	0.002	-0.007	-0.009	0.044	0.024	0.013	-0.034	-0.047	-0.051*		0.183***	0.023	0.019	-0.064**	0.036
ROA	-0.421***	0.081***	0.174***	0.224***	0.030	-0.035	-0.121***	0.082***	0.110***	0.070**	0.171***		0.165***	0.117***	0.286***	-0.019
LNTA	0.103***	0.214***	0.275***	0.169***	-0.187***	0.087***	-0.206***	0.455***	0.369***	0.069**	0.004	0.162***		0.181***	0.242***	-0.409***
TNGAS	0.009	0.200***	0.049*	-0.047	0.021	-0.095***	-0.226***	0.095***	0.113***	0.029	0.016	0.120***	0.210***		0.093***	-0.146***
DIVPO	-0.124***	0.026	0.050*	0.121***	-0.031	0.046	-0.148***	0.200***	0.136***	-0.002	-0.097***	0.232***	0.158***	0.072**		-0.216***
BSRK	-0.108***	-0.117***	-0.116***	-0.078***	0.063**	0.037	0.124***	-0.151***	-0.065**	0.045	0.078***	-0.060**	-0.387***	-0.069**	-0.184***	

Notes: the bottom left half of the table presents Pearson's parametric correlation coefficients, whilst the upper right half of the table presents Spearman's non-parametric correlation coefficients. *FCS* denotes firm capital structure, *EISSUE* denotes equity issuance, *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GROWTH* denotes firm growth, *ROA* denotes firm profitability, *LNTA* denotes firm size, *TNGAS* denotes tangible assets, *DIVPO* denotes dividend policy, *BSRK* denotes business risk. The correlation matrix depicts the strength and sign of the relationship amongst the variables. ***, ** and * denote correlation is significant at the 1%, 5% and 10% level, respectively.

5.2 DESCRIPTIVE STATISTICS

This subsection provides and discusses the descriptive statistics. It is divided into two subsections. Descriptive statistics for the *FCS* model are presented in Subsection 5.2.1, while the *EISSUE* model's descriptive statistics are presented in Subsection 5.2.2.

5.2.1 Descriptive Statistics: Capital Structure

Table 29 presents descriptive statistics for the dependent and explanatory variables. It shows that the total debt ranges from a minimum of 10.28% to a maximum of 353.97%, with an average of 103.64% for the period 2001 to 2011. This suggests that Omani firms are highly leveraged, which is in line with the same conclusions reported by Omet and Mashharawe (2002) and Sbeiti (2010). The higher mean value of the *FCS* indicates that Omani listed firms tend to have a high degree of reliance on debt financing rather than equity capital. Such managerial preference for debt financing is possibly due to one or two of the following reasons. Managers are motivated to issue high levels of debt because they often have close relationships with political leaders and bank officers that allow them to easily obtain loans from local providers and from the government at favourable rates (Friend and Lang, 1988; Abdulla, 1998; Malatesta, 2001; Fan *et al*., 2011; Haque *et al*., 2011). Omani firms with large block holders might tend to use debt financing as a governance mechanism in order to discipline managers. The standard deviation of the *FCS*, however, is 115.17, indicating that there is a significant variation in the *FCS* among Omani listed firms. Figure 5 displays the average of the *FCS* over 11 years. It shows that the mean value of the *FCS* is relatively consistent among Omani listed firms over the sampled period, with a slight decline since 2009, but remaining above 85.09 until 2011. The Table 29 also shows describtive statistics for the other two measures of capital structure. The short-term-debt (SHD) ranges from a minimum of 3.8416% to a maximum of 171.2921%, with an average of 43.1467% whereas The long-term-debt (LND) ranges from a minimum of 6.9755% to a maximum of 207.1330%, with an average of 55.1566%. This confirms the statistics provided by total debt ratio that Omani listed firms appear to relay on debt financing rather than equity capital in financing their activities.

In addition, Tables 28 and 29 show the correlation matrix and skewness and kurtosis statistics of the *FCS*, respectively. For instance, the Pearson's parametric correlation coefficients indicate that the *FCS* is positively and significantly associated with foreign ownership, block ownership, growth and firm size, while CG index, CG committee, profitability, dividend policy and business risk are negatively and significantly correlated with the *FCS*. This is preliminary evidence that better CG firms employ lower levels of leverage compared with those of weak CG structures as both the *OCGI* and *CGCOM* are significant and negative associated with the *FCS*.

Skewness (1.1419) and kurtosis (2.9210) statistics show that the *FCS* is not normally distributed, so the current study accepts the null hypothesis that the *FCS* is not symmetrically and mesokurtically distributed. The *FCS* appears to be right-skewed, where most observations are concentrated on the left of the mean, and shows platykurtic distribution, where the observations are more widely spread around the mean (the absolute critical values for accepting skewness and kurtosis are zero and three, respectively (Brooks, 2007)). Generally, the results of both skewness and kurtosis statistics are consistent with the reported results of prior studies that use the OLS estimation to examine CS determinants (e.g., Brailsford *et al*., 2002; Omet and Mashharawe, 2002; Mazur, 2007; Antoniou *et al*., 2008; Al-Ajmi *et al*., 2009; Sbeiti, 2010).

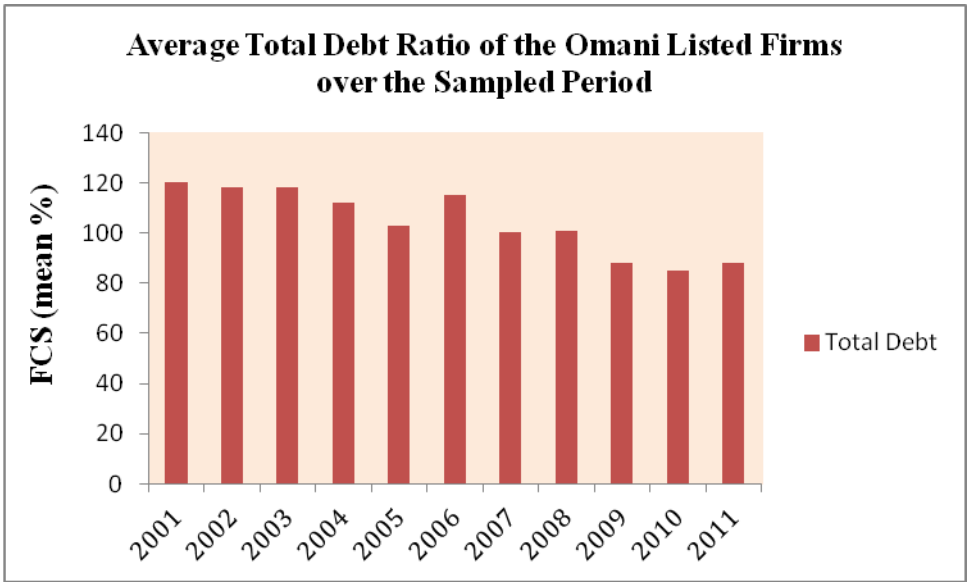

Figure 5: Leverage levels based on Total Debt Ratio

Panel *B* of Table 29 presents descriptive statistics for explanatory variables. First, it indicates that the *OCGI* ranges from a minimum of 1.39 to a maximum of 88.89, with an average of 47.89 for the sampled firms. There is a relatively large variation in CG compliance and disclosure between Omani listed firms, as indicated by a standard deviation of 21.77. This is consistent with prior studies (e.g., Henry, 2008; Ntim *et al*., 2012a) indicating that CG quality improves over time. Second, *BLKOWN* has the highest mean, with an average of 54.84, than *INSOWN*, *FOROWN* and *GOVOWN*, with averages of 20.39, 10.45 and 5.51, respectively. This is consistent with results provided by previous studies (e.g., Omran *et al*., 2008; Bishara, 2011), which report that the Omani corporate setting is characterised by high ownership concentration. This suggests that *BLKOWN* is expected to play an important role in monitoring and governing Omani firms' corporate policy decisions in general and CS and the choice of financing in particular. Third, *BSIZE* ranges from a minimum of 4 to a maximum of 13, with an average of

7.34, which is consistent with the Omani Companies Act requirement. Third, *BIG4* ranges from 0.00 to 1.00, with an average of 0.71 for the sample data. The standard deviation is 0.45, indicating that there is a substantial variation in *BIG4* among Omani listed firms. A large number of Omani listed firms' financial statements are audited by one of the big four audit firms; this may suggest that these firms use big audit firms as a governance mechanism to attract investors when seeking new or additional financing. Finally, *CGCOM* ranges from 0.00 to 1.00, with an average of 0.15 for the total sample. The standard deviation of 0.36 is substantially higher than the above CG variables, but is less than *BIG4*. Despite the low value of *CGCOM*'s mean, it indicates that there is awareness among Omani listed firms of the crucial role of CG committees in assisting firms to access capital markets in order to meet their external financing needs.

Panel *C* of Table 29 presents descriptive statistics for the control variables. Growth measured by computing Tobin's Q, ranges from 70.07 to 247.49, with a mean of 127.09, reflecting superior investment and growth opportunities. *LNAT*, measured by computing a natural log of total assets, ranges from 14.45 to 19.94, and has a mean of 16.62. The lowest mean values are given by *BSRK* and *ROA*, with averages of 0.03 and 0.05, respectively, while a mean value of *TNGAS* (0.46) indicates that Omani listed firms have large tangible assets. The standard deviation values for control variables are relatively large, which indicates that sufficient variation in the sample has been achieved.

Table 29: Summary descriptive statistics of capital structure model

Variable	Mean	Median	Std.Dev	Skewness	Kurtosis	Minimum	Maximum
Panel A: Dependent variable							
FCS	103.6463	49.2632	115.1712	1.1419	2.9210	10.2814	353.9765
SHD	43.1467	16.1753	54.8377	1.4195	3.6273	3.8416	171.2921
LND	55.1566	19.3083	67.1795	1.3260	3.3383	6.9755	207.1330
EISSUE	0.2344	0.0000	0.4238	1.2541	2.5728	0.0000	1.0000
Panel B: Explanatory variables							
OCGI	47.8973	54.1667	21.7746	-0.9200	2.6976	1.3900	88.8900
GOVOWN	5.5173	0.0000	13.4804	3.1670	13.2821	0.0000	75.2558
INSOWN	20.3921	12.4205	22.6782	1.0529	3.2718	0.0000	90.8500
FOROWN	10.4591	0.0000	20.0972	2.0946	6.8656	0.0000	90.1300
BLKOWN	54.8402	56.5927	24.3699	-0.3106	2.4292	0.0000	99.4700
BSIZE	7.3437	7.0000	1.7885	0.7651	3.1554	4.0000	13.0000
BIG4	0.7100	1.0000	0.4539	-0.9259	1.8574	0.0000	1.0000
CGCOM	0.1588	0.0000	0.3656	1.8665	4.4839	0.0000	1.0000
Panel C: Control variables							
GROWTH	127.0870	114.3647	45.0085	1.2270	3.9172	70.0692	247.4900
ROA	0.0573	0.0504	0.0980	0.0161	2.7295	-0.1368	0.2500
LNTA	16.6222	16.4242	1.4732	0.5497	2.6375	14.4500	19.9400
TNGAS	53.6657	51.9413	29.5617	0.1227	1.6842	11.8700	98.0486
DIVPO	0.4635	0.3824	0.1444	1.5008	3.5961	0.3824	0.7961
BSRK	0.0334	0.0241	0.0289	0.8100	2.3871	0.0031	0.0912

Notes: *FCS*, *SHD* and *LND* denote total debt, short-term debt and long-term debt, *EISSUE* denotes equity issuance, *OCGI* denotes the Oman CG index, *GOVOWN*, *INSOWN*, *FOROWN* and *BLKOWN* denote government, institutional, foreign and block ownerships, *BSIZE* denotes the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes CG committee, *GROWTH* denotes firm growth, *ROA* denotes firm profitability, *LNTA* denotes firm size, *TNGAS* denotes tangible assets, *DIVPO* denotes dividend policy, *BSRK* denotes business risk. Std.Dev denotes standard deviation. The Skewness and Kurtosis are used as measures to test for normality assumption.

As discussed in Subsection 3.2.3.3, the CS literature (e.g., Elzahar and Hussainey, 2012; Jiraporn *et al.*, 2012) suggests that CS differs across different industrial groups. Hence, it is useful to investigate whether variability in the levels of leverage among Omani listed firms can be explained by industrial groups. Following the suggestion in the CS literature that financial firms are heavily regulated and their leverages may not be interpreted like those of non-financial firms, the t-test in Column 3 of Table 30 tests whether the mean leverages of financial firms are significantly different from those of firms in the other eight industries.

Table 30: Summary descriptive statistics for the levels of leverage based on industrial groups

Total Debt Ratio (TDEBT)	Mean	T-Test	Std. Dev	Minimum	Maximum
Panel A: Basic Materials (BM)	*100.4434*	*2.811****	*119.7968*	*10.2814*	*353.9765*
2001	104.2675	0.618	107.2636	10.2814	353.9765
2002	96.7940	0.839	105.0091	10.2814	353.9765
2003	90.6605	0.876	105.8695	10.2814	353.9765
2004	97.7862	0.282	117.6826	10.2814	353.9765
2005	63.4006	1.246	91.0897	10.2814	353.9765
2006	98.5903	0.393	127.8805	10.2814	353.9765
2007	77.9567	1.031	104.8863	10.2814	353.9765
2008	74.8033	1.267	104.4743	10.2814	353.9765
2009	69.1784	1.015	105.7226	10.2814	353.9765
2010	69.1882	0.874	102.6820	10.2814	353.9765
2011	80.1290	0.833	122.8097	10.2814	353.9765
Panel B: Consumer Goods (CG)	*135.8068*	*2.065***	*118.6097*	*10.2814*	*353.9765*
2001	134.8718	0.139	122.0863	10.2814	353.9765
2002	138.5354	0.229	121.9062	10.2814	353.9765
2003	145.1781	0.548	117.6068	10.2814	353.9765
2004	121.6989	0.400	105.0777	10.2814	353.9765
2005	157.3041	1.341	122.2769	10.2814	353.9765
2006	155.7504	1.049	134.6047	10.2814	353.9765
2007	155.1578	1.116	130.3469	10.2814	353.9765
2008	138.7359	0.616	113.5275	10.2814	353.9765
2009	124.1379	0.665	118.1027	10.2814	353.9765
2010	122.8767	0.755	126.5219	10.2814	353.9765
2011	104.6841	0.167	109.6321	10.2814	353.9765
Panel C: Consumer Services (CS)	*71.2799*	*4.216****	*78.6538*	*10.2814*	*353.9765*
2001	94.9197	0.849	89.5945	10.2814	353.9765
2002	93.1498	0.886	100.3810	10.2814	353.9765
2003	81.6344	1.079	100.4321	10.2814	353.9765
2004	98.3267	0.277	101.0739	10.2814	353.9765
2005	66.2434	1.174	88.4029	10.2814	353.9765
2006	68.9778	1.266	89.7278	10.2814	353.9765
2007	54.7456	1.869*	55.5939	10.2814	208.9642
2008	62.8489	1.811*	58.7038	10.2814	190.7407
2009	58.2182	1.553	57.1175	10.2814	188.1821
2010	57.8851	1.404	55.5609	10.2814	174.5391
2011	62.5690	1.611	69.8323	10.2814	224.1706
Panel D: Financials (FI)	*113.2087*		*126.9334*	*10.2814*	*353.9765*
2001	129.2053		143.6754	10.2814	353.9765
2002	129.3486		142.1046	10.2814	353.9765
2003	124.3886		136.3252	10.2814	353.9765
2004	108.1000		123.6657	10.2814	353.9765
2005	106.0815		120.7509	10.2814	353.9765
2006	113.6129		133.7890	10.2814	353.9765
2007	113.2050		131.7013	10.2814	353.9765
2008	117.2003		127.8316	10.2814	353.9765
2009	101.6202		118.2147	10.2814	353.9765

Continuation: Table 30	Mean	T-Test	Std. Dev	Minimum	Maximum
Panel D: Financials (FI)					
2010	96.6761		117.2127	10.2814	353.9765
2011	110.3079		121.3421	10.2814	353.9765
Panel E: Health Care (HE)	*66.9857*	*1.631*	*101.6696*	*10.2814*	*353.9765*
2001	113.3614	0.108	0.0000	113.3614	113.3614
2002	74.9808	0.527	91.4987	10.2814	139.6801
2003	182.1290	0.553	243.0291	10.2814	353.9765
2004	182.1290	0.774	243.0291	10.2814	353.9765
Panel E: Health Care (HE)					
2005	31.1713	0.859	29.5428	10.2814	52.0613
2006	31.3551	0.854	29.8028	10.2814	52.4289
2007	27.0100	0.911	23.6578	10.2814	43.7386
2008	30.3642	0.945	28.4013	10.2814	50.4469
2009	32.2580	0.816	31.0797	10.2814	54.2347
2010	29.8415	0.793	27.6621	10.2814	49.4015
2011	25.4306	0.973	21.4242	10.2814	40.5798
Panel F: Industrials (IN)	*117.6374*	*0.339*	*119.3234*	*10.2814*	*353.9765*
2001	144.7249	0.317	127.6293	10.2814	353.9765
2002	152.7256	0.452	145.1397	10.2814	353.9765
2003	150.1722	0.529	144.1919	10.2814	353.9765
2004	132.3374	0.555	128.4526	10.2814	353.9765
2005	139.6725	0.746	127.1141	10.2814	332.6261
2006	191.7362	1.525	165.1179	10.2814	353.9765
2007	114.1200	0.021	114.2377	10.2814	305.2233
2008	94.7738	0.575	85.8422	10.2814	263.2242
2009	68.1724	0.930	77.8121	10.2814	280.9386
2010	65.8213	0.885	65.3918	10.2814	241.3958
2011	61.0357	1.302	73.5439	10.2814	276.8130
Panel G: Oil and Gas (OG)	*10.2814*	*2.685****	*0.0000*	*10.2814*	*10.2814*
2001	10.2814	0.811	0.0000	10.2814	10.2814
2002	10.2814	0.822	0.0000	10.2814	10.2814
2003	10.2814	0.821	0.0000	10.2814	10.2814
2004	10.2814	0.776	0.0000	10.2814	10.2814
2005	10.2814	0.777	0.0000	10.2814	10.2814
2006	10.2814	0.758	0.0000	10.2814	10.2814
2007	10.2814	0.768	0.0000	10.2814	10.2814
2008	10.2814	0.822	0.0000	10.2814	10.2814
2009	10.2814	0.760	0.0000	10.2814	10.2814
2010	10.2814	0.725	0.0000	10.2814	10.2814
2011	10.2814	0.810	0.0000	10.2814	10.2814
Panel H: Telecommunications (TE)	23.0472	2.127**	13.4497	10.2814	49.4983
2001	0.0000	0.000	0.0000	0.0000	0.0000
2002	0.0000	0.000	0.0000	0.0000	0.0000
2003	0.0000	0.000	0.0000	0.0000	0.0000
2004	0.0000	0.000	0.0000	0.0000	0.0000
2005	34.3780	0.581	0.0000	34.3780	34.3780
2006	18.5154	0.698	0.0000	18.5154	18.5154
2007	10.2814	0.768	0.0000	10.2814	10.2814
2008	21.1068	0.739	0.0000	21.1068	21.1068
2009	20.1577	0.678	0.0000	20.1577	20.1577
2010	29.8898	0.792	27.7305	10.2814	49.4983
2011	21.6030	1.017	16.0112	10.2814	32.9246
Panel I: Utilities (UT)	157.1058	1.886*	141.5015	10.2814	353.9765
2001	122.7292	0.062	40.9681	93.7603	151.6980
2002	83.7225	0.446	9.4772	77.0212	90.4239
2003	85.1984	0.399	32.5942	62.1508	108.2460
2004	159.0428	0.654	170.0435	41.1943	353.9765
2005	169.1482	0.822	165.2252	35.7676	353.9765
2006	123.4821	0.122	123.6929	26.9004	262.8988
2007	142.3548	0.354	183.9073	21.2440	353.9765
2008	195.0500	1.086	184.3641	14.4459	353.9765

Continuation: Table 30	Mean	T-Test	Std. Dev	Minimum	Maximum
Panel I: Utilities (UT)					
2009	194.8495	1.385	184.9145	10.2814	353.9765
2010	169.5615	1.110	168.1427	10.2814	353.9765
2011	184.5919	1.063	195.6299	10.2814	353.9765

Notes: The t-test in column 3 is the independent samples t-test for equality of means. The mean differences in Panels *A, B, C, E, F, G, H* and I test for equality means between basic materials, consumer goods, consumer services, financials, health care, industrials, oil and gas, telecommunications, utilities and financial firms, respectively. A mean difference with (***), (**) and (*) indicates that the null hypothesis that the means are equal is rejected at the 1%, 5%, and 10%, respectively. Std. Dev denotes standard deviation.

Table 30 presents descriptive statistics for the nine industries based on total debt ratio. It indicates that Omani firms in basic materials, consumer goods, consumer services, financials, health care, industrials, oil and gas, telecommunications and utilities firms use 100%, 135%, 71%, 113%, 67%, 118%, 10%, 23% and 157% debt financing in their CSs. Furthermore, the independent samples t-test for equality of means between financial firms and firms operating in basic materials, consumer goods, consumer services, oil and gas telecommunications and utilities industries rejects the null hybothesis that the means are equal at least at the 10% significance level. Figure 6 presents a comparison of the leverage levels across the nine industries using calculated means of the *FCS*. It shows that utilities firms tend to have higher levels of leverage, followed by consumer goods and industrials firms. This may be explained by the fact that utilities firms are involved in huge projects, especially in countries like Oman, which are still developing their infrastructure, which necessitates more debt financing than other firms. Consumer goods and industrials firms are also motivated by the Omani market to invest in large projects, as the country looks forward to becoming self-sufficient, which requires such firms to be highly leveraged in order to finance their investments.

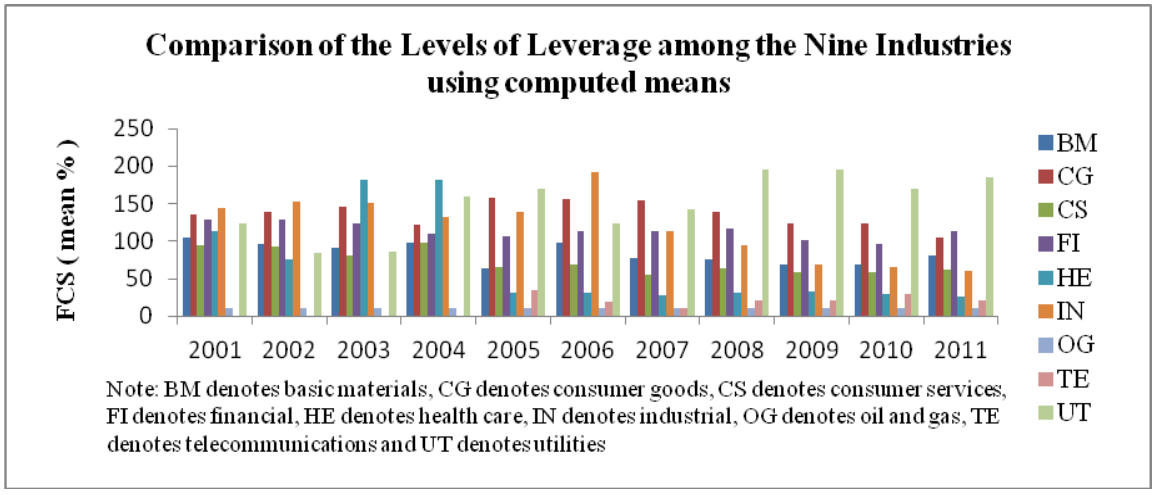

Figure 6: Total Debt Levels by Industry

5.2.2 Descriptive Statistics: The Choice of Financing

As reported in Table 29, the *EISSUE* ranges from a minimum of 0.00 to a maximum of 1.00, with an average of 0.23. The lower value of the *EISSUE*'s mean supports the CS descriptive statistics that Omani firms prefer to issue debt financing rather than equity capital. The standard deviation of the *EISSUE* is 0.42, indicating that there is substantial variation in the *EISSUE* among Omani listed firms. According to the Pearson's parametric correlation coefficients, the *EISSUE* is positively and significantly associated with the *OCGI*, board size, audit firm size, CG committee, profitability, firm size and tangible assets, whereas block ownership and business risk are negatively and significantly associated with the *EISSUE*. This is initial evidence that firms with better CG compliance tend to issue equity rather than debt, as both the *OCGI* and *CGCOM* show a significant and positive relationship with the *EISSUE*. Similar to CS, the skewness (1.2541) and kurtosis (2.5728) statistics suggest that the null hypothesis that the *EISSUE* is not symmetrically and mesokurtically distributed is accepted. In addition, Table 31 classifies Omani listed firms based on capital issuance. It illustrates that there are 1,152 firm-year observations over the period 2001 to 2011. A total of 103 firm-year observations (9%) had to be excluded as firms either issues both equity and debt or did not issue equity or debt. This leaves the sample with 1,049 firm-year observations over 11 years, with more concentrated in the year 2010 (115 firm-year observations).

Table 31: Classification of Omani listed firms based on capital issuance

Year	Equity issuance	Debt issuance	Equity & Debt	No Equity or Debt	Total Firms
2001	9	78			95
2002	12	72			96
2003	4	84			97
2004	11	90			102
2005	11	80			94
2006	14	81			104
2007	16	84			112
2008	24	75			113
2009	12	93			114
2010	14	87			115
2011	13	85			110
Total firms	140	909	67	36	**1152**
Less: Firms issuing equity and debt					(67)
Firms do not issue equity and debt					(36)
Total Firm-year observations					**1049**

Figure 7 exhibits the annual equity and debt issuances of Omani listed firms across all years. It is observed that the highest percentage of firms issuing equity was in 2008, with 21% (24 out of 113), and equity issuance was lowest in 2003, with 4% (4 out of 97). In contrast, debt

issuance was highest in 2009, with 82% (93 out of 114), and lowest in 2002, with 75% (72 out of 96). This indicates that debt issuance is a more popular choice among Omani listed firms, as only 13% of the firms (140 out of 1049) chose equity issuance, which is consistent with prior studies that report that firms tend to issue debt more than equity in financing their investments (e.g., Bhojraj and Sengupta, 2003; Mande *et al.*, 2012).

Figure 7: Annual Equity and Debt issuances among Omani listed Firms

Table 32 presents a comparison between firms issuing equity and those who are issuing debt based on mean, standard deviations, minimum and maximum.

Table 32: Summary descriptive statistics of equity issuance model

Issuance	Firms issuing equity (140)				Firms issuing debt (909)			
Variable	Mean	Std.Dev	Minim	Maxi	Mean	Std.Dev	Minim	Maxi
OCGI	50.00	20.00	1.00	85.00	47.00	22.00	1.00	89.00
GOVOWN	0.03	0.08	0.00	1.00	0.06	0.14	0.00	1.00
INSOWN	19.00	21.00	0.00	89.00	20.00	23.00	0.00	90.00
FOROWN	12.00	20.00	0.00	75.00	10.00	20.00	0.00	99.00
BLKOWN	56.00	50.00	0.00	74.00	55.00	30.00	0.00	99.00
BSIZE	7.39	2.00	4.00	12.00	7.35	2.00	4.00	13.00
BIG4	0.70	0.01	0.00	1.00	0.71	0.05	0.00	1.00
CGCOM	0.17	0.01	0.00	1.00	0.16	0.04	0.00	1.00
GROWTH	0.16	0.06	0.14	1.60	0.15	0.33	15.00	1.82
ROA	0.05	0.06	-0.10	0.21	0.06	0.08	-0.10	0.21
LNTA	17.00	2.00	14.45	19.86	16.00	2.00	13.00	19.86
TNGAS	41.00	31.00	10.00	92.00	49.00	30.00	12.00	91.00
DIVPO	0.05	0.01	0.23	0.75	0.06	0.01	0.31	0.79
BSRK	0.03	0.04	0.00	0.06	0.04	0.03	0.00	0.09

Notes: *OCGI* denote the Oman CG index, *GOVOWN*, *INSOWN*, *FOROWN* and *BLKOWN* denote government, institutional, foreign and block ownerships, *BSIZE* denotes the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes CG committee, *GROWTH* denotes firm growth, *ROA* denotes firm profitability, *LNTA* denotes firm size, *TNGAS* denotes tangible assets, *DIVPO* denotes dividend policy, *BSRK* denotes business risk.

Table 32 shows that the *OCGI* is larger for firms issuing equity (mean value = 50.00) than for those issuing debt (mean value = 47.00). The *OCGI*'s mean value for firms issuing equity supports the hypothesis that firms with better CG tend to issue equity rather than debt in financing their investment opportunities (Mande *et al.*, 2012). There are also relative differences in CG measures and other firm characteristics. First, firms issuing equity tend to have larger boards (7.39 versus 7.35), more CG committees (0.17 versus 0.16) and a lower ratio of government ownership (0.03 versus 0.06). Second, firms issuing debt have a higher ratio of institutional ownership (0.20 versus 0.19), a lower ratio of foreign ownership (0.10 versus 0.12) and are more likely to be audited by one of the big four audit firms (0.71 versus 0.70). Third, firms issuing equity are larger (17.00 versus 16.00), have higher growth prospects (16.00 versus 15.00) and are less risky (0.03 versus 0.04). Finally, firms issuing debt have more tangible assets (0.49 versus 0.41), are more profitable (0.06 versus 0.05) and pay more dividends (0.06 versus 0.05). Consistent with the above discussion, the descriptive statistics suggest that CG variables play a role in influencing Omani listed firms to issue equity or debt in order to meet their external financing needs.

6 EMPIRICAL RESULTS AND DISCUSSION

This section discusses the empirical results. It seeks to achieve two main objectives. First, it examines whether there is a statistically significant relationship between CG as measured by CG index and CS as measured by total debt ratio. Second, it investigates whether there is a statistically significant association between CG as measured by CG index and the choice of financing as proxied by equity issuance. Thus, this section is divided into two subsections. The results obtained from the OLS regression to test Hypotheses 1 through 8 are reported and discussed in Subsection 6.1, whereas the results obtained from logistic regression to examine Hypotheses 9 through 16 are presented and analysed in Subsection 6.2.

6.1 EMPIRICAL RESULTS: CAPITAL STRUCTURE

This subsection presents and discusses the empirical results regarding the *FCS* determinants. Specifically, it reports the extent to which a broad composite CG index, corporate ownership structure and corporate board/audit characteristics can explain observable changes in firm-level CS. Table 33 provides a summary of hypotheses (1 to 8) and results to facilitate comparison, and Table 34 reports details of these results. Four analyses are presented in Table 34 to demonstrate the individual impact of CG index, ownership structure and board/ audit characteristics, as well as the collective influence of all CG variables on the *FCS*. Only CG index, in addition to control variables, was examined in the first analysis, in order to see its effect on the *FCS* separate from other CG variables; the results of this analysis are reported in Columns 3 and 4 of Table 34. The *F-Stat*, which is statistically significant at the 1% significance level, rejects the null hypothesis that the estimated coefficients of CG index and control variables are equal to zero. The model is able to explain about 66% of the changes in the *FCS* as indicated by the adjusted R^2. The coefficients on CG index, profitability and dividend policy have a negative relationship with the *FCS*, at least at the 5% significance level, whereas firm size have a significant and positive association. In contrast, growth, tangible assets and business risk have an insignificant relationship with the *FCS*. Second, ownership structures were tested separately from other CG variables to examine their individual effects on the *FCS*; the results of this analysis are reported in Columns 5 and 6 of Table 34. The null hypothesis that the coefficients of ownership variables, in addition to control variables, are equal to zero is rejected, as the probability of *F-Stat* is statistically significant at the 1% level of significance. The adjusted R^2 is 0.65, indicating that approximately 66% of variability in the *FCS* is jointly explained by these variables. Although the sign of ownership variables is in line with their predicted significance, except for block and government and ownerships, all of them have insignificant relationships with the *FCS*.

In contrast, a number of control variables have a significant impact on the *FCS*. Firm size is significantly and positively associated with the *FCS*, while profitability and dividend policy are significantly and negatively correlated with the *FCS*. Board and audit characteristics along with control variables were examined in the third analysis to investigate their impact separately from other CG variables. Columns 7 and 8 of Table 34 report the results of this analysis, and indicate that the alternative hypothesis that the coefficients of board size, audit firm size, CG committee and control variables are not equal to zero is accepted, as the probability of *F-Stat* is statistically significant at the 1% level of significance. The adjusted R^2 is 0.66, suggesting that these variables jointly explain 66% of variability in the *FCS*. The analysis shows that audit firm size, CG committee, profitability and dividend policy each have a significant and negative association with the *FCS*, whereas firm size have a significant and positive relationship. In contrast, board size, growth, tangible assets and business risk have no significant effect on the *FCS*.

The results of multivariate regression of the *FCS* on eight CG variables and the control variables are presented in Columns 9 and 10 of Table 34 as a final analysis in order to observe the joint effect of all CG variables on the *FCS*. The study rejects the null hypothesis that the estimated coefficients of explanatory and control variables are equal to zero because of the *F-Stat*, which is statistically significant at the 1% significance level. The 66% of variability in the *FCS* is jointly explained by these variables, as indicated by the adjusted R^2. Overall, CG index, audit firm size and the presence of a CG committee each have a statistically significant and negative relationship with the *FCS*. In contrast, ownership variables and board size are statistically insignificantly associated with the *FCS*. The inclusion of all CG variables shows that the signs of all the coefficients remain unchanged from the first, second and third analysis, with little change in the level of significance and magnitude. For instance, CG index and CG committee, which were statistically significant at 5% and 1% levels, are now statistically significant at 10% and 5%, respectively. These changes are expected as a result of the interrelationships between all variables. Further discussion of these results is provided in the following subsections. In particular, the empirical results of CG variables are discussed in Subsection 6.1.1, and Subsection 6.1.2 discusses the empirical results related to control variables.

Table 33: A summary of all hypotheses and findings for the relationship between capital structure and corporate governance

Dependent variable			Firm capital structure (FCS)											
Explanatory variables			OCGI			Ownership variables			Board/Audit variables			All		
Governance Variables	Hyp. No	Expect-ed sign	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status
Government ownership	1	+				-	Insignificant	Rejected				-	Insignificant	Rejected
Institutional ownership	2	-				-	Insignificant	Rejected				-	Insignificant	Rejected
Foreign ownership	3	-				-	Insignificant	Rejected				-	Insignificant	Rejected
Block ownership	4	-				+	Insignificant	Rejected				+	Insignificant	Rejected
Omani CGI	5	-	-	Significant (5%)	Accepted							-	Significant (10%)	Accepted
Board size	6	-/+							-	Insignificant	Rejected	-	Insignificant	Rejected
CG committee	7	-							-	Significant (1%)	Accepted	-	Significant (5%)	Accepted
Audit firm size	8	-							-	Significant (10%)	Accepted	-	Significant (10%)	Accepted

Note: Column 1 presents the eight variables that are represented the tested hypotheses. Columns 2 to 12 present information relating to hypotheses one to eight with regard to the impact of corporate governance on capital structure.

Table 34: The relationship between capital structure and corporate governance

Independent variables	Ex.Sig	OCGI Coef.	OCGI Sign	Ownership variables Coef.	Ownership variables Sign	Board/Audit variables Coef.	Board/Audit variables Sign	All Coef.	All Sign
Panel A: CG variables									
OCGI	-	-0.4327	0.0133**	-	-	-	-	-0.3218	0.0701*
GOVOWN	+	-	-	-0.6742	0.1668	-	-	-0.5379	0.2760
INSOWN	-	-	-	-0.0819	0.7346	-	-	-0.0614	0.8018
FOROWN	-	-	-	-0.1595	0.5797	-	-	-0.1340	0.6373
BLKOWN	-	-	-	0.1462	0.5928	-	-	0.0744	0.7842
BSIZE	-/+	-	-	-	-	-2.9417	0.3183	-2.6574	0.3735
BIG4	-	-	-	-	-	-14.7656	0.0757*	-14.2975	0.0877*
CGCOM	-	-	-	-	-	-22.4803	0.0079***	-18.0108	0.0352**
Panel B:Control variables									
GROWTH		-0.0197	0.7671	-0.0106	0.8698	-0.0121	0.8550	-0.0011	0.9861
ROA		-198.3216	0.0000***	-197.8174	0.0000***	-197.2871	0.0000***	-195.5175	0.0000***
LNTA		20.0832	0.0040***	20.0306	0.0044***	21.5998	0.0015***	22.5801	0.0010***
TNGAS		-0.1492	0.4088	-0.1388	0.4418	-0.1569	0.3806	-0.1469	0.4123
DIVPO		-37.3017	0.0158**	-37.7818	0.0134**	-37.6399	0.0135**	-35.5215	0.0183**
BSRK		24.9899	0.7785	17.9443	0.8396	26.9219	0.7621	31.0842	0.7269
2001		-8.8435	0.5811	10.0638	0.4578	8.9656	0.5171	-5.3534	0.7379
2002		-1.1016	0.9306	13.7124	0.2363	13.0835	0.2657	1.5490	0.9016
2003		8.8326	0.3307	17.5378	0.0520*	17.0457	0.0612*	10.4105	0.2500
2004		5.0169	0.4933	7.8060	0.2832	7.3442	0.3137	5.0251	0.4830
2006		1.2011	0.8460	-0.0253	0.9967	-0.7424	0.9036	0.1859	0.9758
2007		-6.1424	0.4639	-8.7302	0.3009	-9.8468	0.2410	-8.1554	0.3280
2008		-19.1412	0.0507**	-22.2925	0.0254**	-22.6974	0.0203**	-20.7669	0.0316**
2009		-25.1430	0.0073***	-28.8247	0.0028***	-29.3156	0.0019***	-26.9868	0.0034***
2010		-31.7471	0.0014***	-35.5872	0.0006***	-35.3971	0.0004***	-32.8806	0.0007***
2011		-34.7840	0.0021***	-41.8198	0.0005***	-37.8655	0.0008***	-37.7748	0.0008***
Basic materials		-1.6796	0.9564	0.7594	0.9804	-8.8742	0.7574	1.2876	0.9656
Consumer services		-28.3537	0.3047	-31.0486	0.2774	-31.8561	0.2124	-26.3853	0.3440
Consumer goods		47.7609	0.1094	40.1612	0.1784	43.9628	0.1093	45.2694	0.1132
Financials		2.8443	0.9316	-1.7004	0.9592	4.8828	0.8718	6.4809	0.8388
Health care		-0.5961	0.9886	3.3515	0.9383	-3.4895	0.9317	0.4038	0.9925
Industrials		20.6124	0.4281	14.6316	0.5742	17.6065	0.4560	20.8170	0.4126
Telecommunications		-77.6360	0.0258**	-60.0079	0.1648	-82.8478	0.0177**	-62.6788	0.1422
Utilities		49.6327	0.2628	54.6716	0.2361	54.2037	0.2029	60.7700	0.1698
Constant		-167.4461	0.1344	-188.2159	0.1029	-177.3239	0.1138	-185.3337	0.1096
Adj. R^2		0.6586		0.6575		0.6603		0.6607	
F-Stat		86.3509***		77.1545***		80.8572***		68.8730***	
Durbin-Watson Stat.		2.1506		2.1471		2.1421		2.1411	
Number f observations		1152		1152		1152		1152	

Notes: Variables are defined as follows: Omani CG index (OCGI) is un-weighted CG index. Government ownership (GOVOWN), institutional ownership (INSOWN) and foreign ownership (FOROWN) are measured as percentage of government, institutional and foreign ownership to total firm ordinary shareholdings. Block ownership (BLKOWN) is measured as percentage of shares held by shareholders with at least 5% of the total firm shareholdings. Board size (BSIZE) is measured by the total number of directors on the firm's board. Audit firm size (BIG4) is measured as dummy variable where a firm takes 1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise. The presence of corporate governance committee (CGCOM) is measured as dummy variable where a firm takes 1 if a firm has set up a corporate governance committee, 0 otherwise. Growth (GROWTH) is measured by Tobin's Q. Profitability (ROA) is measured as operating profit to total assets. Firm size (LNTA) is measured by natural log of total assets.Tangible assets (TNGAS) is measured as fixed assets divided by total assets. Dividend policy (DIVPO) is measured as dividends per share divided by earnings per share. Business risk (BSRK) is measured as standard deviation of earnings before interest and taxes to total assets. In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry are excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

6.1.1 Empirical Results of Corporate Governance Variables

Panel *A* of Table 34 reports the empirical results of CG variables, including CG index, ownership variables and board and audit characteristics. First, the coefficient on government ownership is negative and statistically insignificant, so *H1*, which postulates that there is a statistically significant positive association between firm-level CG and the *FCS* can be rejected. This means that the presence of the state as a major investor has no explanatory power in explaining the variations in the *FCS*, which is contrary to the current study's prediction that government ownership drives CS. Theoretically, the negative coefficient on government ownership is consistent with the prediction that managers tend to carry debt at a sub-optimal level in order to enjoy free available cash, as their positions are guaranteed by the state. The negative influence of government ownership is further supported by the view that the market for corporate control does not seem to be effective in encouraging managers in such firms to use optimal levels of debt, because they have greater support from the major long-term investor, the government, and use this power to protect themselves from a variety of risks. Empirically, this result lends empirical support to the result reported by Hussainey and Aljifri (2012), who document no significant effect of government ownership on the *FCS*. In contrast, this result is inconsistent with prior empirical evidence (e.g., Gul, 1999; Al-Sakran, 2001; Dewenter and Malatesta, 2001; Li *et al.*, 2009; Liu *et al.*, 2011) that government ownership has a significant and positive relationship with the *FCS*.

Second, the coefficient on institutional ownership is negative and statistically insignificant. This leads the study to reject *H2*, that institutional ownership is significantly and negatively associated with the *FCS*. This result implies that large institutional investors have no impact on the *FCS*, which is not in line with the prediction that institutional investors may tend to use debt financing as a CG mechanism to reduce managers' ability to engage in excessive perquisite consumption, by forcing them to employ higher level of leverage. The inverse relationship between institutional ownership and the *FCS* is consistent with the theoretical prediction that the higher communication and monitoring that large institutional investors have making them less relying on using debt financing to reduce agency problems. Empirically, this result offers support to the Al-Fayoumi and Abuzayed's (2009) study that report that institutional ownership is not significantly correlated with the *FCS*, but contrasts with other studies (e.g., Michaely and Vincent, 2012; Hsu and Wang, 2013) that document a significant negative relationship between the percentage of ownership held by institutional investors and firm-level CS.

Third, the model finds a statistically insignificant and negative association between foreign ownership and the *FCS*. This suggests that *H3*, that foreign ownership and the *FCS* are significantly and negatively associated, is rejected. This result reveals that foreign ownership has no significant impact on firm-level CS, which is contrary to the expectation that foreign investors may tend to force firms to employ higher levels of leverage as a governance device. Theoretically, the negative association between the two variables is consistent with the prediction that firms with a large proportion of foreign ownership might not need to use more debt to mitigate agency problems because foreign investors act as a substitute mechanism for debt. Empirically, this result supports Zou and Xiao's (2006) evidence that foreign ownership has no significant impact on the CS of Chinese firms. However, this result differs from prior studies (e.g., Gurunlu and Gursoy, 2010) that report a significant and negative relation, as well as those (e.g., Le and Phung, 2013) that report a significant and positive association.

Fourth, the coefficient on block ownership is positive and statistically insignificant, so the current study rejects *H4*, that block ownership is significantly and negatively associated with the *FCS*. This result indicates that block ownership has no explanatory power in explaining the variability in the *FCS*, which rejects the current study's expectation that block ownership can determine the level of leverage, as about 55% of firms' shares are held by block holders. Theoretically, the positive coefficient on block ownership is consistent with the prediction that managers in firms with high levels of block ownership may be forced by block holders to use higher debt levels in order to act in line with their interests. This result does not lend empirical support to prior studies (e.g., Wiwattanakantang, 1999; Suto, 2003) reporting that block ownership and debt ratio are negatively associated, and other studies (e.g., Sheikh and Wang, 2012; Ganguli, 2013) that document a significant and positive relation. In contrast, it lends empirical support to the view that block holders use debt as a CG mechanism to discipline managers.

Fifth, unlike the ownership variables examined in this study, the *OCGI*, which is the main variable, has a significant relationship with firm-level CS. In particular, the coefficient on the *OCGI* is negative and statistically significant at the 10% level of significance, suggesting that *H5* is empirically supported. Quantitatively, holding all the other variables within the model constant, the result suggests that an increase a 10% in the *OCGI* will result in a 0.322 decrease in the use of total debt in financing firms' operations. This result lends empirical support to AT's assumption that CG is a significant determinant of CS. It shows that firms with better CG tend to employ lower levels of leverage than those with poor CG structures. The significant negative association between the *OCGI* and the *FCS* is consistent with the theoretical prediction that firms with poor

CG use higher levels of leverage as a substitute for CG, to discipline managers to act in line with shareholders' interests. Empirically, this result is in line with prior studies (e.g., Jiraporn and Gleason, 2007; Florackis and Ozkan, 2009; Rijal and Bahadur, 2010; Haque *et al.*, 2011; Jiraporn *et al.*, 2012) that report evidence that leverage and governance are inversely associated.

Sixth, board size is found to be statistically insignificant and negatively associated with the *FCS*. This leads the study to reject *H6*, that board size has a statistically significant relationship with the *FCS*. The negative relationship between board size and the *FCS* is in line with the theoretical prediction that larger boards may not need to use debt as a control mechanism because they have a diversity of experience and skills that enables them to effectively mitigate agency problems. Empirically, this result lends empirical support to Hussainey and Aljifri's (2012) evidence that firm board size has no significant impact on the *FCS*. In contrast, this result is contrary to previous empirical studies (e.g., Al-Najjar and Hussainey, 2011) that report a significant and negative relation, and other prior studies (e.g., Sheikh and Wang, 2012) that document a significant and positive association.

Seventh, in consistent with the *OCGI*'s result variable, the presence of a CG committee is found to be statistically significant and negatively correlated to the *FCS* at the 5% level of significance, indicating that *H7* is empirically supported. This result suggests that firms with CG committees tend to use less leverage than those that do not set up CG committees. It is in line with the theoretical prediction that because CG committees ensure that CG provisions adopted by the firm are followed, firms that establish CG committees are expected to implement better CG mechanisms and thus reduce managerial-self interest instead of using debt financing as a substitute mechanism for CG. The CG committee-CS relation has not been examined in the literature; this study offers empirical evidence showing that CG committee is a significant determinant of firm-level CS.

Finally, the model shows that audit firm size has a significant impact on the *FCS*. In particular, the coefficient on audit firm size is negative and statistically significant at the 10% level of significance, suggesting that *H8* is empirically supported. This result implies that firms audited by larger audit firms tend to use lower levels of leverage. Theoretically, this result in line with the prediction that because large audit firms are better able to reduce information asymmetries, moral hazard and adverse selection problems than small audit firms, firms audited by larger audit firms may not need to use high levels of leverage as a CG mechanism to reduce the level of asymmetric information. This result offers empirical evidence to the limited international evidence on the effect of audit firm size on CS. It is not in line with Hussainey and

Aljifri (2012), who report that the quality of external auditors has no significant influence on the *FCS*.

6.1.2 Empirical Results of Control Variables

The empirical results related to control variables are presented in Panel *B* of Table 34. The coefficient on firm size is positive and statistically significant at the 1% level of significance. The positive relation between firm size and the *FCS* is consistent with the theoretical prediction that large firms tend to employ more leverage than small firms because they are more diversified, motivated to benefit from tax shields, less subject to bankruptcy risk, and have large tangible assets and better access to credit markets. This result lends empirical support to prior studies (e.g., Noulas and Genimakis, 2011; Dang, 2013) that document a positive association between firm size and the *FCS*. The positive relation between the *FCS* and firm size is in line with Omet and Mashharawe's (2002) and Sbeiti's (2010) studies conducted in the Omani context.

The coefficient on profitability and dividend policy is negative and statistically significant at the 1% and 5% levels, respectively. These results indicate that profitable firms and firms with higher dividend payments tend to employ lower levels of leverage. Theoretically, the result for profitability supports the view that profitable firms employ less leverage because they have more retained earnings than non-profitable firms. The negative coefficient of dividend policy is in line with theoretical predictions that firms with higher dividend payments tend to employ lower levels of leverage because they mitigate agency costs associated with free cash flow available to managers by using dividend payments as a substitute mechanism for debt financing. The significant negative results for both variables are consistent with previous studies (e.g., Feidakis and Rovolis, 2007; Al-Ajmi *et al.*, 2009) that report evidence that profitability and the *FCS* are negatively associated, and those (e.g., Frank and Goyal, 2009; Jiraporn *et al.*, 2012) that provide evidence that dividend policy has a negative impact on the *FCS*. The negative effect of profitability on the *FCS* is consistent with the evidence reported by Omet and Mashharawe (2002) and Sbeiti (2010), who conducted their analyses in Oman.

Unlike the control variables mentioned above, the model finds a statistically insignificant association between the *FCS* and growth, tangible assets and business risk. The results for these variables are contrary to the theoretical predictions that growth, tangible assets and business risk are significant determinants of CS. The coefficient on tangible assets is negative, lending empirical support to Sbeiti's (2010) finding of an insignificant relationship between tangibility and leverage among Omani listed firms. The result for business risk shows that business risk has a positive relationship with the *FCS*, providing empirical support to prior studies (e.g., Al-Fayoumi and Abuzayed, 2009; Frank and Goyal, 2009) that provide empirical evidence of no

significant relation between the two variables. Finally, an examination of the estimated coefficients on year and industry dummies shows that years 2008 to 2011 have significant explanatory powers in explaining variations in the *FCS*. The coefficients on these variables are negative and statistically significant at least at the 5% level of significance. These results lend empirical support to past studies (e.g., Benkraiem and Gurau, 2013) that suggest that the *FCS* changes over time.

To sum up, in light of continuing debate in the literature on CG as an influential factor of corporate policy decisions, this study provides empirical evidence that CG is a significant determinant of the *FCS*. Unlike most prior studies, and in response to recent calls in the literature, the impact of CG on the *FCS* has been examined using a CG index rather than individual CG mechanisms. This study also considers determinants that have not been widely investigated in the literature, such as government ownership and CG committee. This subsection has discussed the impact of CG on the *FCS* among Omani listed firms during the period 2001 to 2011. It reported the extent to which the *OCGI*, ownership structure and board/audit characteristics are able to explain variations in firm-level CS. The results of this examination are reported in Tables 33 and 34, and are largely in line with theoretical and empirical literature. First, the results suggest that ownership variables, namely government ownership, institutional ownership, foreign ownership and block ownership, have an insignificant relationship with the *FCS*. This implies that shareholders' rights are not significant determinants of firm-level CS. Second, the model finds a statistically significant negative association between firm-level CG and the *FCS*. Third, the results reveal that board size has no significant impact on the *FCS*. Fourth, the results suggest that audit firm size and the *FCS* are significantly and negatively associated. Finally, the results indicate that the presence of a CG committee has a significant negative influence on the *FCS*.

6.2 EMPIRICAL RESULTS: THE CHOICE OF FINANCING

As indicated in Section 1, the second objective of the current study is to examine the extent to which firm-level CG drives the choice of financing, namely equity issuance. Thus, this Subsection presents the logistic regression results on the relationship between CG mechanisms and the *EISSUE* (hypotheses nine to sixteen). Tables 35 and 36 illustrate a summary of these results and the logistic regression results, respectively. In particular, Table 36 reports the results of the four analyses that examine the potential reaction of the *EISSUE* to: individual influence of CG index (Columns 3 and 4), ownership variables (Columns 5 and 6), board/audit variables (Columns 7and 8) and the joint effect of all CG variables (Columns 9 and 10). In the first analysis, the *EISSUE* was regressed on only CG index along with control variables in order to observe the *OCGI*' influence separately from other CG variables, such as board size, audit firm

size and CG committee. The results indicate that the alternative hypothesis that the estimated coefficients of the *OCGI* and control variables are not equal to zero is accepted as the *LR-Stat* is statistically significant at 1% level of significance. The McFadden *R-squared* indicates that 14% of variability in the *EISSUE* is jointly explained by these variables. This model predicts that the *OCGI*, growth, tangible assets and business risk are significant determinants of the *EISSUE*. The second analysis examines the individual impact of ownership variables in addition to control variables on the *EISSUE*. The *LR-Stat* is statistically significant at 1% level of significance suggesting that the null hypothesis that the estimated coefficients of the ownership and control variables are equal to zero is rejected. The 14% of observable changes in firm-level *EISSUE* is explained by this model as indicated by the McFadden *R-squared*. The results of this analysis show that government ownership, institutional ownership, growth, profitability, firm size, and business risk have significant association with the *EISSUE*. In the third analysis, board and audit characteristics were examined separately from other CG variables to test their individual effects on the *EISSUE*; the results of this analysis indicate that the null hypothesis that the coefficients of these variables, in addition to control variables, are equal to zero is rejected, as the probability of the *LR-Stat* is statistically significant at the 1% level of significance. The McFadden *R-squared* indicates that approximately 14% of variability in the *EISSUE* is jointly explained by these variables. This analysis's results show that board and audit characteristics have no significant effects on the *EISSUE*, while growth, profitability, firm size, tangible assets and business risk each is significantly associated with the *EISSUE*.

The final analysis accounts for all CG variables in order to investigate the collective influence of a CG index, ownership variables, board size, audit firm size and CG committee on the *EISSUE*. The current study accepts the alternative hypothesis that the coefficients of eight CG and control variables are different from zero, as the *LR-Stat* is statistically significant at the 1% level of significance. The McFadden *R-squared* suggests that 15% of the variability in the *EISSUE* is jointly explained by these variables. The results of logistic regression of eight CG variables and control variables indicate that variables that have been predicted to be significant by the above analyses are still significant. The *OCGI*, government ownership, institutional ownership, growth, firm size, and business risk are significantly associated with the *EISSUE*, at least at the 10% level of significance. Because all variables are included, the level of significance of some variables changed, but the signs of all the coefficients remain unchanged. For instance, the coefficient on institutional ownership becomes statistically significant at 10%, whereas previously it was statistically significant at the 5% level. These changes are caused by the interrelated relationships between all variables. The following two subsections discuss these

results further. Subsection 6.2.1 discusses the empirical results of CG variables, while the control variables' results are discussed in Subsection 6.2.2.

6.2.1 Empirical Results of Corporate Governance Variables

Panel *A* of Table 36 reports empirical results of CG index, ownership variables, board size, audit firm size and CG committee. First, the coefficient on government ownership is negative and statistically significant at the 10% level, which leads the study to accept *H9*, that there is a statistically significant negative association between government ownership and the *EISSUE*. This indicates that firms with a large percentage of government ownership will be less likely to choose equity over debt. Theoretically, the significant negative impact of government ownership is in line with ATs' prediction that firms with greater government ownership tend to use debt financing to reduce the conflict of interest between shareholders and managers, as such firms suffer from asymmetric information more than non-government firms. This is further supported by the fact that the existence of large government ownership motivates managers to issue debt over equity, because they can borrow from the state at lower rates (Friend and Lang, 1988). The potential influence of government ownership on the *EISSUE* has not yet been empirically investigated in literature.

Second, the coefficient on institutional ownership is positive and statistically significant. Hence, the present study accepts *H10*, that institutional ownership has a statistically significant positive relationship with the *EISSUE* at the 10% level of significance. This means that firms with large proportion of institutional investors prefer equity issuance over debt financing to finance their activities. The positive influence of institutional ownership is consistent with the theoretical prediction that firms with large institutional ownership, where equity issuance is less costly, as institutional holdings reduce information asymmetry, may be motivated to issue equity over debt in order to attract new investors, who will not need to collect costly private information (Smith, 1976; Chung *et al*., 2002; Bos and Donker, 2004). This result lends empirical support to prior studies (e.g., Brous and Kini, 1994; Mande *et al*., 2012) that report evidence that firms with a large percentage of institutional ownership tend to make equity issuance decisions.

Third, the model predicts an insignificant relationship between foreign ownership and the *EISSUE*. This leads the current study to reject *H11*, that the relationship between foreign ownership and the *EISSUE* is statistically significant. This result implies that foreign ownership has no explanatory power in explaining the variations in the *EISSUE*. The negative association between foreign ownership and the *EISSUE* is in line with AT's prediction that foreign shareholders may force firms to issue debt instead of equity because debt is considered a governance device that assists foreign shareholders to mitigate information asymmetry associated

with foreign ownership (Huafang and Jianguo, 2007; Le and Phung, 2013). Further, firms with a large percentage of foreign ownership may tend to issue debt because they can easily access international capital markets, taking advantage of foreign investors' reputations and relationships. Empirically, prior studies do not consider foreign ownership as a potential determinant when investigating the factors that may drive the choice of financing.

Fourth, the coefficient on block ownership is negatively related to the *EISSUE*, but it is not statistically significant. Thus, *H12*, that block ownership has a statistically significant association with the *EISSUE*, is rejected. This suggests that block ownership is not a significant determinant of firms' choice to issue equity. The inverse relationship between block ownership and the *EISSUE* is consistent with the theoretical prediction that firms with many block holders tend to issue debt over equity. The debt issuance can be used by block holders to reduce opportunistic managerial actions and increase their ability to monitor of managers. The negative influence of block ownership is also supported by the expectation that block holders do not prefer to share potential profits (Ryen *et al.*, 1997; Koch and Shenoy, 1999) or control rights (Cespedes *et al.*, 2010) with new investors. The CS literature does not provide any empirical international evidence of the impact of block ownership on the choice of financing.

Fifth, the *OCGI*, which is the main variable, is found to be statistically significant in explaining the choice of financing. Specifically, this result suggests that firm-level CG plays a crucial role in influencing firms to issue equity over debt. As shown in Table 35, the current study accepts *H13*, that there is a statistically significant positive association between firm-level CG and equity issuance at the 1% level of significance. Quantitatively, holding all the other variables within the model constant, the result indicates that any increase in the *OCGI* will result in a 0.010 increase in the likelihood of selecting equity compared to debt. The strongly positive relationship is in line with the theoretical prediction that CG mitigates agency problems, to a level where equity issuance becomes firms' first choice to meet their external financing needs (Mande *et al.*, 2012). Firms with better CG structures are motivated to issue equity rather than debt, as they aware that potential investors prefer to invest in better-governed firms, and are willing to pay a premium for their shares. Empirically, and given the limited number of studies examining the relationship between CG and a firm's choice of financing, the statistically significant positive association is consistent with Mande *et al.* (2012), who report evidence that firms with high-quality governance choose equity over debt.

Sixth, the coefficient on board size reveals that board size is not a significant determinant of the *EISSUE*. This rejects *H14*, that board size is statistically significantly associated with the *EISSUE*. The present study finds that board size has no explanatory power in explaining the

variations in the *EISSUE*. The negative relationship between board size and the *EISSUE* in line with the theoretical prediction that firms with small boards tend to issue equity over debt because small boards are more connected with strong governance (Yermack, 1996; Cheng, 2008) than large boards. Board size has not been empirically examined as a potential factor influencing firms' financing choice.

Seventh, the model predicts a statistically insignificant and negative relationship between the presence of a CG committee and the *EISSUE*. This leads to reject *H15*, that CG committee has a significant positive association with equity issuance. Theoretically, the negative impact of a CG committee on the *EISSUE* is consistent with the prediction that firms may be encouraged by CG committees to use debt financing as a governance mechanism to support the CG mechanisms already in place. The empirical literature shows no evidence on the relationship between the presence of a CG committee and firms' choice to issue equity or debt.

Finally, audit firm size has a positive and statistically insignificant association with the *EISSUE*. This leads the study to reject *H16*, that there is a statistically significant association between audit firm size and the *EISSUE*. The positive relationship is consistent with the theoretical prediction that firms audited by large audit firms are considered to have better CG structures, motivating them to issue equity over debt, because potential investors are willing to pay more for better-governed firms' shares. This result does not lend empirical support to Chang *et al*.'s (2009) evidence that firms audited by Big Six audit firms tend to issue equity over debt.

6.2.2 Empirical Results of Control Variables

Panel *B* of Table 36 reports the empirical results of growth, profitability, firm size, tangible assets, dividend policy, business risk, and year and industry variables. These results suggest several conclusions. Although the model finds that profitability (posiotive), tangible assets (positive) and dividend policy (negative) have no explanatory powers in explaining a firm's choice of equity, growth, firm size, business risk, years 2006 to 2008, year 2010 and financials sector are found to be significant determinants of *FCS*. For instance, The impact of firm growth in determining the *EISSUE* is statistically significant at the 1% level of significance, indicating that firms with greater opportunities for growth tend to issue equity over debt. This is in line with the theoretical prediction that firms with higher growth may avoid debt issuance in order to maintain their financial flexibility (Kayhan and Titman, 2007). Further, since growth firms perform better than non-growth firms, new investors may be encouraged to pay a higher price in order to invest in those firms, which in turn motivates growth firms to issue equity over debt. This result lends empirical support to Mande *et al*.'s (2012) evidence that growth firms tend to issue equity.

The estimated coefficient on firm size is statistically significant in explaining a firm's choice of equity. It is positive and statistically significant at 10% level, indicating that large firms tend to issue equity over debt. This result is in line with the theoretical predictions that because of large firms are less sensitive to asymmetric information (e.g., Donnelly and Mulcahy, 2008; Allegrini and Greco, 2013; Ntim *et al.*, 2012a; Samaha *et al.*, 2012), new investors may consider them as attractive investments, which in turn motivate such firms to issue equity over debt, as they expect that potential investors are willing to pay a premium for their shares. This result does not lend empirical support to prior studies (e.g., Chang *et al.*, 2006; Elliott *et al.*, 2008; Mande *et al.*, 2012) that provide evidence that larger firms choose debt over equity.

Business risk is significant, but has negative impact. In particular, the coefficient on business risk is negative and statistically significant at the 5% level, indicating that business risk has a negative impact on the likelihood of selecting equity over debt. Theoretically, this result is consistent with the prediction that since firms with higher business risk suffer from high information asymmetry, variable cash flows and adverse selection, they are more likely to issue debt over equity. This is because of the lower information costs associated with debt issuance and they can increase cash flows through tax shields as opposed to equity issuance, where dividends are not tax deductible, as well as using debt financing in order to reduce the conflict of interest between shareholders and managers. This result lends empirical support to past studies (e.g., Shyam-Sunder and Myers, 1999; Chang *et al.*, 2009; Mande *et al.*, 2012) that report empirical evidence that firms with higher financial deficits tend to issue debt over equity.

With respect to year and industry variables, some have significant explanatory powers in explaining variations in the *EISSUE*. The coefficients on years 2006 to 2008, year 2010 and the financial sector are positive and statistically significant at least at the 5% level of significance. These results are in line with prior studies (e.g., Jiraporn *et al.*, 2012) that suggest that year and industry are important determinants of the choice of financing.

In conclusion, limited prior studies have examined certain factors that explain a firm's choice between equity and debt, and a few of them focus on the impact of CG structures on the choice of financing. The current study examines the potential relationship between CG mechanisms and choice of financing, namely equity issuance within the Omani context over the period 2001 to 2011. Subsection 6.2 has discussed the empirical results of this examination, which are largely consistent with theoretical and empirical literature. First, the model predicts that government ownership (negative impact) and institutional ownership (positive impact) are significant determinants of the *EISSUE*. Second, the results indicate that the *OCGI* has a statistically significant positive relationship with the *EISSUE*. Finally, the results reveal that

foreign ownership, block ownership, board size, audit firm size and CG committee have no explanatory powers in explaining a firm's choice of equity.

Table 35: A summary of all hypotheses and findings for the relationship between equity issuance and corporate governance

Dependent variable			Firm equity issuance (EISSUE)											
Explanatory variables			OCGI			Ownership variables			Board/Audit variables			All		
Governance Variables	Hyp. No	Expect-ed sign	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status
Government ownership	9	-				-	Significant (10%)	Accepted				-	Significant (10%)	Accepted
Institutional ownership	10	+				+	Significant (5%)	Accepted				+	Significant (10%)	Accepted
Foreign ownership	11	-/+				-	Insignificant	Rejected				-	Insignificant	Rejected
Block ownership	12	-/+				-	Insignificant	Rejected				-	Insignificant	Rejected
Omani CGI	13	+	+	Significant (1%)	Accepted							+	Significant (1%)	Accepted
Board size	14	-/+							-	Insignificant	Rejected	-	Insignificant	Rejected
CG committee	15	+							+	Insignificant	Rejected	-	Insignificant	Rejected
Audit firm size	16	-/+							+	Insignificant	Rejected	+	Insignificant	Rejected

Note: Column 1 presents the eight variables that are represented the tested hypotheses. Columns 2 to 12 present information relating to hypotheses nine to sixteen with regard to the impact of corporate governance on capital structure.

Table 36: The relationship between equity issuance and corporate governance

		OCGI		Ownership variables		Board/Audit variables		All	
Independent variables	Ex.Sig	Coef.	Sign	Coef.	Sign	Coef.	Sign	Coef.	Sign
Panel A: CG variables									
OCGI	+	0.0105	0.0003***	-	-	-	-	0.0103	0.0006***
GOVOWN	-	-	-	-0.2023	0.0790*	-	-	-0.2308	0.0520*
INSOWN	+	-	-	0.0050	0.0251**	-	-	0.0042	0.0675*
FOROWN	-/+	-	-	-0.0019	0.4714	-	-	-0.0022	0.4233
BLKOWN	-/+	-	-	-0.0017	0.4821	-	-	-0.0013	0.5865
BSIZE	-/+	-	-	-	-	-0.0043	0.8746	-0.0147	0.6090
BIG4	-/+	-	-	-	-	0.0792	0.4727	0.0629	0.5698
CGCOM	+	-	-	-	-	0.0871	0.4756	-0.0084	0.9464
Panel B:Control variables									
GROWTH		0.0024	0.0228**	0.0030	0.0056***	0.0025	0.0190**	0.0031	0.0054***
ROA		0.8192	0.1201	0.8898	0.0989*	0.9475	0.0707*	0.7393	0.1775
LNTA		0.0569	0.1454	0.0992	0.0115**	0.0738	0.0839*	0.0815	0.0737*
TNGAS		0.0032	0.0953*	0.0027	0.1579	0.0032	0.0901*	0.0028	0.1535
DIVPO		-0.1551	0.6265	-0.0735	0.8200	-0.0999	0.7522	-0.1264	0.7021
BSRK		-4.4600	0.0135**	-4.2207	0.0191**	-4.6842	0.0099***	-4.2093	0.0211**
2002		0.1671	0.4361	-0.0576	0.7914	-0.0396	0.8541	0.1447	0.5036
2003		0.1931	0.3394	0.1501	0.4670	0.1503	0.4589	0.1958	0.3400
2004		0.0636	0.7590	0.1669	0.4139	0.1549	0.4412	0.0715	0.7339
2006		0.4852	0.0112**	0.7117	0.0001***	0.6576	0.0003***	0.5359	0.0060***
2007		0.6991	0.0003***	0.9463	0.0000***	0.8984	0.0000***	0.7519	0.0002***
2008		0.7984	0.0000***	1.0620	0.0000***	1.0059	0.0000***	0.8505	0.0000***
2009		0.2473	0.2188	0.5012	0.0065***	0.4558	0.0131**	0.2857	0.1595
2010		0.3696	0.0688*	0.6388	0.0005***	0.5816	0.0015***	0.4122	0.0443**
2011		0.1530	0.4648	0.4527	0.0185**	0.3669	0.0579	0.2177	0.3059
Basic materials		0.6843	0.1454	0.7092	0.1246	0.7966	0.0838*	0.6256	0.1827
Consumer services		0.4453	0.3427	0.4426	0.3356	0.5414	0.2377	0.3540	0.4496
Consumer goods		0.6628	0.1686	0.6219	0.1898	0.7848	0.0961*	0.5356	0.2672
Financials		1.1265	0.0183**	1.0715	0.0235**	1.1804	0.0116**	1.0113	0.0352**
Health care		0.5287	0.3884	0.2732	0.6663	0.5714	0.3509	0.2976	0.6371
Industrials		0.7985	0.0932*	0.7789	0.0950*	0.9101	0.0510*	0.6813	0.1501
Utilities		0.5799	0.2697	0.5912	0.2601	0.5599	0.2760	0.6166	0.2473
Constant		-3.6558	0.0001***	-4.0024	0.0000***	-3.6870	0.0000***	-3.9384	0.0001***
McFadden R-squared		0.1444		0.1441		0.1362		0.1531	
LR-Stat		181.2061***		180.8058***		170.9241***		192.1199***	
Number of observations		1049		1049		1049		1049	

Notes: Variables are defined as follows: Omani CG index (OCGI) is un-weighted CG index. Government ownership (GOVOWN), institutional ownership (INSOWN) and foreign ownership (FOROWN) are measured as percentage of government, institutional and foreign ownership to total firm ordinary shareholdings. Block ownership (BLKOWN) is measured as percentage of shares held by shareholders with at least 5% of the total firm shareholdings. Board size (BSIZE) is measured by the total number of directors on the firm's board. Audit firm size (BIG4) is measured as dummy variable where a firm takes 1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise. The presence of corporate governance committee (CGCOM) is measured as dummy variable where a firm takes 1 if a firm has set up a corporate governance committee, 0 otherwise. Growth (GROWTH) is measured by Tobin's Q. Profitability (ROA) is measured as operating profit to total assets. Firm size (LNTA) is measured by natural log of total assets.Tangible assets (TNGAS) is measured as fixed assets divided by total assets. Dividend policy (DIVPO) is measured as dividends per share divided by earnings per share. Business risk (BSRK) is measured as standard deviation of earnings before interest and taxes to total assets. In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. Year 2001 and Telecommunications industry were excluded by Eviews software as both are perfectly predicts binary response failure. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively.

7 ROBUSTNESS TESTS

This section discusses the results of a number of robustness analyses. The central aim is to check the extent to which the results obtained in Section 6 are robust or sensitive to alternative models and estimations. As indicated in Subsection 4.2.5, these sensitivity analyses consider the following issues: (i) whether the original results are sensitive to the weighted CG index; (ii) whether the main results are sensitive to alternative measures of CS; (iii) whether the reported results are sensitive to financial firms; whether the main results are sensitive to unobserved firm-specific characteristics; (iv) whether the original results are sensitive to the period of examination; and (v) whether the main results are sensitive to endogeneity problem. This section is divided into two subsections. Subsection 7.1 discusses the results of robustness tests related to the *FCS*, while the results of robustness tests associated with the *EISSUE* are reported and discussed in Subsection 7.2.

7.1 ROBUSTNESS TESTS: CAPITAL STRUCTURE

The results reported in Table 34 were checked by carrying out a number of robustness analyses. The results of these analyses are reported and discussed below; both the main results and robustness results are reported in the same table, to facilitate comparison. These analyses indicate that the main results are largely robust, supporting the present study's evidence that better-governed firms employ lower levels of leverage compared to those with poor governance structures.

7.1.1 Results Based on Alternative Corporate Governance Proxy

In order to address the suggestion in the literature that the use of a weighted CG index may lead to different results, the current study constructed a weighted CG index (WOCGI). As explained in Essay 1, this study adopts Beiner *et al.*'s (2006) procedure in constructing a weighted CG index as an alternative measure of CG.[28] The un-weighted *OCGI* was replaced by the weighted *WOCGI* in equation (1), and the results are reported in Table 37. This table reports the results of both the un-weighted CG index (Columns 3 and 4) and the weighted CG index (Columns 5 and 6). The *F-Stat* and the adjusted R^2 in both analyses indicate similar results. The null hypothesis that the coefficients of the explanatory and control variables are equal to zero is rejected, as the *F-Stat is* statistically significant at the 1% level of significance. The adjusted R^2

[28] Details of this procedure can be found in Essay 1, Subsection 7.1.

implies that 66% of the variability in the *FCS* is jointly explained by explanatory ad control variables.

Overall, the model finds that the *WOCGI*, audit firm size, presence of a CG committee, profitability, firm size and dividend policy each have a significant relationship with the *FCS*. Further discussion is provided below, shedding more light on the main sensitivities of this analysis.

7.1.1.1 Empirical Results of Corporate Governance Variables

The model finds that the *WOCGI*, audit firm size and the presence of a CG committee are significantly and negatively associated with the *FCS*, whereas ownership and board size variables have no significant impact on the *FCS*. The direction of the coefficients and the level of significance of the eight CG variables have not changed compared to those of the un-weighted CG index. In particular, the main variable the *WOCGI* is still negative and statistically significant at the 10% level of significance.

7.1.1.2 Empirical Results of Control Variables

The direction of the coefficients and the level of significance of the control variables remain the same as those of the un-weighted CG index. Firm size is still positive and statistically significant at the 1% level of significance, while profitability and dividend policy are negative and statistically significant at the 1% and 5% levels, respectively. Similarly, tangible assets and business risk remain statistically insignificant associated with the *FCS*.

Table 37: The results of capital structure based on weighted corporate governance index

		Un-weighted index		Weighted index	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
WOCGI	-	-	-	-0.3336	0.0682*
OCGI	-	-0.3218	0.0701*	-	-
GOVOWN	+	-0.5379	0.2760	-0.5394	0.2728
INSOWN	-	-0.0614	0.8018	-0.0640	0.7939
FOROWN	-	-0.1340	0.6373	-0.1299	0.6478
BLKOWN	-	0.0744	0.7842	0.0740	0.7852
BSIZE	-/+	-2.6574	0.3735	-2.6888	0.3680
BIG4	-	-14.2975	0.0877*	-14.4179	0.0853*
CGCOM	-	-18.0108	0.0352**	-18.1998	0.0312**
Panel B:Control variables					
GROWTH		-0.0011	0.9861	-0.0007	0.9914
ROA		-195.5175	0.0000***	-195.5679	0.0000***
LNTA		22.5801	0.0010***	22.3469	0.0011***
TNGAS		-0.1469	0.4123	-0.1489	0.4061
DIVPO		-35.5215	0.0183**	-35.7015	0.0180**
BSRK		31.0842	0.7269	29.5102	0.7400
2001		-5.3534	0.7379	-5.5760	0.7330
2002		1.5490	0.9016	1.3122	0.9172
2003		10.4105	0.2500	10.4526	0.2494
2004		5.0251	0.4830	4.9867	0.4825
2006		0.1859	0.9758	0.1608	0.9790
2007		-8.1554	0.3280	-8.5326	0.3038
2008		-20.7669	0.0316**	-21.2399	0.0276**
2009		-26.9868	0.0034***	-27.4869	0.0028***
2010		-32.8806	0.0007***	-33.3711	0.0006***
2011		-37.7748	0.0008***	-38.2312	0.0007***
Basic materials		1.2876	0.9656	1.1311	0.9698
Consumer services		-26.3853	0.3440	-26.6030	0.3393
Consumer goods		45.2694	0.1132	45.2950	0.1132
Financials		6.4809	0.8388	6.0439	0.8493
Health care		0.4038	0.9925	1.0871	0.9800
Industrials		20.8170	0.4126	20.4359	0.4200
Telecommunications		-62.6788	0.1422	-63.2559	0.1382
Utilities		60.7700	0.1698	61.5422	0.1649
Constant		-185.3337	0.1096	-180.7855	0.1185
Adj. R^2		0.6607		0.6607	
F-Stat		68.8730***		68.8706***	
Durbin-Watson Stat.		2.1411		2.1407	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Weighted Omani CG index (WOCGI), un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.1.2 Results Based on Alternative Measures of Capital Structure

As indicated in Subsection 4.2.1.1, book total debt scaled by the total equity of a firm was the main measure of the *FCS*. Following the suggestion in the literature that using alternative definitions of CS may bring different results, the current study uses two alternative measures of CS, namely short-term debt and long-term debt, in order to ascertain the extent to which the main results reported in Section 6 are sensitive to these ratios. These measures permit the study to investigate whether firm-level factors which explain variation in the *FCS* would be different between the long-term and short-term. Bevan and Danbolt (2002, pp.160), for instance, conclude that "*analyses of gearing based solely upon long-term debt provide only part of the story, and a fuller understanding of CS and its determinants requires a detailed analysis of all forms of corporate debt*". They report evidence that UK firms use long-term debt to finance fixed assets, whereas their reciprocal tangibility is financed by short-term debt. In addition, recent empirical studies report evidence that factors influencing CS can differ from the short-term to the long-term. For example, Harford *et al*. (2008) report that firms with better CG, namely those with more independent directors, tend to hold more short-term debt. In a similar vein, Brockman *et al.* (2010) report evidence that firms with higher managerial ownership tend to use more short-term debt. In response to these findings, amongst others, both short-term and long-term debt ratios are used along with total debt ratio to measure the *FCS*. Long-term debt is defined as the book value of the total long-term debt at the end of a financial year divided by the book value of equity at the end of the financial year. It indicates what proportion of total debt the firm is using to finance its assets. Short-term debt is defined as the book value of the total short-term debt at the end of a financial year divided by the book value of equity at the end of the financial year. In this sense, the short-term debt measures a firm's ability to meet its obligations within one year.

The *FCS* is re-calculated using short-term debt and long-term debt ratios, and the relationship between the *FCS* and CG is re-estimated using the same equation (1). Table 38 shows OLS regression results of the main results (Columns 3 to 4), those based on short-term debt ratio (Columns 5 to 6) and those based on long-term debt ratio (Columns 7 to 8). The short-term debt and long-term debt models reject the null hypothesis that the coefficients of the eight CG variables as well as the control variables are equal to zero, as indicated by the *F-Stat*. The adjusted R^2 in both models indicate that about 55% and 68% of the variability in the *FCS* are jointly explained by these models, respectively, compared to 66% by the main model. Overall, ownership variables and board size are not statistically significant. In contrast, CG index and audit firm size are only statistically significant in the long-term debt model, while the presence of

a CG committee is only statistically significant in the short-term debt model. These results are further discussed below, and the main sensitivities of the two models' results are identified.

7.1.2.1 Empirical Results of Corporate Governance Variables

the level of significance and the direction of the coefficients on some variable has changed. The short-term debt model shows that the sign on the coefficient of institutional ownership, which was negative, is now positive whereas block ownership is now negative, which was previously positive. The model indicates that the coefficient on audit firm size, which was statistically significant, is now statistically insignificant. The presence of a CG committee becomes significant at 1% level, which was statistically significant at 5% level.

The long-term debt model finds a positive relation between the *FCS* and government ownership, which was negative and statistically insignificant as predicted by the main model. The coefficient on audit firm size, which was statistically significant at 10% level, is now statistically significant at 5% level. The main variable, *OCGI*, which was predicted to be significantly associated with the *FCS* in the main model shows a significant relationship with the *FCS* only in long-term debt model. The coefficient on the *OCGI* is still negative, but statistically insignificant, as predicted by the short-term debt model. This may be attributed to the fact that some CG implementations may take more than one year before their desired outputs take effect.

7.1.2.2 Empirical Results of Control Variables

Consistent with the results of the main model, the short-term debt and long-term debt models predict that profitability, firm size and divided policy are statistically significant, except for tangible assets, which was statistically insignificant and is now statistically significant at the 5% and 1% levels, respectively. Growth and business risk remain statistically insignificant in both short-term and long-term models as predicted by the main model. Limited sensitive cases were observed regarding the sign on the coefficient of these variables. Tangible assets, which was negative in the main model, is now positive in the short-term debt model. Similarly, limited sensitive cases were observed regarding the year and industry dummies with respect to the direction and significance level. The short-term debt model shows that the sign on the coefficients of year 2004, year 2006 and health care sector are now negative, which were positive in the main model. The significance level of year 2008, year 2009, year 2011 and telecommunications sector, which were statistically significant at 5%, 1%, 1% and insignificant, are now insignificant, 5%, 10% and 10% levels, respectively as predicted by the short-term debt model, respectively. The long-term debt model indicates that the sign on the coefficient of year 2001 is now positive, which was negative in the main model, whereas and basic materials sector,

which was predicted positive by the main model is now negative. The model also shows that the significance level of year 2004, 2008 and year 2009 are now significant at 5%, 10% and 5%, which were insignificant, significant at 5% level and significant at 1% level, respectively.

Table 38: The results of capital structure based on alternative measures

		Total debt		Short-term debt		Long-term debt	
Independent variables	Exp.Sign	Coefficient	Sign	Coefficient	Sign	Coefficient	Sign
Panel A: CG variables							
OCGI	-	-0.3218	0.0701*	-0.0271	0.7973	-0.1858	0.0832*
GOVOWN	+	-0.5379	0.2760	-4.1627	0.4423	12.5592	0.0073***
INSOWN	-	-0.0614	0.8018	0.0299	0.8063	-0.0219	0.8276
FOROWN	-	-0.1340	0.6373	-0.1008	0.4179	0.0977	0.3816
BLKOWN	-	0.0744	0.7842	-0.0234	0.8571	0.1292	0.1938
BSIZE	-/+	-2.6574	0.3735	-1.5016	0.3067	-0.2216	0.8623
BIG4	-	-14.2975	0.0877*	-0.9590	0.8442	-7.8726	0.0424**
CGCOM	-	-18.0108	0.0352**	-10.7260	0.0074***	-4.3807	0.3976
Panel B:Control variables							
GROWTH		-0.0011	0.9861	-0.0253	0.4799	-0.0030	0.9274
ROA		-195.5175	0.0000***	-100.7686	0.0000***	-83.4387	0.0000***
LNTA		22.5801	0.0010***	9.3302	0.0018***	9.4832	0.0000***
TNGAS		-0.1469	0.4123	0.2128	0.0130**	-0.3384	0.0000***
DIVPO		-35.5215	0.0183**	-17.5026	0.0237**	-23.9678	0.0042***
BSRK		31.0842	0.7269	27.8071	0.5933	-43.0656	0.3109
2001		-5.3534	0.7379	-0.6807	0.9427	4.8501	0.5209
2002		1.5490	0.9016	1.4477	0.8395	4.5491	0.5054
2003		10.4105	0.2500	7.5720	0.1512	8.4198	0.1324
2004		5.0251	0.4830	-0.3369	0.9316	9.3280	0.0191**
2006		0.1859	0.9758	-3.1464	0.3807	1.2523	0.7475
2007		-8.1554	0.3280	-6.8850	0.1191	1.8015	0.7159
2008		-20.7669	0.0316**	-7.8331	0.1161	-10.7190	0.0512*
2009		-26.9868	0.0034***	-10.8370	0.0261**	-13.3135	0.0174**
2010		-32.8806	0.0007***	-12.8222	0.0083***	-18.2343	0.0014***
2011		-37.7748	0.0008***	-11.0643	0.0529*	-22.0674	0.0001***
Basic materials		1.2876	0.9656	6.1492	0.6754	-8.2148	0.8012
Consumer services		-26.3853	0.3440	-5.0915	0.7134	-7.8828	0.8091
Consumer goods		45.2694	0.1132	21.8685	0.1293	22.9008	0.4815
Financials		6.4809	0.8388	8.1927	0.5954	1.8690	0.9540
Health care		0.4038	0.9925	-16.0824	0.3880	21.3686	0.5827
Industrials		20.8170	0.4126	16.4438	0.2579	6.3443	0.8370
Telecommunications		-62.6788	0.1422	-39.3729	0.0639*	-34.0999	0.3305
Utilities		60.7700	0.1698	32.5899	0.1815	3.5060	0.9244
Constant		-185.3337	0.1096	-93.8597	0.0615*	-59.5144	0.1782
Adj. R^2		0.6607		0.5460		0.6799	
F-Stat		68.8730***		42.9234***		75.0406***	
Durbin-Watson Stat.		2.1411		2.1452		2.0994	
Number of observations		1152		1152		1152	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.1.3 Results Based on Non-Financial Firms

As indicated in Subsection 4.1.1.2, the main analysis was carried out using financial and non-financial firms. The present study addresses past studies' argument that financial firms should be excluded from analysis because they are heavily regulated and their leverage may not be interpreted like those of non- financial firms. The current study addresses this by re-estimating the *FCS*-CG relation employing only non-financial firms. Table 39 reports a multivariate regression of the CS on the eight CG variables along with control variables based on all firms (Columns 3 to 4), and only non-financial firms (Columns 5 to 6).

The *F-Stat* is significant at the 1% level of significance, suggesting that the null hypothesis, that the coefficients of eight CG and control variables are not different from zero, is rejected. The adjusted R^2 indicates that about 65% of the variability in the *FCS* is jointly predicted by those variables. Overall, the null hypothesis that there is no significant difference in terms of the influence of CG on CS between financial and non-financial firms is accepted, as the results produced by this analysis and those of the main test are largely similar. This analysis predicts that CG index, board size, the presence of a CG committee, profitability and tangible assets are significant, whereas ownership variables, audit firm size, growth, firm size and business risk are not significant. These results suggest several conclusions, which are discussed in the following subsections.

7.1.3.1 Empirical Results of Corporate Governance Variables

A limited number of sensitivities are observed. First, board size becomes statistically significant at the 5% level of significance, which was previously insignificant in the main model, while audit firm size, which was statistically significant, is now no longer significant. Second, the *OCGI* and CG committee variables become statistically significant at the 5% and 10% levels, respectively, where they were previously statistically significant at the 10% and 5% levels. Finally, the direction of the coefficients on institutional, foreign and block ownership variables has changed, but remain statistically insignificant.

7.1.3.2 Empirical Results of Control Variables

The significance level on the coefficients of some variables has changed, but they remain largely similar to those reported by the main model. The coefficient on firm size was statistically significant but no longer is, while tangible assets, was statistically insignificant but has become statistically significant. The significance level on the coefficient of year 2008 becomes statistically insignificant, while year 2001, consumer goods sector, industrials sector and utilities sector were statistically insignificant in the main model and are now significant. Similarly, the

sign on the coefficients of some variables has changed. Growth, year 2007, consumer services sector and telecommunications sector become positive, whereas year 2002 and health care sector are now negatively related to the *FCS*.

Table 39: The results of capital structure based only on non-financial firms

		Financial and non-financial		Non-financial	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.3218	0.0701*	-0.4905	0.0267**
GOVOWN	+	-0.5379	0.2760	-0.3845	0.3553
INSOWN	-	-0.0614	0.8018	0.1734	0.4672
FOROWN	-	-0.1340	0.6373	0.1931	0.5401
BLKOWN	-	0.0744	0.7842	-0.3426	0.1751
BSIZE	-/+	-2.6574	0.3735	-6.1845	0.0377**
BIG4	-	-14.2975	0.0877*	-7.7357	0.3563
CGCOM	-	-18.0108	0.0352**	-17.0682	0.0624*
Panel B:Control variables					
GROWTH		-0.0011	0.9861	0.0511	0.4933
ROA		-195.5175	0.0000***	-239.5187	0.0000***
LNTA		22.5801	0.0010***	0.4514	0.9420
TNGAS		-0.1469	0.4123	-0.6091	0.0010***
DIVPO		-35.5215	0.0183**	-22.7590	0.1733
BSRK		31.0842	0.7269	136.8439	0.1735
2001		-5.3534	0.7379	-29.0623	0.0851*
2002		1.5490	0.9016	-15.4624	0.2321
2003		10.4105	0.2500	0.1200	0.9900
2004		5.0251	0.4830	0.5988	0.9424
2006		0.1859	0.9758	8.0398	0.2855
2007		-8.1554	0.3280	1.1823	0.9048
2008		-20.7669	0.0316**	-8.9934	0.4323
2009		-26.9868	0.0034***	-18.5839	0.0850*
2010		-32.8806	0.0007***	-22.7425	0.0346**
2011		-37.7748	0.0008***	-31.7061	0.0110**
Basic materials		1.2876	0.9656	29.3393	0.3086
Consumer services		-26.3853	0.3440	8.1592	0.7659
Consumer goods		45.2694	0.1132	62.0772	0.0271**
Financials		6.4809	0.8388	Excluded	
Health care		0.4038	0.9925	-42.3289	0.3210
Industrials		20.8170	0.4126	49.2413	0.0757*
Telecommunications		-62.6788	0.1422	24.8655	0.5342
Utilities		60.7700	0.1698	118.3178	0.0058***
Constant		-185.3337	0.1096	199.0276	0.0542*
Adj. R^2		0.6607		0.6478	
F-Stat		68.8730***		50.2151***	
Durbin-Watson Stat.		2.1411		2.1564	
Number of observations		1152		858	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.1.4 Results Based on the Fixed-Effects Model

The current study controls for the concern that CS behaviour might be affected by unobserved firm-level characteristics, which simple OLS regression may not be able to account for. The Hausman test was applied to choose between a fixed-effects model and a random-effects model, and its result (not reported here) indicates that the fixed-effects model is appropriate. Thus, the relationship between the *FCS* and CG was re-estimated using the fixed-effects model. The results of this analysis are reported in Columns 5 and 6 of Table 40, alongside the results of the main analysis, which reported in Columns 3 and 4 of the same table.

Table 40: The results of capital structure based on the fixed-effects model

		Simple OLS		Fixed effects	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.3218	0.0701*	-0.3619	0.0956*
GOVOWN	+	-0.5379	0.2760	-0.3342	0.3669
INSOWN	-	-0.0614	0.8018	-0.2896	0.1535
FOROWN	-	-0.1340	0.6373	-0.2224	0.3202
BLKOWN	-	0.0744	0.7842	0.1209	0.5391
BSIZE	-/+	-2.6574	0.3735	-0.1382	0.9569
BIG4	-	-14.2975	0.0877*	-22.4723	0.0023***
CGCOM	-	-18.0108	0.0352**	-21.5121	0.0310**
Panel B:Control variables					
GROWTH		-0.0011	0.9861	0.0269	0.6803
ROA		-195.5175	0.0000***	-183.3475	0.0000***
LNTA		22.5801	0.0010***	20.2848	0.0000***
TNGAS		-0.1469	0.4123	-0.1600	0.3271
DIVPO		-35.5215	0.0183**	-37.8066	0.0248**
BSRK		31.0842	0.7269	1.9581	0.9820
2001		-5.3534	0.7379	-8.5303	0.5609
2002		1.5490	0.9016	-1.0673	0.9336
2003		10.4105	0.2500	4.7761	0.6517
2004		5.0251	0.4830	2.2185	0.7723
2006		0.1859	0.9758	1.4231	0.8500
2007		-8.1554	0.3280	-7.3596	0.4187
2008		-20.7669	0.0316**	-22.6414	0.0241**
2009		-26.9868	0.0034***	-30.3761	0.0019***
2010		-32.8806	0.0007***	-36.2580	0.0004***
2011		-37.7748	0.0008***	-42.7312	0.0000***
Basic materials		1.2876	0.9656	-	-
Consumer services		-26.3853	0.3440	-149.7048	0.3243
Consumer goods		45.2694	0.1132	8.9558	0.9575
Financials		6.4809	0.8388	-24.2289	0.8368
Health care		0.4038	0.9925	30.0877	0.7470
Industrials		20.8170	0.4126	8.5046	0.8957
Telecommunications		-62.6788	0.1422	-77.4918	0.2679
Utilities		60.7700	0.1698	10.5573	0.9062
Constant		-185.3337	0.1096	-115.7082	0.2797
Adj. R^2		0.6607		0.6947	
F-Stat		68.8730***		18.5045***	
Durbin-Watson Stat.		2.1411		2.0440	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. Basic materials industry was excluded by Eviews software due to collinearity. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

The null hypothesis that there is no significant difference between observed and predicted values is rejected, as the *F-Stat* is significant at the 1% level. Similar to the main model, the adjusted R^2 is 0.69, indicating that about 70% of the variability in the *FCS* is explained by this model. Overall, CG index, audit firm size, CG committee, profitability, firm size and dividend policy have a significant relationship with the *FCS*. The main sensitivity between this analysis's results and those predicted by the main model are discussed below.

7.1.4.1 Empirical Results of Corporate Governance Variables

The sign on the coefficients of all variables remains unchanged. Similarly, the significance level of all variables has not changed, except, the coefficient on audit firm size, which was statistically significant at 10% level, is now statistically significant at 1% level.

7.1.4.2 Empirical Results of Control Variables

The significance level on the coefficients of all variables remain the same as those predicted by the main model whereas the sign on few coefficients has changed. Specifically, the sign on the coefficients of growth was negative but now is positively related to the *FCS*, while year 2002 and financials sector are now negative, which were previously positive, and all remain statistically insignificant.

7.1.5 Results Based on the Sample Period

As previously discussed, the current study employs a sample of 116 Omani listed firms from 2001 to 2011. Thus, to ascertain whether there are differences in its results with respect to the period of examination, the present study re-runs its regressions by splitting its sample into two sub-samples: *Pre-2003* (i.e., from 2001 to 2002) and *Post-2003* (i.e., from 2003 to 2011) periods. Table 41 shows OLS regression results for all three periods. The results of *Pre-2003* and *Post-2003* periods are generally consistent with the main results. Importantly, it is evident from the reported results that the main variable (OCGI) is insignificant in the *Pre-2003* period compared with that of the *Post-2003* period, suggesting that the introduction of the 2002 Omani CG Code appears to have helped in reducing firms' levels of leverage. The null hypothesis that the coefficients of the eight CG variables in addition to the control variables are equal to zero is rejected, as indicated by the *F-Stat* in both sub-samples. The analysis of the *Pre-2003* period produces lower adjusted R^2 (31%) compared with that of the *Post-2003* period (62%). Generally, CG index, presence of a CG committee, profitability, firm size and dividend policy are still statistically significant in the *Post-2003* period, while profitability and firm size remain statistically significant in the *Pre-2003* period. The key sensitivities between each of the two sub-samples' results and the main results are discussed further below.

Table 41: The results of capital structure based on the sample period

		2001/2011		Pre 2003		Post 2003	
Independent variables	Exp.Sign	Coefficient	Sign	Coefficient	Sign	Coefficient	Sign
Panel A: CG variables							
OCGI	-	-0.3218	0.0701*	0.0260	0.9666	-0.8249	0.0084***
GOVOWN	+	-0.5379	0.2760	-0.3660	0.6639	-0.4855	0.2872
INSOWN	-	-0.0614	0.8018	1.0005	0.0525*	0.0103	0.9664
FOROWN	-	-0.1340	0.6373	0.0911	0.8987	-0.0823	0.7843
BLKOWN	-	0.0744	0.7842	-0.1498	0.7638	0.1106	0.7037
BSIZE	-/+	-2.6574	0.3735	0.4881	0.9290	-2.8145	0.4021
BIG4	-	-14.2975	0.0877*	-7.4767	0.7205	-7.4126	0.4376
CGCOM	-	-18.0108	0.0352**	-76.2227	0.1974	-30.3087	0.0060***
Panel B:Control variables							
GROWTH		-0.0011	0.9861	0.0064	0.9741	-0.0017	0.9800
ROA		-195.5175	0.0000***	-538.6550	0.0000***	-227.2742	0.0000***
LNTA		22.5801	0.0010***	26.5299	0.0026***	20.6205	0.0025***
TNGAS		-0.1469	0.4123	-0.3151	0.3612	-0.0855	0.6458
DIVPO		-35.5215	0.0183**	-49.5592	0.4176	-33.6387	0.0531*
BSRK		31.0842	0.7269	-177.2390	0.5458	67.4659	0.5112
2001		-5.3534	0.7379	-	-	-	-
2002		1.5490	0.9016	11.2516	0.3863	-	-
2003		10.4105	0.2500	-	-	-7.7560	0.5080
2004		5.0251	0.4830	-	-	-1.6311	0.8318
2006		0.1859	0.9758	-	-	3.5355	0.5914
2007		-8.1554	0.3280	-	-	-1.6174	0.8531
2008		-20.7669	0.0316**	-	-	-16.0394	0.1124
2009		-26.9868	0.0034***	-	-	-21.7047	0.0229**
2010		-32.8806	0.0007***	-	-	-28.2444	0.0040***
2011		-37.7748	0.0008***	-	-	-34.2139	0.0021***
Basic materials		1.2876	0.9656	-15.7762	0.8608	12.3124	0.6694
Consumer services		-26.3853	0.3440	-21.9455	0.8074	-18.3500	0.5088
Consumer goods		45.2694	0.1132	22.1681	0.8053	59.5562	0.0301**
Financials		6.4809	0.8388	-18.6072	0.8373	15.0631	0.6448
Health care		0.4038	0.9925	-81.1048	0.4809	28.6199	0.7431
Industrials		20.8170	0.4126	-0.5274	0.9953	46.1698	0.0784*
Telecommunications		-62.6788	0.1422	-	-	-18.6507	0.6920
Utilities		60.7700	0.1698	-28.5830	0.7742	66.8893	0.1757
Constant		-185.3337	0.1096	-254.0384	0.1288	-146.7139	0.1997
Adj. R^2		0.6607		0.3181		0.6221	
F-Stat		68.8730***		4.8131***		51.9959***	
Durbin-Watson Stat.		2.1411		1.7951		2.1468	
Number of observations		1152		190		962	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model (2001/2011). Year 2001 and Telecommunications industry were excluded from the model (Pre 2003) by E-views software due to collinearity. Similarly, E-views software excluded year 2001 and 2002 from the model (Post 2003) because of perfect collinearity. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.1.5.1 Empirical Results of Corporate Governance Variables

The sign and significance level on the coefficients of the CG variables are more consistent with the main results in the *Post-2003* period than the *Pre-2003* period. The direction on the coefficients of the *OCGI*, institutional ownership, foreign ownership and board size were negative in the main model, and become positive in the *Pre-2003* period. In contrast, the sign on

the coefficients of all variables remains unchanged, except that institutional ownership becomes positive in the *Post-2003* period. The significance levels on the coefficients of all variables become insignificant in the *Pre-2003* period, except that institutional ownership, which was insignificant in the main model, becomes statistically significant at the 10% level. In contrast, all variables' significance is as predicted by the main model, with little change, except that audit firm size is no longer significant, as predicted by the *Post-2003* period model. For instance, the coefficients on CG index and CG committee, which were statistically significant at the 10% and 5% levels, become statistically significant at the 1% level.

7.1.5.2 Empirical Results of Control Variables

The two sub-samples' results are largely in line with the main results, except that dividend policy is only significant in the *Post-2003* period model. The sign on the coefficients of some variables has changed, especially those related to year and industry dummies in both sub-samples. For instance, the direction on the coefficients of basic materials sector, financials sector, health care sector, industrials sector and utilities sector were positive in the main model; they become only negative in the *Pre-2003* period model but remain statistically insignificant.

7.1.6 Results Based on the Lagged Structure Model

As indicated in Subsection 7.4 of Essay 1, a number of procedures have been conducted in this study in order to mitigate the influence of endogenity. Additionally, the simultaneity problem that may arise as a result of lagged CG practices is addressed in this subsection. In particular, the lagged structure model, as an alternative econometric model, is used to account for time-lag in firm-level CS and firm-level CG association. The CG and control variables were lagged by one year, as specified in the following equation.

$$\begin{aligned} FCS_{it} = {} & \alpha_0 + \beta_1 OCGI_{it-1} + \beta_2 GOVOWN_{it-1} + \beta_3 INSOWN_{it-1} + \beta_4 FOROWN_{it-1} \\ & + \beta_5 BLKOWN_{it-1} + \beta_6 BSIZE_{it-1} + \beta_7 BIG4_{it-1} + \beta_8 CGCOM_{it-1} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it-1} + \varepsilon_{it-1} \end{aligned} \tag{3}$$

Where all variables remain as defined in equation (1), except that a one-year lag was introduced for CG and control variables, reducing the total number of firm-year observations from 1,152 to 1,036. The results based on the estimated lagged CS-CG structure are reported in Columns 5 and 6 of Table 42, alongside the main results reported in Columns 3 and 4 of the same table.

Table 42: The results of capital structure based on the lagged structure model

		Un-lagged structure		Lagged structure	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.3218	0.0701*	-0.4487	0.0967*
GOVOWN	+	-0.5379	0.2760	11.7892	0.1197
INSOWN	-	-0.0614	0.8018	0.5837	0.0000***
FOROWN	-	-0.1340	0.6373	0.1342	0.3964
BLKOWN	-	0.0744	0.7842	0.2213	0.1831
BSIZE	-/+	-2.6574	0.3735	-3.7239	0.0499*
BIG4	-	-14.2975	0.0877*	-1.8651	0.7836
CGCOM	-	-18.0108	0.0352**	-53.1087	0.0000***
Panel B:Control variables					
GROWTH		-0.0011	0.9861	-0.0096	0.8755
ROA		-195.5175	0.0000***	-447.1803	0.0000***
LNTA		22.5801	0.0010***	22.3227	0.0000***
TNGAS		-0.1469	0.4123	0.0993	0.4167
DIVPO		-35.5215	0.0183**	-42.8031	0.0396**
BSRK		31.0842	0.7269	-169.0010	0.1454
2001		-5.3534	0.7379	-30.8766	0.1101
2002		1.5490	0.9016	-14.5668	0.3834
2003		10.4105	0.2500	-13.2176	0.3534
2004		5.0251	0.4830	-1.4777	0.9123
2006		0.1859	0.9758	-11.7298	0.3912
2007		-8.1554	0.3280	2.0966	0.8750
2008		-20.7669	0.0316**	-34.0892	0.0113**
2009		-26.9868	0.0034***	-27.2521	0.0333**
2010		-32.8806	0.0007***	-25.5851	0.0581*
2011		-37.7748	0.0008***	-0.7984	0.9597
Basic materials		1.2876	0.9656	27.4040	0.0616*
Consumer services		-26.3853	0.3440	12.7642	0.3596
Consumer goods		45.2694	0.1132	72.2821	0.0000***
Financials		6.4809	0.8388	28.0190	0.0691*
Health care		0.4038	0.9925	-45.0013	0.0774*
Industrials		20.8170	0.4126	59.6218	0.0003***
Telecommunications		-62.6788	0.1422	-5.0540	0.8343
Utilities		60.7700	0.1698	68.7131	0.0061***
Constant		-185.3337	0.1096	-212.3258	0.0000***
Adj. R^2		0.6607		0.2603	
F-Stat		68.8730***		13.6380***	
Durbin-Watson Stat.		2.1411		0.7676	
Number of observations		1152		1036	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

The *F-Stat* is significant, suggesting that the alternative hypothesis that there is a significant difference between observed and predicted values is accepted. The adjusted R^2 suggests that 26% of the variability in the *FCS* is explained by the lagged structure model, which is lower than that indicated by the un-lagged structure model. Overall, the lagged structure model predicts that CG index, institutional ownership, board size, CG committee, profitability, firm size

and dividend policy are significant determinants of CS. The main sensitivities are discussed below.

7.1.6.1 Empirical Results of Corporate Governance Variables

Limited cases of sensitivities can be observed. The direction on the coefficients of all variables remains unchanged, except government ownership, institutional ownership and foreign ownership, which were negative and become positive. The significance level on the coefficients of some variables has changed. For instance, CG committee becomes statistically significant at the 1% level, and formerly was statistically significant at the 5% level. Similarly, the coefficients of institutional ownership and board size, which were statistically insignificant, become statistically significant at the 1% and 10% levels, respectively.

7.1.6.2 Empirical Results of Control Variables

The significance level on the coefficients of growth, profitability and firm size remain the same as predicted by an un-lagged structure model. Some year and industry variables show some changes related to their significance level. For example, the significance level on the coefficients of basic materials sector, consumer goods sector, financials sector, health care sector, industrials sector and utilities sector become statistically significant at least at the 10% level of significance, which were previously insignificant in the main model. In addition, the sign of the coefficients on some control variables has changed. For instance, the direction of the coefficients on business risk, years 2002 to 2004, year 2006, and health care sector were positive in the main model and become negative in lagged structure model.

7.1.7 Results Based on the Two-Stage Least Squares Model

In order to further ascertain the extent to which the main results are significantly influenced by the presence of endogeneity problem, the 2SLS methodology is adopted. The current study addresses the possibility that endogeneity problem may arise because of omitted variables and/or simultaneity (Larcher and Rusticus, 2010). This can occur if the main variable, *OCGI*, which was assumed to be exogenous in equation (1), is correlated with the error term because the model does not include other significant variables (data limitation) and/or the dependent and independent variables are simultaneously determined (Wooldridge, 2009). This may lead to biases and inconsistency in the OLS results (main results). Thus, the present study employs the widely used 2SLS technique to further check the possibility of biases caused by endogeneity problem. In doing so, the Durbin-Wu-Hausman exogeneity test was applied to first check whether endogeneity is present. Following Larcher and Rusticus' (2010) methodology, this

test involves two stages: In the first stage the *OCGI* is regressed on control variables, and its predicted value is saved as *P-OCGI*.

$$OCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (4)$$

Where the *OCGI* and CONTROLS remain the same as defined in equation (1).

In the second stage, the *OCGI*, *P-OCGI* and control variables are included in the following equation.

$$FCS_{it} = \alpha_0 + \beta_1 OCGI_{it} + \beta_2 P-OCGI_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (5)$$

The results of this test indicate that the alternative hypothesis that endogeneity is present is accepted, as *P-OCGI* (*P*-value = 0.042)[29] is statistically significantly correlated with the *FCS*. As a result, 2SLS was performed to examine the extent to which the main results are affected by endogeneity problem.

In the first stage the *OCGI* is regressed on eight control variables and four alternative CG variables, as specified in equation (6). The selection of the alternative CG variables was based on the theoretical and empirical literature, and data availability (e.g., Lipton and Lorsch, 1992; Vafeas, 1999; Haniffa and Cooke, 2002; Petra, 2005; Bowen *et al*., 2008; McCabe and Nowak, 2008; Tariq *et al*., 2014). These variables include: (i) the number of non-executive directors on the board; (ii) the number of board directors' meetings; (iii) board diversity on the basis of nationality; and (iv) capital expenditure.

$$OCGI_{it} = \alpha_0 + \beta_1 BDIV_{it} + \beta_2 NEXD_{it} + \beta_3 NBMs_{it} + \beta_4 CAPEX_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (6)$$

Where *OCGI* refers to the Omani CG index, and *BDIV*, *NEXD*, *NBMs*, and *CAPEX* are defined as board diversity on the basis of nationality, the number of non-executive directors on the board, the number of board directors' meetings and capital expenditure. CONTROLS refer to the eight control variables, namely, growth, porfitability, firm size, tangible assets, dividend policy, business risk and industry and year dummies.

[29]The results of the first and second stages of the Hausman test are not reported here for reasons of brevity. The guidance of this test is that the null hypothesis of no endogeneity problems is rejected if the coefficient on the predicted value from the first stage regression is significant in the second stage (Larcker and Rusticus, 2010).

Once the regression is run, the predicted value of the *OCGI* and the residuals are saved and referred to as *P-OCGI* and *R-OCGI*, respectively, in order to obtain an instrumental variable for the *OCGI*. The correlation matrix (not reported here) suggests that the predicted value of the *OCGI* (*P-OCGI*) is significantly correlated with the *OCGI* and insignificantly associated with the *R-OCGI*. This means that *P-OCGI* is a relevant and valid instrument for the *OCGI*. In the second stage, equation (1) is re-estimated using *P-OCGI* as opposed to the *OCGI*, as specified below.

$$\begin{aligned} FCS_{it} = {} & \alpha_0 + \beta_1 P-OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (7)$$

Table 43 reports the results of 2SLS regression (Columns 5 and 6) alongside the main results (Columns 3 and 4). The null hypothesis that there is no significant difference between observed and predicted values is rejected, as the *F-Stat* is significant at the 1% level. The adjusted R^2 suggests that about 71% of the variability in the *FCS* is explained by the 2SLS model, which is higher than that indicated by the OLS model. Overall, the 2SLS model predicts that the *P-OCGI*, CG committee, profitability, firm size and dividend policy have a significant relationship with the *FCS*. The key sensitivities between the OLS and 2SLS models are discussed below.

7.1.7.1 Empirical Results of Corporate Governance Variables

Two cases of sensitivity are observed. First, the direction of the coefficient on board size becomes positive but remain statistically insignificant. Second, the significance level on the coefficients of the *P-OCGI* and CG committee, formerly statistically significant at the 10% and 5% levels, respectively, become statistically significant at the 1% level, while audit firm size is now no longer statistically significant.

7.1.7.2 Empirical Results of Control Variables

The significance level on the coefficients of control variables remains the same as reported by the OLS model, expect those related to year and industry variables. For instance, years 2001 to 2007 and basic materials sector, consumer services sector, consumer goods sector, financials sector, heath care sector and industrials sector were statistically insignificant, and become significant. The sign of the coefficients on some year and industry variables shows some changes. For example, years 2007 to 2011, consumer services sector and telecommunications sectors were negative, and now become positive.

Table 43: The results of capital structure based on the two stage least squares model

		Simple OLS		2SLS	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.3218	0.0701*	-	-
POCGI	-	-	-	-17.2863	0.0000***
GOVOWN	+	-0.5379	0.2760	-0.5888	0.1793
INSOWN	-	-0.0614	0.8018	-0.0103	0.9632
FOROWN	-	-0.1340	0.6373	-0.1358	0.5975
BLKOWN	-	0.0744	0.7842	0.0515	0.8323
BSIZE	-/+	-2.6574	0.3735	3.3725	0.2328
BIG4	-	-14.2975	0.0877*	-12.2188	0.1125
CGCOM	-	-18.0108	0.0352**	-24.1224	0.0011***
Panel B:Control variables					
GROWTH		-0.0011	0.9861	0.0696	0.2407
ROA		-195.5175	0.0000***	-130.7585	0.0000***
LNTA		22.5801	0.0010***	55.1614	0.0000***
TNGAS		-0.1469	0.4123	-0.1727	0.2949
DIVPO		-35.5215	0.0183**	-31.6091	0.0204**
BSRK		31.0842	0.7269	38.8267	0.6395
2001		-5.3534	0.7379	-797.4610	0.0000***
2002		1.5490	0.9016	-617.7935	0.0000***
2003		10.4105	0.2500	-334.6902	0.0000***
2004		5.0251	0.4830	-113.4718	0.0000***
2006		0.1859	0.9758	15.2647	0.0103***
2007		-8.1554	0.3280	49.9098	0.0000***
2008		-20.7669	0.0316**	56.3144	0.0000***
2009		-26.9868	0.0034***	68.1588	0.0000***
2010		-32.8806	0.0007***	66.5287	0.0000***
2011		-37.7748	0.0008***	46.2945	0.0004***
Basic materials		1.2876	0.9656	172.4530	0.0000***
Consumer services		-26.3853	0.3440	150.0638	0.0000***
Consumer goods		45.2694	0.1132	206.1811	0.0000***
Financials		6.4809	0.8388	124.2198	0.0004***
Health care		0.4038	0.9925	-9.5542	0.8294
Industrials		20.8170	0.4126	202.2030	0.0000***
Telecommunications		-62.6788	0.1422	41.4236	0.3550
Utilities		60.7700	0.1698	55.9852	0.1984
Constant		-185.3337	0.1096	-4.3886	0.9686
Adj. R^2		0.6607		0.7069	
F-Stat		68.8730***		85.0482***	
Durbin-Watson Stat.		2.1411		2.1112	
Number of observations		1152		1152	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Instrumental variable for the CG index (POCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. The parameter estimates are obtained by OLS estimation. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted R square. F-Stat denotes the F-statistics.

7.2 ROBUSTNESS TESTS: THE CHOICE OF FINANCING

This subsection discusses the extent to which the results reported in Table 36 are sensitive to alternative CG measurement, financial firms and endogeneity problem. The results of these analyses indicate that the main results are considerably robust, supporting the current study's evidence that firms with better governance are more likely to select equity over debt than firms with poor CG structures.

7.2.1 Results Based on Alternative Corporate Governance Proxy

As explained earlier, an un-weighted index was used in the current study's main analysis. The un-weighted *OCGI* in equation (1) was replaced by a weighted *OCGI*, and the results are reported in Table 44: Columns 3 and 4 report the results of the un-weighted *OCGI* and Columns 5 and 6 report those of the weighted *OCGI*. The *LR-Stat* is significant, suggesting that the alternative hypothesis that the coefficients of variables are not equal to zero is accepted. The McFadden *R-squared* indicates that the weighted *OCGI* model explains 15% of the variability in the *EISSUE*, which is similar to that reported by the un-weighted *OCGI* model. Overall, the weighted *OCGI* model predicts that CG index, government ownership, institutional ownership, growth, firm size and business risk are significant determinants of the *EISSUE*. The following discussion outlines the main sensitivities of this analysis.

7.2.1.1 Empirical Results of Corporate Governance Variables

Despite changes in the magnitude of coefficients, the sign and significance level of the coefficients on all CG variables remain the same as those reported by the un-weighted *OCGI* model.

7.2.1.2 Empirical Results of Control Variables

Similarly, the direction and significance level on the coefficients of all control variables have not changed.

Table 44: The results of equity issuance based on weighted corporate governance index

		Un-weighted index		Weighted index	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
WOCGI	+	-	-	0.0116	0.0005***
OCGI	+	0.0103	0.0006***	-	-
GOVOWN	-	-0.2308	0.0520*	-0.2250	0.0579*
INSOWN	+	0.0042	0.0675*	0.0043	0.0596*
FOROWN	-/+	-0.0022	0.4233	-0.0021	0.4362
BLKOWN	-/+	-0.0013	0.5865	-0.0014	0.5653
BSIZE	-/+	-0.0147	0.6090	-0.0143	0.6175
BIG4	-/+	0.0629	0.5698	0.0676	0.5414
CGCOM	+	-0.0084	0.9464	-0.0004	0.9975
Panel B:Control variables					
GROWTH		0.0031	0.0054***	0.0031	0.0050***
ROA		0.7393	0.1775	0.7200	0.1888
LNTA		0.0815	0.0737*	0.0869	0.0544*
TNGAS		0.0028	0.1535	0.0031	0.1035
DIVPO		-0.1264	0.7021	-0.1071	0.7457
BSRK		-4.2093	0.0211**	-4.1607	0.0225**
2002		0.1447	0.5036	0.1643	0.4507
2003		0.1958	0.3400	0.1936	0.3455
2004		0.0715	0.7339	0.0597	0.7780
2006		0.5359	0.0060***	0.5198	0.0083***
2007		0.7519	0.0002***	0.7472	0.0002***
2008		0.8505	0.0000***	0.8491	0.0000***
2009		0.2857	0.1595	0.2857	0.1592
2010		0.4122	0.0443**	0.4132	0.0440**
2011		0.2177	0.3059	0.2199	0.3008
Basic materials		0.6256	0.1827	0.6314	0.1775
Consumer services		0.3540	0.4496	0.3669	0.4317
Consumer goods		0.5356	0.2672	0.5370	0.2649
Financials		1.0113	0.0352**	1.0197	0.0332**
Health care		0.2976	0.6371	0.3365	0.5925
Industrials		0.6813	0.1501	0.6951	0.1412
Utilities		0.6166	0.2473	0.6095	0.2522
Constant		-3.9384	0.0001***	-4.1083	0.0000***
McFadden R-squared		0.1531		0.1533	
LR-Stat		192.1199***		192.3895***	
Number of observations		1049		1049	

Notes: Variables are defined as follows: Weighted Omani CG index (WOCGI), un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. Year 2001 and Telecommunications industry were excluded by Eviews software as both are perfectly predicts binary response failure. The parameter estimates are obtained by logistic regression. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively.

7.2.2 Results Based on Non-Financial Firms

This study addresses the possibility that the inclusion of financial firms in its data set may lead to different results by re-regressing equation (1) using only non-financial firms (807 firm years). The results reported in Table 45 show that firms with better CG structures, lower proportions of government ownership, large stakes of shares held by institutional investors, lower concentrated ownership, high growth and more profitability tend to issue equity over debt. The *LR-Stat* is significant at the 1% level of significance, suggesting that the null hypothesis that the

coefficients of eight CG and control variables are not different from zero is rejected. The McFadden *R-squared* indicates that about 13% of the variability in the *EISSUE* is jointly predicted by these variables. The key sensitivities of this analysis are discussed below.

7.2.2.1 Empirical Results of Corporate Governance Variables

Limited sensitivities are observed. First, the significance level on the coefficients of government ownership and institutional ownership, which were statistically significant at the 10% level, become statistically significant at the 5% level. Second, the significance level on the coefficient of block ownership, which was statistically insignificant, becomes statistically significant at the 5% level. Finally, the direction on the coefficient of CG committee becomes positive, but remains statistically insignificant.

7.2.2.2 Empirical Results of Control Variables

The sign and significance levels on the coefficients of some control variables have changed. The significance level on the coefficients of growth and year 2007 are now statistically significant at the 5% level, which were previously significant at 1% level. The coefficients of firm size, business risk and year 2010 become statistically insignificant, which were statistically significant at least at the 10% level, while profitability is now significantly related to the *EISSUE*, which was insignificantly associated with the *EISSUE*. The sign on the coefficients of years 2002 to 2004 become negative but remain statistically insignificant.

Table 45: The results of equity issuance based only on non-financial firms

		Financial and non-financial		Non-financial	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	+	0.0103	0.0006***	0.0123	0.0015***
GOVOWN	-	-0.2308	0.0520*	-0.3416	0.0190**
INSOWN	+	0.0042	0.0675*	0.0060	0.0221**
FOROWN	-/+	-0.0022	0.4233	-0.0010	0.7666
BLKOWN	-/+	-0.0013	0.5865	-0.0061	0.0340**
BSIZE	-/+	-0.0147	0.6090	-0.0387	0.3155
BIG4	-/+	0.0629	0.5698	0.0376	0.7508
CGCOM	+	-0.0084	0.9464	0.1089	0.4821
Panel B:Control variables					
GROWTH		0.0031	0.0054***	0.0031	0.0150**
ROA		0.7393	0.1775	1.2461	0.0664*
LNTA		0.0815	0.0737*	0.0147	0.7992
TNGAS		0.0028	0.1535	-0.0012	0.6316
DIVPO		-0.1264	0.7021	-0.4563	0.2963
BSRK		-4.2093	0.0211**	-2.3379	0.2941
2002		0.1447	0.5036	-0.0541	0.8421
2003		0.1958	0.3400	-0.0761	0.7841
2004		0.0715	0.7339	-0.0608	0.8102
2006		0.5359	0.0060***	0.3999	0.0794*
2007		0.7519	0.0002***	0.4981	0.0325**
2008		0.8505	0.0000***	0.6853	0.0031***
2009		0.2857	0.1595	0.1983	0.4108
2010		0.4122	0.0443**	0.2265	0.3517
2011		0.2177	0.3059	0.0526	0.8381
Basic materials		0.6256	0.1827	0.5105	0.2513
Consumer services		0.3540	0.4496	0.2212	0.6196
Consumer goods		0.5356	0.2672	0.3558	0.4394
Financials		1.0113	0.0352**	Excluded	
Health care		0.2976	0.6371	0.0762	0.9022
Industrials		0.6813	0.1501	0.5227	0.2446
Utilities		0.6166	0.2473	0.7107	0.1676
Constant		-3.9384	0.0001***	-2.0028	0.0858*
McFadden R-squared		0.1531		0.1297	
LR-Stat		192.1199***		105.5830***	
Number of observations		1049		807	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. Year 2001 and Telecommunications industry were excluded by Eviews software as both are perfectly predicts binary response failure. The parameter estimates are obtained by logistic regression. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively.

7.2.3 Results Based on the Two-Stage Least Squares Model

The Hausman test was used to check for the existence of endogeneity. This test involves two stages. In the first stage, the *OCGI* is regressed on control variables, and its predicted value is saved as *P-OCGI*.

$$OCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (8)$$

In the second stage, the *EISSUE* is regressed on the *OCGI*, *P-OCGI* and control variables.

$$EISSUE_{it} = \alpha_0 + \beta_1 OCGI_{it} + \beta_2 P-OCGI_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (9)$$

The results of this test lead the present study to accept the null hypothesis of no endogeneity, as *P-OCGI* (P-value = 0.373) is statistically insignificantly associated with the *EISSUE*. Despite this result, the widely used 2SLS technique was employed in order to avoid any doubt. As indicated in Subsection 7.1.7, the *P-OCGI* is used as an instrumental variable for the *OCGI*. The relationship between equity issuance and CG is re-estimated by using the *P-OCGI* instead of the *OCGI*, as specified below.

$$\begin{aligned} EISSUE_{it} = {} & \alpha_0 + \beta_1 P-OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (10)$$

The results of the 2SLS are presented in Columns 5 and 6 of Table 46. The *LR-Stat* is significant at the 1% level of significance, suggesting that the alternative hypothesis that there is a significant difference between observed and predicted values is accepted. The McFadden *R-squared* implies that about 17% of the variability in the *EISSUE* is jointly predicted by explanatory and control variables. In general, the 2SLS model predicts that the *P-OCGI*, government ownership, institutional ownership, growth and business risk have a significant relationship with the *EISSUE*. Further discussion of the main sensitivities of the 2SLS results is provided below.

7.2.3.1 Empirical Results of Corporate Governance Variables

The sign and significance level on the coefficients of all CG variables remain the same as predicted by the logistic model, except that the significance level on the coefficient of institutional ownership was statistically significant at the 10% level and is now statistically significant at the 5% level.

7.2.3.2 Empirical Results of Control Variables

The direction and the level of significance on the coefficients of this group of variables show some changes. For instance, the significance level on the coefficients of firm size, year 2007 and year 2010, which were statistically significant at least at the 10% level, are now statistically insignificant, while years 2002 and 2003 become significantly correlated with the *EISSUE*. The sign on the coefficients of years 2009 to 2011 are now negative but remain statistically insignificant.

Table 46: The results of equity issuance based on the two stage least squares model

		Logistic model		2SLS model	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	+	0.0103	0.0006***	-	-
POCGI	+	-	-	0.0419	0.0000***
GOVOWN	-	-0.2308	0.0520*	-0.2286	0.0538*
INSOWN	+	0.0042	0.0675*	0.0050	0.0276**
FOROWN	-/+	-0.0022	0.4233	-0.0025	0.3593
BLKOWN	-/+	-0.0013	0.5865	-0.0021	0.3888
BSIZE	-/+	-0.0147	0.6090	-0.0268	0.3637
BIG4	-/+	0.0629	0.5698	0.0664	0.5557
CGCOM	+	-0.0084	0.9464	-0.0003	0.9979
Panel B:Control variables					
GROWTH		0.0031	0.0054***	0.0033	0.0035***
ROA		0.7393	0.1775	0.2018	0.7182
LNTA		0.0815	0.0737*	0.0176	0.7038
TNGAS		0.0028	0.1535	0.0029	0.1378
DIVPO		-0.1264	0.7021	-0.0841	0.8019
BSRK		-4.2093	0.0211**	-3.8479	0.0369**
2002		0.1447	0.5036	1.0036	0.0000***
2003		0.1958	0.3400	0.5520	0.0077***
2004		0.0715	0.7339	0.0292	0.8876
2006		0.5359	0.0060***	0.2507	0.2094*
2007		0.7519	0.0002***	0.4006	0.0499
2008		0.8505	0.0000***	0.4381	0.0350**
2009		0.2857	0.1595	-0.1431	0.5020
2010		0.4122	0.0443**	-0.0283	0.8955
2011		0.2177	0.3059	-0.1877	0.4004
Basic materials		0.6256	0.1827	0.3711	0.4429
Consumer services		0.3540	0.4496	0.1040	0.8285
Consumer goods		0.5356	0.2672	0.2746	0.5806
Financials		1.0113	0.0352**	0.8689	0.0794*
Health care		0.2976	0.6371	0.2922	0.6573
Industrials		0.6813	0.1501	0.3983	0.4124
Utilities		0.6166	0.2473	0.6949	0.2075
Constant		-3.9384	0.0001***	-4.0479	0.0001***
McFadden R-squared		0.1531		0.1686	
LR-Stat		192.1199***		211.6213***	
Number of observations		1049		1049	

Notes: Variables are defined as follows: Un-weighted Omani CG index (OCGI), Instrumental variable for the CG index (POCGI), Government ownership (GOVOWN), institutional ownership (INSOWN), foreign ownership (FOROWN), block ownership (BLKOWN), board size (BSIZE), audit firm size (BIG4), the presence of corporate governance committee (CGCOM), growth (GROWTH), profitability (ROA), firm size (LNTA), Tangible assets (TNGAS), Dividend policy (DIVPO), Business risk (BSRK). In order to avoid the dummy variable trap, year 2005 and Oil and Gas industry were excluded from the model. Year 2001 and Telecommunications industry were excluded by Eviews software as both are perfectly predicts binary response failure. The parameter estimates are obtained by logistic regression. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively.

8 SUMMARY AND CONCLUSIONS

As indicated in Section 1, Oman has reviewed its corporate regulatory framework by initiating a number of corporate reforms aimed at making firms less vulnerable to financial distress and bankruptcy following the 1997 Asian crisis. These reforms started with the introduction of the Capital Market Law in 1998, amending the Companies Act 1974 several times and establishing the CMA in 1998. Importantly, Omani authorities realised the need to improve the quality of domestic firms' governance in order to ensure high standards of corporate behaviour. As a result, the CG code was issued in 2002 and effectively implemented in 2003; this is regarded as a major CG regime reform aimed at improving CG practices.

The code contains a number of CG recommendations to assist firms in mitigating agency problems associated with corporate policy decisions, including those related to CS and the choice of financing. These recommendations were built on an Anglo-American model and drawn from the 1992 UK Cadbury Report, and principally relate to the composition and functions of the board of directors (see Essay 1, Table 2). This study examines the extent to which reliance on an Anglo-American model can provide effective CG mechanisms, given the differences between Omani and developed corporate settings. In particular, whether the Omani code recommendations have significant impact on managerial decisions that are related to employing different levels of debt and the choosing between debt and equity or not. The impact of these recommendations on these issues is expected to be different from what is reported in developed countries because the differences in corporate contexts. Specifically, religious notions, informal rules and ownership concentration suggest that Omani managers may have different views from managers in developed countries in constructing CS. Prior studies in developed countries report empirical evidence that CG mechanisms have a significant influence on the *FCS*. Thus, it becomes important to investigate how and why a firm's CG mechanisms may influence CS in a non-developed country like Oman, where empirical evidence is lacking.

Unlike a few studies on CS in Oman (Abdulla, 1998; Omet and Mashharawe, 2002; Sbeiti, 2010), this study empirically conducts its investigation in order to expand current understanding of firms' financial decision-making. It employs one of the largest and most extensive data sets to date on CG and CS in emerging economies (i.e., a sample of 116 Omani listed firms from 2001 to 2011, giving a total of 1,152 firm year observations), and a broad CG index consisting of 72 CG provisions. Similarly, it uses a CG index to perform its investigation instead of examining individual CG mechanisms, in response to recent calls that CG should be examined as a set. Arguably, this distinguishes the current study from most prior studies that examine the CS-CG relation using single-dimensional characteristics of CG, without considering

the interrelationships between CG mechanisms. The present study is further distinct from past studies by examining four types of ownership structures and factors that have not been widely investigated in the literature, such as government ownership, foreign ownership and the presence of a CG committee.

This section provides a summary of the results discussed in Sections 6 and 7. In particular, Subsection 8.1 summarises the empirical results of the *FCS* and the *EISSUE*. Subsection 8.2 summarises the empirical results of robustness analyses related to the *FCS* and the *EISSUE*. Subsection 8.3 discusses the policy implications and recommendations of these results. The contributions of this study are discussed in Subsection 8.4, and its limitations and suggestions for further research are discussed in Subsection 8.5.

8.1 CAPITAL STRUCTURE AND THE CHOICE OF FINANCING: THE MAIN RESULTS

In line with theoretical and empirical literature, analysis of the extent to which CG drives CS and the choice of financing suggests that, on average, better-governed firms tend to significantly employ lower levels of leverage and issue equity over debt compared to their poorly-governed counterparts. Specifically, an examination of hypothesis five (H5) reveals a statistically significant negative association between firm-level CS and firm-level CG. Quantitatively, holding all the other variables within the model constant, the result suggests that an increase in the *OCGI* will result in a 0.322 percent decrease in the use of total debt in financing firms' operations. Theoretically, the negative association between the *OCGI* and firm-level CS is consistent with the prediction that firms with poor CG employ higher levels of leverage as a substitute for CG, to ensure managers act in line with shareholders' interests. This result lends empirical evidence to prior studies (e.g., Rijal and Bahadur, 2010; Haque *et al.*, 2011; Jiraporn *et al.*, 2012) on the relationship between firm-level CS and firm-level CG.

An examination of hypothesis thirteen (H13) suggests that there is a statistically significant positive association between firm-level CG and the *EISSUE*. Quantitatively, holding all the other variables within the model constant, the result indicates that an increase in the *OCGI* by one unit will result in a 0.010 percent increase in the likelihood of selecting equity compared to debt. The significant positive relationship between firm-level CG and the *EISSUE* is in line with the theoretical prediction that CG mitigates agency problems to a level where equity issuance becomes the first choice for firms to meet their external financing needs. This result lends empirical support to the admittedly limited literature (e.g., Mande *et al.*, 2012) on the association between the *EISSUE* and firm-level CG.

In addition to *H5* and *H13*, which are regarded the main hypotheses, the results of the rest of hypotheses examined in this study are summarised below. *H1* predicts that there is a statistically significant positive association between government ownership and the *FCS*. *H1* was rejected, as the coefficient on government ownership is negative and statistically insignificant. This result lends empirical support to the result reported by Hussainey and Aljifri (2012), who report empirical evidence of no significant effect of government ownership on the *FCS*.

H2 predicts that there is a statistically significant negative association between institutional ownership and firm capital structure decision. The coefficient on institutional ownership is negative but statistically insignificant, so the study rejects *H2*. The inverse relationship between institutional ownership and the *FCS* is consistent with Al-Fayoumi and Abuzayed's (2009) evidence that institutional ownership is not statistically associated with the *FCS*.

H3 predicts that there is a statistically significant negative association between foreign ownership and firm capital structure decision. *H3* was rejected because the coefficient on foreign ownership is negative and statistically insignificant. This result is in line with Zou and Xiao's (2006) empirical evidence that foreign ownership does not affect firm-level CS.

H4 predicts that there is a statistically significant negative association between block ownership and firm capital structure decision. *H4* was rejected, as the coefficient on block ownership is positive and statistically insignificant. This result is inconsistent with prior studies (e.g., Sheikh and Wang, 2012; Ganguli, 2013) that report empirical evidence that block ownership has a significant positive impact on the *FCS*.

H6 predicts that there is a statistically significant association between board size and the *FCS*. The coefficient on board size is negative but statistically insignificant, so the study rejects *H6*. The inverse relation lends empirical support to Hussainey and Aljifri's (2012) evidence that firm board size has no significant influence on the *FCS*.

H7 predicts that there is a statistically significant negative association between the presence of a CG committee and firm capital structure decision. The coefficient on CG committee is negative and statistically significant at the 5% level of significance, suggesting that *H7* is empirically supported. This result is in line with the theoretical prediction that a CG committee ensures that CG provisions adopted by a firm are followed, which in turn motivates firms to employ lower levels of leverage, as they do not need to use debt financing as a substitute mechanism for CG. This result offers empirical evidence not previously found in the literature, implying that a CG committee is a significant determinant of firm-level CS.

H8 predicts that there is a statistically significant negative association between audit firm size and firm capital structure decision. *H8* was accepted, as the coefficient on audit firm size is negative and statistically significant at the 10% level of significance. This result is in line with the prediction that firms audited by larger audit firms may not need to use high levels of leverage as a CG mechanism because large audit firms are better able to reduce information asymmetries, moral hazard and adverse selection problems than small audit firms. This evidence is contrary to Hussainey and Aljifri's (2012) report that the quality of external auditors has no significant influence on the *FCS*.

H9 predicts that there is a statistically significant negative association between government ownership and the *EISSUE*. The coefficient on government ownership is negative and statistically significant at the 10% level, indicating that *H9* is empirically supported. This result is in line with the theoretical prediction that firms with greater government ownership tend to use debt financing as a control mechanism to reduce managerial self-interested behaviour. This result offers empirical evidence suggesting that government ownership is a significant determinant of equity issuance; past studies have not considered this determinant in their investigations.

H10 predicts that there is a statistically significant positive association between institutional ownership and the *EISSUE*. *H10* was accepted, as the coefficient on institutional ownership is positive and statistically significant at the 10% level of significance. This result is consistent with the theoretical prediction that firms with large institutional ownership may be motivated to issue equity over debt because they aware that new investors do not need to collect costly private information as a result of the presence of institutional investors. This result lends empirical support to prior results (e.g., Brous and Kini, 1994; Mande *et al*., 2012) that equity issuance is preferred by firms with a large percentage of institutional ownership.

H11 predicts that there is a statistically significant association between foreign ownership and the *EISSUE*. The coefficient on foreign ownership is negative but statistically insignificant, so the study rejects *H11*. The literature shows no international evidence of a link between the two variables.

H12 predicts that there is a statistically significant association between block ownership and the *EISSUE*. *H12* was rejected, as the coefficient on block ownership is not statistically significantly related to the *EISSUE*. Similarly, there is no empirical evidence on the potential reaction of equity issuance to ownership concentration.

H14 predicts that there is a statistically significant association between board size and the *EISSUE*. The coefficient on board size is negative but statistically insignificant, so the study

rejects *H14*. Board size as a potential determinant of equity issuance has not yet been examined in the literature.

H15 predicts that there is a statistically significant association between the presence of a CG committee and equity issuance. *H15* was rejected, as the coefficient on CG committee is statistically insignificant. The impact of the presence of a CG committee on a firm's choice to issue equity or debt is not investigated in the literature.

The finial hypothesis predicts that there is a statistically significant association between audit firm size and the *EISSUE*. The coefficient on audit firm size is positive but statistically insignificant, so the study rejects *H16*. This result is not in line with Chang *et al.*'s (2009) evidence that firms audited by Big Six audit firms prefer equity issuance.

8.2 CAPITAL STRUCTURE AND THE CHOICE OF FINANCING: THE ROBUSTNESS RESULTS

Many additional analyses were carried out to ascertain the robustness of the main results. Overall, the main results are robust to alternative measures and estimations, supporting the current study's evidence that CG recommendations introduced by the 2002 CG code have had a significant impact on the *FCS* and the *EISSUE*. This subsection summarises the results of these analyses. First, a CG weighted index was used instead of an un-weighted index in order to check how much the main results can be affected by a weighted index. Both robustness analyses related to the *FCS* and the *EISSUE* indicate that the main results are not sensitive to a weighted index. Second, firm-level CS was calculated by using book total debt ratio as a main measure of the *FCS*. The *FCS* was re-calculated by using short-term debt and long-term debt ratios in order to account for the suggestion in the literature that using alternative definitions of CS may generate different results. The coefficient on the *OCGI* is negative but statistically insignificant in the short-term debt model, and statistically significant and negatively associated with the *FCS* in the long-term debt model. Third, prior studies argue that financial firms are heavily regulated, and their leverage and financing decisions may not be similar to those of non-financial firms. The *FCS*-CG and the *EISSUE* -CG relations were re-estimated by employing only non-financial firms to account for the possibility that the inclusion of financial firms in the current study's data set may lead to different results. The results of these analyses are largely consistent with the main results, confirming the current study's argument that the impact of CG on both types of firms is similar. Fourth, the relationship between CS and CG was re-estimated using a fixed-effects model in order to account for unobserved firm-level characteristics. The results of this analysis are largely in line with the main results, indicating that CG has a significant negative relationship

with the *FCS*. Fifth, the main results of CS were checked for the sample period. The splitting of the sample into two sub-samples, namely before implementing the 2002 CG code (*Pre-2003*) and after implementation (*Post-2003*), and re-running the OLS regression on both samples, shows that the *OCGI* is only had a significant effect during the *Post-2003* period. This confirms the main result that the 2002 CG code has helped Omani firms reduce their levels of leverage. Sixth, the lagged structure model was adopted as an alternative econometric model to account for time-lag in firm-level CS and firm-level CG association. The results of this analysis remain qualitatively the same as those predicted by the main analysis. Finally, 2SLS methodology was performed to account for potential endogeneities resulting from omitted variables and/or simultaneity. The results of these analyses suggest that the main results of the *FCS* and the *EISSUE* models are largely robust, where the main variable *OCGI* is still significant and negatively associated with the *FCS* and has a significant and positive link with the *EISSUE*.

8.3 POLICY IMPLICATIONS AND RECOMMENDATIONS

Despite initial expectations that the impact of CG on CS and the choice of financing in the Omani context may be different from developed countries, the current study's analyses indicate that CS decisions are driven by CG structures. The results demonstrate that firm-level CG, audit firm size, CG committee, government ownership and institutional ownership are statistically significant determinants of variation in the *FCS* and the *EISSUE* decisions. These results suggest policy implications and recommendations.

First, contrary to concerns that reliance on an Anglo-American model may be a barrier to effective CG mechanisms in Oman due to differences between Oman and developed countries, the evidence suggests that CG mechanisms proposed by the 2002 CG code, in addition to other CG measures in the Companies Law, have assisted firms in mitigating agency problems and reducing agency costs associated with their CS decisions. Omani firms with better governance structures appear to rely less on debt financing as a CG mechanism, in order to alleviate agency costs and align managers' interests with shareholders, than their poorly-governed counterparts. The joint effect of those CG mechanisms has also shown a significant impact on financing decisions. The likelihood of choosing equity over debt financing increases in firms with better governance structures, where effective CG mechanisms seem to assist Omani firms in reducing the cost of equity, which in turn increases their willingness to issue equity rather than debt. This suggests that firms with poor CG structures may not be considered attractive by potential investors, which increases their cost of capital, as agency costs would be higher in such firms. Firms should implement effective CG systems in order to access equity capital markets by weighing up the costs involved. Thus, Omani policy makers (e.g., CAM, MSM) should stress that

firms need to keep improving their CG structures. For instance, as suggested by the current study's results that the presence of a CG has a significant impact on firm-level CS, policy makers should encourage firms to set up CG committees that ensure that CG recommendations adopted by firms are followed and regularly reviewed.

Second, the results related to ownership structures show that shareholders' rights have no significant effect on firm-level CS among Omani listed firms, but do have a significant impact on the *EISSUE*. Firms with large institutional ownership and lower government ownership tend to issue equity. Although the Omani government, institutional investors, foreign investors and block holders own around 6%, 20%, 11% and 55% of listed firms' shares, respectively, they have no influential role in CS. This is contrary to the theoretical prediction that CS can be considerably influenced by ownership. The general lack of influence on both the *FCS* and the *EISSUE* may be related to the significant impact of informal rules on shareholders. For instance, block holders are expected to use their powers to monitor managers by replacing those who perform poorly instead of using debt financing as a control mechanism. Thus, a real commitment is required from those shareholders to perform their duties as CG mechanisms in order to mitigate agency problems and minimise agency costs.

Third, the insignificant relationship between board size and the *FCS* and the *EISSUE* implies that board size has no influence in determining the extent to which a firm employs leverage and whether it issues equity or debt. This is inconsistent with the theoretical prediction that the board has the most authority in providing clear strategies to guide managers in structuring CS. This finding may result from the possibility that board directors find it difficult to assist firms to decide between higher or lower levels of leverage and choose between equity and debt. Managers prioritising family, tribe and personal relationships may carry debt at a sub-optimal level in order to enjoy free cash. Policy makers should perhaps introduce governance mechanisms that make board members more involved in actively monitoring managers. CG provisions that do not allow board members to be related to any managers may be one step in this direction.

Finally, the results indicate that firm-level CS is lower in firms audited by large audit firms and firms that have CG committees, whereas the *EISSUE* is not influenced by these determinants. The significant impact of these determinants may suggest that firms not audited by a large audit firms, and without a CG committee, might be considered less attractive to new investors, as information asymmetries, moral hazard and adverse selection problems are expected to be higher in such firms. The insignificant effect of these determinants on firms' financing selection suggests that firms should re-evaluate their CG systems by choosing a better quality auditor and/or improving their board committees. This could enable firms to more easily access equity

markets and lower the cost of equity, until it becomes cheaper than debt financing. Policy makers can contribute to this by encouraging firms to have CG committees and along with audit committee that was suggested by the 2002 CG code, as well as improving audit quality by introducing restrictions on how audit firms operate.

8.4 CONTRIBUTIONS

As explained earlier, the current study is distinct from past studies in general and those that examine CS determinants in an Omani context in particular. Prior studies in Oman are limited in number (Abdulla, 1998; Omet and Mashharawe, 2002; Sbeiti, 2010) and scope. They examine general CG determinants, unlike the current study. The present study seeks to overcome the limitations of existing cross-sectional and time series studies, and those examining the impact of individual CG mechanisms on the *FCS* and the *EISSUE*, by using a multi-theoretical approach, panel data methodology and a self-constructed CG index. Examining various aspects of corporate financial behaviour in a non-developed country like Oman is regarded as important in order to expand our understanding of firms' financial decision-making behaviour; this behaviour is expected to be different from what is reported in developed contexts because of features associated with the Omani corporate setting. Thus, this study makes a number of new contributions to the extant CG and CS literature.

First, unbalanced panel data of 116 firms from nine different industries from 2001 to 2011 was gathered, producing a total of 1,152 firm year observations over the 11-year period. The present study provides detailed empirical evidence on why and how a firm's CG might influence its level of CS and its the *EISSUE* in Oman. Unlike many existing studies, this study does not restrict its sample to only large firms; all firms with sufficient data are sampled in order to strengthen the generalisability of the results. Similarly, this study seeks to reduce the effect of some statistical problems, such as multicollinearity and unobserved heterogeneity among variables associated with either cross-sectional or time series approaches, by adopting panel data methodology (Gujarati, 2003; Wooldridge, 2009). The results drawn from this study suggest that, on average, better-governed firms tend to employ lower levels of leverage and select equity financing more than their poorly-governed counterparts. This lends empirical support to the admittedly limited literature examining the impact of CG on the *FCS* and the *EISSUE*, helping fill the gap in the literature.

Second, the evidence highlights the importance of ownership structure as a CG mechanism determining the *EISSUE*, which is in line with prior results suggesting that shareholder' rights can impact how firms construct their CSs and finance their activities. Unlike past studies that restrict their analyses to a few types of ownership, which may not provide a

broder understanding of the impact of such determinants, this study examines four types of ownership. It provides empirical evidence that firms with government ownership tend not to issue equity when seeking new or additional financing, whereas those with many institutional investors prefer to issue equity over debt.

Third, the current study examines some factors that have not been widely investigated. It provides empirical evidence that firms audited by large audit firms and firms with CG committees tend to use lower levels of leverage.

Fourth, the study helps answer the question of what determines CS by adopting a multi-theoretical approach. It draws on a number of theories from CG and CS literature in order to develop a multi-theoretical framework, which incorporates insights from trade-off, pecking order, signalling, market timing, signalling and agency theories. This framework contributes to attempts to arrive at a uniform theoretical framework that helps researchers to understand firms' motivations to construct their CSs.

Fifth, unlike most prior studies, which exclude financial firms from their analyses, the present study provides empirical evidence that there is no significant difference in the influence of CG on the *FCS* and the *EISSUE* between financial and non-financial firms. This should encourage researchers, especially in emergimg countries, to include financial firms in their analyses, as both types of firms tend to react almost the same way towards CG systems due to weak corporate enforcement.

Finally, despite many existing studies, the current study provides empirical evidence on the association between CG and the *FCS* and the *EISSUE* using different models and estimations in order to test the robustness of its results. The main results of this study are fairly robust across a number of econometric models that sufficiently account for alternative CG and CS proxies, unobserved firm-specific characteristics, time period and different endogeneity problems.

8.5 LIMITATIONS AND AVENUES FOR FURTHER RESEARCH

Although the current study's results are fairly robust and important, weaknesses need to be clearly articulated. First, the study's measures for the other CG, ownership, the *FCS* and the *EISSUE* variables may or may not accurately reflect actual CG, ownership, the *FCS* and the *EISSUE* in practice due to potential measurement errors. Using alternative measures for several variables was extremely difficult due to data limitations. Hence, additional CG and CS proxies beyond those used in this study can be employed in order to overcome problems associated with measurement errors. Second, reliance on only corporate annual reports for CG information may limit the availability of data, whereas other sources of information, such as analysts' reports, can complement corporate annual reports. Future studies may be motivated to search for additional

sources of data in order to obtain more detailed information. For instance, different sources of data may allow future research to use other CG information and market values in addition to book values in calculating the *FCS*. Third, although the current study sought to include the most influential variables in its models, it may be subjected to omitted variables as a result of unavailable data. Future research may include orher determinants in addition to those examined in this study in overcoming the problem of omitted variables. Fourth, the present study includes only listed firms in its data set; the study was unable to include non-listed firms, which could have strengthened the generalisability of its results. Future research may benefit by examining listed and non-listed firms and financial and non-financial firms. Fifth, although the current study examines a considerable number of variables, determinants related to specific aspects of the Omani context, such as informal rules, religious notions and cultural practices, which motivated the current study's investigation, have not been examined. Future research may improve its analysis by examining how external CG structures, such as the media and the market for corporate and managerial control, as well as Omani-specific issues, such as religious notions, cultural practices and social norms, impact on the *FCS* and the *EISSUE*. Finally, using only a quantitative methodology to perform its analyses may limit the ability to interpret the results; using both quantitative and qualitative (e.g., interview and survey) methodologies can be helpful in overcoming this problem.

Empirical Essays on Corporate Governance and Corporate Decisions in Emerging Economies: The Case of Oman

Essay 3

Corporate Governance and Earnings Management in Emerging Economies: Evidence from Omani Listed Firms

ABSTRACT

This essay examines the impact of corporate governance (CG) on corporate earnings management (EM) behaviour. Employing one of the largest and extensive dataset to-date on CG and EM in emerging economies (i.e., a sample of 116 Omani listed firms from 2001 to 2011 and 1,152 firm year observations) and a broad CG index consisting of 72 CG provisions, the study finds that, on average, better-governed firms tend to engage significantly less in EM than their poorly-governed counterparts. It also finds that government ownership, institutional ownership, foreign ownership, audit firm size and board diversity on the basis of gender are negatively associated with EM. In contrast, block ownership, board size and CG committee have positive relationship with EM. The study's results are fairly robust across a number of econometric models that sufficiently account for alternative CG and EM proxies, as well as different endogeneity problems. Overall, its findings are generally consistent with the predictions of its multi-theoretical framework that incorporates insights from agency, signalling, stakeholder, and stewardship theories.

Keywords: Corporate governance; earnings management; multi-theoretical approach; emerging economies; Oman; endogeneity.

1 INTRODUCTION

1.1 Background

As economic, social and political systems have become larger and more complex, different forms of agency problems have emerged as a result. The agency problem associated with the separation of ownership and control, along with information asymmetry between different stakeholders, has led to accounting scandals and corporate failures, such as Enron, HealthSouth, Tyco and WorldCom, among others (Jensen and Meckling, 1976; Agrawal and Chadha, 2005). The widespread failure in international accounting and financial reporting has largely been suggested to be a result of ineffective control procedures that fail to curb opportunistic managerial behaviour.[30] In particular, the absence of effective internal controls allows managers to have discretion in managing earnings in order to reap personal benefits at the expense of shareholders and other stakeholders resources. Importantly, EM practices employed by managers have a negative influence on firm value.[31] Such practices affect the credibility and transparency of financial reporting, which different stakeholders largely rely on when making investment decisions. Consequently, academics and professionals have encouraged firms to adopt CG systems designed to mitigate opportunistic managerial behaviour by separating management' decisions and their control (Fama and Jensen, 1983). For instance, the board of directors, through its committees, especially the audit committee, plays a crucial role in ensuring reliable and accurate financial reporting, and hence reducing EM practices (Garcia-Meca and Sanchez-Ballesta, 2009). As a result, researchers have been keen to investigate the extent to which CG would be able to mitigate EM practices in different corporate settings.

Although a considerable number of studies have examined the association between EM practices and CG, most have focused on specific CG mechanisms, such as board characteristics (e.g., Stockmans *et al.*, 2013; Sun and Liu, 2013) and audit characteristics (e.g., Iatrdis, 2012; Tsipouridou and Spathis, 2014). In contrast, studies investigating this relation through multi-dimensional characteristics of CG are limited (Bowen *et al.*, 2008; Bekiris Doukakis, 2011). In this regard, previous studies (e.g., Karamanou and Vafeas, 2005; Bowen *et al.*, 2008) indicate that it is imperative to examine CG mechanisms as an integrated system instead of testing them independently, because some can complement or substitute each other. Dechow *et al*. (2010,

[30] For instance, in eight out of ten firms that had scandals in 2002, the roles of chairperson and chief executives were held by the same person, indicating a clear weakness in their internal control procedures according to agency theory (Albrecht *et al*, 2004). Similarly, Dechow *et al.* (1996) report evidence that firms with boards of directors dominated by management tend to manipulate earnings.

[31] See Schipper (1989) for an overview of the definition of earnings management, and Healy and Wahlen (1999) for a detailed overview of earnings management incentives.

pp.383) discuss this issue and state that "*Using only a limited set of corporate governance measures results in econometric problems (e.g., inconsistent coefficient estimates) that can lead to invalid inferences*". This may suggest that using one-dimensional characteristics of CG may not provide a clear picture of CG's role in reducing EM practices. Thus, researchers are encouraged to use multi-dimensional characteristics of CG to examine this relation in order to see a wider picture. However, most prior studies have been conducted in developed countries, where institutional structures and corporate settings are largely similar, while limited evidence has been reported from emerging economies in general and the MENA in particular (Alves, 2012; Wang, 2014). As a result, and in line with the growing debate in the literature on the ability of different CG measures to mitigate agency problems and reduce agency costs within different business environments, this essay sets out to examine the important issue of CG by investigating its influence on EM practices in emerging country like Oman.

Theoretically, EM practices are considered a type of agency cost; hence, they are mainly related to agency theory (Davidson *et al.*, 2005, Prior *et al.*, 2008). Agency theory suggests that due to the separation of ownership and control, managers are more likely to engage in unethical behaviour in order to gain personal benefits at the expense of shareholders (Jensen and Meckling, 1976). Such behaviour involves agency costs, as shareholders are unable to monitor managers alone. Although shareholders and debt holders attempt to mitigate such negative behaviour by using different forms of contracts (e.g., compensation contracts and debt covenants), managers have been found to engage in EM practices when a firm's earnings are more/less than the compensation target, or when they draw closer to defaulting on debt covenants (Watts and Zimmerman, 1986; Press and Weintrop, 1990; Sun, 2013). Agency theory suggests that CG provides a set of constraints that curbs opportunistic managerial behaviour and reduce agency costs. Specifically, CG measures can ensure compliance with financial accounting standards and disclose credible financial reporting (Verriest *et al.*, 2013). Thus, agency theory has documented a direct link between EM practices and CG mechanisms. However, unlike agency theory, stakeholder theory assumes that conflict of interest is inherent in the association between managers and all stakeholders (Hill and Jones, 1992). Based on this assumption, a manager is considered to be an agent for all stakeholders and his/her opportunistic managerial behaviour can have serious consequences for all stakeholders (Hill and Jones, 1992; Jones, 1995). In this view, EM practices affect not only shareholders, but also other stakeholders, such as creditors, suppliers and employees, among others. Importantly, stakeholder theory claims that the CG system does not represent all stakeholders' interests, and employing CG measures alone is not adequate to protect stakeholders from opportunistic managerial behaviour. It suggests additional institutional

structures that serve as further monitoring and enforcing mechanisms, such as labour unions, consumer unions and special-interest groups, among others (Hill and Jones, 1992; Letza *et al*., 2004).

Researchers in developed countries have used different theoretical predictions and explanations to examine the effect of CG measures on EM practices. They have reported empirical evidence that CG standards can either reduce or mitigate EM practices. Since most emerging economies have adopted CG standards in advanced economies, the question of whether adopting and implementing these measures will reduce EM practices must be asked. Therefore, the extent to which researchers in emerging economies will find similar results to those reported by researchers in developed countries given legal enforcement and investment protection in those countries are weaker (Al-Jabri and Hussain, 2012; Gonzalez and Garcia-Meca, 2013). For instance, board directors are not as independent as their counterparts in the US and the UK, which weakens their ability to monitor managers (Garcia-Meca and Sanchez-Ballesta, 2009). Thus, using the same theoretical predictions and explanations to investigate the effect of CG on EM practices in emerging countries deepens our understanding of the effectiveness of CG standards in influencing managerial decision-making behaviour in general and EM in particular.

Therefore, this study aims to shed more light on the impact of CG on one aspect of corporate financial decision-making, EM behaviour, in one emerging economy, Oman. In response to the 1997 Asian crisis and international corporate development, the Omani government has adopted a number of governance reforms.[32] These reforms aim to restore investor confidence and protect stakeholders' interests. Among these reforms was the issuing of a voluntary CG code by the Capital Market Authority (CMA) in 2002, which is regarded as the most advanced governance regulation in Oman. The code includes a series of recommendations which aim to regulate the management of firms listed on the Muscat Securities Market (MSM). Importantly, it was designed to encourage firms to implement good CG standards which mean less opportunistic managerial behaviour and better stock market performance. For instance, it recommends firms establish an audit committee to review financial statements and ensure that there is no change in accounting policies and principles, as well as detect any financial reporting irregularities (Omani CG code, 2002, Appendix 3).

Despite Oman's early attempts to adopt a CG code compared with its counterparts in the region,[33] the code seems to face a number of challenges. For example, even though the Omani CG code's provisions were mainly drawn from the UK's Cadbury Report of 1992, this code

[32]See Essay 1, Section 2 for more information on CG reforms in Oman.

[33]See Essay 1, Table 1 for more of an overview on CG codes in the MENA region.

formulates governance recommendations in a simple form and adopts limited provisions. Further, there are major differences between Oman and the UK in terms of factors which may have implications for achieving the code's objectives, including factors such as institutional structures. In this regard, Mueller (1995) indicates that adopting pre-designed CG structures without taking into consideration the context in which these structures will be implemented may not lead to better CG practices. These challenges may raise critical concerns on the effectiveness of CG mechanisms proposed by the code to provide effective control procedures that curb managerial self-interest in general and mitigate EM practices in particular.

1.2 Motivation

This study is designed to assess the extent to which CG measures are useful in understanding EM behaviour among Omani listed firms. In this sense, Oman is regarded as a good environment in which to conduct such investigation because of its unique features, which differentiate it from developed countries. These characteristics are: religious notions, informal rules[34] and ownership structures. First, Oman is a conservative society where religion has a remarkable effect on the way individuals think and behave. In this context, managers are more likely to make their decisions in line with Shariah law.[35] This is considered to be different from managers in developed countries, who are supposed to make decisions consistent with shareholders' interests. Prior studies have reported evidence that religion has an impact on managerial decision processes (e.g., Hilary and Hui, 2009), financial reporting (e.g., Dyerng *et al*., 2012; McGuire *et al*., 2012), and tax fraud and tax evasion (e.g., Stack and Kposowa, 2006; Richardson, 2008). Thus, religious adherence in Oman is expected to influence managers to engage less in EM practices. This may result from the fact that religious individuals are considered relatively more risk averse, and are more likely to avoid any litigation resulting from engaging in unethical behaviour, such as EM practices. Kartk and Schwarze (2008) report evidence that Muslims are significantly more risk averse than Protestants. This may suggest that religious notions can serve as a complementary CG mechanism preventing Omani managers from reporting EM (Callen *et al*., 2010).

Second, prior studies (e.g., Williamson, 2000) indicate that informal systems have a great impact on formal systems, and firms may adopt some practices that are congruent with social expectations (Meyer and Rowan, 1977). This impact tends to be greater in emerging economies where legal enforcement is weaker (Allen *et al*., 2005). In this regard, Oman can be viewed as a collectivistic country where firms are expected to be influenced by both formal and informal

[34]Similar to Essay 1 and 2 religious notions and informal rules are not empirically tested due to data limitation.
[35]Shariah Law is based on the Qur'an and the Prophet Mohammed's teachings, which serve as guidance for Muslims in all aspects of life (Kamla *et al.*, 2006).

systems (Moideenkutty *et al*., 2011). Specifically, managerial behaviour is likely to be influenced by informal rules, where managers have long-term commitments to family, tribe and personal relationships, rather than formal rules, such as CG systems (Haniffa and Hudaib, 2006; Common, 2008; Chahine *et al.*, 2009; Boytsun *et al*., 2011). This may suggest that such rules render CG measures ineffective in mitigating EM practices among Omani listed firms. For instance, though the roles of chairperson and chief executive are split in most listed firms, in some firms both directors are related, or from the same tribe, which in turn can weaken the monitoring role of the firm's board. Arguably, informal rules give influential power to managers to behave opportunistically at the expense of shareholders. One manifestation of such behaviour is engaging in EM practices in order to create either personal, family and tribe benefits or to deceive potential investors that their firms have good financial prospects.

Finally, previous studies (e.g., Shleifer and Vishny, 1986; Morck *et al*., 1988) indicate that different ownership structures may lead to different motivations to control and monitor managerial decision processes, which may have important implications for mitigating EM practices. In this sense, Oman has diversified ownership structures which provide ideal setting for examining the monitoring role played by those structures in reducing EM practices. Importantly, the ownership structure of firms is characterised by high levels of concentrated ownership, which is distinct from firms in the US and the UK, where ownership is diffuse (Najib, 2007; Elsayed, 2007; Omran *et al*., 2008; Bishara, 2011). In this context, the agency problem can be viewed differently from in the US and the UK, where conflicts of interest tend to be between majority and minority shareholders rather than between managers and shareholders (Chen and Zhang, 2014). Large shareholders may behave opportunistically in order to expropriate minority shareholders by either seeking personal benefits or imposing personal preferences that may go against minority shareholders' interests (Shleifer and Vishny, 1997; Aleves, 2012). This may suggest that large shareholders are expected to force managers to report EM in order to achieve their objectives (Jaggi and Tsui, 2007). Arguably, it is expected that ownership concentration in Oman may not perform its function as a good CG mechanism in reducing agency costs and increasing monitoring. Instead, it is anticipated to increase managerial motivation to report EM.

The unique characteristics of the Omani corporate setting may suggest different results from what is reported in developed countries regarding CG' ability to mitigate EM. While studies in developed countries report evidence that CG has a crucial impact on EM practices, to the best of the current study's knowledge, there is no prior study that investigates CG-EM relationship in the MENA region in generaly, but Oman in particular. Therefore, examining the relationship between firm-level EM and firm-level CG in the Omani context can be crucial in providing a

complete understanding of why and how a firm's CG strategy might drive and/or constrain its EM practices.

1.3 Research questions and contributions

Given the unique aspects of the Omani corporate setting and the absence of empirical evidence, the main purpose of this study is to investigate how effective the CG measures suggested by the Omani voluntary code, in addition to other CG mechanisms proposed by other laws, such as Companies Law, constrain EM practices. Specifically, using one of the largest and extensive sample of Omani listed firms for the period 2001 to 2011, this study empirically examines the extent to which board and audit characteristics and different ownership structures influence EM practices. In doing so, the study extends, as well as makes a number of new contributions to the growing body of literature on the nature of the association between CG and EM. First, unlike most prior studies that attempt to examine the effect on single CG measures on EM, this study employs an comprehensive measure of CG, comprising of 72 CG provisions in investigating this relation. Second, distinct from past studies, it contributes to the literature by providing evidence on why and how four different types of ownership structure, namely government, institutional, foreign and block ownership drive EM. Finally, it contributes to the extant literature by examining how a number of unique board characteristics, including board diversity on the basis of gender and presence of a CG committee influence EM.

1.4 Structure of the essay

This study is organised as follows. The next section provides an overview of the institutional framework of CG and accounting and auditing standards in Oman. The section 3 reviews existing literature and develops the hypotheses. Section 4 describes the research design. Section 5 discusses OLS assumptions and descriptive statistics. Section 6 discusses the empirical findings. Section 7 discusses robustness tests. The final section provides the summary and conclusion.

2 CORPORATE GOVERNANCE, ACCOUNTING AND AUDIT STANDARDS IN OMAN

This section discusses the state of CG and EM with specific focus on the corporate regulations, accounting, and auditing standards within the Omani corporate context. Briefly, and as has been indicated in Essay 1, the Omani CG regulatory framework can be classified into two bodies, namely (i) external; and (ii) internal systems. First, the external CG system consists of the key financial regulatory and enforcement bodies (e.g., CMA and MSM) that play a crucial role in ensuring that both mandatory and voluntary corporate regulations are properly implemented. In particular, a number of governance circulars have been released by CMA, such as a circular dealing with related party transactions, and one addressing CG rules. Importantly, the CMA issued a UK-style voluntary code of good CG practices in 2002, which is regarded as the first and most advanced CG regulation in the entire MENA region. The code applies to all firms listed on the MSM, and was effectively implemented in 2003. Second, the internal CG system consists of key statutory and voluntary laws that have a number of CG provisions, which were proposed to reduce EM practices.

In order to operate in the market, Omani firms have to comply with the following laws. First, the Omani Companies Law no. 4 of 1974 and its amendments are significant because they have some governance provisions aimed at mitigating managerial self-interest. For instance, the law attempts to curb opportunistic managerial behaviour that can lead to EM practices by not allowing managers to engage in activities that can create conflict of interests without authorisation from shareholders (Article, 108). The law also focuses on the important role of the external auditor in ensuring that financial reports are accurate and reliable by requiring firms to appoint an external auditor who is independent and not remain in post for more than four years (Article 111). Second, the Capital Market Act no.80 of 1998 and its amendments are also crucial since its publication was in direct response to international and local CG developments, such as the 1997 Asian crisis and international corporate failures. Although most of its provisions relate to the listing and trading of securities, the Act also has a number of governance provisions on obligatory quarterly and annual reports, obligations for publishing reports and obligations to disclose accurate information. These provisions are designed to reduce information asymmetry and help stakeholders access necessary information to make investment decisions.

Third, the 2002 voluntary Code of good CG practices is the first and most sophisticated governance regulation in the MENA region. It aims to curb opportunistic managerial behaviour by separating management decisions and their control (Dry, 2003). Its CG recommendations comprise 28 articles and address four broad topics: (i) board of directors; (ii) external auditors

and internal control systems; (iii) accounting and auditing; and (iv) disclosure and transparency. Importantly, the code has several provisions related to the board of directors and accounting and auditing that aim to reduce EM practices. Board directors are required to understand financial reports, and at least one of them should have expertise in financial accounting and corporate finance. As well, the board has to approve interim and annual financial statements (Article 5). In addition, the code pays close attention to the audit committee's role. It requires that at least one member should have expertise in accounting and finance (Article 7). The audit committee is also required to review annual and quarterly financial reports. Specifically, it should detect any changes in accounting policies, principles and accounting estimates, any deviation from International Accounting Standards (IASs)/International Financial Reporting Standards (IFRS) and any financial fraud (Omani CG code, 2002). Furthermore, the code recognises the importance of external audits in mitigating EM practices. Firms are not recommended to appoint external auditors for more than four consecutive financial years, and audit firms are not recommended to provide audit and non-audit services to the same firm. Arguably, although these provisions may help limit EM practices, they are inadequate because they do not take the Omani context into consideration; many of these provisions can be seriously influenced by informal rules.

The institutional framework for accounting and auditing profession in Oman, however, is based on IASs/IFRS. The first law that was promulgated with the aim of organising the accounting and auditing profession was passed in 1986; requiring professional accountants and auditors to comply with IASs/IFRS in preparing financial reports. According to this law, auditors must obtain a licence renewable every three years in order to be qualified as external auditors, and they are also required to comply with IASs/IFRS in conducting their audits. Therefore, IASs/IFRS apply as issued by the International Accounting Standards Board (IASB) to all firms and banks, without any amendments.

On the one hand, the adoption and application of IASs/IFRS can be expected to improve the quality of finanicial reports and minimise reporting irregularities in the form of less engagement in EM practices in Omani firms. On the other hand, it raises concerns over the possibility that the applicaton of IASs/IFRS may rather offer managers the opportunity to engage more in EM practices, as implementing such standards demands extensive training, which involves costs that many firms, arguably, may not be able to afford. In addition, ownership is highly concentrated primarily through government and block holdings, and thus, casting doubt as to whether a UK-style voluntary CG regime be effective in improving CG practices by enhancing financial reporting and minimising EM. Arguably, this provides an interesting context, whereby the association between CG and EM practices can be empirically investigated.

3 THEORETICAL FRAMEWORK, LITERATURE REVIEW AND HYPOTHESES

This section discusses the theoretical and empirical literature on the relation between EM practices and CG. It is organised as follows. Subsection 3.1 will discuss the most relevant extant theories that attempt to explain the association between EM practices and CG. Subsection 3.2 will set out the central theoretical arguments and the extant empirical literature that attempt to link CG mechanisms with EM practices.

3.1 THEORETICAL FRAMEWORK

The theoretical framework enables the present study to explain and justify its hypotheses and interpret its findings regarding the potential influence of different CG mechanisms on EM practices. Similar to essay 1 and 2, multi-theoretical approach is adopted in this essay in order gain theoretical insights from agency, signalling, stakeholder and stewardship theories. The study presents and discusses the central trust of each of these four theories below.

3.1.1 Agency Theory

Agency theory (AT) was formally developed by Jensen and Meckling in 1976. They built their theory on the assumption that there are conflicts of interest between owners and managers. Due to the separation of ownership and control, AT predicts that managers are expected to engage in opportunistic behaviour in order to gain personal benefit at the expense of shareholders, and such behaviour leads to costs that minimise shareholders' wealth. AT focuses on two means by which such conflict of interest can be mitigate, namely writing contracts and CG mechanisms.

First, owners write contracts with managers in order to limit and restrict managerial self-interest and align managers' interests with their own. In particular, compensation contracts are designed based on accounting numbers to attract managers to increase firms' value, which in turn maximises managers' wealth. Highly remunerative management contracts are expected to have both positive and negative implications on the way that managers make decisions. On the one hand, compensation contracts may motivate managers to make more of an effort to maximise shareholders' wealth, which in turn maximises their own wealth. On the other hand, due to all contracts are unavoidable incomplete, managers may expropriate owners by engaging in EM practices. In this regard, managers may use accounting choices to manage earnings upward/downward if they are higher/lower than targeted (Healy, 1985; Gaver *et al*., 1995). This may suggest that EM practices can be considered as a type of agency cost that may minimise shareholders' wealth (Davidson *et al*., 2005; Prior *et al*., 2008). Thus, AT predicts that managers

are more likely to engage in EM practices by manipulating accounting numbers in order to reap personal benefits at the expense of shareholders. Such behaviour damages the reliability of financial reporting, creates information asymmetry between managers and owners, and causes additional agency costs that minimise shareholders' wealth.

Second, past studies (e.g., Fama, 1980; Fama and Jensen, 1983; Shilefere and Vishny, 1986; Williamson, 1988) have argued that CG provides a set of constraints that ensure reliable and accurate financial reporting, mitigate information asymmetry and reduce agency costs. In this sense, AT offers a framework by which owners can stop opportunistic managers from engaging in EM practices. Specifically, AT assumes that an increase in the credibility of financial reporting arising from effective CG structures (e.g., independent non-executive directors, and a remuneration committee and audit committee) should curb EM practices. This may suggest that poorly governed firms may be easily manipulated by managers through using accounting numbers. For instance, in a case where the positions of chairperson and chief executive are filled by the same person, a firm's management may manage earnings upward year prior the election of directors' board in order to increase firm value that more likely to positively reflect on the possibility for chief executive to be re-appointed for the second time. In contrast, manager's discretion on financial reporting in better governed firms is limited by effective CG mechanisms where firm's management actions are supervised by the board of directors through its committees. Therefore, AT has documented a direct link between EM practices and CG structures, where the former is considered an agency cost and the latter a monitoring mechanism.

3.1.2 Stakeholder Theory

Stakeholder theory (SKT) mainly was introduced by Freeman (1984), who proposed that the firm should be accountable to a broad range of stakeholders (Solomon, 2010). This assumption may be justified by the fact that different stakeholders, such as creditors, suppliers, employees and society, are considered influential players in improving the profitability and competitiveness of a firm (Letza *et al*., 2004). Based on its assumption, SKT challenges the agent-principle model proposed by AT by extending the purpose of a firm from only maximising shareholders' wealth to maximising all stakeholders' wealth (Freeman, 1984; Donaldson and Preston, 1995). Specifically, it argues that each stakeholder has implicit or explicit contracts with the firm, and managers are considered agents for all stakeholders (Hill and Jones, 1992; Jones, 1995). This implies that conflicts of interest are inherent in the association between managers and all stakeholders, where the latter may loss their utilities as a result of opportunistic managerial behaviour (Hill and Jones, 1992).

In particular, managerial self-interest in the form of EM practices can have serious consequences for all stakeholders (Hill and Jones, 1992; Jones, 1995; Lee, 1998). For instance, managers may be motivated to manage earnings in order to reduce labour costs, which impacts negatively on employees (D'Souza *et al*., 2000). This may suggest that stakeholders need to protect their utilities from opportunistic managers. In this sense, SKT claims that stakeholders have ownership rights and should participate in decision-making processes (Kelly and Parkinson, 1998). Hence, CG systems should consider stakeholders' interests as well as shareholders' interests, which can lead to more accurate and unbiased information provided by managers (Turnbull, 1994). For instance, stakeholders can play an important role in enhancing monitoring of managers by acting as independent non-executive board directors.

In addition, because each stakeholder has his/her own interests, which generally conflict with other stakeholders' interests (Prior *et al*., 2008), SKT argues that a CG system does not represent all stakeholders' interests, and employing only CG measures is not enough to deter managers from reporting earnings (Letza *et al*., 2004). It suggests additional institutional structures that could serve as further monitoring and enforcement mechanisms, such as labour unions, consumer unions and special-interest groups (Hill and Jones, 1992). For instance, stakeholders may attempt to limit opportunistic behaviour through boycotts and lobbying, which may give them indirect control over managers and thus hinder managers from reporting EM (Baron, 2001). In sum, accounting scandals and corporate failures affect not only shareholders, but also other stakeholders. Thus, the underlying objective of SKT is to reduce the possibility of stakeholders failing to maximise their utility as a result of managerial self-interest behaviour including EM practices, and suggest institutional structures along with CG structures to curb such behaviour.

3.1.3 Signalling Theory

Signalling theory (SGT) mainly was developed by Leland and Pyle (1977) and Ross (1977), and is based on an assumption concerning information asymmetry that managers are better informed about their firms than shareholders or other stakeholders. Typically, managers have more information about accounting policies, principles and estimates used to produce a firm's financial reports than stakeholders, where the latter mainly rely on these reports to make their investment decisions (Xie *et al*., 2003). In this respect, stakeholders face two main challenges: (i) how they can select the most capable management (Rhee and Lee, 2008); and (ii) how they ensure that managers do not use their private information to engage in unethical behaviour (Kapopoolos and Lazaretou, 2007). Arguably, a reduction in information asymmetry is likely to assist stakeholders to deal with these challenges (Connelly *et al*., 2011). In context of

EM practices where managers have been reported to engage in such unethical behaviour, SGT suggests that firms have to find ways to mitigate information asymmetry (Morris, 1987; Rutherford, 2003). This allows firms to signal the credibility and transparency of their financial reporting (e.g., adopting effective internal control procedures will be considered by stakeholders as a signal of quality information) (Healy and Palepu, 2001). According to SGT, increased transparency of CG practices enables firms to differentiate themselves from those with potential EM practices (Salama *et al*., 2010). For instance, by establishing an audit committee, firms signal to stakeholders that financial reports are fairly prepared and presented, and these reports are a credible resource for making investment decisions. Since managers may employ accounting choices to manage earnings, capital providers can rely on CG structures to assess quality firms when firms seeking external financing (Healy, 1985; Gaver *et al*., 1995). In contrast, firms with poor governance structures are likely to increase stakeholders uncertainty about firms earnings quality, suggesting that they are less committed to accountability (Certo *et al*., 2001). Thus, SGT provides theoretical foundation that CG acts as signal of a firm's quality, and concerns related to EM practices are mitigated through implementing good CG practices, allowing stakeholders to distinguish between high and low quality firms (Morris, 1987).

3.1.4 Stewardship Theory

The major contributors of this theory are Hutton (1995) and Kay and Silberston (1995), who argued that a firm's purpose is to maximise its overall wealth (Letza *et al*., 2004). The agent-principle relationship is viewed differently by stewardship theory (SWT) compared to AT, SKT and SGT. SWT posits that managers are trustworthy and should be fully empowered to perform their duties because their interests are aligned with shareholders (Hutton, 1995; Kay and Silberston, 1995). This implies that there are no conflicts of interest between managers and shareholders, and the greater power of managers allows them to work towards shareholders' interests (Davis *et al*., 1997). In this regard, shareholders trust managers, who are anticipated to provide credible and transparent financial reports to meet shareholders' expectations. SWT argues that managers are less likely to engage in EM practices because the concept of trusteeship is associated with CG mechanisms. The trust is assured because of two main factors that work as alternative CG mechanisms. First, market for corporate control can serve as a CG mechanism by making mangers less engaging in unethical behaviour, such as EM practices (Fama, 1980). Further, managers are expected to be motivated to run the firm in line with shareholders' interests in order to protect their reputations as expert decision makers (Daily *et al*., 2003). Second, managers' stewardship can be assured by external auditors who examine how well managers prepare and present financial statements that reflect the firm's true value (Iatridis, 2012). Despite

its conceptual basis, there are concerns about how realistic SWT is, as managers have been reported to abuse their power and pursue private gains at the expense of shareholders by engaging in EM practices (Kay and Silberston, 1995; Albrecht *et al*., 2004; Letza *et al*., 2004; Choo and Tan, 2007).

3.2 PRIOR EMPIRICAL LITERATURE AND HYPOTHESES

Given the absence of empirical evidence in Oman, this study aims to examine the relationship between firm-level EM and firm-level CG among Omani listed firms. Hence, this subsection will briefly set out the central theoretical arguments and the extant empirical literature. Following prior studies, different theoretical predictions and explanations will be used to link CG mechanisms with EM practices in order to develop the study's hypotheses. The developed hypotheses will be tested to confirm or reject the results reported in developed countries, as these findings are not necessarily expected to apply to Omani firms. This will allow the study to provide empirical evidence on the effectiveness of CG in mitigating agency problems associated with managerial self-interest in the form of EM practices in an emerging country with different institutional and CG structures. Previous studies in developed countries mainly rely on one-dimensional characteristics of CG (e.g., board characteristics and audit characteristics), which may not provide a broad picture of CG's role in mitigating EM practices.

In contrast, this study employs multi-dimensional characteristics of CG that can be used as an integrated system instead of testing each dimesion independently. Specifically, the explanatory variables employed in this study are classified into two groups. The first group is ownership variables, including: (i) government ownership; (ii) institutional ownership; (iii) foreign ownership; and (iv) block ownership. The second is CG variables, including: (i) firm-level CG; (ii) board size; (iii) presence of a CG committee; (iv) audit firm size; and (v) board diversity on the basis of gender. The selection of these explanatory variables was in line with EM and CG literatures, and due to data limitations that forced the study to include only these variables. Brief theoretical arguments and the extant empirical literature around each explanatory variable are discussed in the following subsections.

3.2.1 Ownership Variables

Corporate ownership structures have been suggested to play an important role in CG, as they can help monitor managerial behaviour in general and ensuring reliable and accurate accounting information in particular. Specifically, previous studies (e.g., Shleifer and Vishny, 1986; Morck *et al*., 1988) indicate that different ownership structures may lead to different motivations to control and monitor managerial decision processes, which may have significant

implications for mitigating EM practices. Past studies that have examined the effect of ownership structure on EM practices mainly consider institutional and concentrated ownership; government and foreign ownership have not been widely investigated. In contrast, and given the diversified ownership structures of Omani listed firms, this study aims to examine the relationship between EM practices and four types of ownership structure, namely government ownership, institutional ownership, foreign ownership and block ownership. The following subsections will briefly set out the central theoretical arguments and extant empirical literature around each type and its relation with EM practices.

3.2.1.1 Government Ownership (*GOVOWN*)

In many emerging countries where the state holds large portions of shares in listed firms, the government is expected to play crucial role in firm decisions. The agency problem associated with the separation of ownership and control, along with information asymmetry, is more likely to appear in firms with government ownership than in those with non-government ownership (Ding *et al*., 2007). The government has different interests in profit and non-profit objectives than managers and shareholders (Shleifer and Vishny, 1997; Eng and Mak, 2003). For instance, the government as a large shareholder may influence a firm to participate in social and environmental activities (e.g., corporate social responsibility) that are aimed at developing society and improving the image of the state (Boycko *et al*., 1996). The government, like other shareholders, is confronted with the problem of ensuring that managers do not use private information for personal benefit. This may suggest that governments have a greater interest in monitoring managers in order to achieve their profit and non-profit goals. In particular, the government as a major long-term shareholder requires reliable and accurate financial reports to ensure that managers are not engaging in EM practices. Theoretically, however, the presence of the government as a shareholder in a firm is expected to have either positive or negative implications on managerial decisions in general and EM practices in particular. On the one hand, managers in firms with a large proportion of government ownership may not be motivated to manage earnings because of the greater influence of government interference with managerial appointments, where governments as powerful stakeholders (i.e., stakeholder theory) of the firm can put pressure on shareholders to replace or dismiss managers.

On the other hand, according to AT, there is a potential conflict of interest between government representatives and the government itself, where representatives may collude and connive with managers in managing earnings in order to gain personal benefits at the expense of the government and other shareholders (Ding *et al*., 2007; Li *et al*., 2011). Further, managers in firms with large government ownership are less likely to be influenced by the market for

corporate control, such as takeover because the government is unlikely to support takeover offers as it considers itself a long-term investor in all firms (Mak and Li, 2001). This can protect managers from a variety of risks, such as employment risk, and may offer them the opportunity to engage in EM practices.

Empirically, limited studies have directly investigated the relationship between government ownership and EM practices (e.g., Ding *et al*., 2007; Wang and Yung, 2011), and thus provides opportunities to contribute to the extant literature. Most of the few existing studies have mainly examined the CG-EM association by either comparing state-owned and privately-owned firms, or focusing only on state-owned firms (e.g., Li *et al*., 2011), and thereby arguably limiting the generalisability of their findings. Generally, a number of studies (e.g., Eng and Mak, 2003; Khan *et al*., 2013; Ntim and Soobaroyen, 2013a, b) report government ownership enhances corporate disclosure with particular focus on voluntary and social responsibility disclosures. With specific reference to CG and EM, using 273 privately-owned and government-owned Chinese firms listed in 2002, Ding *et al*. (2007) examine the relationship between ownership structures and EM practices, and provide empirical evidence that government-owned firms engage in lower levels of EM than privately-owned firms. Similarly, using a sample of 557 Chinese listed firms from 1998 to 2006, Wang and Yung (2011) report empirical evidence that state-owned firms exhibit a lower level of accrual-based earnings management. In contrast, Li *et al*. (2011) employ 544 firm-year observations from 2004 to 2008 and report empirical evidence that state ownership is significantly related to EM practices among Chinese listed firms. Within the Omani corporate context, government ownership is high with particular interests in improving the quality of financial reporting, including encouraging the adoption of IASs/IFRS. Therefore, in line with the negative theoretical prediction and empirical evidence, the first hypothesis is as follows:

***H1*.** There is a statistically significant negative association between government ownership and firm EM practices.

3.2.1.2 Institutional Ownership (*INSOWN*)

Corporate monitoring by institutional investors has been suggested to play an important role in reducing managerial self-interested behaviour (Diamond and Verrecchia, 1991; Donnelly and Mulcahy, 2008). AT suggests that managers in firms with a large proportion of institutional ownership are expected to be effectively monitored because institutional investors serve as a CG mechanism that provides active monitoring over management. Unlike individual investors, large institutional investors have more resources, including knowledgeable experts who can professionally evaluate firms' financial reports and detect any irregularities (Smith, 1976; Jarrell

et al., 1988; Hawley, 1995). The ability of large institutional investors to actively monitor managers is also supported by the voting power that they have, which allows them to discipline managers (Shleifer and Vishny, 1986; Hawley, 1995; Donnelly and Mulcahy, 2008). In this sense, investment institutions with large stake of shares in a firm are motivated to reduce managers' ability to opportunistically engage in EM practices.

In contrast, many critics argue that the efficient monitoring hypothesis regarding institutional ownership is invalid. It has been argued that institutional investors do not pursue active monitoring because they are passive, collusive or myopic (Sundaramurth *et al*., 2005). Specifically, institutional investors are more likely to sell their shares in poorly performing firms rather than pursue active monitoring that calls upon additional resources (Roe, 1990). Institutional investors may not use their voting power because it may affect their business relations with the firm they invest in. This can negatively reflect on their monitoring role in the sense that institutional investors may collude and connive with managers in order to gain private benefits at the expense of other shareholders (Pound, 1988; Black, 1992). Further, most institutional investors focus on short-term firm performance, which may motivate managers to engage in EM practices in order to meet their earnings expectations (Bushee, 1998). These views suggest that it is unlikely that investment institutions holding many shares in a firm can provide active monitoring that reduces EM practices.

Prior empirical evidence (e.g., Chung *et al*., 2002; Mitra and Credy, 2005; Jiraporn and Gleason, 2007; Cornett *et al*., 2008; Wang, 2014) is generally consistent with the negative expectation of the theoretical literature in examining the association between institutional ownership and EM practices. For instance, using a sample of UK firms from 1997-2010, Wang (2013) reports empirical evidence that institutional investors with long-term investment are better motivated to constrain EM than those with short-term investment. Similarly, using a sample of 834 firm-year observations, Cornett *et al*. (2008) report US empirical evidence that EM practices are lower when there is institutional representation on the board. In contrast to the negative findings observed in the above studies, there exists limited empirical evidence of no significant relationship between institutional ownership and EM practices (e.g., Koh, 2003; Siregar and Utama, 2008). For instance, using a sample of 114 Indonesian firms, Siregar and Utama (2008) provide empirical evidence that institutional ownership has no significant influence on EM practices. Koh (2003) reports empirical evidence of a non-linear relationship between institutional ownership and income-increasing discretionary accruals among Australian firms during 1993-1997. Given the negative predictions of the theoretical and empirical literature, it

can be hypothesised that institutional ownership is likely to negatively influence EM practices. Hence, the second hypothesis of this study is:

H2. There is a statistically significant negative association between institutional ownership and firm EM practices.

3.2.1.3 Foreign Ownership (*FOROWN*)

In the context of global capital markets, it seems apparent that foreign institutional investors have become an important component of equity markets, and are likely to influence domestic firms' policy decisions. Prior studies suggest that foreign ownership plays an important role in promoting CG around the world (Gillan and Starks, 2003; Aggarwal *et al*., 2011). Theoretically, one consequence of high levels of foreign ownership in firms can be a low rate of opportunistic managerial behaviour, including EM practices, because domestic firms try to meet foreign investors' expectations of having good CG practices (Leuz *et al.*, 2010; Aggarwal *et al.*, 2011). In addition, foreign institutional investors are expected to provide active monitoring because they are less likely to have long-term business relations with the firm they invest in (Gillan and Starks, 2003). This is supported by the view that foreign institutional investors have the incentive to effectively monitor local firms' managers because they care about their reputations, and comply with both home and foreign regulations (Lel, 2013). Arguably, the presence of foreign ownership makes managers in local firms less motivated to engage in EM practices and more encouraged to provide reliable and accurate financial reporting. Unlike domestic firms, foreign shareholders face issues that domestic shareholders do not, such as distance and language barriers (Huafang and Jianguo, 2007); this affects their ability to provide active monitoring and may suggest that foreign ownership is less likely to mitigate EM practices in local firms.

Empirically, the relationship between foreign ownership and EM practices has not been widely investigated (e.g., Li *et al.*, 2011; Guo *et al.*, 2012; Lel, 2013), and therefore, offers unique opportunities to make new contributions to the prior CG and EM literature. For instance, using a sample of about 190,000 firm-year observations from 75 countries in the period 1999-2012, Lel (2013) reports empirical evidence that foreign ownership is associated with lower EM practices. Similarly, Guo *et al*. (2012) report Japanese evidence that foreign ownership provides active monitoring, which limits EM practices. Limited studies have reported no significant association between foreign ownership and firm-level EM. For instance, using a sample of 544 firm-year observations from 2004-2008, Li *et al*. (2011) report evidence that the estimated coefficient on foreign ownership is negative, but statistically insignificant, indicating little evidence that foreign

ownership can mitigate EM practices among Chinese listed firms. Given the negative predictions of the theoretical and empirical literature, foreign ownership is expected to negatively influence EM practices. Therefore, the third hypothesis of this study is:

H3. There is a statistically significant negative association between foreign ownership and firm EM practices .

3.2.1.4 Block Ownership (*BLKOWN*)

Unlike US and UK markets, ownership concentration is considered a characteristic of emerging markets, where the ownership structure of most firms, even listed firms, is characterised by high levels of concentrated ownership (Chen and Zhang, 2014). Thus, ownership concentration is expected to play an important role in corporate policy decisions. Theoretically, prior studies have provided two opposite predictions regarding whether the existence of substantial block holders leads to reduced or increased firm-level EM practices. One stream of research concludes that block holders have great incentives to actively monitor managers and serve as a CG mechanism (Friend and Lang, 1988; Mehran, 1992). Large block holders are more motivated than small shareholders to monitor managers in order to protect their investments since they can lose more from managerial self-interest than small shareholders (Shleifer and Vishny, 1986; Friend and Lang, 1988; Mehran, 1992). The incentive of block holders to seek control over managers is supported by their ability to easily access information and their voting power, which allows them to eliminate and replace those performing poorly. Further, because large block holders focus more on long-term investments, managers may not be under pressure to engage in EM practices in order to meet their short-term earnings expectations (Alves, 2012). Thus, managers in firms with a high concentration of ownership are less encouraged to engage in EM practices, and the relationship between ownership concentration and EM practices is expected to be negative.

Another stream of research claims that ownership concentration does not provide efficient monitoring that limits EM practices. Proponents of this view contend that the agency problem in firms with a high concentration of ownership may tend to be between majority and minority shareholders rather than between managers and shareholders (Chen and Zhang, 2014). In this respect, large shareholders may tend to expropriate minority shareholders and impose their preferences against minority shareholders' interests (Shleifer and Vishny, 1997; Aleves, 2012). This may suggest that large shareholders may behave opportunistically in order to create private benefits at the expense of minority shareholders by forcing managers to report earnings (Jaggi

and Tsui, 2007). Thus, ownership concentration may not be considered a good CG mechanism, and it is more likely to increase managerial motivation to report earnings.

Empirically, a negative relationship has been reported by a number of studies (e.g., Ali *et al*., 2008; Aleves, 2012). For example, using a sample of 34 Portuguese listed firms in the period 2002-2007, Aleves (2012) reports empirical evidence that ownership concentration has a negative relationship with discretionary accruals as a measure of EM practices. Similarly, using a sample of 1,001 Malaysian firm-year observations, Ali *et al*. (2008) report empirical evidence that ownership concentration is negatively and significantly associated with EM practices.

In contrast, in line with the positive expectation of the theoretical literature, limited studies (e.g., Haw *et al*., 2004; Kim and Yi, 2006) offer empirical evidence that ownership concentration impacts positively on EM practices. For example, using a sample of 15,159 Korean public and listed firms in the period 1992-2000, Kim and Yi (2006) report a positive relation between large block holders and EM practices. Contrary to the negative and positive findings observed in the above studies, other studies (e.g., Sanchez-Ballesta and Garcia-Meca, 2007; Ding *et al*., 2007; Gonzalez and Garcia-Meca, 2013) provide mixed evidence of the relationship between ownership concentration and EM practices. For example, Gonzalez and Garcia-Meca (2013) conduct a cross-country study of Brazil, Chile and Mexico during the period 2006-2009. Using a sample of 1,740 firm-year observations, they report empirical evidence that ownership concentration tends to be effective in curbing EM practices when the proportion of shares held by large shareholders is not very high; when this proportion reaches around 35.1%, EM practices will increase as a result. A limited number of studies report no significant relationship between ownership concentration and EM practices. For instance, using a sample of 434 out of 1,218 Australian listed firms in 2002, Davidson *et al*. (2005) report empirical evidence that the presence of large shareholders has no significant relationship with EM practices. In similar manner, Lo *et al*. (2010) report empirical evidence that ownership concentration does not significantly influence the extent of price manipulation in related-party sales transactions. Given the Omani context, where firms have high levels of ownership concentration and the expectation that managers and block shareholders are highly influenced by informal rules, the relation between concentrated ownership and EM practices is expected to be positive. Hence, following the positive expectation of the theoretical literature, the fourth hypothesis of this study is:

H4. There is a statistically significant positive association between ownership concentration and firm EM practices.

3.2.2 Corporate Governance Variables

The vast majority of previous studies tend to limit their findings to specific CG mechanisms (e.g., board and audit characteristics) in examining the relationship between EM practices and CG (Larcker *et al*., 2007; Bowen *et al*., 2008; Bekiris and Doukakis, 2011). Evaluating the possible effect of CG on various aspects of corporate financial behaviour based on individual CG variables may not provide a clear picture. It has been indicated that CG mechanisms should be examined as an integrated system instead of testing them individually, since some of them may complement or substitute each other (Karamanou and Vafeas, 2005; Bowen *et al.*, 2008). In this regard, limited studies examine the relationship between EM practices and CG through multi-dimensional characteristics of CG with mixed results. For instance, Shen and Chih (2007) report evidence that better governed firms tend to conduct less earnings management. In contrast, Bowen *et al*. (2008) provide evidence that the relationship between CG score and EM practices is not statistically significant. This may suggest that further examination is required in order to expand our understanding of the joint effect of CG measures on EM practices. This subsection will briefly set out the central theoretical arguments and the extant empirical literature relating to how firm-level broad composite CG index, board size, the presence of a CG committee, audit firm size, and board gender diversity may impact on a corporate EM practices.

3.2.2.1 Firm-level Composite Corporate Governance Index (*OCGI*)

A central debate in CG literature is whether CG can influence corporate policy decisions in different corporate contexts. Specifically, a number of theoretical perspectives drive research on the positive impact of CG on EM practices. As predicted by AT, managers are likely to engage in EM practices because of the conflict of interest between them and shareholders (Jensen and Meckling, 1976). In addition to written contracts, AT suggests that CG provides a set of constraints that ensure reliable and transparent financial reporting (Fama, 1980; Fama and Jensen, 1983; Shilefere and Vishny, 1986). This implies that CG is considered a monitoring mechanism through which shareholders can prevent managers from engaging in EM practices. A similar concept is suggested by SKT, where opportunistic managers are assumed to affect all stakeholders; hence, CG can further deter managers from reporting EM (Hill and Jones, 1992; Turnbull, 1994; Jones, 1995). Further support is provided by SGT's suggestion that managers have more information than shareholders, and are suspected of using their private information for personal benefit (Leland and Pyle, 1977; Ross, 1977). One way to resolve asymmetric information is adopting CG that allows managers to credibly signal that financial reports are fairly prepared and presented. This may suggest that implementing good CG mechanisms allows

investors to distinguish between firms with potential EM practices and those of earnings quality. The common conclusion from these theories is that managers in poorly governed firms are more likely to behave opportunistically by engaging in EM practices in order to personally benefit at the expense of shareholders and other stakeholders than those of better-governed firms.

Whereas a number of studies have examined the relationship between a number of individual CG mechanisms and EM (e.g., Stockmans *et al.*, 2013; Sun and Liu, 2013; Lin *et al.*, 2006; Iatrdis, 2012), studies investigating the association between a broad composite CG index and EM are rare. However, the limited studies that examine the association between firm-level EM and firm-level CG are generally report that better governed firms tend to engage less in EM (e.g., Shen and Chih, 2007; Bekiris and Doukakis, 2011; Leventis and Dimitropulos, 2012). For instance, using a sample of 1,890 firm-year observations over fiscal years from 2003 to 2008, and employing a CG index, Leventis and Dimitropulos (2012) report US evidence that better governed banks tend to engage less in EM practices. Similarly, Shen and Chih (2007) conducted a cross-country study of nine countries during the period 2001-2002 and report empirical evidence that the CG index is negatively related to EM practices. In contrast, using a sample of 2,106 US firms from 2002 to 2003, and developed a set of indices from comprehensive set of structural indicators of CG, Larcker *et al*. (2007) report empirical evidence that CG indices have a mixed relationship with abnormal accruals as a measure of EM. Different from the above studies, using a sample of 3,154 firm-year observations from the period 1993-1998, Bowen *et al*. (2008) report no statistically significant relationship between CG and accounting discretion.

Within the Omani corporate setting, CMA, MSM and regulatory authorities are keen on firms adopting good CG practices with the expectation that they will have positive impact of corporate performance and practices, including disclosure, financial transparency and EM. Given the negative predictions of the theoretical and empirical literature, it can be hypothesised that CG quality proxied by comprehensive CG disclosure index is expected to negatively influence EM practices. Hence, the fifth hypothesis of this paper is:

***H5*.** There is a statistically significant negative association between firm-level corporate governance and firm EM practices.

3.2.2.2 Board Size (*BSIZE*)

The board of directors has been suggested to play a significant role in mitigating agency problems (Jensen and Meckling, 1976; Jensen, 1993). From AT's perspective, board characteristics are considered to be CG mechanisms that provide shareholders with protection against self-interested managers. Among these characteristics, board size is viewed as an

influential factor that is likely to influence the board's role in controlling agency problems. This leads researchers to investigate whether board size is associated with the board's ability to curb opportunistic managers from reporting EM. Theoretically, firms with larger boards can be less effective in monitoring managers because such boards may suffer from coordination and communication problems (Jensen, 1993). This may suggest that directors are confronted with the problem of being dominated by managers who may exert pressure over them (Jensen, 1993). Thus, smaller boards are expected to provide more effective monitoring in reducing EM practices. An alternative perspective is that firms with larger boards have greater diversity in experience and skills than smaller boards, which permits them to professionally evaluate firms' financial reports and detect any financial reporting irregularities (Pfeffer, 1972; Klein, 2002). For instance, more directors with accounting and finance backgrounds would enhance a board's capability to detect any changes in accounting policies, principles and estimates, any deviation from accounting standards, and any financial fraud. Hence, effective monitoring is more likely to be found in larger boards, which can assist in reducing managers' incentive to engage in EM practices.

Empirically, although prior studies have provided some insights into the role of board size in mitigating EM practices, their results are mixed. A negative relationship has been reported by a number of studies (e.g., Xie *et al*., 2003; Ghosh *et al*., 2010). For example, using a sample of 9,290 firm-year observations for the period 1998-2005, Ghosh *et al*. (2010) provide empirical evidence that firms with large boards have fewer discretionary accruals. In contrast, other studies (e.g., Rahman and Ali, 2006; Epps and Ismail, 2009; Alves, 2012) offer an empirical evidence that board size has a positive relationship with EM practices. For example, using a sample of 97 Malaysian listed firms for the period 2002-2003, Rahman and Ali (2006) have reported empirical evidence that EM practices and board size are significantly and positively related. Other studies have reported no significant relationship. For instance, using a sample of 5,189 firm-year observations for the period 1998-2003, Firth *et al*. (2007) report empirical evidence that board size has no significant effect on firm-level EM. A significant relationship between board size and EM is predicted in this study without specifying the direction of the coefficient. Therefore, the sixth hypothesis proposed in this study is:

H6. There is a statistically significant association between board size and firm EM practices.

3.2.2.3 Corporate Governance Committee (*CGCOM*)

Given the increased focus on board composition, board committees are considered internal CG mechanisms that help the board actively monitor managers. Among these committees, a CG committee, as its name applies, is expected to fulfil the important role of assisting the board in ensuring good CG practices within a firm. In this sense, a CG committee aims to promote CG practices by clearly defining governance arrangements and ensuring that the governance framework adopted by the firm is followed and updated. Arguably, clearly set guidelines on best CG practices provided by a CG committee are more likely to reduce managers' discretion on financial reporting. For instance, firms with a CG committee are likely to disclose more information regarding accounting policies, principles and estimates that have been used to produce the firm's financial reports (e.g., Core, 2001; Ntim *et al*., 2012a). This may suggest that the presence of a CG committee helps investors differentiate between firms with potential EM practices and those without. Therefore, the theoretical prediction on the relationship between the presence of a CG committee and EM practices is more likely to be negative than positive.

Unlike other board committees (e.g., audit committee), however, the presence of a CG committee and its potential impact on EM practices has not been empirically investigated in the literature. Thus, evaluating the extent to which the presence of a CG committee drives EM practices may expand our understanding of one aspect of corporate accounting behaviour. Generally, using a sample of 169 South African listed corporations from 2002 to 2006, Ntim *et al*. (2012a) report that firms that voluntarily set up CG committees tend to disclose their CG practices significantly more than those that do not. Thus, and by extension, this study will expect Omani firms that voluntarily set up CG committees to monitor corporate practices and disclosures including those relating to EM practices to engage less in EM than those that do not have CG committees. Thus, following the negative expectation of the theoretical literature, the seventh hypothesis of this study is:

H7. There is a statistically significant negative association between the presence of a CG committee and firm EM practices.

3.2.2.4 Audit Firm Size (*BIG4*)

Accounting scandals, such as Enron, emphasise the crucial role of audit quality, where an external auditor's ability to professionally monitor managers by verifying financial statements is influenced by his/her audit quality. The low audit quality is likely to limit an external auditor's capability to serve as an external CG mechanism, hence, provide the opportunity for managers to engage in EM practices. Though the same auditing standards are applied by both large and small audit firms, the former has been suggested to provide higher audit quality (e.g., Big-4 audit firms)

compared with those of smaller audit firms (DeAngelo, 1981). In this regard, prior studies (e.g., DeAngelo, 1981; Owusu-Ansah, 1998; Uang *et al.*, 2006) indicate that large audit firms have more capability and resources to provide high-quality audits, and care very much about their reputation. This may suggest that firms audited by large audit firms signal to shareholders that their financial reports are fairly prepared and presented, and these reports can be a credible resource in making investment decisions. Firms audited by small audit firms may be considered to have potential EM practices because managers often use techniques that are difficult for small audit firms with limited resources and experience to identify. Arguably, managers in firms audited by large audit firms are less motivated to engage in EM practices, which leads the current study to expect a negative relationship between audit firm size and EM practices.

Empirically, a negative relationship has been reported by a number of studies (e.g., Becker *et al*., 1998; Chia *et al*., 2007; Francis and Wang, 2008; Kent *et al*., 2010; Iatrdis, 2012). For example, using a sample of 498 Australian listed firms for the period 2000-2006, Kent *et al*. (2010) report empirical evidence that large audit firms have a significant negative relationship with discretionary accruals. Similarly, using a sample of 498 firms from South Africa and Brazil during the period 2005-2010, Iatrdis (2012) reports empirical evidence that firms audited by large audit firms exhibit a greater reduction in discretionary accruals. In contrast, no significant relationship has been reported by some studies. For instance, using a sample of 434 Australian firms during the 2000, Davidson *et al*. (2005) report empirical evidence that there is statistically insignificant association between EM practices and audit firm size. Similarly, Firth *et al*. (2007) report empirical evidence that audit firm size has no significant impact on EM practices. In line with the negative prediction, however, the eighth hypothesis proposed in this study is:

H8. There is a statistically significant negative association between audit firm size and firm EM practices.

3.2.2.5 Board Diversity on the Basis of Gender (*GNDR*)

Because female board members are expected to enhance firms' governance, firms face increased pressure from governments and non-governmental organisations to allow female directors to participate in the boardroom (Admas and Ferreia, 2009). Specifically, gender-diverse boards may provide better monitoring over managers and improve the quality of earnings (Srinidhi *et al*., 2011). Thus, board diversity on the basis of gender is expected to influence firm EM practices. Prior studies indicate that female directors are more sensitive to ethical issues (e.g., Bernardi and Arnold, 1997) and exhibit greater risk aversion (e.g., Powell and Ansic, 1997; Sunden and Surette, 1998) and has better board meetings attendance record (e.g., Admas and

Ferreia, 2009) than male directors. Female board participation is likely to create formal and informal discussions between board directors (reducing information asymmetry) and result in greater accountability for managers' decisions (improved monitoring) (Admas and Ferreia, 2009). Further, female board participation can assist boards to benefit from wide pool of talent by bringing different skills and experience into boardroom. Thus, this can improve the boards' professionalism in evaluating firms' financial reports and detecting any financial reporting irregularities (Pfeffer, 1972; Nielsen and Huse, 2010). Arguably, a mix of male and female non-executive directors on a board may provide better monitoring over managers and in turn mitigate EM practices (Adams and Ferreia, 2009, Srinidhi *et al*., 2011).

Empirically, most previous studies (e.g., Clikeman *et al*., 2001; Krishnan and Parsons, 2008) mainly examine the effect of gender on earnings quality by considering female members of senior managers. For instance, using a sample of 770 firm-year observations over 1996 to 2000, Krishnan and Parsons (2008) report empirical evidence that gender diversity in top management is positively and significantly associated with earnings quality. In contrast, studies examining the impact of gender on earnings quality by considering female presence on boards are limited. For instance, using a sample of 2,480 firm-year observations over 2001 to 2007, Srinidhi *et al*. (2011) report empirical evidence that firms with female directors exhibit a greater reduction in discretionary accruals. Similarly, Gavious *et al*. (2012) report evidence that the presence of females on the board is negatively associated with EM practices. Contrary to the above studies, using a sample of 525 firm-year observations for the period 2003-2005, Sun *et al*. (2011) report empirical evidence that female directorship of audit committees has no significant influence in constraining EM practices. Given the theoretical prediction and empirical literature, it can be hypothesised that board diversity on the basis of gender is likely to negatively influence EM practices. Hence, the final hypothesis of this study is:

H9. There is a statistically significant negative association between board diversity on the basis of gender and firm EM practices.

4 RESEARCH DESIGN

This section discusses the research design in order to explain how the developed hypotheses will be tested. It explains how the sampled firms were selected, the sources of data, the employed research methodology and the statistical methods used to analyse the data. This section is organised as follows. Subsection 4.1 describes the sample selection and data sources. Subsection 4.2 discusses the research methodology.

4.1 SAMPLE SELECTION AND DATA SOURCES

The dataset used in this study is drawn from the population of Omani firms listed on the MSM during 2001-2011. The initial sample consists of 168 firms as of December 2011, sorted into nine industries, which are: basic materials, consumer goods, consumer services, financial services, industrial, utilities, health care, telecommunications, and oil and gas. To arrive at the final sample, eliminations were made based on the following criteria: (i) a firm must have complete data for at least one year on CG and accounting and financial information over 2001 to 2011 inclusive; and (ii) any given industry-year must have at least 10 observations over the 11 years examined. There were three main reasons for setting these criteria. First, the data collection started with financial year 2001 since it was the first year for which data was available. Second, the sample ends in the 2011 because it was the latest year for which data was available. Third, for the purpose of comparability with prior studies (e.g., Peasnel *et al*., 2000; Kim and Yi, 2006; Ali *et al*., 2008; Epps and Ismail, 2009), each industry had to have at least 10 observations, as the EM measures used in this study require an estimation of a cross-sectional regression for each industry, and using fewer than 10 observations can make the estimation inefficient (McNichols, 2000). Finally, as the criteria allowed firms to enter and exit the sample, and thus the crucial problem of survivorship bias is obviated.

Using these criteria, as outlined in Table 47, 48 firms were excluded due to unavailability of their annual reports, and four firms were eliminated due to inadequate data. Therefore, the sample procedure produced unbalanced panel data of 116 unique firms from different industries and producing a total of 1,152 firm year observations over the 11-year period investigated. To the best of the current study's knowledge, this is by far the largest dataset to be used in any MENA study on CG. Overall, the sample of 116 represents approximately 69% of the total population of 168 Omani listed firms.[36]

[36]See Table 1 of Essay 1 for a more detailed overview of the sample selection procedure.

Table 47: Sample selection procedure and fimes' year distribution

Panel A: Sample selection process	
Criteria	No. of firms
Initial Listed Firms on the MSM as of 31/12/2011	168
Firms with no data available	(48)
Firms with missing data	(4)
Final sample	116
Panel B: Time distribution	
Year	No. of firm-year observation
2001	95
2002	96
2003	97
2004	102
2005	94
2006	104
2007	112
2008	113
2009	114
2010	115
2011	110
Total firm-year observations	1152

Source: Muscat Securities Market's website

Similar to Essays 1 and 2, this study includes financial firms in its dataset. Although the nature of financial firms' accruals may differ from those of non-financial firms, prior studies that examine the relation between CG and EM have not provided any empirical evidence to confirm the theoretical argument that the impact of CG on accruals in non-financial firms is not comparable to those in financial firms because the latter are subject to more specific accounting requirements. As a result, this study aims to provide empirical evidence of whether there is a significant difference in CG's influence on EM practices between financial and non-financial firms in an emerging country like Oman, where corporate regulations and enforcements are expected to be weaker as the case in many emerging countries (Albu and Girbina, 2015). The current study expects that the influence of CG on each financial and non-financial firms would not be significantly different among Omani listed firms. In providing such evidence, this study uses 116 firms (both financial and non-financial firms) to examine its hypotheses (main analysis). Robustness test is then performed based only on 87 non-financial firms to examine whether the findings based on both non-financial and financial firms are sensitive to financial firms.

However, the study's analysis is limited by the availability of information related to its measures of EM and CG. It relies on accounting, financial and CG information which was hand-collected from annual reports for each firm. The principal sources of annual reports are the Rest of World Filings of the Perfect Information Database,[37] the MSM website,[38] firms' websites and

[37]The Rest of World Filings's official website: w.w.w.perfectinfo.com
[38]The MSM's official website: w.w.w.msm.gov.om

DataStream. Therefore, due to availability, accessibility, funding and time constraints (as the study had to be completed within the timeframe of a PhD), unbalanced panel data from 116 firms,[39] resulting in 1,152 firm-year observations for eleven years, from 2001 to 2011, was believed to be sufficient to extend the literature on the relationship between EM practices and CG.

4.2 RESEARCH METHODOLOGY

As explained previously, this study employs four main types of variables to conduct its analyses, namely: (i) EM's variable; (ii) a composite CG index; (iii) other CG and ownership variables; and (iv) control variables. Thus, this subsection presents the research methodology employed in this study to examine these variables that were discussed in subsection 3.2. Specifically, subsection 4.2.1 will discuss the EM's measurement. Subsection 4.2.2 will discuss the CG measurements. Subsection 4.2.3 will discuss the justification for the control variables and their measurements. Subsection 4.2.4 will discuss the model specification. Finally, subsection 4.2.5 will discuss a number of statistical tests performed before and after examining the study's hypotheses.

4.2.1 Earnings Management Measurement (Dependent Variable)

Managers have incentives to exercise discretion over accounting choices and estimates in order to report earnings, which is considered an invisible practices. Detecting such exercises is no easy task. Previous studies have attempted to develop valid and powerful measures that assist researchers in examining firm-level EM. Thus, a number of approaches have been suggested and used by researchers to examine different issues related to EM. Following McNichols (2000), EM measurements can be classified into three common approaches of aggregate accruals, specific accruals and distribution of earnings. These approaches are discussed briefly below, along with the study's reasons for adopting the appropriate approach.

First, the aggregate accruals approach assumes that managers are likely to prefer engaging in EM practices through accruals accounting, since these practices are hard to detect and require fewer costly instruments with which managers can manipulate accounting numbers (Young, 1999). The approach defines accruals accounting (total accruals) as the sum of two components, namely discretionary accruals and non-discretionary accruals, where the former represents EM practices and the later represents actual accruals. Hence, the difference between total accruals and non-discretionary accruals is assumed to be a proxy for EM practices (discretionary accruals). This suggests that not all accruals are considered EM practices, because managers may use

[39]See Appendix 1 for a full list of firms employed in this study.

limited discretion (non-discretionary accruals) to increase information content of earnings, which does not reflect any attention of EM practices (Sankar and Subramanyam, 2001).

Second, similar to the aggregate accruals approach, the specific accruals approach relies on accruals to test for EM practices, but focuses only on a single accrual or a set of specific accruals rather than total accruals. Proponents of this approach argue that managers can be expected to change either a small proportion of total accruals, or some specific accruals (McNichols and Wilson, 1988; McNichols, 2000). According to this approach, researchers can rely on their accounting knowledge and experience in modelling the behaviour of each specific accrual to identify its discretionary and non-discretionary components (McNichols, 2000).

Third, unlike the above approaches, the distribution approach does not rely on accruals in examining EM practices. It focuses on the density of distribution of earnings after management (e.g., frequency of annual earnings realisations and quarterly earnings realisations) in order to detect EM practices. Specifically, the approach focuses on the behaviour of earnings a round thresholds to test the extent to which the incidence of earnings amounts above and below the specific thresholds are normally distributed, or indicate discontinuities due to discretion used by managers (McNichols, 2000). Prior studies (e.g., Burgstahler and Dichev, 1997; Degeorge *et al*., 1999) argue that when a firm is motivated to manage earnings above a benchmark, then the distribution of earnings after manipulated compared to the expected earnings amounts tend to have less observations below the threshold and more observations above the threshold. Hence this approach allows researchers to identify whether the flow of earnings above and below certain thresholds is distributed smoothly or a result of firms engaging in EM practices.

The three approaches each have their strengths and shortcomings; this study adopts the aggregated accruals approach for the following reasons. First, although a direct association between a single accrual or set of accruals can be estimated by adopting a specific approach, more accounting knowledge and experience are required in order to specify a particular accrual; as well, the findings generated by this approach are difficult to generalise because specific accruals represent a small part of the discretionary component, and other parts may be manipulated (McNichols and Wilson, 1988; Dechow *et al*., 2010). Second, although EM practices can be estimated at certain thresholds and researchers are not required to estimate discretionary accruals by applying the distribution approach, this approach does not enable researchers to measure the magnitude of EM. Finally, although researchers may have difficulty estimating a direct association between total accruals and explanatory factors by employing the aggregated accruals approach, this approach allows the study to examine other explanatory factors (e.g., CG and audit variables) and measure the magnitude of EM because the magnitude

of earnings is important component of this examination. Further, unlike the other two approaches, the aggregated accruals approach considers all instances of EM as it focuses on total accruals; hence, the findings can be generalised. Importantly, it is the most commonly used approach; a large number of studies have used this approach to examine different issues in general and the relationship between EM practices and CG mechanisms in particular, which allows the study to compare the findings with prior studies.

4.2.1.1 Aggregated Accruals Approach Models

Prior studies that have adopted the aggregated accruals approach use different discretionary accruals models to measure firm-level EM, such as the Healy Model (1985), the DeAngelo Model (1986), the Jones Model (1991), the modified Jones Model (1995), the Kang and Sivaramakrishnan Model (1995), the Dechow and Dichev Model (2002), the Larcker and Richardson Model (2004) and the Kothari *et al*. Model (2005). Despite the limited predictive accuracy and power associated with each model in detecting EM, the modified Jones Model (1995) and the Kothari *et al*. Model (2005) have been chosen in this study to examine firm-level EM for the following reasons. First, there is no theory that specifies which model is the best proxy for EM practices. Second, using more than one model is in line with a large number of previous studies, which allows the study to compare its findings with those studies. Third, data limitations compel the present study to employ these models. Finally, these models are widely used in the literature (e.g., Jiang *et al*, 2008; Sun and Liu, 2013) to examine EM practices. In this regard, Dechow *et al*. (2010) indicate that there is no single best measure of EM practices, and the two chosen models are wide-spread models of accruals in the literature. Jones *et al*. (2008) examine the performance of 10 discretionary accruals models and provide empirical evidence that the modified Jones Model (1995) provides high predictive power in detecting fraudulent earnings. More recently, Peek *et al*. (2013) examine the performance of the modified Jones Model (1995) and report empirical evidence that the model exhibits a good ability to detect EM practices. Therefore, and in line with past studies (e.g., Kim and Yi, 2006; Mousell *et al*., 2014; Tsipouridou and Spathis, 2014), the modified Jones Model (1995) will be used to calculate firm-level EM in the main analysis, and the Kothari *et al*. Model (2005) will be employed to measure EM in the robustness test. The modified Jones Model is discussed further below whereas the Kothari *et al*. Model will be discussed in the section 7.

The modified Jones Model (Dechow *et al*., 1995) is based on the notion that discretion is likely to be exercised over revenue, receivables, gross property, plant and equipment in estimation periods. Unlike the Jones Model (1991), the modified Jones Model suggests that any change in receivables should be deducted from a change in revenues, since the model assumes

that a change in receivables is considered to be discretionary accruals, as managers can manage earnings through revenues by manipulating credit sales recognition. The modified Jones Model is estimated using the following expression:

$$\frac{TAC_{it}}{TA_{it-1}} = \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{\Delta Rev_{it}}{TA_{it-1}} + \alpha_3 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (1)$$

Where:

TAC	Total accruals in year *t* for firm *i*, calculated as net income minus operating cash flow.
TA	Total assets in year *t* – 1 for firm *i*.
ΔRev	Revenues in year *t* less revenues in year *t* – 1 for firm *i*.
PPE	Gross property, plant, and equipment in year *t* for firm *i*.
ε_{it}	Error term in year *t* for firm *i*.

All variables are divided by lagged total assets in order to mitigate heteroskedasticity problem, and the cash flow approach is adopted in order to calculate total accruals, which in line with considerable number of prior studies (e.g., Hribar *et al.*, 2002; Davidson *et al.*, 2005; Chen and Zhang, 2014). The coefficients estimated from equation (1) are used in equation (2) in order to estimate non-discretionary accruals as follows:

$$NDA_{it} = \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \left(\frac{\Delta Rev_{it}}{TA_{it-1}} - \frac{\Delta Rec_{it}}{TA_{it-1}} \right) + \alpha_3 \frac{PPE_{it}}{TA_{it-1}} \quad (2)$$

Where everything remains the same as defined in equation (1) except ΔREC_{it} is included which presents receivables in year *t* less receivables in year *t* – 1 for firm *i*.

After the non-discretionary accruals value (NDA) is computed from equation (2), the amount of discretionary accruals (DA) can be calculated using the following equation:

$$DA_{it} = \frac{TAC_{it}}{TA_{it-1}} - NDA_{it} \quad (3)$$

As earlier indicated, the modified Jones Model will be used to capture firm-level EM (independent variable), and will be included in the regression model to test the hypotheses developed in subsection 3.1.

4.2.2 Corporate Governance and Ownership Structures Measurements

As previously discussed in subsection 3.2, the CG index, individual CG variables, namely board size, CG committee, audit firm size and board diversity on the basis of gender, and ownership structures, in the form of government ownership, institutional ownership, foreign ownership and block ownership, are used in this study to test the impact of CG mechanisms on EM practices. Distinct from most prior studies that adopt one-dimensional characteristics of CG to examine the relationship between CG and EM practices, the current study investigates this relation through multi-dimensional characteristics of CG. Using a CG index rather than individual CG measures is in line with limited prior studies (e.g., Larcker *et al*., 2007; Jiang *et al*., 2008; Bekiris and Doukakis, 2011) that examine the association between firm-level EM and firm-level CG. Arguably, examining CG mechanisms as an integrated system instead of testing them independently is expected to allow the study to gain a wider picture of CG's role in reducing EM practices.

Briefly, as illustrated in Table 48, the CG index, CG variables and ownership structures were measured as follows. First, as discussed in subsection 4.2.1 of Essay 1, the Omani CG index (OCGI) was used to measure firm-level CG. It comprises 72 CG provisions constructed in four broad categories, namely board of directors, accounting and auditing, external auditors and internal control systems, and disclosure and transparency. The vast majority of these provisions were taken from the 2002 voluntary Omani code of CG, while some came from the 1974 Companies Law in order to achieve comprehensive CG index. Appendix 2 details the four categories of CG provisions. The un-weighted approach and simple binary coding scheme were adopted in order to construct and code the *OCGI*. Each of the 72 CG provisions was coded 1 if this provision was applied by the firm and 0 otherwise. Second, board size (BSIZE) was measured in line with prior studies (e.g., Cornett *et al*., 2008; Ghosh *et al*., 2010), as the total number of directors on the firm's board. In line with past studies (e.g., Ntim *et al*., 2012a), CG committee (CGCOM) was measured as a dummy variable, where a firm scored 1 if it had a CG committee and 0 otherwise. Similarly, in line with previous studies (e.g., Epps and Ismail, 2009; Chen and Zhage, 2014), audit firm size (BIG4) was measured as a dummy variable, where a firm scored 1 if it was audited by one of the Big-4 audit firms and 0 otherwise. Board diversity on the basis of gender (GNDR) was also measured consistently with prior studies (e.g., Adams and Ferreire, 2009), as a dummy variable where a firm scored 1 if there was at least one woman on its

board and 0 otherwise. Finally, block ownership (BLKOWN) was measured in a similar manner to prior studies (e.g., Davidson *et al*., 2005; Gonzalez and Garcia-Meca, 2013), as a percentage of shares held by shareholders with at least 5% of the total firm shareholdings. Government (GOVOWN) was measured as a dummy variable, where a firm scored 1 if it had a government ownership and 0 otherwise. Institutional ownership (INSOWN) (e.g., Mitra and Cready, 2005; Wang, 2014) and foreign ownership (FOROWN) (e.g., Ali *et al*., 2008; Lel, 2013) were measured as a percentage of each type of ownership out of total firm shareholdings.

4.2.3 Justification for Control Variables

In addition to CG variables, this study controls for a number of relevant variables that have been identified by past studies as factors affecting EM practices in order to reduce potential omitted variables bias. Following the existing literature and due to data limitations, this study considers a number of firm characteristics as control variables including firm size, growth, leverage, and profitability. The central theoretical arguments and the extant empirical literature that attempts to link these variables with EM practices are discussed briefly below.

4.2.3.1 Firm Size (*LNTA*)

EM research reveals that firm size may affect firm-level EM. Two opposing theoretical explanations have been offered for this. One view is that because large firms are more vulnerable to high political costs than small firms (Watts and Zimmerman, 1978), managers in such firms are motivated to decrease these costs by using accruals that provide low levels of reported income (Cahan, 1992). This view is supported by the argument that large firms are encouraged to record large discretionary accruals because their operations are complex, and users often have difficulty detecting such practices (Lobo and Zhou, 2006). Further, large firms are closely observed by outsiders (e.g., financial analysts, investors and the media), and they are expected to adopt aggressive accounting policies in order to meet outsiders' expectations (Richardson *et al*., 2002). Thus, the association between firm size and firm-level EM is anticipated to be positive.

The opposing view is that managers in large firms are less likely than those in small firms to exploit latitude in accounting discretion because they engage in good CG practices, have lower information asymmetry and are monitored by big audit firms (Chen and Chih, 2007; Peni and Yahamaa, 2010). In this sense, large firms are expected to provide high levels of disclosure on accounting policies, principles and estimates that have been used to produce the firms' financial reports in order to signal to a variety of stakeholders that these reports are credible and transparent. Hence, a negative relationship between firm size and firm-level EM is predicted.

The empirical evidence, however, on the relationship between firm size and firm-level EM is mixed. Support for a negative expectation is found in a considerable number of prior studies (e.g., Sanchez-Ballesta and Garacia-Meca, 2007; Ali *et al*., 2008; Ghosh *et al*., 2010; Leventis and Dimitropoulos, 2012; Gonzalez and Garcia-Mcca, 2013; Sun and Liu, 2013) which provide empirical evidence that large firms engage less in EM practices. For instance, using a sample of 18,513 firm-year observations over the period 1996-2010, Sun and Liu (2013) provide empirical evidence that the coefficient on firm size is negative and significant, consistent with the notion that large firms exhibit fewer discretionary accruals. Similarly, using a sample of 9,290 firm-year observations, Ghosh *et al*. (2010) report US empirical evidence that firm size has a negative and statistically significant influence on discretionary accruals.

In contrast, few past studies (e.g., Chung *et al*., 2002; Chen *et al*., 2007; Alves, 2012) report a positive relationship between firm size and firm-level EM. For example, using a sample of 303 firm-year observations over 2002 to 2007, Alves (2012) reports Portuguese empirical evidence that the coefficient on firm size is positive and significant, which is in line with the positive prediction that large firms are encouraged to record large discretionary accruals. Similarly, using a sample of 2,237 firm-year observations over 2000 to 2003, Chen *et al*. (2007) report empirical evidence that firm size has a positive and statistically significant sign in relation to discretionary accruals. Contrary to the positive and negative findings observed in the above studies, some studies (e.g., Chen and Chih, 2007; Siregar and Utama, 2008; Bekiris and Doukakis, 2011; Chen and Zhang, 2014) provide empirical evidence of no significant relation between the two variables. For instance, using a sample of 447 Chinese listed firms for a five-year period (2002-2006), Chen and Zhang (2014) provide empirical evidence that firm size has a positive, but not statistically significant, effect on firm-level EM. In this study, as in prior studies (e.g., Davidson *et al*., 2005; Ghosh *et al*., 2010) firm size is labelled as *LNTA* and calculated as the natural log of total assets.

4.2.3.2 Growth (*GROWTH*)

It is widely accepted that firms with growth opportunities are targeted by financial analysts and investors, which makes growth a potential factor affecting firm-level EM. Specifically, opportunistic managers in high-growth firms may be motivated to engage in EM practices in order to maintain growth when it becomes slow or reverses (Summer and Sweeney, 1998). Managers in such firms are expected to use income-increasing accruals in order to report growing earnings, and avoid mentioning any decrease in growth or unmet expectations because of the severe pressure they face from capital markets participants (Chen and Chih, 2007). Failure to report growing earnings may mean that firms with increased growth opportunities lose many

potential investors, and may not be able to access external sources of finance (Sanchez-Ballesta and Garacia-Meca, 2007). Thus, firm-level EM is expected to be influenced positively by growth.

However, most prior empirical studies (e.g., Sanchez-Ballesta and Garacia-Meca, 2007; Jiang *et al*., 2008; Peni and Yahamaa, 2010; Gonzalez and Garcia-Mcca, 2013; Sun and Liu, 2013) are consistent with positive prediction that firm growth is significantly and positively associated with firm-level EM. For instance, using a sample of 1,740 firm-year observations covering fiscal years 2006-2009, the cross-country study of Gonzalez and Garcia-Meca (2013) reports empirical evidence that growth has a positive and significant (at the 1% level) effect, and that growth increases the use of discretionary accruals. Similarly, using a sample of 1,955 firm-year observations over 2006-2009, Peni and Yahamaa (2010) provide empirical evidence that the coefficient on growth is statistically significantly positive, suggesting that firms with high growth are associated with income-increasing accruals.

In contrast, there has been little evidence of a negative relationship between growth and firm-level EM. Using a sample of 1,890 firm-year observations during the period 2003 to 2008, Leventis and Dimitropoulos (2012) report empirical evidence that the coefficient on growth is statistically significant and negatively related to firm-level EM. They attribute their findings to the higher quality audits that banks with high growth undergo. In a similar manner, using a sample of 17,574 firm-year observations for a four-year period (1997-2000), Lai (2009) examines whether high-growth firms tend to engage in EM practices even when they hire Big-5 auditors. He provides empirical evidence that managers in high-growth firms are less likely to report earnings only when their firms are audited by Big-5 audit firms. However, in this study growth is measured in line with prior studies (e.g., Jiang *et al*, 2008; Bekiris and Doukakis, 2011), labelled as *GROWTH* and calculated as current year's sales minus last year's sales to last year's sales.

4.2.3.3 Leverage (*LVRG*)

As firms often tend to employ different levels of debt in their capital structures when seeking new or additional financing, firms' accounting policies are likely to be influenced by leverage (Watts, 1977; Watts and Zimmerman, 1978). This leads the current study to consider leverage as influential factor affecting EM practices. In this regard, debt covenants are designed to restrict unethical managers from making risky financial and investment decisions that conflict with debt holders' interests. Because these covenants are based on accounting numbers, managers may tend to engage in EM practices in order to meet debt covenant requirements (DeFond and Jiambalvo, 1994; Sweeney, 1994). In particular, and consistent with the debt hypothesis, highly leveraged firms are more likely to adopt income-increasing accruals than less leveraged firms when they get closer to defaulting on debt covenants (Watts and Zimmerman, 1986, Press and

Weintrop, 1990). Opportunistic managers in highly leveraged firms may tend to shift their reported earnings from the future to the present in order to avoid any decline in operating cash flows, which allows them to circumvent restrictions indicated in debt agreements (Sweeney, 1994). Managers may prefer such practices even when they are unable to avoid defaulting, because an income-increasing accruals approach improves their ability to bargain with debt holders in cases of renegotiation, and gain more concessions from them (DeFond and Jiambalvo, 1994). In addition, opportunistic managers in highly leveraged firms may have a tendency to use abnormal accruals in order improve cash flows by adopting different methods, such as delaying purchases of inventory and payment of payables, and accelerating collection of receivables (DeFond and Jiambalvo, 1994). Thus, leverage is expected to have a positive relationship with firm-level EM. In contrast, debt financing can be considered as a substitute for CG and a useful device in ensuring managers act in line with shareholders' interests (Jensen, 1986; Kochhar, 1996; Jiraporn *et al.*, 2012). In particular, using higher levels of leverage may render managers less able to engage in EM practices because they are monitored by creditors who have a great incentive and ability to ensure that managers do not use discretionary accruals that can harm their investments. Arguably, highly leveraged firms are anticipated to engage less in EM practices. Hence, a negative association between leverage and firm-level EM is expected.

Empirical evidence on the association between leverage and firm-level EM is inconclusive. The existing literature presents much evidence of the influence of leverage on firm-level EM, where most previous studies generally show a positive association between the two variables (e.g., Lai, 2009; Bekiris and Doukakis, 2011; Alves, 2012; Chen and Zhang, 2014; Gonzalez and Garcia-Meca, 2013; Sun and Liu, 2013). For instance, using a sample of 204 firm-year observations for the fiscal years 2002-2007, Alves (2012) provides empirical evidence that leverage is significantly positively related to firm-level EM among Australian listed firms. Similarly, using data from three European countries, namely Italy, Greece and Span, Bekiris and Doukakis (2011) report empirical evidence that the coefficient on leverage is positive and statistically significant for all sampled firms and for each country separately, except Italy, where it is positive, but not statistically significant. In contrast, a negative relation between leverage and firm-level EM has been reported by a limited number of studies (e.g., Piot and Janin, 2007; Sun and Liu, 2013). For example, using US data, Sun and Liu (2013) report empirical evidence that the coefficient on leverage is negative and statistically significant, suggesting that firms with high leverage are less likely to engage in EM practices. Similarly, using a sample of 120 French listed firms over 1998 to 2001, Piot and Janin (2007) report empirical evidence rejecting the debt hypothesis, which is the leverage, is negatively and statistically significant related to firm-level

EM. In this study, leverage is measured as in prior studies (e.g., Sanchez-Ballesta and Garacia-Meca, 2007; Srinidhi *et al*., 2011), labelled as *LVRG* and calculated as book total debt scaled by the total assets of a firm.

4.2.3.4 Profitability (*ROA*)

Profitability has been suggested to play an important role in various aspects of corporate financial behaviour. In particular, managers in firms with excess cash flow may be motivated to engage in EM practices in order to gain personal benefits at the expense of shareholders. Two arguments have been made to explain this prediction. On the one hand, according to AT, managers in more profitable firms are expected to manage earnings either upward or downward if the current earnings are greater or smaller than what was targeted. For instance, managers may tend to manage earnings downward in order to not distribute any dividends to shareholders, which allows them to enjoy available cash flow, or may manage earnings upward to meet their compensation targets (Healy, 1985; Jensen, 1986; Gaver *et al*., 1995). Hence, a positive relationship is predicted between profitability and firm-level EM. On the other hand, some studies (e.g., Ntim *et al.*, 2012a; Samaha *et al.*, 2012) report empirical evidence that profitable firms provide more information than less profitable firms in order to signal that they are managed professionally and that their annual reports are credible and transparent. This may suggest that disclosure can serve as a CG mechanism informing shareholders of a firm's quality and its true value. In a similar manner, and inconsistent with the debt hypothesis, managers in more profitable firms are less likely to adopt income-increasing accruals because their firms have internal resources for capital investment, and the ability to meet their financial obligations on time if they need additional financing (Myers, 1984; Myers and Majluf, 1984; Petersen and Rajan, 1994; Elliott *et al.*, 2008). Thus, profitability and firm-level EM can be predicted to be negatively associated.

However, the literature shows that the empirical evidence on the relationship between profitability and firm-level EM is mixed. A number of studies (e.g., Kim and Yi, 2006; Chen *et al*, 2007; Gonzalez and Garcia-Meca, 2013) have found that profitability impacts positively on firm-level EM. For instance, using a sample of 15,159 firm-year observations for the 1992-2000 period, Kim and Yi (2006) examine the effect of a number of factors on the extent of EM practices. In particular, they report empirical evidence that the coefficient on profitability is positive and statistically significant in Korean public and private firms. Similarly, using a sample of 2,237 firm-year observations covering 2002 and 2003, Chen *et al*. (2007) include profitability among other control variables in their examination of the association between CG mechanisms and firm-level EM in a Taiwanese context. They provide empirical evidence supporting the

positive prediction that profitable Taiwanese firms tend to engage more in EM practices than less profitable firms. In contrast, a group of studies (e.g., Haw *et al*., 2004; Hwang *et al*., 2013) has provided empirical evidence of a negative relationship. For example, using a sample of 25,210 firm-year observations from 22 countries over the period 1988 to 2000, Haw *et al*. (2004) report empirical evidence rejecting AT's assumption that there is a statistically significant negative association between firm-level EM and profitability. Similarly, using a sample of 3,757 firm-year observations for the 1996-2003 period, Hwang *et al*. (2013) examine the effectiveness of the 2000 Taiwanese disclosure regulation in reducing EM practices, and report empirical evidence showing a significant and negative effect of profitability on firm-level EM. Some studies report no significant association. For instance, Rahman and Ali (2006) report empirical evidence that profitability has no significant impact on firm-level EM by examining 97 Malaysian listed firms for a two-year period (2002-2003). Similarly, using a sample of 216 firm-year observations over 2004 to 2008, Anglin *et al.* (2013) investigate the effect of CG quality and several control variables on EM practices in U.S. Real Estate Investment Trusts. They find that profitability is unrelated to firm-level EM (positive effect, but not statistically significant). In this study, profitability is measured as in prior studies (e.g., Wang and Young, 2011; Anglin *et al*., 2013), labelled as *ROA* and calculated as the ratio of operating profit to total assets.

Table 48: Definition of dependent and independent variables

Dependent variable	
DA	Discretionary accruals represent a firm-level EM practices as measured by modified Jones Model.
Independent variables	
OCGI	Omani corporate governance index.
BLKOWN	Percentage of shares held by shareholders with at least 5% of the total firm shareholdings.
GOVOWN	1 if a firm has government ownership, 0 otherwise.
INSOWN	Percentage of institutional ownership to total firm ordinary shareholdings.
FOROWN	Percentage of foreign ownership to total firm ordinary shareholdings.
BSIZE	Total number of directors on the board of a firm.
BIG4	1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise.
CGCOM	1 if a firm has set up a corporate governance committee, 0 otherwise.
GNDR	1 if a firm has at least one woman on its board, 0 otherwise
Control variables	
LNTA	Natural log of total assets.
ROA (%)	Operating profit to total assets.
GROWT (%)	Current year's sales minus last year's sales to last year's sales.
LVRG (%)	Book total debt scaled by total assets of a firm.
INDUSTRY & YEAR	Dummies for each of the eight industries and the ten years.

Further, managers operating in certain industries may be more motivated to manipulate earnings than other industries and they may exercise their discretionary in some years more than

other years. Hence, in line with past studies (e.g., Jiang *et al*., 2008; Hwang *et al*., 2013), the current study controls for year and industry effects in addition to the above control variables in order to capture potential changes in EM, as levels of EM practices are expected to be different across industries and years. In particular, eight industry dummies out of nine industries and ten years dummies out of eleven years are included in any single equation in order to avoid a dummy-variable trap.

4.2.4 Model Specification

As indicated earlier, this study aims to examine the relationship between firm-level CG and firm-level EM in Omani listed firms. It adopts a quantitative approach by using unbalanced panel data analysis to investigate this relation, for the reasons discussed in subsection 4.1.1 of Essay 1. In doing so, Ordinary Least Squares (OLS) as an estimation method and multiple linear regressions as a statistical technique are applied in order to answer the main research question of whether better governed firms tend to engage more or less in EM practices. In particular, firm-level EM as a dependent variable will be regressed on several explanatory variables in order to examine the following hypotheses. Further, in line with prior studies (e.g., Jaggi and Tsui, 2007), the study adopts signed discretionary accruals because the current study intends to measure firm-level EM in the presence of a particular directional prediction as the relation between signed abnormal accruals and CG variables can be predicted. In this regard, Bowen *et al*. (2008, pp.397) state that "*signed measured of abnormal accruals are more appropriate when researchers can hypothesize the direction of the earnings management conditioned on a specific event*". Hence, it is believed that the signed abnormal accruals rather than absolute abnormal accruals are the best measure of firm-level EM. However, the developed hypotheses that are going to be examined are summarised below.

H_1 There is a statistically significant negative association between government ownership and firm EM practices

H_2 There is a statistically significant negative association between institutional ownership and firm EM practices.

H_3 There is a statistically significant negative association between foreign ownership and firm EM practices.

H_4 There is a statistically significant positive association between ownership concentration and firm EM practices.

H_5 There is a statistically significant negative association between CG index and firm EM practices.

H_6 There is a statistically significant association between board size and firm EM practices.

H_7 There is a statistically negative significant association between the presence of a CG committee and firm EM practices.

H_8 There is a statistically negative significant association between audit firm size and firm EM practices.

H_9 There is a statistically negative significant association between board diversity on the basis of gender and firm EM practices.

The relationship between CG mechanisms and EM practices, controlling for the influence of other relevant factors and assuming all relations are linear, is estimated using the following regression model:

$$\begin{aligned} DA_{it} = {} & \alpha_0 + \beta_1 OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} + \beta_9 GNDR_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

Where:

DA	Discretionary accruals
α	Constant term
OCGI	Omani corporate governance index
GOVOWN	Government ownership
INSOWN	Institutional ownership
FOROWN	Foreign ownership
BLKOWN	Block ownership
BSIZE	Board size
BIG4	Audit firm size
CGCOM	Presence of a CG committee
GNDR	Board diversity on the basis of gender
CONTROLS	Control variables for firm size (LNTA), growth (GROWTH), profitability, (ROA), leverage (LVRG), industry, and year dummies.
ε	Error term

4.2.5 Statistical Analyses

Similar to Essays 1 and 2, a number of statistical analyses will be carried out before examining the study's hypotheses. Specifically, OLS assumptions, namely linearity, normality,

multicollinearity, autocorrelation and heteroskedasticity, will be tested in order to ensure that OLS estimation is statistically appropriate to perform the study's analyses. After testing and approving OLS as an appropriate estimation method, empirical analyses will be conducted and discussed in the empirical results section. The reported results will then be checked by performing various sensitivity analyses. In particular, the reported results will be tested to examine the extent to which they are robust or sensitive to the use of alternative CG index, alternative EM's measurement, financial firms, the sample period, the unobserved firm-specific characteristics and the endogeneity problem.

5 ORDINARY LEAST SQUARES ASSUMPTIONS AND DESCRIPTIVE STATISTICS

This section discusses OLS assumptions before the current study carries out its analysis in order to ensure that OLS is an appropriate estimation for its analysis. This section also presents the descriptive statistics. Specifically, Subsection 5.1 discusses a number of statistical tests examining OLS assumptions of linearity, serial correlation, heteroskedasticity, normality and multicollinearity. Subsection 5.2 reports the descriptive statistics for the dependent, explanatory and control variables.

5.1 TESTS OF THE OLS ASSUMPTIONS

This essay employs the same statistical tests used in Essays 1 and 2. The Augmented Dickey-Fuller (ADF) test was used to test for unit root or stationary in all variables. This allowed the current study to identify which variables exhibit non-stationarity in the mean (Fuller, 1996). The results of this test are presented in Table 49. In this table, all variables included in the model appear to have no unit root, and hence the current study accepts the null hypothesis that a variable has no a unit root.

Table 49: Augmented Dickey-Fuller test statistics

Variables	ADF Unit Root Test
DA	-31.4733***
OCGI	-5.75412***
GOVOWN	-9.27199***
INSOWN	-9.52149***
FOROWN	-10.4960***
BLKOWN	-10.5810***
BSIZE	-9.5512***
BIG4	-12.7914***
CGCOM	-12.3361***
GNDR	-10.4234***
GROWTH	-13.0767***
LVRG	-10.1540***
ROA	-12.6456***
LNTA	-7.8817***

Notes: *DA* denotes the firm-level EM practices, *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *GROWTH* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size. The asterisk *** indicate significance at the 1% level, respectively.

In addition to the above statistical test, OLS assumptions of linearity, serial correlation, heteroskedasticity, normality and multicollinearity were tested. First, similar to prior studies (e.g.,

Ghosh *et al.,* 2010) the effects of outliers are mitigated by winsorising *DA* and control variables at the 5% and 95% levels.

Second, the Breusch-Godfrey Serial Correlation LM test was performed in order to detect for the presence of autocorrelation. Table 50 illustrates the results of this test. It reveals the presence of serial correlation in the model, as the probabilities of both the *F*-statistics and *Chi*-Square reject the null hypothesis of no serial correlation at the 1% level of significance.

Table 50: Breusch-Godfrey test for serial correlation

F-Statistics	7.2732***
Obs*R-squared	14.7962***

Notes: The asterisk *** indicate significance at the 1% level.

Third, heteroskedasticity was tested using the White general test (Gujarati, 2003). Table 51 shows that the null hypothesis of heteroskedasticity is rejected at the 1% level of significance, as indicated by the probabilities of both the *F*-statistics and *Chi*-Square. As a result, the current study had to resolve the problems associated with serial correlation and heteroskedasticity by using the first-order autoregressive method and employing a standard error estimate that has been modified to account for homoskedasticity, as suggested by Brooks (2007). Therefore, the present study is assured that the problems of serial autocorrelation and heteroskedasticity are resolved.

Table 51: Heteroskedasticity test: White test

F-Statistics	1.5477***
Obs*R-squared	523.8164***

Notes: The asterisk *** indicate significance at the 1% level

Fourth, skewness and kurtosis were used to test for the normality assumption. Table 54 presents skewness and kurtosis statistics for the dependent, explanatory and control variables. The skewness statistics show that the variables are not symmetrically distributed; hence, the null hypothesis is rejected, but this rejection is relatively mild. Similarly, kurtosis statistics indicate that the null hypothesis that the variables are mesokurtically distributed is rejected. In order to mitigate the presence of non-normalities in the used variables, different types of transformations, such as natural log, square root and rank, were used to create better results, but the actual variables show better results than the transformed variables. Brooks (2007) indicates that the impact of non-normality will not be severe if the sample size is sufficiently large. Further, he points out that non-normality can result from some types of heteroskedasticity; hence, resolving heteroskedasticity can improve the normality of the variables. Therefore, the current study is confident that any remaining non-normality would not violate the OLS assumptions, as the

sample size is large (1,152 firm-year observations) and the problem of heteroskedasticity was resolved, as discussed above. Further, the skewness and kurtosis results are similar to those of prior studies that have used OLS estimation (e.g., Rahman and Ali, 2006; Anglin *et al.*, 2013).

Finally, multicollinearity was checked using two statistical tests. First, the correlation matrix was constructed among all variables using Pearson's parametric correlation coefficients and Spearman's non-parametric correlation coefficients. Table 53 illustrates no serious multicollinearity among all variables: both Pearson's parametric and Spearman's non-parametric correlation coefficients show low coefficients for all variables. Among the variables, the strongest correlation is observed between firm size and board size (0.441, 0.391), as reported by Pearson's and Spearman's coefficients, respectively. Second, Tolerance statistics and Variance Inflation Factor (VIF) statistics were computed in order to test for multicollinearity. Table 52 shows that the maximum Tolerance is 0.934 and the maximum VIF is 2.149, indicating no major problem of multicollinearity. Overall, the statistical tests indicate that OLS assumptions are not seriously violated, regardless of any remaining non-linearities, heteroskedasticities, non-normalities and multicollinearities in the variables. Thus, OLS is approved as an appropriate estimation method with which to perform the empirical analyses.

Table 52: Multicollinearity test: Tolerance statistic and Variance Inflation Factor

Variables	Tolerance	VIF
OCGI	0.789	1.267
GOVOWN	0.714	1.401
INSOWN	0.691	1.448
FOROWN	0.549	1.823
BLKOWN	0.675	1.482
BSIZE	0.784	1.275
BIG4	0.860	1.163
CGCOM	0.789	1.267
GNDR	0.934	1.071
GROWTH	0.875	1.143
LVRG	0.673	1.486
ROA	0.688	1.454
LNTA	0.465	2.149

Notes: *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN*, denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *GROWTH* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size.

Table 53: Pearson and Spearman correlation matrices of the dependent and explanatory variables

	DA	OCGI	GOVOWN	INSOWN	FOROWN	BLKOWN	BSIZE	BIG4	CGCOM	GNDR	GROWTH	LVRG	ROA	LNTA
DA		0.007	-0.011	-0.010	-0.003	0.004	-0.016	-0.018	0.015	-0.001	0.032	0.060**	0.278***	0.014
OCGI	0.039		0.155***	0.015	0.076**	-0.007	0.088***	0.100***	0.299***	0.086***	0.006	-0.077***	0.173***	0.347***
GOVOWN	-0.027	0.154***		-0.031	0.047	0.109***	0.085***	0.062**	0.048*	0.059**	-0.114***	-0.118***	0.206***	0.154***
INSOWN	0.006	0.029	-0.062**		-0.029	0.226***	-0.001	0.000	0.010	-0.050*	-0.036	0.044	0.035	-0.163***
FOROWN	0.005	0.072**	0.038	-0.150***		0.339***	0.008	0.020	0.000	0.067**	-0.128***	0.021	0.005	0.140***
BLKOWN	0.022	0.068**	0.118***	0.314***	0.355***		-0266***	-0.161***	-0.013	0.054*	0.053*	0.094***	-0.128***	-0.223***
BSIZE	-0.023	0.046	0.101***	-0.045	-0.044	-0.272***		0.252***	-0.055*	0.013	-0.111***	-0.032	0.054*	0.391***
BIG4	-0.018	0.030	0.062**	-0.011	-0.007	-0.160***	0.255***		0.110***	0.056*	-0.072**	-0.039	0.098***	0.377***
CGCOM	-0.003	0.279***	0.048	0.016	0.019	-0.009	-0.052*	0.110***		0.022	0.012	-0.177***	0.069**	0.092***
GNDR	-0.007	0.079***	0.059**	-0.019	0.057	0.051*	0.006	0.056*	0.022		0.017	0.057*	0.045	0.110***
GROWTH	0.016	-0.006	-0.088***	-0.043	-0.096***	0.044	-0.096***	-0.073**	-0.004	0.014		-0.043	-0.197***	-0.149***
LVRG	0.090***	0.092***	-0.081***	0.059**	0.046	0.084***	-0.009	-0.034	-0.193***	0.046	-0.055*		-0.346***	0.044
ROA	0.285***	0.180***	0.207***	0.024	-0.041	-0.114***	0.080***	0.101***	0.064***	0.057*	-0.193***	-0.335***		0.179***
LNTA	-0.009	0.275***	0.169***	-0.187***	0.087***	-0.206***	0.441***	0.369***	0.069***	0.113***	-0.176***	0.086***	0.170***	

Notes: the bottom left half of the table presents Pearson's parametric correlation coefficients, whilst the upper right half of the table presents Spearman's non-parametric correlation coefficients. *DA* denotes the firm-level EM practices, *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *GROWTH* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes profitability, *LNTA*, denotes firm size. The correlation matrix depicts the strength and sign of the relationship amongst the variables. ***, ** and * denote correlation is significant at the 1%, 5% and 10% level, respectively.

5.2 DESCRIPTIVE STATISTICS

This subsection presents descriptive statistics. Table 54 illustrates descriptive statistics for each used variable, including the mean, median, standard deviation, skewness, kurtosis, minimum and maximum, while Table 55 reports descriptive statistics based on industry group. The descriptive statistics are discussed in the following subsections. Subsection 5.2.1 discusses descriptive statistics of the dependent variable. Descriptive statistics of CG and control variables are discussed in Subsections 5.2.2 and 5.2.3. Subsection 5.2.4 discusses descriptive statistics based on industry group.

5.2.1 Descriptive Statistics of Earnings Management (Dependent variable)

Panel *A* of Table 54 presents descriptive statistics for firm-level EM practices among Omani listed firms. It shows that earnings management, denoted by the signed discretionary accruals (*DA*), ranges from -0.1946 to 0.3301, with an average of 0.0304 for the period 2001 to 2011. This reveals that Omani listed firms, on average, appear to manage their earnings upwards with average abnormal accruals equal to 3% of lagged total assets. The standard deviation of the *DA* is 0.1017, indicating that there is relative variation in the *DA* among the sampled firms. The skewness and kurtosis statistics of the *DA* are 0.3842 and 3.3259, respectively, suggesting that the *DA* is moderately skewed and has leptokurtic distribution.[40] As indicted in Subsection 5.1, the results of both skewness and kurtosis statistics reflect the non-normality in the *DA*, but this is assumed not to harm the normality assumption, as the current study's sample is larger, and heteroskedasticity that may cause the non-normality is already resolved. Further, the skewness and kurtosis results are not very different from those reported by previous studies (e.g., Rahman and Ali, 2006; Anglin *et al.*, 2013).

In addition, the Pearson's parametric and Spearman's non-parametric correlation coefficients presented in Table 53 show that the *DA* is positively and significantly associated with leverage and profitability. This suggests that EM is significantly higher for firms with greater leverage and profitability. Omani managers in highly leveraged and profitable firms may be motivated to engage in EM practices in order to meet debt covenant requirements (DeFond and Jiambalvo, 1994; Sweeney, 1994) and/or meet their compensation targets (Healy, 1985; Jensen, 1986; Gaver *et al.*, 1995). Furthermore, Figure 8 displays the average of the *DA* over the sampled period. It compares the levels of the *DA* conducted by Omani listed firms; it is clearly observed that the amount of the *DA* varies largely across eleven years. The level of the *DA* increased from

[40] Gujarati (2003) indicates that the absolute critical values for accepting skewness and kurtosis are zero and three, respectively, and OLS estimation can be used even in moderately large samples. He defines kurtosis statistics with a value greater than three as leptokurtic distribution. Brooks (2007, pp.162) states "*leptokurtic distribution is one which has fatter tails and is more peaked at the mean than a normally distributed random variable with the same mean and variance … it is thus desirable to stick with OLS if possible, since its behaviour in a variety of circumstances has been well researched*".

2001 to 2005, with a slight decrease in 2006. Importantly, the level of *DA* was highest in the years of financial crisis (2007 = 0.0656; 2008 = 0.0504). This may suggest that Omani managers engaged more in EM practices in these years to mitigate the negative impact of this crisis on their firms' financial reports. After this period, there was a dramatic decrease in 2009, and more increases in 2010 and 2011. Overall, the average *DA* is consistent with a number of past studies (e.g., Mitra and Cready, 2005; Jiang *et al.*, 2008; Lo *et al.*, 2010; Bekiris and Doukakis, 2011; Anglin *et al.*, 2013). For instance, using a sample of 373 firms listed on the NewYork Stock Exchange during the period 1991-1998, Mitra and Cready (2005) report an average *DA* of 0.045. Importantly, Figure 8 provides preliminary evidence that Omani managers used accounting choices to manage earnings during the sampled period.

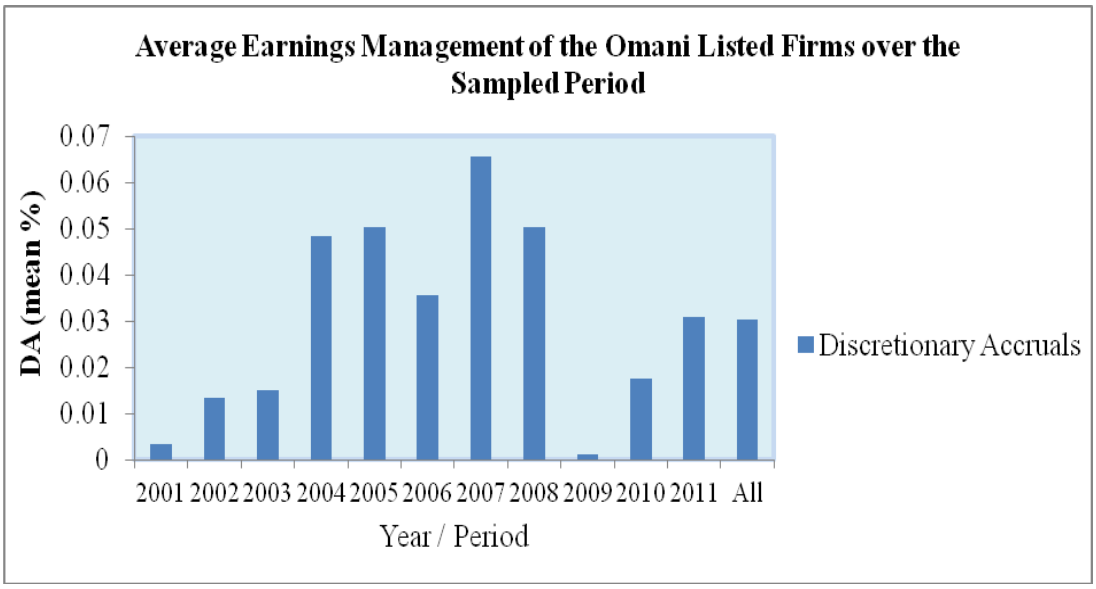

Figure 8: Earnings Management levels over the sampled period

5.2.2 Descriptive Statistics of Corporate Governance Variables

Panel *B* of Table 54 presents descriptive statistics for CG variables, including ownership variables. First, it reveals that CG index, denoted by the *OCGI*, ranges from 1.3900 to 88.8900, with an average of 47.8973. The standard deviation of the *OCGI* is 21.7746, suggesting that there is a significant variation in the *OCGI* among Omani listed firms. Pearson's parametric and Spearman's non-parametric correlation coefficients reported in Table 53 show that the *OCGI* is positively and significantly correlated with government, foreign and block ownership structures, CG committee, board diversity on the basis of gender, profitability and firm size. The presence of government ownership, labelled as *GOVOWN*, ranges from 0.0000 to 1.0000, with an average of 0.2578. The standard deviation of *GOVOWN* is 0.4376, suggesting that there is significant

variation in *GOVOWN*. The institutional ownership (INSOWN) variable shows that, with an average of 20%, listed firms in the MSM tend to have many institutional investors. The *INSOWN* ranges from 0.0000 to 0.9085, with a standard deviation of 22.6782, suggesting that the variation in *INSOWN* is significant. Foreign investors (FOROWN), on average, hold 11% of total firm ordinary shareholdings. The standard deviation of *FOROWN* is 20.0972, indicating that there is substantial variation in *FOROWN*. The block ownership (BLKOWN) variable rages from 0.0000 to 0.9947, with an average of 55%, and has the highest standard deviation (24.3699) of all the CG variables. This lends support to the current study's argument that the high levels of concentrated ownership may have important implications for the monitoring role played by ownership structures in reducing EM practices. The average size of firms' boards (BSIZE) is seven directors. Of these firms, the smallest board had three members, and the largest had thirteen. The big audit firm (BIG4) variable, on average, shows that 71% of the sampled firms were audited by one of the biggest four audit firms as opposed to 29% of firms audited by non-Big4 audit firms. The CG committee (CGCOM) variable shows a mean of 16%, suggesting that 0.16 of firms on average have a CG committee. Finally, the board diversity on the basis of gender variable, denoted by *GNDR*, shows that around 18% of firms have female board members. The skewness and kurtosis statistics of CG and ownership variables reject the null hypothesis that these variables are normally distributed. Similarly, different types of transformations were used to produce better results, but none of these transformations led to better results. As discussed in Subsection 5.1, the non-normalities in most of these variables are mild, as the skewness and kurtosis statistics are around the acceptable values. Further, the non-normality of these variables is assumed not to violate OLS assumptions, because the sample size is large and hetroskedasticity was already resolved (Gujarati, 2003; Brooks, 2007).

5.2.3 Descriptive Statistics of Control Variables

Panel *C* of Table 54 presents descriptive statistics for control variables. The average growth ratio, denoted by (GROWTH), ranges from 0.1990 to 1.8570, with an overall mean for the full sample of 0.7858. The leverage (LVRG) variable ranges from 0.0001 to 0.9530, with an average of 0.3300. The lowest mean value comes from the profitability variable (ROA), with an average of 0.0573, and a minimum of -0.1368 and a maximum 0.2500. Finally, firm size (LNTA), as proxied by natural logarithm of total assets, ranges from 14.4500 (RO16.56mn) to 19.9400 (RO562.09mn), with an average of 16.6222 (RO16.56mn). All control variables have relatively large standard deviations indicating that there is significant variation in these variables. The null hypothesis that the control variables are normally distributed is rejected, as indicated by the skewness and kurtosis statistics, but these values are close to acceptable values. Likewise, the

actual variables produced better results than any transformed variables. The violation of OLS assumptions as a result of the skewness and kurtosis statistics is not assumed to be severe, because the current study uses a large number of firm-year observations (1,152), and the hetroskedasticity that could cause this problem (non-normality) has been resolved (Gujarati, 2003; Brooks, 2007).

Table 54: Summary descriptive statistics of earnings management

Variable	Mean	Median	Std.Dev	Skewness	Kurtosis	Minimum	Maximum
Panel A: Dependent variable							
DA	0.0304	0.0308	0.1017	0.3842	3.3259	-0.1946	0.3301
Panel B: Explanatory variables							
OCGI	47.8973	54.1667	21.7746	-0.9200	2.6976	1.3900	88.8900
GOVOWN	0.2578	0.0000	0.4376	1.1073	2.2261	0.0000	1.0000
INSOWN	20.3921	12.4205	22.6782	1.0529	3.2718	0.0000	90.8500
FOROWN	10.4591	0.0000	20.0972	2.0874	6.8314	0.0000	90.1300
BLKOWN	54.8402	56.5927	24.3699	-0.3106	2.4292	0.0000	99.4700
BSIZE	7.3437	7.0000	1.7885	0.7651	3.1554	4.0000	13.0000
BIG4	0.7100	1.0000	0.4539	-0.9259	1.8574	0.0000	1.0000
CGCOM	0.1588	0.0000	0.3656	1.8665	4.4839	0.0000	1.0000
GNDR	0.1770	0.0000	0.3819	1.6918	3.8622	0.0000	1.0000
Panel C: Control variables							
GROWTH	0.7858	0.6735	0.4408	0.9024	3.0564	0.1990	1.8570
LVRG	0.3300	0.2678	0.2937	0.6378	2.2736	0.0001	0.9530
ROA	0.0573	0.0504	0.0980	0.0161	2.7295	-0.1368	0.2500
LNTA	16.6222	16.4241	1.4732	0.5497	2.6375	14.4500	19.9400

Notes: *DA* denotes the firm-level EM practices, *OCGI* denotes the Oman corporate governance index, *GOVOWN* represents government ownership, *INSOWN* denotes institutional ownership, *FOROWN* represents foreign ownership, *BLKOWN* denotes block ownership, *BSIZE* denotes the variable that is used to capture the size of board, *BIG4* denotes the audit firm size, *CGCOM* denotes the corporate governance committee, *GNDR* denotes board diversity on the basis of gender, *GROWTH* denotes firm growth, *LVRG* denotes leverage, *ROA* denotes return on asset the measure of profitability, *LNTA*, denotes firm size. Std.Dev denotes standard deviation. The Skewness and Kurtosis are used as measures to test for normality assumption.

5.2.4 Descriptive Statistics Based on Industry Group

EM literature (e.g., Jiang *et al*., 2008; Hwang *et al*., 2013) suggests that the *DA* exercised by managers is expected to vary across industries. Hence, examining the extent to which variability in the amounts of the *DA* is driven by industrial factor is valuable in order to expand our understanding regarding EM practices among Omani listed firms. Using a calculated mean of the *DA*, Table 55 and Figure 9 present a comparison of the levels of the *DA* across the nine industries. In response to the suggestion in the literature that the nature of financial firms' accruals may differ from those of non-financial firms, the current study employed t-test in order to examine whether there is a significant difference in EM patterns between financial firms and non-financial firms. Panels *A* to *I* of Table 55, as well as Figure 9, clearly show that there is variability in the *DA* levels among the nine industries. The Panels indicate that financial firms appear to engage more in EM practices than non-financial firms, as indicated by t-test values. The mean of the signed *DA* for basic materials, consumer goods, consumer services, financial,

industrial, utilities, health care, and telecommunications sectors is 0.0050, 0.0059, 0.0063, 0.0071, 0.0008, 0.0042, 0.0005, -0.0005 and 0.0007, respectively. It is clearly observed that financial, consumer services, consumer goods and basic materials have the highest average *DA* among the nine industries. In particular, the independent sample's t-test for equality of means between financial firms and firms operating in basic materials, consumer goods, consumer services and industrial sectors rejects the null hypothesis that the means are equal at least at the 5% significance level. Figure 9 shows that all industries appear to manage their earnings upwardly and downwardly, while they only manage their earnings upwardly in 2003 to 2005, with the highest level of *DA* in 2007. Overall, the differences in the *DA* levels support the theoretical expectation that firms may be more motivated to manipulate earnings depending on which industry they operate in.

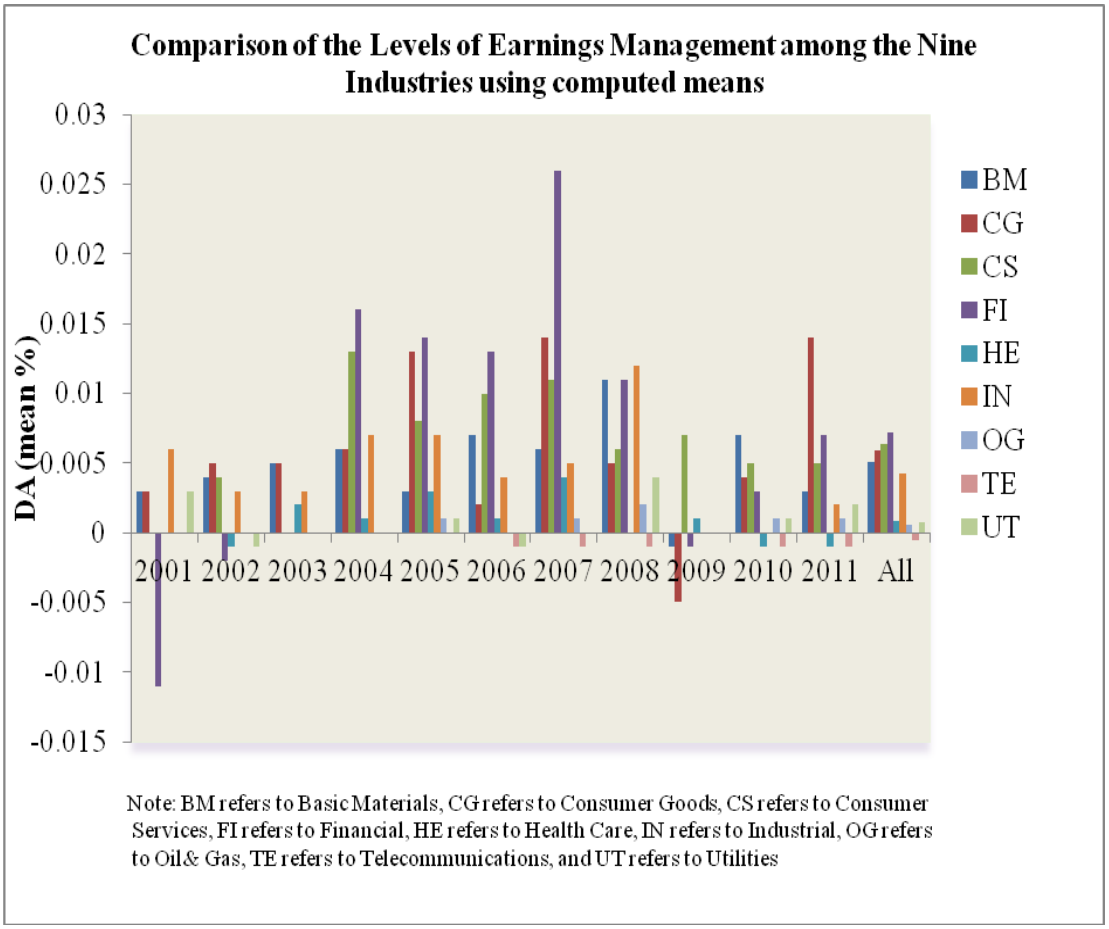

Figure 9: Earnings Management levels by industry

Table 55: Descriptive statistics of earnings management based on industrial groups

	Mean	T-Test	Std. Dev	Minimum	Maximum
Panel A: Basic Materials (BM)	*0.0050*	*2.624***	0.0385	-0.1946	0.3014
2001	0.0026	0.631	0.0240	-0.0770	0.1539
2002	0.0041	1.259	0.0194	-0.0727	0.0808
2003	0.0051	0.948	0.0310	-0.1706	0.1259
2004	0.0056	1.189	0.0281	-0.1347	0.1427
2005	0.0034	0.384	0.0485	-0.1946	0.3014
2006	0.0073	1.093	0.0408	-0.0958	0.2642
2007	0.0060	0.710	0.0529	-0.1673	0.2826
2008	0.1136	1.426	0.0499	-0.1122	0.2632
2009	-0.0008	0.192	0.0283	-0.1725	0.1643
2010	0.0071	1.038	0.0427	-0.1300	0.2709
2011	0.0031	0.519	0.0371	-0.1668	0.1800
Panel B: Consumer Goods (CG)	*0.0059*	*2.305***	0.0510	-0.1900	0.3077
2001	0.0025	0.597	0.0418	-0.1900	0.1630
2002	0.0054	0.582	0.0539	-0.1617	0.2573
2003	0.0046	0.463	0.0580	-0.1185	0.3066
2004	0.0062	0.803	0.0455	-0.1052	0.2567
2005	0.0125	1.283	0.0539	-0.1116	0.2527
2006	0.0024	0.303	0.0485	-0.1542	0.2742
2007	0.0137	1.513	0.0574	-0.1246	0.2787
2008	0.0049	0.719	0.0427	-0.1812	0.2352
2009	-0.0048	-0.645	0.0470	-0.1730	0.1982
2010	0.0042	0.595	0.0444	-0.1684	0.2110
2011	0.0136	1.319	0.0634	-0.1449	0.3077
Panel C: Consumer Services (CS)	*0.0063*	*3.572****	0.0356	-0.1817	0.2882
2001	-0.0002	-0.043	0.0262	-0.1360	0.1613
2002	0.0035	0.862	0.0237	-0.0986	0.1105
2003	-0.0001	-0.038	0.0306	-0.1662	0.1226
2004	0.0132	1.813	0.0435	-0.0121	0.2848
2005	0.0083	1.138	0.0403	-0.1738	0.2018
2006	0.0095	1.429	0.0405	-0.1556	0.2643
2007	0.0114	1.462	0.0491	-0.1023	0.2881
2008	0.0063	0.939	0.0422	-0.1817	0.2713
2009	0.0074	1.413	0.0328	-0.1607	0.1681
2010	0.0049	1.156	0.0266	-0.1645	0.1022
2011	0.0046	1.305	0.0218	-0.0530	0.1369
Panel D: Financials (FI)	*0.0071*		0.0603	-0.1943	0.2612
2001	-0.0106		0.0649	-0.1928	0.2488
2002	-0.0019		0.0431	-0.1892	0.2475
2003	0.0003		0.0604	-0.1912	0.2503
2004	0.0164		0.0585	-0.1744	0.2522
2005	0.0142		0.0547	-0.1030	0.2612
2006	0.0131		0.0562	-0.0984	0.2485
2007	0.0255		0.0831	-0.1809	0.2594
2008	0.0106		0.0819	-0.1897	0.2562
2009	-0.0006		0.0523	-0.1943	0.2568
2010	0.0025		0.0311	-0.1924	0.1335
2011	0.0069		0.0500	-0.1644	0.2506
Panel E: Health Care (HE)	*0.0008*	*1.001*	0.0162	-0.1134	0.2968
2001	-0.0001	-0.583	0.0015	-0.0151	0.0000
2002	-0.0008	-0.663	0.0077	-0.0755	0.0000
2003	0.0017	0.770	0.0130	0.0000	0.1189
2004	0.0008	0.468	0.0112	-0.0203	0.1115

Continuation: Table 55					
Panel E: Health Care (HE)	Mean	T-Test	Std. Dev	Minimum	Maximum
2005	0.0028	0.517	0.0305	-0.0232	0.2968
2006	0.0010	0.623	0.0101	0.0000	0.1031
2007	0.0042	0.819	0.0322	0.0000	0.2911
2008	-0.0001	-0.076	0.1385	-0.1134	0.0940
2009	0.0009	0.800	0.0077	0.0000	0.0718
2010	-0.0007	-0.503	0.0096	-0.1029	0.0127
2011	-0.0006	-0.371	0.0108	-0.1076	0.0352
Panel F: Industrials (IN)	*0.0042*	*2.223***	0.3818	-0.1728	0.3301
2001	0.0060	0.728	0.0469	-0.0575	0.3301
2002	0.0034	0.688	0.0289	-0.1392	0.1335
2003	0.0026	0.615	0.0253	-0.1035	0.1779
2004	0.0066	0.911	0.0429	-0.1728	0.2706
2005	0.0073	0.933	0.0432	-0.1190	0.2686
2006	0.0037	0.602	0.0376	-0.1545	0.2686
2007	0.0045	0.680	0.0415	-0.1555	0.2722
2008	0.0122	1.364	0.0560	-0.1630	0.3091
2009	-0.0003	-0.068	0.0351	-0.1694	0.1521
2010	-0.0003	-0.073	0.0276	-0.1570	0.1041
2011	0.0016	0.540	0.0183	-0.0701	0.0895
Panel G: Oil and Gas (OG)	*0.0005*	*1.197*	0.0098	-0.0459	0.2778
2001	0.0002	0.583	0.0021	0.0000	0.0210
2002	0.0003	0.591	0.0036	0.0000	0.0360
2003	0.0004	0.587	0.0048	0.0000	0.0476
2004	-0.0004	-0.583	0.0045	-0.0459	0.0000
2005	0.0133	0.563	0.0130	0.0000	0.1271
2006	0.0002	0.590	0.0023	0.0000	0.0244
2007	0.0005	0.593	0.0058	0.0000	0.0615
2008	0.0024	0.582	0.0260	0.0000	0.2778
2009	0.0000	0.852	0.0003	0.0000	0.0037
2010	0.0005	0.579	0.0061	0.0000	0.0662
2011	0.0005	0.583	0.0061	0.0000	0.0649
Panel H: Telecommunications (TE)	*-0.0005*	*-1.596*	0.0063	-0.1176	0.0000
2001	0.0000	0.000	0.0000	0.0000	0.0000
2002	0.0000	0.000	0.0000	0.0000	0.0000
2003	0.0000	0.000	0.0000	0.0000	0.0000
2004	0.0000	0.000	0.0000	0.0000	0.0000
2005	-0.0003	-0.563	0.0030	-0.0299	0.0000
2006	-0.0008	-0.590	0.0091	-0.0934	0.0000
2007	-0.0005	-0.593	0.0055	-0.0585	0.0000
2008	-0.0010	-0.582	0.0110	-0.1176	0.0000
2009	-0.0003	-0.582	0.0037	-0.0396	0.0000
2010	-0.0014	-0.808	0.0114	-0.1020	0.0000
2011	-0.0007	-0.789	0.0056	-0.0524	0.0000
Panel I: Utilities (UT)	*0.0007*	*0.904*	0.0156	-0.0695	0.3098
2001	0.0029	0.594	0.0285	0.0000	0.2766
2002	-0.0007	-0.651	0.0068	-0.0665	0.0000
2003	0.0002	0.349	0.0043	-0.0146	0.0402
2004	-0.0002	-0.288	0.0055	-0.0440	0.0305
2005	0.0005	0.290	0.0108	-0.0242	0.1005
2006	-0.0011	-0.849	0.0079	-0.0670	0.0000
2007	0.0001	0.079	0.0094	-0.0396	0.0848
2008	0.0036	0.750	0.0305	-0.0131	0.3098

Continuation: Table 55

Panel I: Utilities (UT)	Mean	T-Test	Std. Dev	Minimum	Maximum
2009	-0.0000	-0.008	0.0063	-0.0575	0.0256
2010	0.0005	0.243	0.0141	-0.0663	0.1329
2011	0.0016	0.562	0.0180	-0.0695	0.1634

Notes: The t-test in column 3 is the independent samples t-test for equality of means. The mean differences in Panels *A, B, C, E, F, G, H* and *I* test for equality means between basic materials, consumer goods, consumer services, financials, health care, industrials, oil and gas, telecommunications, utilities and financial firms, respectively. A mean difference with (***), (**) and (*) indicates that the null hypothesis that the means are equal is rejected at the 1%, 5%, and 10%, respectively. Std.Dev denotes standard deviation.

6 EMPIRICAL RESULTS AND DISCUSSION

This section discusses the empirical results related to the relationship between firm-level EM, measured by the *DA* calculated according to a modified Jones Model (1995), and firm-level CG proxied by the Omani CG index. Table 57 reports OLS regression results and Table 56 facilitates the following of these results by providing a summary of each hypothesis and its results. In particular, Columns 3 and 4 of Table 57 report only the results of CG index, Columns 5 and 6 report those related only to ownership variables, Columns 7 and 8 report the results of only board and audit variables, and Columns 9 and 10 report the results of multivariate regression of the *DA* on all variables. This allows the study to see the individual effect for each group of variables, as well as their joint effect on EM. In order to examine only the effect of CG as an integrated system on EM practices, the Omani CG index, in addition to control variables, is included in the regression, as reported in Columns 3 and 4 of Table 57. The probability of *F-Stat* is statistically significant at the 1% level of significance, indicating a rejection of the null hypothesis that the estimated coefficients of CG index and control variables are equal to zero. The adjusted R^2 reveals that about 18% of the changes in the *DA* are explained by these variables. The coefficient on CG index is statistically and significantly negative, which is consistent with the present study's hypothesis. All the control variables are statistically significant at least at the 10% level of significance, except year and industry variables. According to Columns 5 and 6, the null hypothesis that the coefficients of the eight variables, in addition to year and industry dummies, are equal to zero is rejected, as indicated by the *F-Stat*, which is statistically significant at the 1% significance level. The adjusted R^2 is 0.18, suggesting that 18% of the variability in the *DA* is jointly explained by these variables. The coefficients on government, institutional and block ownership structures are statistically significant at least at the 10% significance level. The direction of these coefficients is in line with the current study's hypotheses, whereas the coefficient on foreign ownership structure variable is statistically insignificant. In relation to the impact of board and audit variables on EM practices, the results reported in Columns 7 and 8 reveal that these variables are insignificant in explaining variability in firm-level EM. The alternative hypothesis, that the coefficients of four determinants and control variables are different from zero, is accepted. The adjusted R^2 indicates that about 18% of the variability in the *DA* is jointly predicted by these variables.

In order to take into account the interrelated relationships between CG index, board and audit characteristics and ownership structure in their impact on EM practices, all nine variables are included in the model along with control variables. The *F-Stat* remains statistically significant at the 1% significance level, and the adjusted R^2 indicates that 18% of the variability

in the DA is jointly explained by these variables. However, the significance level on a few variables has changed. For instance, the coefficient on CG index, which was statistically significant at the 5% significance level (Columns 3 and 4), is now statistically significant at the 10% level (Columns 9 and 10). The interrelated relationships between all variables may cause these sensitivities. Overall, CG index, government ownership and institutional ownership are found to be statistically significantly negative associated with the *DA*, whereas block ownership, growth, leverage and profitability are positively and statistically significant over the entire sample period. In contrast, the coefficients on foreign ownership, board size, audit firm size, CG committee and board diversity on the basis of gender are statistically insignificant. The results based on all the explanatory variables are discussed below. In particular, Subsection 6.1 discusses the empirical results of CG variables, and Subsection 6.2 discusses the empirical results of control variables.

6.1 EMPIRICAL RESULTS OF CORPORATE GOVERNANCE VARIABLES

Panel *A* of Table 57 reports the empirical results for CG index, ownership structures and board and audit variables. First, the coefficient on CG index is negative and statistically significant at the 10% level of significance. This supports *H5*, that there is a statistically significant and negative relationship between CG and firm EM practices (see Columns 13 to 15 of Table 56). This finding suggests that effective CG structures appear to constrain EM practices, leading to improved earnings quality. Theoretically, the negative coefficient on the *OCGI* is in line with a number of theoretical perspectives, such as AT, SKT and SGT, which suggest that managers in poorly governed firms are expected to behave opportunistically by engaging in EM practices in order to personally benefit at the expense of shareholders and other stakeholders. Many previous studies limit their investigation to specific CG mechanisms (e.g., board and audit characteristics); the collective effect of CG measures in the form of a CG index provided in this study shows that better governed firms tend to conduct less EM. This in line with recent suggestions in the literature (e.g., Karamanou and Vafeas, 2005; Bowen *et al.*, 2008; Dechow *et al.*, 2010) that CG mechanisms should be examined as an integrated system instead of individually. Hence, the multi-dimensional characteristics of the CG approach provide additional convincing evidence on the pooled effect of internal and external mechanisms on earnings quality. The finding of a linear relationship between CG and the *DA* seems to support the current study's expectation that CG recommendations proposed by the Omani code, combined with religious notions, tend to prevent managers from engaging in EM practices. In addition, the magnitude of the *OCGI* is very low (-0.0005), indicating that informal systems, such as family,

tribal and personal relationships, may affect the ability of CG mechanisms to mitigate EM practices among Omani listed firms. Empirically, this finding is consistent with limited studies that examine the association between firm-level EM and firm-level CG using multi-dimensional characteristics of CG (e.g., Chen and Chih, 2007; Jiang *et al*., 2008; Bekiris and Doukakis, 2011; Leventis and Dimitropulos, 2012). In contrast, this result differs from past studies that report no statistically significant relationship between CG and EM practices (e.g., Bowen *et al.*, 2008).

Second, the model finds a statistically significant and negative relationship between government ownership and the *DA* at the 5% level of significance, which means that *H1* is supported. This finding implies that the presence of the government as a shareholder in a firm leads to reduced EM practices. Quantitatively, holding all the other variables within the model constant, it indicates that a reduction in government ownership by one unit will increase the use of EM practices by 0.019. Theoretically, this finding is consistent with SWT's suggestion that government ownership can serve as a CG mechanism that stops managers from reporting EM. In contrast, the finding does not support AT's argument that potential conflicts of interest between government representatives and the government itself can motivate managers to engage more in EM practices. The influential power of government ownership is supported by descriptive statistics, where about 26% of Omani listed firms have government investors, which indicates that having the government as an investor appears to play a crucial role in corporate financial decision-making. In particular, government ownership seems to serve as a CG mechanism that curbs managers from engaging in EM practices because of the greater influence of its interference with managerial appointments. Empirically, this finding is in line with Ding *et al.* (2007) and Wang and Yung (2011), who report a statistically significant and negative relationship between government ownership and EM practices, but is contrary to Li *et al*. (2011), who document that government ownership is statistically significant and positively associated with EM practices.

Third, the coefficient on institutional ownership is negative and statistically significant at the 5% level of significance; hence, *H2*, that there is a statistically significant and negative relationship between institutional ownership and firm EM practices, is supported. This finding indicates that investment institutions holding many shares in a firm can provide active monitoring that reduces EM practices. Theoretically, this result is in line with the efficient monitoring hypothesis suggesting that institutional investors are expected to serve as a CG mechanism that provides active monitoring over management. Empirically, this finding is similar to those reported by some prior studies (e.g., Chung *et al*., 2002; Mitra and Credy, 2005; Jiraporn and Gleason, 2007; Cornett *et al*., 2008; Wang, 2014), but contrasts with some other past studies

(e.g., Koh, 2003; Siregar and Utama, 2008) that document empirical evidence of no significant relationship.

Fourth, unlike above ownership variables, the model finds no significant relationship between foreign ownership and EM practices. This finding seems to suggest that foreign ownership does not explain variation in the *DA*; hence, *H3*, that there is a statistically significant and negative relationship between foreign ownership and firm EM practices, is rejected. This finding is in line with the theoretical prediction that foreign institutional investors, in contexts where distance and language can be significant barriers, are less likely to mitigate EM practices in local firms. However, the insignificant impact of foreign ownership lends empirical support to the finding reported by Li *et al*. (2011), but does not support the findings of other past studies (e.g., Lel, 2013; Guo *et al.*, 2012) that provide empirical evidence that foreign ownership is associated with lower EM practices. Within the Omani context, the impact of foreign ownership in constraining EM practices appears to be less significant than observed in other contexts, such as the Japanese setting.

Fifth, block ownership is found to be statistically significant and positively related to the *DA*, at the 10% level of significance, indicating that *H4* is empirically supported. This finding implies that managers in firms with a high concentration of ownership are more engaged in EM practices than those in firms with lower levels of ownership concentration. Theoretically, the positive coefficient on block ownership is contrary to the view that block holders have great incentives to actively monitor managers and serve as a CG mechanism to curb managers from reporting earnings. It is important to indicate that the ownership structure of Omani listed firms is characterised by high levels of concentrated ownership (around 55%), as shown by the descriptive statistics. Thus, the positive relation between the two variables can be explained by the present study's expectation that block ownership in the Omani setting is more likely to increase managerial motivation to report EM practices rather than performing as a CG mechanism in reducing EM practices. Both managers and block shareholders are likely to be highly influenced by informal rules, where the latter may force the former to report earnings in order to expropriate minority shareholders. This finding lends empirical support to some prior studies (e.g., Haw *et al*., 2004; Kim and Yi, 2006), but not others, which document a negative relationship (e.g., Ali *et al*., 2008; Aleves, 2012) or no significant association (e.g., Davidson *et al.*, 2005; Lo *et al*, 2010).

Sixth, the coefficient on board size is positive but not statistically significant. The statistically insignificant and positive *DA*-board size nexus indicates that *H6*, suggesting that board size has no explanatory power in explaining the *DA*, is rejected. Theoretically, this finding

is in line with the view that larger boards can be less effective in monitoring managers, as directors are confronted with the problem of being dominated by managers who may take advantage of dominating directors to report earnings. Empirically, this finding is consistent with prior studies (e.g., Firth *et al*, 2007) that report no significant relationship. In contrast, the statistically insignificant relationship between board size and the *DA* is contrary to prior studies (e.g., Xie *et al*., 2003; Ghosh *et al*., 2010) that report a statistically significant and negative association between the two variables, as well as other studies (e.g., Rahma and Ali, 2006; Epps and Ismail, 2009; Ales, 2012) that report empirical evidence that EM practices and board size are positively associated. In the Omani context, this finding seems to suggest that the monitoring role of the firm's board is weaker than other corporate contexts in mitigating EM practices. This is expected to result from the powerful influence of informal rules on the firm's board, where directors may have long-term commitments to family, tribal and personal relationships, which take precedence over formal rules, such as CG systems.

Seventh, the statistically insignificant and positive coefficient on the presence of a CG committee does not lend empirical support to *H7*, that the establishment of a CG committee impacts negatively on EM practices. The result reveals an unexpected weak relation between the *DA* and the presence of a CG committee. This finding is not in line with the theoretical prediction that managers' discretion in financial reporting can be reduced through clearly set guidelines on the best CG practices provided by a CG committee. The statistically insignificant coefficient on CG committee seems to indicate that CG committees do not have a role in helping a firm's board to actively monitor managers with regard to EM practices. This can be related to the possibility that members of CG committees may find it difficult to improve the CG practices among Omani listed firms in the presence of informal rules. Empirically, the literature shows that the relationship between the two variables has not examined previously. Thus, the current study opens the door for further investigation to examine the potential impact of the presence of a CG committee on EM practices in other corporate settings.

Eighth, audit firm size is found to be statistically insignificant and negatively associated with the *DA*, indicating that *H8* is rejected. Although 71% of the sampled firms are audited by one of the Big 4 audit firms (see Table 54), this finding does not lend empirical support to the theoretical prediction that managers in firms audited by large audit firms are less motivated to engage in EM practices. Empirically, it supports the results of Davidson *et al*. (2005) and Firth *et al*. (2007), who report that audit firm size has no significant impact on EM practices. In contrast, it contrasts with studies (e.g., Francis and Wang, 2008; Kent *et al*., 2010; Iatrdis, 2012) that

report empirical evidence that large audit firms have a significant negative relationship with the *DA*.

Finally, the coefficient on board diversity on the basis of gender is negative but not statistically significant, indicating that *H9*, that there is a statistically negative significant association between board diversity on the basis of gender and firm EM practices, is rejected. This finding is contrary to the view that gender-diverse boards may provide better monitoring over managers and improve the quality of earnings. This finding may result from the possibility that female representation on Omani listed boards is restricted by conservative traditions that may not allow women to improve board monitoring. Empirically, this finding is consistent with the result of Sun *et al*. (2011), who report empirical evidence that female directorship has no significant influence in constraining EM practices. In contrast, it does not support the results of Srinidhi *et al*. (2011) and Gavious *et al*. (2012), who report empirical evidence that firms with female directors exhibit a greater reduction in EM practices.

6.2 EMPIRICAL RESULTS OF CONTROL VARIABLES

Panel *B* of Table 57 presents the results of the potential reaction of the *DA* to several control variables. The coefficient on firm growth is positive and statistically significant at the 1% level of significance. This finding is consistent with the theoretical prediction that high-growth firms may be more motivated to engage in EM practices than low-growth firms. Quantitatively, holding all the other variables within the model constant, it suggests that an increase in firm growth by one unit will result in a 0.019 increase in the use of the *DA*. The statistically significant and positive association lends empirical support to prior studies (e.g., Jiang *et al*., 2008; Peni and Yahamaa, 2010; Gonzalez and Garcia-Mcca, 2013; Sun and Liu, 2013) that report evidence that high-growth firms tend to engage in EM practices. In contrast, this finding is contrary to some studies (e.g., Leventis and Dimitropoulos, 2012) that find a negative relationship between the two variables.

The result of the leverage variable shows that leverage is statistically significant at the 1% level of significance, and positively related to EM practices. Theoretically, this finding does not support the idea that debt financing can be considered as a useful device in reducing EM practices. In contrast, it is in line with the view that highly leveraged firms are more likely to engage in EM practices than less leveraged firms because managers tend to report earnings in order to meet debt covenant requirements. Empirically, it does not offer empirical support to the results reported by past studies (e.g., Piot and Janin, 2007; Sun and Liu, 2013) that indicate that firms with high leverage are less likely to engage in EM practices. In contrast, it lends empirical support to other studies (e.g., Lai, 2009; Bekiris and Doukakis, 2011; Alves, 2012; Chen and

Zhang, 2014; Gonzalez and Garcia-Meca, 2013; Sun and Liu, 2013) that report evidence that leverage and firm-level EM are statistically significantly and positively correlated.

Profitability is found to be statistically significant at the 1% level of significance, and positively associated with EM practices. This finding is contrary to the theoretical prediction that profitable firms are less likely to engage in EM practices because they have internal resources for capital investment. In contrast, it supports AT's prediction that profitable firms tend to manage their earnings if the current earnings are greater or smaller than what was targeted. Empirically, it is contrary to some prior studies (e.g., Haw *et al*., 2004; Hwang *et al*., 2013) that report empirical evidence that profitability has a statistically significant and negative relationship with the *DA*, as well as other studies (e.g., Rahman and Ali, 2006; Anglin *et al.*, 2013) that document no significant association between the two variables. In contrast, it offers empirical support to the results of prior studies (e.g., Kim and Yi, 2006; Chen *et al.*, 2007; Gonzalez and Garcia-Meca, 2013) that find that profitability impacts positively on EM practices.

The model finds a statistically significant relationship between firm size and EM practices. The coefficient on firm size is negative and statistically significant at the 10% level of significance. This finding leads empirical support to prior studies (e.g., Leventis and Dimitropoulos, 2012; Gonzalez and Garcia-Mcca, 2013; Sun and Liu, 2013) reporting that firm size and firm-level EM are statistically significant and negatively correlated. By contrast, it does not lend empirical support to other prior studies (e.g., Chen and Chih, 2007; Siregar and Utama, 2008; Bekiris and Doukakis, 2011; Chen and Zhang, 2014) that provide empirical evidence of no significant relation between the two variables, and other studies (e.g., Chung *et al*., 2002; Chen *et al*., 2007; Alves, 2012) that provide empirical evidence of a positive relation.

Finally, the estimated coefficients for the year and industry variables show that some of them have explanatory powers in explaining variations in the *DA*. Specifically, years 2001 to 2003, year 2009 and the telecommunications sector have a statistically significant and negative association with EM practices at least at the 10% level. The results of year and industry variables lend support to prior studies (e.g., Jiang *et al*., 2008; Hwang *et al*., 201) that suggest that EM practices vary across years and industries.

To sum up, the current study examines the relationship between firm-level CG and firm-level EM in Omani listed firms. Tables 56 and 57 show the findings related to CG and control variables examined in this study. Overall, the findings are consistent with theoretical and empirical literature. First, the findings suggest that government ownership has a statistically significant impact on EM practices. Second, the findings indicate that EM practices are significantly lower in firms with institutional ownership. Third, the findings reveal that foreign

ownership has no statistically significant impact on EM practices. Fourth, the findings suggest that firms with higher levels of ownership concentration engage significantly in EM practices. Sixth, the findings indicate that better governed firms engage less in EM practices. Seventh, the findings show that large board size is insignificantly related to EM practices. Eighth, the findings suggest that being audited by a Big Four audit has an insignificant relationship with EM practices. Finally, the findings indicate that female representation on Omani corporate boards has an insignificant association with EM practices. Hence, this study provides empirical evidence that better governed firms engage less than poorly governed firms in EM practices in settings where religious notions, informal rules and concentration of ownership play an important role in corporate financial decision-making. These findings show the positive influence of the Omani state's governance reforms, which aim to regulate the management of firms listed on the MSM and make the Omani economy less vulnerable to accounting scandals and corporate failures.

Table 56: A summary of all hypotheses and findings for the relationship between earnings management and corporate governance

Dependent variable			Firm earnings management (DA)											
Explanatory variables			OCGI			Ownership variables			Board/Audit variables			All		
Governance Variables	Hyp. No	Expect-ed sign	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status	Finding sign	Finding significance	Hypothesis status
Government ownership	1	-				-	Significant (5%)	Accepted				-	Significant (5%)	Accepted
Institutional ownership	2	-				-	Significant (5%)	Accepted				-	Significant (5%)	Accepted
Foreign ownership	3	-				-	Insignificant	Rejected				-	Insignificant	Rejected
Block ownership	4	+				+	Significant (10%)	Accepted				+	Significant (10%)	Accepted
Omani CG Index	5	-	-	Significant (5%)	Accepted							-	Significant (10%)	Accepted
Board size	6	+/-							+	Insignificant	Rejected	+	Insignificant	Rejected
CG committee	7	-							+	Insignificant	Rejected	+	Insignificant	Rejected
Audit firm size	8	-							-	Insignificant	Rejected	-	Insignificant	Rejected
Gender	9	-							-	Insignificant	Rejected	-	Insignificant	Rejected

Note: Column 1 presents the ninth variables that are represented the ninth tested hypotheses. Columns 2 to 12 present information relating to hypotheses one to nine with regard to the DA.

Table 57: The effect of corporate governance on corporate earnings management

		OCGI		Ownership variables		Board/Audit variables		All	
Independent variables	Ex.Sig	Coef.	Sign	Coef.	Sign	Coef.	Sign	Coef.	Sign
Panel A: CG variables									
OCGI	-	-0.0005	0.0402**	-	-	-	-	-0.0005	0.0664*
GOVOWN	-	-	-	-0.0188	0.0136**	-	-	-0.0185	0.0152**
INSOWN	-	-	-	-0.0003	0.0235**	-	-	-0.0003	0.0304**
FOROWN	-	-	-	-0.0001	0.6519	-	-	-0.0001	0.6638
BLKOWN	+	-	-	0.0003	0.0660*	-	-	0.0003	0.0575*
BSIZE	+/-	-	-	-	-	0.0045	0.7519	0.0146	0.2994
BIG4	-	-	-	-	-	-0.0050	0.4949	-0.0035	0.6237
CGCOM	-	-	-	-	-	0.0072	0.3971	0.0123	0.1525
GNDR	-	-	-	-	-	-0.0098	0.2153	-0.0108	0.1651
Panel B:Control variables									
GROWTH		0.0208	0.0029***	0.0189	0.0064***	0.0212	0.0026***	0.0195	0.0045***
LVRG		0.0882	0.0000***	0.0905	0.0000***	0.0933	0.0000***	0.0933	0.0000***
ROA		0.4650	0.0000***	0.4819	0.0000***	0.4689	0.0000***	0.4872	0.0000***
LNTA		-0.0049	0.0603*	-0.0056	0.0263**	-0.0058	0.0348**	-0.0049	0.0813*
2001		-0.0477	0.0072***	-0.0239	0.0663*	-0.0221	0.0928*	-0.0444	0.0131**
2002		-0.0402	0.0079***	-0.0222	0.0699*	-0.0201	0.1004	-0.0381	0.0138**
2003		-0.0358	0.0113**	-0.0251	0.0571*	-0.0247	0.0660*	-0.0341	0.0175**
2004		-0.0005	0.9673	0.0031	0.7931	0.0033	0.7781	0.0003	0.9776
2006		-0.0062	0.5824	-0.0064	0.5699	-0.0065	0.5645	-0.0053	0.6340
2007		0.0079	0.5498	0.0054	0.6852	0.0063	0.6307	0.0078	0.5547
2008		0.0205	0.1429	0.0178	0.1992	0.0188	0.1802	0.0207	0.1323
2009		-0.0318	0.0059***	-0.0349	0.0026***	-0.0341	0.0036***	-0.0315	0.0067***
2010		-0.0097	0.4027	-0.0130	0.2654	-0.0118	0.3066	-0.0094	0.4204
2011		0.0116	0.3286	0.0062	0.6058	0.0098	0.4131	0.0095	0.4297
Basic materials		-0.0293	0.2428	-0.0471	0.0740*	-0.0356	0.1731	-0.0414	0.1188
Consumer services		-0.0180	0.4719	-0.0385	0.1504	-0.0250	0.3359	-0.0343	0.2016
Consumer goods		-0.0186	0.4708	-0.0413	0.1351	-0.0269	0.3114	-0.0386	0.1649
Financials		-0.0140	0.5875	-0.0321	0.2375	-0.0192	0.4715	-0.0298	0.2723
Health care		0.0195	0.5191	0.0070	0.8273	0.0186	0.5491	0.0076	0.8127
Industrials		-0.0193	0.4618	-0.0419	0.1322	-0.0284	0.2977	-0.0389	0.1674
Telecommunications		-0.1518	0.0000***	-0.1741	0.0000***	-0.1598	0.0000***	-0.1765	0.0000***
Utilities		-0.0267	0.3716	-0.0340	0.2748	-0.0299	0.3284	-0.0379	0.2216
Constant		0.0948**		0.0961**		0.0808*		0.0787	
Adj. R^2		0.1795		0.1818		0.1757		0.1838	
F-Stat		11.4799***		10.4666***		10.0765***		9.0940***	
Durbin-Watson Stat.		2.0175		2.0169		2.0203		2.0154	
Number of observations		1152		1152		1152		1152	

Notes: Variables are defined as follows: Omani CG index (OCGI) is un-weighted CG index. Government ownership (GOVOWN) is measured as a dummy variable where a firm takes 1 if a firm has government ownership, 0 otherwise. Institutional ownership (INSOWN) and foreign ownership (FOROWN) are measured as percentage of institutional and foreign ownership to total firm ordinary shareholdings. Block ownership (BLKOWN) is measured as percentage of shares held by shareholders with at least 5% of the total firm shareholdings. Board size (BSIZE) is measured by the total number of directors on the firm's board. Audit firm size (BIG4) is measured as dummy variable where a firm takes 1 if a firm is audited by one of the biggest four audit firms (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG), 0 otherwise. The presence of corporate governance committee (CGCOM) is measured as dummy variable where a firm takes 1 if a firm has set up a corporate governance committee, 0 otherwise. Board diversity on the basis of gender (GNDR) is measured as dummy variable where a firm takes 1 if a firm has a female director on its board, 0 otherwise. Growth (GROWTH) is measured by current year's sales minus last year's sales to last year's sales. Leverage (LVRG) is measured as book total debt scaled by total assets of a firm. Profitability (ROA) is measured as operating profit to total assets. Firm size (LNTA) is measured by natural log of total assets. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods, consumer services, financial, health care, industrial, utilities and Telecommunications sectors, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7 ROBUSTNESS ANALYSES

This section discusses the extent to which the findings obtained in Section 6 are robust or sensitive to alternative models and estimations. Specifically, a series of robustness analyses were conducted on the following issues. First, whether the original findings are sensitive to alternative measures of CG and EM. Second, whether the original findings are driven by financial firms. Third, whether the main results are sensitive over the sample period. Fourth, whether the unobserved firm-specific characteristics have an impact on the original results. And finally, whether the original findings are suffer from endogeneity problem. Accordingly, this section is organised as follows. Subsection 7.1 reports and discusses findings based on the weighted CG index. Subsection 7.2 reports and discusses findings based Kothari *et al.*'s (2005) Model. Subsection 7.3 reports and discusses findings based only on non-financial firms. Subsection 7.4 reports and discusses findings based on sampled period. Subsection 7.5 reports and discusses findings based on the fixed-effects model. Subsection 7.6 reports and discusses findings based on a lagged structure model. Subsection 7.7 reports and discusses findings based on a Two-Stage Least Squares (2SLS) model. In order to facilitate comparison, both the original findings and each robustness test's results will be presented in the same table. Overall, the robustness tests suggest that the main findings are generally robust and not sensitive to all these issues. These analyses are discussed below, with particular focus on the sensitivities between each robustness analysis' results and the main results.

7.1 RESULTS BASED ON ALTERNATIVE CORPORATE GOVERNANCE PROXY

As indicated in Essays 1 and 2, the un-weighted approach was adopted in order to construct the CG index that was used to measure CG among Omani listed firms. Following Beiner *et al.*'s (2006) procedure in constructing a weighted CG index,[41] the current study accounts for the likelihood that using a weighted CG index may result in different findings. In doing so, the un-weighted CG index was replaced by a weighted CG index in equation (1). Table 58 reports OLS regression results of both the original findings and those from the weighted CG index. Specifically, the findings reported in Columns 9 to 10 of Table 57, which are based on the un-weighted CG index, are repeated in Columns 3 to 4 of Table 58. According to Table 58, the *F-Stat* and the adjusted R^2 are similar to those reported by the un-weighted CG index. The *F-Stat* is significant at the 1% level, rejecting the null hypothesis that the coefficients of the nine CG variables, in addition to control variables, are equal to zero. The adjusted R^2 reveals that about 18% of the variability in the *DA* is jointly explained by these variables. Overall, the original

[41] See Subsection 7.1 of Essay 1 for more details on this procedure.

findings are not sensitive to the weighted CG index. CG variables including weighted CG index, government ownership, institutional ownership and block ownership still statistically significant at least at the 10% significance level. Further, the control variables are also in line with the main findings. These findings are discussed further in the following subsections, with particular focus on the main sensitivities of this analysis.

7.1.1 Empirical Results of Corporate Governance Variables

Similar to the main model, weighted CG index and government, institutional and block ownership are statistically significant, whereas foreign ownership, board size, presence of a CG committee, audit firm size and board diversity on the basis of gender are statistically insignificantly related to EM practices among Omani listed firms. The direction of the coefficients on CG variables has not changed compared to those of the un-weighted CG index, while the statistical significance of the coefficient on CG index has changed. In particular, the coefficient on the *OCGI*, which was statistically significant at 10%, is now statistically significant at 5%. The statistical significance of the rest of the variables remains unchanged.

7.1.2 Empirical Results of Control Variables

Control variables including growth, leverage, profitability, firm size, years 2001 to 2003, year 2009 and telecommunications sector are significant and consistent with the main findings. Similar to CG variables, the direction of the coefficients on control variables has not changed compared to those of the un-weighted CG index, except for year 2004, which was positive and is now negative, while the statistical significance of the coefficient on a few variables has changed. Specifically, the statistical significance of the coefficients on years 2001 and 2002, which were statistically insignificant at the 5% level, are now statistically significant at the 1% level. The remainder of the variables remain unchanged.

Table 58: The results based on weighted corporate governance index

		Un-weighted index		Weighted index	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
WOCGI	-	-	-	-0.0006	0.0420**
OCGI	-	-0.0005	0.0664*	-	-
GOVOWN	-	-0.0185	0.0152**	-0.0185	0.0152**
INSOWN	-	-0.0003	0.0304**	-0.0003	0.0287**
FOROWN	-	-0.0001	0.6638	-0.0001	0.6566
BLKOWN	+	0.0003	0.0575*	0.0003	0.0594*
BSIZE	+/-	0.0146	0.2994	0.0148	0.2941
BIG4	-	-0.0035	0.6237	-0.0035	0.6202
CGCOM	-	0.0123	0.1525	0.0122	0.1492
GNDR	-	-0.0108	0.1651	-0.0110	0.1577
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0195	0.0046***
LVRG		0.0933	0.0000***	0.0936	0.0000***
ROA		0.4872	0.0000***	0.4863	0.0000***
LNTA		-0.0049	0.0813*	-0.0051	0.0636*
2001		-0.0444	0.0131**	-0.0500	0.0091***
2002		-0.0381	0.0138**	-0.0425	0.0097***
2003		-0.0341	0.0175**	-0.0361	0.0129**
2004		0.0003	0.9776	-0.0004	0.9760
2006		-0.0053	0.6340	-0.0051	0.6477
2007		0.0078	0.5547	0.0076	0.5630
2008		0.0207	0.1323	0.0204	0.1380
2009		-0.0315	0.0067***	-0.0317	0.0062***
2010		-0.0094	0.4204	-0.0097	0.4049
2011		0.0095	0.4297	0.0091	0.4452
Basic materials		-0.0414	0.1188	-0.0412	0.1210
Consumer services		-0.0343	0.2016	-0.0342	0.2034
Consumer goods		-0.0386	0.1649	-0.0381	0.1695
Financials		-0.0298	0.2723	-0.0306	0.2591
Health care		0.0076	0.8127	0.0062	0.8465
Industrials		-0.0389	0.1674	-0.0390	0.1656
Telecommunications		-0.1765	0.0000***	-0.1766	0.0000***
Utilities		-0.0379	0.2216	-0.0375	0.2255
Constant		0.0787		0.0878*	
Adj. R^2		0.1838		0.1847	
F-Stat		9.0940***		9.1404***	
Durbin-Watson Stat.		2.0154		2.0154	
Number of observations		1152		1152	

Notes: *OCGI* and *WOCGI* denote the un-weighted and weighted Oman corporate governance indexes, respectively. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.2 RESULTS BASED ON ALTERNATIVE MEASURE OF EARNINGS MANAGEMENT

As indicated in subsection 4.2.1.1, the modified Jones Model (1995) was adopted as the main method to calculate firm-level EM, and the current study examines the robustness of its

main results by using a different method to compute EM, namely Kothari *et al.*'s (2005) Model. In the case of stratified-random samples of firms, the modified Jones Model (1995) has been suggested to be miss-specified (Dechow *et al*., 1995). Kothari *et al.* (2005, pp.165) state that "*firms classified as having abnormally high or low levels of earnings management are those that manage more than would be expected given their level of performance*". They indicate that the modified Jones Model does not account for the potential association between accruals and performance. Thus, Kothari *et al.*'s (2005) Model uses a performance-matched firm's discretionary accrual to control for the effect of performance on estimated discretionary accruals. In their model, the lag of ROA is added into the modified Jones Model (1995) as an additional regressor, and the residuals of this model represent the *DA*. The Kothari *et al.* Model (2005) is presented below:

$$\frac{TAC_{it}}{TA_{it-1}} = \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \left(\frac{\Delta Rev_{it}}{TA_{it-1}} - \frac{\Delta Rec_{it}}{TA_{it-1}}\right) + \alpha_3 \frac{PPE_{it}}{TA_{it-1}} + \alpha_4 ROA_{it-1} \varepsilon_{it} \quad (5)$$

Where:

TAC	Total accruals in year *t* for firm *i*, calculated as net income minus operating cash flow.
TA	Total assets in year *t* – 1 for firm *i*.
ΔRev	Revenues in year *t* less revenues in year *t* – 1 for firm *i*.
ΔRec	Receivables in year *t* less receivables in year *t* – 1 for firm *i*.
PPE	Gross property, plant, and equipment in year *t* for firm *i*.
ROA	Income before extraordinary items in year *t* – 1 for firm *i*.
ε_{it}	Residual represents firm-level EM.

Once the DA is calculated using the Kothari *et al.* Model (2005), the EM-CG relation is re-estimated using the following regression model:

$$\begin{aligned} DA_{it} = {} & \alpha_0 + \beta_1 OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} + \beta_9 GNDR_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

Where:

DA	Discretionary accruals represent a firm-level EM practices as measured by Kothari *et al.* Model (2005).
α	Constant term.
OCGI	Omani corporate governance index.
GOVOWN	Government ownership.
INSOWN	Institutional ownership.
FOROWN	Foreign ownership.

BLKOWN	Block ownership.
BSIZE	Board size.
BIG4	Audit firm size.
CGCOM	Presence of a CG committee.
GNDR	Board diversity on the basis of gender.
CONTROLS	Control variables for firm size (LNTA), growth (GROWTH), profitability, (ROA), leverage (LVRG), industry, and year dummies.
ε	Error term.

Table 59 shows OLS regression results of both the main findings (Columns 3 to 4) and the findings based on an alternative measure of EM developed by Kothari *et al.* (2005) Model (Columns 5 to 6). The *F-Stat* reveals that the null hypothesis that there is no significant difference between observed and predicted values is rejected. The adjusted R^2 is approximately 0.10, which is less than in the main results, suggesting that about 11% of the variability in the *DA* is explained by this model. Generally, CG index, government ownership, institutional ownership, block ownership, CG committee, growth, profitability, leverage, years 2001 to 2003, year 2009 and telecommunications sector variables are significant at least at the 10% level of significance. These results will be discussed further below.

7.2.1 Empirical Results of Corporate Governance Variables

Most CG variables that have been predicted to be significantly associated with EM in the main model still show a significant relationship with the *DA*. The direction and the significance level of the coefficients on CG index and ownership variables have not changed. Similarly, the sign and the statistical significance of board size, audit firm size and board diversity on the basis of gender remain unchanged and statistically insignificant, while the presence of a CG committee becomes statistically significant at the 10% level, which was statistically insignificant in the main model.

7.2.2 Empirical Results of Control Variables

Panel *B* of Columns 5 to 6 shows similar results to those found by the modified Jones Model, except for firm size. The results indicate that firm size, which was statistically significant at the 10% level of significance, is now no longer statistically significant. The remaining variables are the same regardless of which model is used.

Table 59: The results based on alternative measure of earnings management

		Modified Jones model		Kothari *et al* model	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.0005	0.0664*	-0.0005	0.0747*
GOVOWN	-	-0.0185	0.0152**	-0.0183	0.0167**
INSOWN	-	-0.0003	0.0304**	-0.0003	0.0367**
FOROWN	-	-0.0001	0.6638	-0.0001	0.6697
BLKOWN	+	0.0003	0.0575*	0.0003	0.0784*
BSIZE	+/-	0.0146	0.2994	0.0126	0.3723
BIG4	-	-0.0035	0.6237	-0.0041	0.5661
CGCOM	-	0.0123	0.1525	0.0142	0.0994*
GNDR	-	-0.0108	0.1651	-0.0101	0.1964
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0208	0.0025***
LVRG		0.0933	0.0000***	0.0900	0.0000***
ROA		0.4872	0.0000***	0.1841	0.0000***
LNTA		-0.0049	0.0813*	-0.0019	0.4971
2001		-0.0444	0.0131**	-0.0416	0.0196**
2002		-0.0381	0.0138**	-0.0371	0.0167**
2003		-0.0341	0.0175**	-0.0334	0.0201**
2004		0.0003	0.9776	0.0007	0.9530
2006		-0.0053	0.6340	-0.0055	0.6221
2007		0.0078	0.5547	0.0073	0.5800
2008		0.0207	0.1323	0.0202	0.1437
2009		-0.0315	0.0067***	-0.0313	0.0071***
2010		-0.0094	0.4204	-0.0098	0.4049
2011		0.0095	0.4297	0.0095	0.4302
Basic materials		-0.0414	0.1188	-0.0432	0.0920
Consumer services		-0.0343	0.2016	-0.0381	0.1423
Consumer goods		-0.0386	0.1649	-0.0384	0.1537
Financials		-0.0298	0.2723	-0.0260	0.3225
Health care		0.0076	0.8127	0.0045	0.8865
Industrials		-0.0389	0.1674	-0.0396	0.1466
Telecommunications		-0.1765	0.0000***	-0.1857	0.0000***
Utilities		-0.0379	0.2216	-0.0415	0.1717
Constant		0.0787		0.0198	
Adj. R^2		0.1838		0.1069	
F-Stat		9.0940***		5.3018***	
Durbin-Watson Stat.		2.0154		2.0162	
Number of observations		1152		1152	

Notes: *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.3 RESULTS BASED ONLY ON NON-FINANCIAL FIRMS

As explained in Subsection 4.1, the current study includes both financial and non-financial firms (116 firms) in its dataset. Prior studies argue that because accruals are not the same in both types of firms, as financial firms are subject to specific accounting requirements, financial firms should be excluded from analysis in examining the impact of CG. In contrast, the present study argues that both types of firms do not behave considerably differently from each other because the nature of the Omani corporate setting is different from the developed countries; hence, financial firms can be included. Specifically, Omani financial and non-financial firms operate in an environment where corporate regulations and enforcement are anticipated to be weaker, which may mean that CG has a similar impact on both types of firms. Further, although past studies have excluded financial firms from their datasets, literature in EM and CG does not provide empirically support for their arguments. Thus, the current study will test its main finding in order to confirm or reject the null hypothesis that there is no significant difference in the impact of CG on EM between financial and non-financial Omani listed firms. In doing so, the relationship between EM and CG is re-estimated by including only non-financial firms (87 firms) in order to examine the extent to which they are sensitive to financial firms. Equation (4) is used to perform this examination; the findings are discussed below.

Table 60 reports the results of financial and non-financial firms (Columns 3 to 4), and only non-financial firms (Columns 5 to 6). The *F-Stat* and adjusted R^2 show similar values to those reported by the main test. The null hypothesis that the coefficients of included variables are not different from zero is rejected, as the *F-Stat* is significant at the 1% level of significance. The adjusted R^2 indicates that about 16% of the variability in the *DA* is jointly predicted by explanatory and control variables. Overall, the null hypothesis that there is no significant difference in the influence of CG on EM between financial and non-financial firms is accepted, as this test produces similar results to those reported by the main test. The relationships between the *DA* and CG index, government ownership, block ownership, board size and CG committee are significant. Similarly, the majority of the control variables' results are consistent with the main findings. These results suggest several conclusions, which are discussed in the following subsections.

7.3.1 Empirical Results of Corporate Governance Variables

Limited cases of sensitivity have been found. First, the statistical significance of the coefficient on the *OCGI*, which was statistically significant at the 10% level of significance, is now statistically significant at the 1% level. Second, the institutional ownership, which was statistically significant at the 5% level, is now no longer statistically significant. Third, board

size, which was statistically insignificant, becomes statistically significant at the 5% level. Finally, the CG committee variable, which was statistically insignificant, is now statistically significant at the 10% level of significance. The sign and significance of the remaining CG variables have not changed.

Table 60: The results based only on non-financial firms

		Financial and non-financial		Non-financial	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.0005	0.0664*	-0.0008	0.0018***
GOVOWN	-	-0.0185	0.0152**	-0.0201	0.0184**
INSOWN	-	-0.0003	0.0304**	-0.0002	0.1418
FOROWN	-	-0.0001	0.6638	-0.0003	0.1837
BLKOWN	+	0.0003	0.0575*	0.0003	0.0610*
BSIZE	+/-	0.0146	0.2994	0.0324	0.0366**
BIG4	-	-0.0035	0.6237	-0.0088	0.2172
CGCOM	-	0.0123	0.1525	0.0168	0.0803*
GNDR	-	-0.0108	0.1651	-0.0135	0.1279
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0170	0.0182**
LVRG		0.0933	0.0000***	0.0836	0.0000***
ROA		0.4872	0.0000***	0.4369	0.0000***
LNTA		-0.0049	0.0813*	-0.0002	0.9441
2001		-0.0444	0.0131**	-0.0513	0.0071***
2002		-0.0381	0.0138**	-0.0432	0.0080***
2003		-0.0341	0.0175**	-0.0305	0.0395**
2004		0.0003	0.9776	-0.0026	0.8477
2006		-0.0053	0.6340	-0.0138	0.2830
2007		0.0078	0.5547	0.0010	0.9424
2008		0.0207	0.1323	0.0143	0.3494
2009		-0.0315	0.0067***	-0.0336	0.0100*
2010		-0.0094	0.4204	-0.0137	0.3166
2011		0.0095	0.4297	0.0075	0.5916
Basic materials		-0.0414	0.1188	-0.0400	0.1417
Consumer services		-0.0343	0.2016	-0.0338	0.2233
Consumer goods		-0.0386	0.1649	-0.0386	0.1784
Financials		-0.0298	0.2723	Excluded	
Health care		0.0076	0.8127	0.0046	0.8868
Industrials		-0.0389	0.1674	-0.0384	0.1857
Telecommunications		-0.1765	0.0000***	-0.1829	0.0000***
Utilities		-0.0379	0.2216	-0.0438	0.1715
Constant		0.0787		-0.0006	
Adj. R^2		0.1838		0.1594	
F-Stat		9.0940***		6.2359***	
Durbin-Watson Stat.		2.0154		2.0073	
Number of observations		1152		858	

Notes: *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.3.2 Empirical Results of Control Variables

Despite a limited number of sensitivities regarding year and industry dummies, the direction and significance level of the control variables are largely in line with those reported by the main test. There are limited sensitive cases. First, growth and year 2009, which were statistically significant at the 1% level, are now statistically significant at 5% and 10% levels of significance, respectively. Second, years 2001 to 2002, which were statistically significant at the 5% level, are now statistically significant at the 1% level of significance. Finally, firm size, which was statistically significant at the 10% level, is now statistically insignificant.

7.4 RESULTS BASED ON THE SAMPLE PERIOD

In order to ascertain whether the main findings are sensitive over the sample period, the relationship between firm-level EM and firm-level CG was re-estimated by including a dummy (*Pre_2003-2011*) which takes the value of 1 if an observation is in the 2003 to 2011 period, and 0 otherwise. A positive but statistically insignificant coefficient on the *Pre_2003-2011* dummy is observable, implying that the main results are not sensitive to the sample period. The results of this analysis are reported in Columns 5 and 6 of Table 61, in addition to the results of the main analysis reported in Columns 3 and 4 of the same table. The null hypothesis that there is no significant difference between observed and predicted values is rejected, as the *F-Stat* is significant at the 1% level. Similar to the main analysis, the adjusted R^2 test is 0.18, indicating that 18% of the variability in the *DA* is explained by explanatory and control variables. The key sensitivities between this analysis and the main analysis are discussed below.

7.4.1 Empirical Results of Corporate Governance Variables

Despite changes in the magnitude of coefficients, the sign and significance level of the coefficients on all CG variables remain the same as those reported by the main analysis. The *OCGI*, government ownership and institutional ownership are statistically significant and negatively associated with the *DA*, whereas block ownership has a statistically significant and positive relationship with the *DA*. Board and audit variables remain statistically insignificant determinants.

7.4.2 Empirical Results of Control Variables

Similarly, the direction and significance level on the coefficients of all control variables have not changed, except limited cases of sensitivities related to year dummies. Years 2001 to 2002, which were statistically significant at 5% level, become statistically insignificant. The direction on the coefficient of year 2004 becomes negative but remains statistically insignificant.

Table 61: The results based on the sample period

		2001/2011		Post 2003/2011	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.0005	0.0664*	-0.0004	0.0639*
GOVOWN	-	-0.0185	0.0152**	-0.0184	0.0157**
INSOWN	-	-0.0003	0.0304**	-0.0003	0.0307**
FOROWN	-	-0.0001	0.6638	-0.0001	0.6674
BLKOWN	+	0.0003	0.0575*	0.0002	0.0583*
BSIZE	+/-	0.0146	0.2994	0.0148	0.2941
BIG4	-	-0.0035	0.6237	-0.0034	0.6397
CGCOM	-	0.0123	0.1525	0.0123	0.1512
GNDR	-	-0.0108	0.1651	-0.0107	0.1672
Pre-2003		-	-	0.0361	0.1014
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0193	0.0049***
LVRG		0.0933	0.0000***	0.0932	0.0000***
ROA		0.4872	0.0000***	0.4669	0.0000***
LNTA		-0.0049	0.0813*	-0.0050	0.0790*
2001		-0.0444	0.0131**	-0.0096	0.4419
2002		-0.0381	0.0138**	-0.0028	0.8715
2003		-0.0341	0.0175**	-0.0347	0.0168**
2004		0.0003	0.9776	-0.0001	0.9972
2006		-0.0053	0.6340	-0.0064	0.6166
2007		0.0078	0.5547	0.0074	0.5700
2008		0.0207	0.1323	0.0205	0.1388
2009		-0.0315	0.0067***	-0.0321	0.0064***
2010		-0.0094	0.4204	-0.0097	0.4088
2011		0.0095	0.4297	0.0092	0.4455
Basic materials		-0.0414	0.1188	-0.0411	0.1210
Consumer services		-0.0343	0.2016	-0.0342	0.2022
Consumer goods		-0.0386	0.1649	-0.0382	0.1677
Financials		-0.0298	0.2723	-0.0295	0.2758
Health care		0.0076	0.8127	0.0076	0.8100
Industrials		-0.0389	0.1674	-0.0386	0.1704
Telecommunications		-0.1765	0.0000***	-0.1762	0.0000***
Utilities		-0.0379	0.2216	-0.0377	0.2230
Constant		0.0787		0.0436	
Adj. R^2		0.1838		0.1831	
F-Stat		9.0940***		8.8161***	
Durbin-Watson Stat.		2.0154		2.0155	
Number of observations		1152		1152	

Notes: *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. Pre-2003 denotes dummy variable. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.5 RESULTS BASED ON THE FIXED-EFFECTS MODEL

In order to check whether unobserved firm-specific characteristics affect the original results, the current study uses a fixed-effects model, as suggested by the Hausman test,[42] to re-estimate the impact of CG on EM. The results of this analysis are reported in Columns 5 and 6 of Table 62, in addition to the results of the OLS that are reported in Columns 3 and 4 of the same table. The null hypothesis that the coefficients of the nine CG variables in addition to control variables are equal to zero is rejected, as indicated by the *F-Stat*. The adjusted R^2 (34%) is higher than that reported by the OLS model. Overall, the *OCGI*, government ownership, foreign ownership, board diversity on the basis of gender, leverage and profitability are predicted by the fixed-effects model to be significant determinants of the *DA*. The key sensitivities between the fixed-effects model and the OLS model are discussed below.

7.5.1 Empirical Results of Corporate Governance Variables

Limited cases of sensitivities were observed related to this group of variables. The main variable, the *OCGI*, which was predicted to be significantly associated with the *DA* in the main model still shows a significant relationship with the *DA*, with little change in the level of significance, where the *OCGI*, which was significant at the 10% level, becomes statistically significant at the 5% level. Foreign ownership and board diversity on the basis of gender, which were statistically insignificant, become statistically significant at the 1% and 10% levels of significance, respectively, while block ownership, which was statistically significant, is no longer significant. The signs on the coefficients of institutional ownership and foreign ownership, which were negative in the OLS model, are now positive in the fixed-effects model. Similarly, the direction on the coefficient of board size, which was positive, is now negative.

7.5.2 Empirical Results of Control Variables

Panel *B* of Table 62 shows a limited number of sensitivities. The coefficients on growth and firm size, which were statistically significant, no longer are, whereas year 2008 and the health care sector, which were statistically insignificant, become statistically significant at 5% and 10% levels. Second, year 2001 and year 2009, which were statistically significant at the 5% and 1% levels, become statistically significant at the 1% and 5% levels, respectively. Finally, the sign on the coefficients of some variables has changed where consumer services, consumer goods, financials and utilities sectors become positively related to the *DA*.

[42]For the purpose of brevity, the results of the Hausman test are not reported here.

Table 62: The results based on the fixed–effects model

		Simple OLS		Fixed effects	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.0005	0.0664*	-0.0005	0.0346**
GOVOWN	-	-0.0185	0.0152**	-0.0187	0.0162**
INSOWN	-	-0.0003	0.0304**	0.0002	0.2301
FOROWN	-	-0.0001	0.6638	0.0005	0.0051***
BLKOWN	+	0.0003	0.0575*	0.0000	0.8270
BSIZE	+/-	0.0146	0.2994	-0.0140	0.3734
BIG4	-	-0.0035	0.6237	-0.0005	0.9382
CGCOM	-	0.0123	0.1525	0.0090	0.3099
GNDR	-	-0.0108	0.1651	-0.0153	0.0615*
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0076	0.2254
LVRG		0.0933	0.0000***	0.0903	0.0000***
ROA		0.4872	0.0000***	0.5243	0.0000***
LNTA		-0.0049	0.0813*	-0.0035	0.2429
2001		-0.0444	0.0131**	-0.0424	0.0042***
2002		-0.0381	0.0138**	-0.0314	0.0129**
2003		-0.0341	0.0175**	-0.0240	0.0278**
2004		0.0003	0.9776	0.0008	0.9326
2006		-0.0053	0.6340	-0.0108	0.2751
2007		0.0078	0.5547	0.0006	0.9529
2008		0.0207	0.1323	0.0230	0.0286**
2009		-0.0315	0.0067***	-0.0217	0.0255**
2010		-0.0094	0.4204	-0.0134	0.1841
2011		0.0095	0.4297	0.0068	0.4988
Consumer services		-0.0343	0.2016	0.1373	0.4131
Consumer goods		-0.0386	0.1649	0.2840	0.1171
Financials		-0.0298	0.2723	0.1222	0.3133
Health care		0.0076	0.8127	0.1471	0.0549*
Industrials		-0.0389	0.1674	0.0377	0.1943
Telecommunications		-0.1765	0.0000***	-0.1559	0.0087***
Utilities		-0.0379	0.2216	0.0256	0.7493
Constant		0.0787		-0.0415	
Adj. R^2		0.1838		0.3443	
F-Stat		9.0940***		5.0682***	
Durbin-Watson Stat.		2.0154		1.9877	
Number of observations		1152		1152	

Notes: *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap. Basic materials sector was excluded by Eviews software. The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.6 RESULTS BASED ON THE LAGGED STRUCTURE MODEL

The lagged structure model is adopted in this study as an alternative estimation method to address some concerns associated with endogenity problem, such as a time-lag in firm-level EM and firm-level CG relation. Similar to prior studies (e.g. Prior *et al.*, 2008), this study lags all the used variables by one period, considering the possibility that lagged values may capture crucial

dynamic structure in the *DA* that may be result from other factors that are not considered in this OLS analysis (Brooks, 2007). Therefore, the estimated lagged structure is performed using the following equation.

$$\begin{aligned} DA_{it} = {} & \alpha_0 + \beta_1 OCGI_{it-1} + \beta_2 GOVOWN_{it-1} + \beta_3 INSOWN_{it-1} + \beta_4 FOROWN_{it-1} \\ & + \beta_5 BLKOWN_{it-1} + \beta_6 BSIZE_{it-1} + \beta_7 BIG4_{it-1} + \beta_8 CGCOM_{it-1} + \beta_9 GNDR_{it-1} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it-1} + \varepsilon_{it-1} \end{aligned} \quad (7)$$

Where *DA* refers to discretionary accruals as a proxy of firm-level EM practices, which is measured by a modified Jones Model (1995), *OCGI*, *GOVOWN*, *INSOWN*, *FOROWN*, *BLKOWN*, *BSIZE*, *BIG4*, *CGCOM* and *GNDR* is defined as the Omani CG index, government ownership, institutional ownership, foreign ownership, block ownership, board size, audit firm size, presence of a CG committee and board diversity on the basis of gender. CONTROLS refer to the six control variables, namely, growth, portability, leverage, firm size, industry dummies, and year dummies. The total number of firm-year observations is decreased from 1,152 to 1,036 as a result of lagging the variables.

Columns 5 to 6 of Table 63 report the findings of the lagged structure model. The *F-Stat* is statistically significant, indicating that the alternative hypothesis that the coefficients of the included variables are not equal to zero is accepted. The adjusted R^2 suggests that about 18 % of the variability in the *DA* is explained by this model. Generally, the results predicted by the lagged structure model are largely consistent with those reported by the un-lagged structure model. The association between the *DA* and CG index, government ownership, institutional ownership, growth, leverage and profitability is statistically significant. The findings of this examination are discussed further below, with a focus on the main sensitivities between the lagged structure and the un-lagged structure models.

7.6.1 Empirical Results of Corporate Governance Variables

The sign of the coefficients on all CG variables remain the same as those reported by the un-lagged structure model, while the statistical significance levels still significant for most. Specifically, the statistical significance of the coefficient on government, which was statistically significant at the 5% level of significance, is now statistically significant at the 1% level. The coefficient on block ownership, which was statistically significant at the 10% level, becomes statistically insignificant. The remaining CG variables are still statistically insignificant as reported by un-lagged structure model.

7.6.2 Empirical Results of Control Variables

The direction of the coefficients on control variables is in line with those reported in the main test, whereas limited cases of sensitivity are found regarding the statistical significance level. Growth and year 2009, which were statistically significant at the 1% level of significance, are now statistically significant at the 5% level. Firm size and year 2001, which were statistically significant at the 10 % and 5% levels of significance, respectively, are no longer significant.

Table 63: The results based on the lagged structure model

		Un-lagged structure		Lagged structure	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
OCGI	-	-0.0005	0.0664*	-0.0004	0.0894*
GOVOWN	-	-0.0185	0.0152**	-0.0212	0.0062***
INSOWN	-	-0.0003	0.0304**	-0.0003	0.0331**
FOROWN	-	-0.0001	0.6638	-0.0001	0.6878
BLKOWN	+	0.0003	0.0575*	0.0002	0.1992
BSIZE	+/-	0.0146	0.2994	0.0114	0.4598
BIG4	-	-0.0035	0.6237	-0.0055	0.4565
CGCOM	-	0.0123	0.1525	0.0112	0.1962
GNDR	-	-0.0108	0.1651	-0.0088	0.2785
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0158	0.0281**
LVRG		0.0933	0.0000***	0.0842	0.0000***
ROA		0.4872	0.0000***	0.4834	0.0000***
LNTA		-0.0049	0.0813*	-0.0037	0.2165
2001		-0.0444	0.0131**	-0.0103	0.9115
2002		-0.0381	0.0138**	-0.0342	0.0375**
2003		-0.0341	0.0175**	-0.0304	0.0344**
2004		0.0003	0.9776	0.0041	0.7487
2006		-0.0053	0.6340	-0.0029	0.8181
2007		0.0078	0.5547	0.0095	0.4648
2008		0.0207	0.1323	0.0205	0.1158
2009		-0.0315	0.0067***	-0.0303	0.0191**
2010		-0.0094	0.4204	-0.0075	0.5614
2011		0.0095	0.4297	0.0100	0.4508
Basic materials		-0.0414	0.1188	-0.0501	0.1254
Consumer services		-0.0343	0.2016	-0.0426	0.1976
Consumer goods		-0.0386	0.1649	-0.0453	0.1707
Financials		-0.0298	0.2723	-0.0366	0.2657
Health care		0.0076	0.8127	0.0038	0.9241
Industrials		-0.0389	0.1674	-0.0522	0.1213
Telecommunications		-0.1765	0.0000***	-0.1824	0.0003***
Utilities		-0.0379	0.2216	-0.0544	0.1420
Constant		0.0787		0.0799	
Adj. R^2		0.1838		0.1746	
F-Stat		9.0940***		7.8333***	
Durbin-Watson Stat.		2.0154		2.0086	
Number of observations		1152		1036	

Notes: *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

7.7 FINDINGS BASED ON THE 2SLS MODEL

Because the main results of this study can be significantly affected by the presence of endogeneity,[43] the widely used 2SLS technique is adopted in addition to lagged structure in order to further check the possibility of its presence, which may arise as a result of omitted variables and/or simultaneity (Larcher and Rusticus, 2010). In particular, the potential for this problem arises when the *OCGI* assumed to be exogenous in equation (4) is associated with the error term. This can occur when an important control variable is not included in the model (e.g., unavailability of the data) and/or when the dependent variable simultaneously determines the independent variable (Wooldridge, 2009). This may cause the OLS results (main results) to be biased and inconsistent. Following Larcher and Rusticus' (2010) methodology, this study accounts for the possibility of biases caused by endogeneity by using 2SLS technique. In doing so, the Hausman test is employed to detect for the existence of endogeneity, which involves two stages. The first stage, as specified in the equation below, the *OCGI* is regressed on control variables and its predicted value is saved as *P-OCGI*.

$$OCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (8)$$

Where *OCGI* refers to the Omani CG index and CONTROLS refers to control variables, which are the same as those used in the main regression (equation 4). In the second stage, the *OCGI* and *P-OCGI*, in addition to the control variables, are included in following equation.

$$DA_{it} = \alpha_0 + \beta_1 OCGI_{it} + \beta_2 P-OCGI_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (9)$$

Where *DA* refers to discretionary accruals measured by a modified Jones Model (1995), *OCGI* refers to the Omani CG index, *P-OCGI* refers to the predicted value of *OCGI*, CONTROLS refers to the control variables, which are the same as those used in the main regression (equation 4).

Although the Hausman test accepts the null hypothesis of no endogeneity, as the coefficient on the *P-OCGI* is not statistically significant (*P*-value = 0.109),[44] the study carried out the 2SLS technique to avoid any doubt that there was no endogeneity problem. The 2SLS technique was performed as follows. In the first stage, the main variable, *OCGI*, is assumed to be determined by the six control variables and four alternative CG variables, where the choice of the alternative CG variables is based on the theoretical and empirical literature and the availability of

[43] A discussion of endogeneity and techniques that have been used in accounting research to deal with this problem is provided by Chenhall and Moers (2007).

[44] For the purpose of brevity, the results of both regressions (the first and second stages of the Hausman test) are not reported here. The guidance of this test is that the null hypothesis of no endogeneity is rejected if the coefficient on the predicted value from the first stage regression is significant in the second stage (Larcker and Rusticus, 2010).

data. Drawing from the literature (e.g., Lipton and Lorsch, 1992; Vafeas, 1999; Haniffa and Cooke, 2002; Petra, 2005; Bowen *et al*., 2008; McCabe and Nowak, 2008; Tariq *et al*., 2014), the alternative CG variables include board diversity on the basis of nationality, the number of non-executive directors on the board, capital expenditure, and the number of board directors' meetings. The first stage regression is specified as follows.

$$OCGI_{it} = \alpha_0 + \beta_1 BDIV_{it} + \beta_2 NEXD_{it} + \beta_3 NBMs_{it} + \beta_4 CAPEX_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (10)$$

Where *OCGI* refers to the Omani CG index, *BDIV*, *NEXD*, *NBMs*, and *CAPEX* are defined as board diversity on the basis of nationality, the number of non-executive directors on the board, the number of board directors' meetings and capital expenditure. CONTROLS refers to the six control variables, namely, growth, porfitability, leverage, firm size, industry dummies, and year dummies.

The predicted value and residuals of *OCGI* are saved and referred to as *P-OCGI* and *R-OCGI*, respectively. The correlation matrix (not reported here) shows that the predicted value of the *OCGI* (P-OCGI) is significantly correlated with the *OCGI* and insignificantly associated with *R-OCGI*, indicating that the *P-OCGI* is a relevant and valid instrument for the *OCGI*. In the second stage, equation (4) is re-estimated by using the *P-OCGI* instead of the *OCGI*, as specified below.

$$\begin{aligned} DA_{it} = {} & \alpha_0 + \beta_1 P-OCGI_{it} + \beta_2 GOVOWN_{it} + \beta_3 INSOWN_{it} + \beta_4 FOROWN_{it} \\ & + \beta_5 BLKOWN_{it} + \beta_6 BSIZE_{it} + \beta_7 BIG4_{it} + \beta_8 CGCOM_{it} + \beta_9 GNDR_{it} \\ & + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned} \quad (11)$$

The results of 2SLS are presented in Columns 5 to 6 of Table 64. The *F-Stat* is statistically significant, suggesting that the null hypothesis that the coefficients of the included variables are equal to zero is rejected. The adjusted R^2 indicates that 18% of the variability in the *DA* is driven by CG and control variables, which is very similar to that variability provided by the OLS model (main results). In general, the 2SLS's results are very much in line with those reported by the OLS model. The *DA* is significantly associated with CG index, government ownership, institutional ownership, block ownership, growth, leverage, profitability and firm size. The key sensitivities between the 2SLS results and the OLS results are discussed further below.

7.7.1 Empirical Results of Corporate Governance Variables

Panel *A* of Table 64 show that the sign and significance level of the coefficients on CG variables remain essentially similar to those reported by the OLS model, except that block

ownership, which was statistically significant at the 10% level, becomes statistically significant at the 5% level.

7.7.2 Empirical Results of Control Variables

The direction and significance level of the control variables show limited cases of sensitivities. First, the statistical significance of the coefficients on firm size and year 2003, which were statistically significant at the 10% and 5% levels, respectively, become statistically significant at 5% and 10% levels. Second, years 2001 to 2002, which were statistically significant at the 5% level, become statistically insignificant. Third, basic materials, consumer services, consumer goods, industrials and utilities sectors, which were statistically insignificant, become statistically significant at the 10%, 5%, 5%, 5% and 5% levels, respectively. Finally, the sign of the coefficient on health care, which was positive, becomes negative.

Table 64: The results based on the two stage least squares model

		Simple OLS		2SLS	
Independent variables	Exp. sign	Coefficients	*P*-values	Coefficients	*P*-values
Panel A: CG variables					
POCGI		-	-	-0.0350	0.0546*
OCGI	-	-0.0005	0.0664*	-	-
GOVOWN	-	-0.0185	0.0152**	-0.0188	0.0146**
INSOWN	-	-0.0003	0.0304**	-0.0004	0.0117**
FOROWN	-	-0.0001	0.6638	-0.0001	0.6419
BLKOWN	+	0.0003	0.0575*	0.0003	0.0433**
BSIZE	+/-	0.0146	0.2994	0.0136	0.3347
BIG4	-	-0.0035	0.6237	-0.0043	0.5504
CGCOM	-	0.0123	0.1525	0.0092	0.2805
GNDR	-	-0.0108	0.1651	-0.0115	0.1488
Panel B:Control variables					
GROWTH		0.0195	0.0045***	0.0217	0.0019***
LVRG		0.0933	0.0000***	0.0967	0.0000***
ROA		0.4872	0.0000***	0.4884	0.0000***
LNTA		-0.0049	0.0813*	-0.0057	0.0427**
2001		-0.0444	0.0131**	-0.0207	0.1127
2002		-0.0381	0.0138**	-0.0187	0.1316
2003		-0.0341	0.0175**	-0.0225	0.0894*
2004		0.0003	0.9776	0.0056	0.6349
2006		-0.0053	0.6340	-0.0051	0.6475
2007		0.0078	0.5547	0.0066	0.6165
2008		0.0207	0.1323	0.0186	0.1758
2009		-0.0315	0.0067***	-0.0352	0.0026***
2010		-0.0094	0.4204	-0.0131	0.2635
2011		0.0095	0.4297	0.0066	0.5810
Basic materials		-0.0414	0.1188	-0.1249	0.0100*
Consumer services		-0.0343	0.2016	-0.1171	0.0159**
Consumer goods		-0.0386	0.1649	-0.1226	0.0125**
Financials		-0.0298	0.2723	-0.1118	0.0262
Health care		0.0076	0.8127	-0.0232	0.5186
Industrials		-0.0389	0.1674	-0.1169	0.0127**
Telecommunications		-0.1765	0.0000***	-0.1682	0.0000***
Utilities		-0.0379	0.2216	-0.0841	0.0357**
Constant		0.0787		0.2072**	
Adj. R^2		0.1838		0.1839	
F-Stat		9.0940***		9.0957***	
Durbin-Watson Stat.		2.0154		2.0172	
Number of observations		1152		1152	

Notes: POCGI denotes the instrumental variable for the CG index. *OCGI* denotes the Oman corporate governance index. *GOVOWN, INSOWN, FOROWN, BLKOWN* represent government, institutional, foreign, block ownership structures. *BSIZ* denotes board size. *BIG4* denotes audit firm size. *CGCOM* denotes the presence of corporate governance committee. *GNDR* denotes board diversity on the base of gender. *GROWTH* denotes firm growth. *LVRG* denotes firm leverage. *ROA* denotes the return on asset as a measure of profitability. *LNTA* denotes firm size. Industry dummies represent dummy variables that are used to capture the basic materials sector, consumer goods sector, consumer services sector, financial sector, health care sector, industrial sector, utilities sector and Telecommunications sector, respectively. Year dummies represent dummy variables that are used to capture years' effect (2001-2011). Year 2005 and Oil and Gas industry were excluded from the model in order to avoid the dummy variable trap The asterisks ***, **, * indicate significance at the 1, 5 and 10% levels, respectively. Adj.R^2 denotes adjusted *R* square. *F*-Stat denotes the *F*-statistics.

8 SUMMARY AND CONCLUSIONS

As indicated in Section 1, Oman has conducted a series of governance reforms (e.g., the 2002 CG code) as a response to the 1997 Asian crisis and international corporate developments. These reforms aim to curb opportunistic managerial behaviour by separating management's decisions and their control. In particular, Oman has sought to make its economy less vulnerable to accounting scandals and corporate failures by encouraging a CG culture that aims to reduce managers' ability to report earnings. Arguably, however, a number of challenges face Omani firms in implementing good CG standards, such as informal rules and ownership concentration. These challenges raise a critical question on the extent to which the CG system in Oman can provide effective control procedures that limit managers' discretion in managing earnings. Further, Oman has adopted a UK-style CG system which may not be appropriate for its firms given the major differences between the two countries, such as institutional structures. These differences seem to have important implications for achieving good CG standards among Omani firms.

This study argues that the uniqueness of the Omani context may suggest different results from what is reported in develoed countries regarding the effectiveness of the CG system in mitigating EM practices. Hence, examining the relationship between firm-level EM and firm-level CG in this context is the central aim of this study. Primarily motivated by the unique Omani characteristics and the absence of prior empirical evidence on Oman, this study seeks to find whether the CG reforms conducted by the Omani state were effective in improving earnings quality. Specifically, it empirically investigates how effective the CG system is in constraining EM practices, in the form of recommendations suggested by the 2002 Omani voluntary code and CG mechanisms proposed by other laws, such as Companies Act no. 4 of 1974 and its amendments. Using a large sample of Omani listed firms (116 firms with a total of 1,152 firm-year observations) for the period 2001 to 2011, this study empirically investigates the extent to which CG measures and different ownership structures influence EM practices.

Until recently, most existing studies have examined this relation based on single-dimensional CG characteristics. In contrast, and in response to recent calls in the literature (e.g., Karamanou and Vafeas, 2005; Bowen *et al.*, 2008), the current study employs multi-dimensional CG characteristics rather than examining CG mechanisms individually. An aggregate measure of CG comprising 72 governance provisions (the CG index) was mainly used to examine the association between CG and EM. The rationale has been to account for the interrelationships between CG mechanisms, as some can complement or substitute each other. Further, the present

study distinguishes itself from previous studies by examining four types of ownership structure in addition to a number of factors not yet examined extensively in the literature, namely government ownership, institutional ownership, foreign ownership and block ownership, presence of a CG committee and board diversity on the basis of gender. This section summarises the findings presented and discussed in Sections 5 and 6. Specifically, Subsections 8.1 and 8.2 provide a summary of the study findings based on the main analysis and robustness analysis. Subsection 8.3 discusses the policy implications of these findings. Subsection 8.4 summarises the contributions of the study. Subsection 8.5 highlights the study's limitations and suggests avenues for future research.

8.1 RESULTS BASED ON THE MAIN ANALYSIS

As indicated in Sections 1 and 3, most previous studies examine the relation between firm-level EM and firm-level CG by using single-dimensional CG characteristics (e.g., board or audit characteristics). This study responds to recent calls in the literature for additional investigation in order to expand our understanding of the collective effect of CG measures on EM practices. Generally, in line with most past studies, the findings in Section 6 indicate that there is a significant reverse association between CG and EM among Omani listed firms. This result was obtained by testing the main hypothesis (H5), that there is a statistically significant negative association between CG index and firm EM practices. The statistically significant and negative relation between the *OCGI* and the *DA* indicates that, on average, better-governed Omani listed firms tend to engage less in EM practices than poorly-governed firms. Quantitatively, holding all the other variables within the model constant, an increase of one unit in the *OCGI* will reduce the use of EM practices by 0.0005.

As documented in Subsection 6, the negative evidence is consistent with the findings of some previous studies (e.g., Chen and Chih, 2007; Jiang *et al*., 2008; Bekiris and Doukakis, 2011; Leventis and Dimitropulos, 2012), but is contrary to the result of Bowen *et al.* (2008) who report no significant relation between CG and EM practices. Theoretically, firms with high-quality CG are more likely to have higher earnings quality, as CG provides a set of constraints that ensure reliable and accurate financial reporting, mitigate information asymmetry and reduce agency costs (Fama, 1980; Fama and Jensen, 1983; Shilefere and Vishny, 1986; Williamson, 1988). Managers' discretion in financial reporting in better-governed firms is limited by effective CG mechanisms, where the firm's management actions are supervised by the board of directors through its committees, among other CG mechanisms. Thus, CG mechanisms allow stakeholders to confidently distinguish between firms with potential EM and those with earnings quality by ensuring that the reported accounting numbers are credible.

In addition to the *OCGI* hypothesis, eight hypotheses related to government ownership, institutional ownership, foreign ownership, block ownership, board size, audit firm size, presence of a CG committee and board diversity on the basis of gender were tested in this study.

The first hypothesis examined is that there is a statistically significant negative association between government ownership and firm EM practices. The coefficient on government ownership is negative and statistically significant at the 5% level of significance. This means that *H1* is empirically supported, and the finding offers empirical support to prior studies (e.g., Ding *et al.*, 2007; Wang and Yung, 2011) reporting that government ownership and EM are significantly and negatively associated, but opposes Li *et al*. (2011), who report empirical evidence that the variables are significantly and positively correlated. The negative evidence of a statistically significant government ownership-EM relation reflects the crucial role of the state as long-term investor in reducing EM practices; about 26% of Omani listed firms have shares hold by the government.

The second hypothesis predicts that there is a statistically significant negative association between institutional ownership and firm EM practices. The coefficient on institutional ownership is negative and statistically significant at the 10% level of significance, indicating that *H2* is empirically supported. Also, the result indicates that investment institutions holding many shares in a firm can provide active monitoring that reduces EM practices. This finding offers empirical support to some prior studies (e.g., Jiraporn and Gleason, 2007; Cornett *et al*., 2008; Wang, 2014), but not others (e.g., Koh, 2003; Siregar and Utama, 2008), which report empirical evidence of no significant association.

The third hypothesis predicts a statistically significant negative association between foreign ownership and firm EM practices. The coefficient on foreign ownership is negative but statistically insignificant, suggesting that *H3* is not empirically supported. Further, it indicates that foreign ownership is less able to mitigate EM practices in the Omani context than in other corporate contexts, such as Japan. The insignificant relationship between foreign ownership and EM practices is in line with some prior studies (e.g., Li *et al*., 2011), but not others (e.g., Lel, 2013; Guo *et al.*, 2012).

The fourth hypothesis predicts a statistically significant positive association between block ownership and firm EM practices. The coefficient on block ownership is positive and statistically significant at the 10% level of significance, indicating that *H4* is empirically supported. This result may stem from the expectation that managers and block holders are highly influenced by informal rules, where the latter do not acting as a CG mechanism to mitigate EM practices. Instead, block holders appear to force managers to engage in EM practices in order to

expropriate minority shareholders. Empirically, this finding is in line with some prior studies (e.g., Haw *et al*., 2004; Kim and Yi, 2006), but inconsistent with studies (e.g., Ali *et al*., 2008; Aleves, 2012) that document reverse association, as well as those (e.g., Davidson *et al*., 2005; Lo *et al*., 2010) that report no significant relation.

The sixth hypothesis predicts a statistically significant association between board size and firm EM practices. The finding suggests that there is a statistically insignificant and positive relationship between the two variables, which means that *H6* is not empirically supported. The non-relevance of board size in explaining changes in EM is likely to be attributed to the powerful influence of informal rules on the firm's board. It seems that Omani directors have long-term commitments to family, tribe and personal relationships, rather than formal rules such as CG systems; this weakens their ability to reduce EM practices. This finding supports some prior studies (e.g., Firth *et al.*, 2007), but not those (e.g., Xie *et al*., 2003; Ghosh *et al*., 2010) that report a statistically significant and negative association between the two variables, or other studies (e.g., Rahman and Ali, 2006; Epps and Ismail, 2009; Ales, 2012) that report empirical evidence that board size has a significant and positive relation with EM practices.

The seventh hypothesis predicts a statistically significant negative association between the presence of a CG committee and firm EM practices. The coefficient on CG committee is positive and statistically insignificant, indicating that *H7* is rejected. This study fails to provide empirical evidence that firms that set up a CG committee tend to engage less in EM practices. The finding suggests that a CG committee is unable to assist boards in curbing opportunistic managerial behaviour in the form of EM practices. This can stem from the possibility that Omani members of CG committees may either have less knowledge about good CG practices or find it difficult to improve the CG culture in Omani listed firms.

The eighth hypothesis predicts a statistically significant negative association between audit firm size and firm EM practices. Although the sign of the coefficient on audit firm size is in line with the expected sign, its statistical significance is not, so the study rejects *H8*. Empirically, the statistically insignificant coefficient on audit firm size is in line with some prior studies (e.g., Davidson *et al*., 2005; Firth *et al*., 2007), but different from studies (e.g., Francis and Wang, 2008; Kent *et al*., 2010; Iatrdis, 2012) that show a statistically significant and negative coefficient.

The final hypothesis predicts a statistically significant negative association between board diversity on the basis of gender and firm EM practices. The estimated coefficient of board diversity on the basis of gender is negative but not statistically significant, so *H9* is empirically rejected. Empirically, the finding supports some prior studies (e.g., Sun *et al*., 2011), but not

others (e.g., Srinidhi *et al*., 2011; Gavious *et al*., 2012). The ineffectiveness of female representation on Omani listed boards in reducing EM practices may be attributed to conservative traditions.

8.2 RESULTS BASED ON THE ROBUSTNESS ANALYSES

As reported and discussed in Section 7, a number of robustness analyses were conducted to address a number of theoretical and empirical issues. This was done in order to assess the extent to which the findings obtained in Section 6 are robust or sensitive to alternative models and estimations. The robustness analyses include re-estimating the model using an alternative CG index, an alternative measure of EM, only non-financial firms, a fixed-effects model, a lagged structure model, a 2SLS model and examining whether the main results are sensitive over the sample period. Overall, the robustness analyses suggest that the statistically significant negative relationship between CG and EM is robust to alternative models and estimations.

First, the main model was re-estimated by replacing the un-weighted CG index with a weighted CG index in order to check whether using a weighted CG index would give different results. The findings are the same whether a weighted or an weighted index is used, offering support to the original findings. Second, the firm-level EM was re-computed by using Kothari *et al.*'s Model (2005), and the association between firm-level EM and firm-level CG was re-estimated to check the extent to which the main findings are robust to alternative measure of EM. The majority of the findings based on Kothari *et al.*'s Model (2005) are similar to those reported in the main analysis, indicating that findings based on the modified Jones Model are not sensitive to alternative measures of EM. Third, the impact of CG on EM was re-estimated by including only non-financial firms (87 firms) in order to address the claim in the literature that the influence of CG on EM can be significantly different between financial and non-financial firms. The findings of the robustness analysis accept the null hypothesis that there is no significant difference in terms of the influence of CG on EM between financial and non-financial firms. In other words, the findings based only on non-financial firms are robust and not sensitive to financial firms. This offers empirical support to the current study's argument that CG has a similar impact on both types of firms because they operate in an environment where corporate regulations and enforcements are anticipated to be weaker. Fourth, the relationship between firm-level EM and firm-level CG was re-estimated by including a dummy (*Pre_2003-2011*) in order to ascertain whether the main results are sensitive over the sample period. The results of this analysis indicate that the results predicted by the main model are not sensitive over the sample period. Fifth, in order to account for unobserved firm-specific characteristics, the influence of CG on EM was re-estimated using a fixed-effects model. This model predicted similar results to the

OLS model, indicating that the main results are not sensitive to unobserved firm-specific factors. Sixth, the main model was re-estimated using a lagged structure model in order to account for a time-lag in firm-level EM and firm-level CG that may lead to endogeneity problem. The findings of this analysis are largely in line with the main findings, suggesting that the original findings are not sensitive to alternative estimations, namely lagged structure, which reduces the likelihood that the main findings may suffer from endogenity problem. Finally, in addition to lagged structure, the widely-used 2SLS technique was performed in order to further check the extent to which the main findings may suffer from endogenity problem that may arise from omitted variables and/or simultaneity. The findings of 2SLS are consistent with the OLS findings, implying that the evidence of a statistical significant and negative relationship between CG and EM is not significantly sensitive to endogeneity problem.

8.3 POLICY IMPLICATIONS AND RECOMMENDATIONS

Given the alternative models and estimations used, the statistically significant and negative association between EM and CG supports the theoretical and empirical literature. The finding suggests that, on average, better-governed Omani listed firms engage less in EM than those with poor governance structures. Similarly, the findings indicate that Omani listed firms with large government and institutional ownership tend to have greater reductions in EM, while firms with block ownership exhibit higher levels of EM. The conclusions derived from these findings suggest policy implications and recommendations.

First, the finding of the *OCGI* suggests that the introduction of the 2002 Omani CG code, alongside the Companies Law, has assisted in slightly (i.e., the magnitude of OCGI is very low) improving the quality of earnings reported by Omani listed firms. This evidence seems to suggest that adopting a UK-style CG regime appears to be working to a certain degree, but may not provide effective control procedures that curb managerial self-interest in general and mitigate EM practices in particular without taking into account the Omani context (Mueller, 1995). Factors including informal rules and ownership concentration may negatively impact implementation of good CG standards. Further, the 2002 Omani CG code contains limited CG provisions, which may not be enough to encourage firms to engage in good CG practices, which in turn results in less EM practices. Similarly, reviewing the Omani listing and trading rules reveals that they do not have governance requirements that can support those suggested by the 2002 Omani code. Hence, the Omani authorities (e.g., CMA, MSM) should further reform the CG regulatory framework in order to create a more effective CG system that leads to improved financial reporting. Aguilera and Cuervo-Cazurra (2009) indicate that countries must introduce additional CG reforms alongside CG codes in order to improve their CG practices; for instance, CG

provisions that prevent the chairperson and chief executive from being related or from the same tribe may help the monitoring role of the firm's board. Some CG provisions relate to internal audit, and update the listing and trading rules may be required in order to improve financial reporting quality and generate more accurate and reliable information.

In the same vein, the examination of the levels of EM indicates that EM practices exercised by Omani managers vary across industries. The findings indicate that financial, consumer services, consumer goods, and basic materials industries have higher average of EM. This may suggest that Omani policy makers should consider the characteristics of such industries before making any new CG reforms regarding reducing EM practices. This finding suggests that Omani firms in general, and those seeking new or additional financing in particular, should enhance their CG practices. This would allow them to attract new investors, as potential investors pay attention to CG practices to distinguish between firms with possible EM practices and those with quality earnings. CG can be considered by outsiders as a crucial determinant of financial reporting quality in Oman. Different Omani stakeholders (e.g., potential investors and debt holders) assume that managers' discretion in financial reporting in better-governed firms is limited by effective CG mechanisms, through supervision by board committees and other CG mechanisms.

Second, the findings related to government ownership indicate that the Omani state appears to hold large portions of shares in listed firms, and its presence as a shareholder in a firm leads to lower EM practices. These findings show the influential power of the state in corporate financial decision processes; about 26% of Omani listed firms' shares are held by the state. This implies that the government's role in providing active monitoring over managers benefits minority shareholders who can rely on these efforts to reduce EM practices in the firms they invest in. This may have an important implication: small and individual investors may tend to invest in firms with large portions of shares held by the state, as they can rely on these firms' financial reporting to make investment decisions. In contrast, firms with no government ownership may lose a considerable number of potential investors. Thus, the major way in which Omani firms with no government ownership can attract small, individual investors is to engage in good CG practices that ensure new investors' decisions are built on accurate and reliable information, and their interests and preferences will be protected.

Third, EM practices in firms with large institutional ownership are lower, indicating that institutional investors tend to be associated with earnings quality. Omani policy makers should encourage a culture of diffuse ownership in order to increase monitoring over managers, limiting discretion in financial reporting. For instance, statutory corporate laws may include corporate

provisions that either exempt firms with diffuse ownership from some corporate requirements or give them some operating advantages in the Omani market.

Fourth, contrary to other corporate settings (e.g., Japan), foreign ownership has no significant relationship with EM practices. This may suggest that foreign investors face problematic issues that restrict their ability to provide active monitoring. In this regard, Omani policy makers may be encouraged to relax some restrictions on foreign investors in order to benefit from foreign investors' experiences in mitigating EM practices. Foreign investors care about their reputations, so they will be motivated to provide active monitoring.

Fifth, the statistically significant and positive relation between block ownership and EM practices supports a view of Oman as an emerging country where high levels of concentrated ownership (around 55%) and block ownership do not seem to provide efficient monitoring of EM practices. This finding appears to suggest that block shareholders tend to increase managerial motivation to report earnings. In this regard, Omani policy makers should introduce CG provisions that protect minority shareholders from being expropriated by large shareholders. For instance, a CG provision that requires firms to have a minority shareholder representative on the board may be useful. Firms can be required to use a cumulative voting method (i.e., a one-share-one-vote policy) that may increase the chance of a minority shareholder representative being appointed to the board.

Sixth, the statistically insignificant relationship between board size and EM practices suggests that board size has no role in mitigating EM practices among Omani firms. This finding may be attributed to Omani board directors' lack of financial and accounting experience. Although the 2002 CG Code requires board directors to understand financial reports, it seems that more rigid accounting and financial requirements are needed in order to activate board directors' role in effectively monitoring managers. Further, another reason for insignificant finding of board size may be that Omani directors are less committed to formal rules, such as a CG system, than to informal rules, including family, tribe and personal relationships, making them unable to provide active monitoring.

Seventh, the statistically insignificant and positive association between the presence of a CG committee and EM is contrary to the theoretical prediction. This may result from the likelihood that CG committee members face issues related to knowledge about identifying good CG practices and/or informal rules that limit CG committees' ability to improve the quality of CG within Omani firms. Omani policy makers may be encouraged to introduce specific requirements that allow only directors who are experts in CG to be a member in CG committee.

Eight, the relationship between audit quality (audit firm size) and EM was found to be negative but statistically insignificant, which does not support the theoretical prediction. This finding may be attributed to the recommendations of the 2002 CG Code, which require audit firms to report only on a limited number of governance issues, including: (i) the adequacy and efficacy of a firm's internal control systems; (ii) whether a firm has the ability to carry out its business; and (iii) its ability to comply with its internal control systems. Hence, introducing new CG provisions that require audit firms to report on any change in accounting policies and principles, as well as detect any financial reporting irregularities, may be necessary in obtaining high-quality audits.

Finally, the association between board diversity on the basis of gender and EM is also negative but not statistically significant, indicating that gender-diverse boards are not associated with better monitoring over managers and higher-quality earnings. This may be attributed to the small number of female directors on firm boards and/or conservative traditions that restrict females from effectively participating on Omani listed board. Firms are encouraged to make arrangements that facilitate the participation of women on the board. For instance, firms may advertise for female board directors in order to encourage more females to apply for positions. Omani policy makers may contribute by introducing CG provisions that require firms to disclose their boardroom diversity policies and show how these policies are implemented.

Emerging countries' regulatory authorities in general and Omani regulators in particular can benefit from this study in further reforming their regulations and suggesting CG recommendations that improve the quality of financial information. Importantly, the findings of this study suggest that Omani policy makers should find ways to mitigate the powerful influence of informal rules on implementing good CG practices. One major way to achieve this objective may be running workshops to educate people, especially young people, about the negative consequences of complying with such rules, reminding them that those informal rules conflict with Shariah Law.

8.4 CONTRIBUTIONS

As indicated in Subsections 3.1 and 4.2.4, this study empirically examines the firm-level EM and firm-level CG relationship using a multi-theory approach and panel data methodology. Conducting this examination in an emerging country like Oman contributes to a number of major issues in the literature. In particular, researchers have been keen to investigate the extent to which a CG system is able to mitigate EM practices in different corporate settings. Since most emerging countries have adopted CG standards of developed countries, the question was the extent to which adoption of these measures by Omani policy makers would reduce EM practices, given the

weak legal enforcement and investment protection. A review of literature suggests an absence of empirical evidence on the effect of the Omani CG system on EM practices. Thus, this study provides insights on the impact of CG on one aspect of corporate financial decision-making, EM behaviour, in Oman and makes a number of contributions to the extant CG literature.

First, using a sample of 1,152 firm-year observations over 2001-2011, the study offers the first empirical evidence on the effect of the Omani CG system on EM practices among Omani listed firms. This fills a gap in the literature, as limited empirical evidence has been reported from emerging countries in general and the MENA region in particular (Alves, 2012; Wang, 2014). Unlike many past studies, the study's sample is not restricted to firms with large capitalisation (avoiding size bias), and includes all listed firms with sufficient data. The sample represents 69% of the total population, which allows the study's findings to be generalised. The composition of the sample allowed the study to take advantage of panel data methodology by combining time series and cross sections. This assisted the study to mitigate some statistical problems, such as multicollinearity, and control for unobserved heterogeneity among variables (Gujarati, 2003; Wooldridge, 2009).

Second, consistent with literature suggesting that different ownership structures may lead to different motivations to control and monitor managerial decision processes, and different from previous studies that examine only a few ownership structures, this study offers empirical evidence on the reaction of different types of ownership structures towards EM practices. The empirical evidence highlights the importance of government ownership structure as a CG mechanism constraining EM practices in Oman. Arguably, this evidence is more convincing than that reported by past studies, because previous studies either examine the impact of government ownership on EM by comparing state-owned and privately-owned firms, or concentrate only on state-owned firms, while this study offers empirical evidence in the context where the state holds large portions of shares in many listed firms. Further, it offers empirical evidence that institutional ownership is a driving force of CG's constraint on EM practices in Oman. The empirical evidence proves the negative prediction of the theoretical literature that firms with a large proportion of institutional ownership tend to exhibit lower levels of EM. Also, the ideal setting of Oman allows the study to provide empirical evidence that block ownership does not perform its duties as a CG mechanism in mitigating EM practices among listed firms. The empirical evidence confirms the current study's expectation that Omani listed firms with a high concentration of ownership engage more in EM practices than those with less ownership concentration.

Third, unlike most prior studies, this study seeks to examine some factors that have not been extensively examined in literature, including foreign ownership, presence of CG committee and board diversity on the basis of gender. Although the findings suggest that these factors have no significant impact on EM practices in Oman, this attempt opens the door for further research in different contexts, as the theoretical literature offers a foundation to conduct such examination.

Fourth, unlike most past studies that examine the impact of individual CG measures (e.g., board or audit characteristics) on EM practices, this study offers empirical evidence on the joint effect of CG on EM, using an aggregate measure of CG by relying on a self-constructed CG index comprising 72 governance provisions.

Fifth, while most prior studies exclude financial firms from their examinations because these firms have specific CG and accounting requirements, the current study offers empirical evidence that there is no significant difference between the influence of CG on EM practices in financial and non-financial firms in Oman. This may motivate researchers, especially in emerging states, to include financial firms in their investigations, because the weak corporate regulations and enforcements in such countries make CG's influence on EM practices in both financial and non-financial firms relatively similar.

Finally, unlike most previous studies, this study offers empirical evidence on the EM-CG relation through alternative models and estimations. The main results were tested to ascertain the extent to which they are sensitive to alternative CG and EM measures, financial firms, sample period, fixed-effects model, lagged structure model, and 2SLS model.

8.5 LIMITATIONS AND AVENUES FOR FUTURE RESEARCH

As with any empirical study, there are some limitations associated with this study. First, the findings may be subject to measurement problems. For instance, other measurements, such as audit fee, can be used to measure audit quality instead of using audit firm size. A considerable number of sampled firms did not provide enough information to be used as alternative measurements for several variables especially CG variables. Second, although the study includes a number of control variables, it may suffer from omitted variables bias. Third, the study relies on quantitative analysis to answer its research questions, which does not enable the study to interpret and explain unexpected relationships between some variables and EM practices. A qualitative approach[45] in the form of an interview or survey may help identify possible explanations for such relations. Fourth, the study examines the impact of CG on EM in listed firms only; non-listed firms were excluded from the sample because of unavailable data. This may potentially limit the

[45]Qualitative approach was on the agenda, but the study could not do it since a number of implications, such as accessibility, funding and time.

generalisability of the study's findings. Fifth, the study uses only annual reports[46] as the principal sources of data; including other sources, such as analysts' reports, may help to obtain more information. Finally, the study was unable to examine Omani context-specific issues, such as religious notions, cultural practices and social norms, as they impact on EM practices.

The limitations identified above offer avenues for future research. First, alternative measurements and variables can be used to improve the findings. For instance, although the study examines four types of ownership structures, future studies can re-examine the impact of ownership structures on EM practices by considering another type of ownership, namely managerial ownership. Future studies can also use alternative definitions for the same variables used in this study. This may result in significant findings, compared to those that show no significant effect in this study. Second, future studies can include both listed and non-listed firms in their samples in examining the relationship between firm-level EM and firm-level CG in the Omani context, in order to increase the generalisability of their findings. Third, future studies can develop a valid and powerful EM's measure that assists researchers in examining firm-level EM. Fourth, future studies can re-examine the impact of CG on EM practices by addressing Omani context-specific issues, such as religious notions, cultural practices and social norms. Finally, future studies can apply alternative methodology, such as a qualitative approach, in examining the impact of CG on EM practices. Alternative methods, such as interviews, surveys and case studies, are expected to provide additional understanding of those findings that are contrary to the predicted literature and empirical results.

[46]The reasons for relying on annual reports as the source of data have been discussed in Essay 1.

CONCLUDING CHAPTER

Summary and Conclusion: Findings, Implications and Recommendations, Contributions, Limitations and Avenues for Future Research

As discussed in all three essays, empirical evidence on why and how a firm's CG might influence its policy decisions is generally limited; this is particularly true in emerging economics, especially those in the MENA region. Arguably, this limits current international understanding of how and why CG might influence a number of crucial managerial decisions, including voluntary CG disclosure, financing and earnings management in emerging economies. This thesis is thus designed to quantitatively assess the extent to which Omani CG reforms have been effective in improving corporate policy decisions by focusing on these three closely related CG topics over the 11-year period (2001-2011). The period examined in these three topics coincides with period in which the Omani authorities pursued CG reforms aimed at improving corporate performance. In particular, in response to the 1997 Asian crisis and international corporate development, the Omani government carried out a number of CG reforms. These reforms seek to restore investor confidence and protect stakeholders' interests. The issuance of a voluntary CG Code by the CMA in 2002 is regarded as an important part of the reforms. The 2002 CG Code contains a series of recommendations which aim to regulate the management of firms listed on the MSM. Importantly, it is intended to promote a culture of compliance and CG disclosure, mitigate agency problems and reduce agency costs associated with managerial decisions.

This thesis aims to achieve eight main objectives. First, it seeks to provide a detailed description of the level of listed firms' voluntary compliance and disclosure with the 2002 Omani CG Code. Second, it hopes to ascertain whether the observed variability in levels of voluntary compliance and disclosure with the 2002 Omani CG Code can be explained by ownership structures and board and audit characteristics. Third, it intends to examine whether, on average, better-governed firms are likely to employ higher or lower levels of leverage in making their capital structure decisions. Fourth, it attempts to determine whether the estimated coefficients of ownership structure and board and audit features are able to explain the association between CG and capital structure decisions. Fifth, it seeks to investigate whether, on average, better-governed firms are likely to issue equity or debt when seeking new or additional financing. Sixth, it hopes

to determine whether the choice of financing can be explained by ownership structure and board and audit characteristics. Seventh, it examines whether better-governed firms are associated with lower levels of earnings management practices. Finally, it attempts to ascertain the extent to which ownership structure and board and audit characteristics can explain observable changes in firm-level earnings management.

The a priori theoretical expectation of this thesis is that an effective CG system should lead to better corporate policy decisions. With no previous evidence on Oman, the thesis seeks to empirically investigate whether Omani listed firms that comply with the 2002 Omani voluntary CG Code, in addition to other CG mechanisms proposed by the Companies Act, tend to make better managerial decisions than their poorly-governed counterparts. The main findings of each essay are briefly summarised below.

The first essay examines the level of voluntary compliance and disclosure with the 2002 Omani CG Code among listed firms, and factors potentially determining such behaviour. The results indicate several conclusions. First, contrary to general concerns about the 2002 Omani voluntary CG Code's ability to improve CG standards in Omani context, where informal rules and ownership concentration were expected to negatively impact on firms' willingness to comply with the code, Omani firms have had some positive response to the voluntary code's recommendations. Second, in spite of the initial theoretical prediction that the release of the 2002 Omani voluntary CG Code would promote a culture of compliance and CG disclosure, the results clearly suggest that CG compliance and disclosure among listed firms is generally low. Third, the introduction of the 2002 Omani voluntary CG Code has had some positive impact in enhancing good CG practices, as the levels of compliance and disclosure after implementing the code are significantly higher than those before the code was implemented. Fourth, contrary to the expectation that the code's reliance on an Anglo-American model may not improve CG practices due to the large differences between Oman and developed countries, the results show that the code was able to promote CG practices to some extent. Fifth, the findings indicate that ownership structures and board features have significant impact on firm-level voluntary CG disclosure. Ownerships include government, institutional, and foreign are significantly and positively associated with firm-level voluntary CG disclosure whereas block ownership has significant and negative influence. Similarly, board characteristics include board size, the presence of CG committee, and board diversity on the base of nationality have significant and positive association with firm-level voluntary CG disclosure. These findings are generally consistent with the predictions of the study's multi-theoretical framework that incorporates insights from agency, resource dependence, legitimacy, and signalling/stakeholder theories, and in line with prior

studies (e.g., Eng and Mak, 2003; Aggarwal *et al.*, 2011; Huafang and Jianguo, 2007; Ntim *et al.*, 2012a; Samaha *et al.*, 2012; Allegrini and Greco, 2013).

The second essay examines the impact of CG on managerial decision-making behaviour, namely capital structure and the corporate decision (choice) to issue equity or debt. It examines the influence of firm-level CG, ownership structure and board and audit characteristics on capital structure and equity issuance. Contrary to the initial expectation that the impact of CG recommendations on such managerial decisions might be different from what is reported in developed countries, because of the differences in corporate contexts, the results indicate that CG drives capital structure and the choice of financing among listed firms. On average, better-governed firms employ significantly lower levels of leverage and issue equity over debt more than their poorly-governed counterparts. The empirical evidence suggests that there is a statistically significant negative association between firm-level capital structure and firm-level CG, and a statistically significant positive relationship between firm-level CG and equity issuance. Further, the results suggest that audit firm size and the presence of a CG committee have a significant and negative impact on capital structure, and government ownership and institutional ownership have significant effects on equity issuance, where the former has a negative impact and the latter a positive one. These findings are in line with theory (e.g., agency theory, signalling theory) and limited empirical literature (e.g., Jiraporn *et al.*, 2012; Mande *et al.*, 2012).

The final essay investigates the impact of CG on one aspect of corporate financial decision-making, namely earnings management behaviour. It examines the extent to which firms with high-quality CG are more likely to have higher earnings quality than firms with poor CG structures by testing the relationship between firm-level earnings management and firm-level CG, ownership structure and board and audit features. Contrary to the primary expectation of the inability of Oman's CG system to effectively limit managers' discretion in managing earnings, the results suggest that the Omani CG system has been able to mitigate earnings management to some degree. The results indicate that, on average, better-governed firms engage less in earnings management practices than poorly-governed firms. The empirical evidence reveals that firms with better CG structures, high government ownership and institutional ownership engage less in earnings management practices, while those with high block ownership engage more.

Overall, the three essays provide empirical evidence that CG is a significant determinant of corporate policy decisions, where a number of agency problems associated with managerial decisions were mitigated through CG mechanisms. The case of Oman shows that emerging economies can utilise CG systems in reducing opportunistic managerial behaviour and making

their economies less vulnerable to financial crises. Given the unique aspects of the Omani corporate setting and the absence of prior empirical evidence, a number of implications and recommendations can be drawn from examining these three types of managerial decisions.

First, considering the concerns that CG codes in these countries may not lead to the desired outcomes as they are based on an Anglo-American model, the main evidence that emerges from this thesis is that these concerns are not justified, but the differences between emerging and developed countries should be taking into account in either conducting new CG reforms or upgrading existing regimes. This evidence appears to be consistent with the suggestion that emerging economies tend to adopt commonly accepted standards of CG in order to be globally competitive and attract foreign investment. Further, it also seems to be in line with the concept of CG harmonisation, where countries with different types of CG systems tend to adopt similar CG structures to Anglo-American firms, rather than having different systems.

Second, contrary to suggestion that the voluntary nature of CG codes means they are not effective in emerging economies, the findings in this thesis indicate that the voluntary Omani CG Code improves CG practices among Omani listed firms. This may suggest that, unlike mandatory CG systems (e.g., the 2000 Sarbanes-Oxley Act), policy makers in emerging economies can rely on voluntary CG regimes to improve CG practices in their countries.

Third, the evidence that CG standards in Omani listed firms are generally improving implies that efforts by the CMA and the MSM have had a positive influence on CG practices. This may encourage other emerging countries who have not yet issued CG codes, such as Libya, to adopt such codes in order to improve CG practices.

Fourth, the evidence from the three essays emphasises the importance of ownership structure as a CG mechanism and its role in managerial decision processes. It shows that shareholders, especially government, foreign and institutional shareholders, have a strong impetus to actively monitor CG standards in their firms. Individual investors, among others, may be encouraged to invest in firms with a high proportion of government, foreign and institutional ownership, as they expect more transparent information that helps them make optimal investment decisions. Policy makers in other emerging countries, such as Saudi Arabia, may be encouraged to relax some restrictions on foreign investors in order to benefit from their experiences in adopting and implementing high CG standards.

Fifth, the relatively low and limited convergence in CG practices among Omani listed firms, however, suggests that there is a need to further enhance CG compliance and enforcement by the CMA and the MSM. Establishing a ‘compliance and enforcement’ unit that will continuously monitor CG practices may be a step in the right direction.

Sixth, consistent with the theoretical predictions, the evidence reveals that CG mechanisms proposed by the 2002 CG code, in addition to other CG measures in the Companies Law, have assisted firms in mitigating agency problems and reducing agency costs associated with their capital structure decisions, as well as helping them improve their earnings quality. This suggests that potential investors may consider firms with poor CG structures less attractive, which increases their cost of capital, as agency costs would be higher in such firms. New investors may be motivated to pay more attention to CG practices to distinguish between firms with possible earnings management and those with earnings quality. Further, individual investors, among others, may tend to invest in firms where large portions of shares are held by the state and institutional investors, as they can rely on financial reporting provided by such firms in making their investment decisions. Thus, policy makers in general and Omani regulators (e.g., CAM, MSM) in particular should stress upon firms the need to keep improving their CG structures. For instance, policy makers in emerging economies should encourage firms to set up CG committees that ensure that CG recommendations adopted by firms are followed and regularly reviewed.

Seventh, unlike developed countries, in which there are diverse ownership structures, emerging economies have concentrated ownership, which appears to have important implications for implementing good CG standards. The evidence of decreasing CG compliance and disclosure and increasing managerial motivation to engage in earnings management in Omani firms with large block shareholders indicates that block ownership does not perform its function as a CG substitute mechanism. Instead, it appears to serve as an obstacle to CG compliance. Regulators in emerging economies in general and Omani policy makers in particular should introduce CG provisions that force firms with large shareholders to extend their compliance levels and protect minority shareholders from being expropriated by large shareholders. For example, a CG provision that requires firms to have minority shareholders' representative on the board may be a step in this direction. Firms can be required to use a cumulative voting method (i.e., one-share-one-vote policy) that may increase the chance that minority shareholders' representative get appointed in the board.

Finally, achieving good CG practices among firms operating in emerging economies appears to require more effective co-operation and co-ordination between the key financial regulatory and enforcement bodies that constitute CG systems in these countries. This can enhance legal enforcement, in turn improving managerial decisions by increasing compliance.

A review of literature, however, reveals that a considerable number of existing studies investigating CG's role in managerial decisions mainly concentrate on developed countries. Thus, this thesis extends the literature by providing insights on the impact of CG on three aspects of

corporate financial decision-making behaviour in an emerging economy, Oman. It also makes a number of new contributions to the growing body of literature on the nature of the association between CG and corporate policy decisions.

First, using one of the largest and most extensive hand-collected data sets to date on CG compliance and disclosure in emerging countries (i.e., a sample of 116 firms from 2001 to 2011, with a total of 1,152 firm year observations), this thesis offers the first empirical evidence on the effectiveness of CG reforms in improving corporate policy decisions among Omani listed firms. It provides detailed evidence on: (i) the level of compliance with the 2002 CG Code and other CG provisions suggested by the Companies Law among listed firms; (ii) why and how a firm's CG might influence its level of capital structure; (iii) CG's influence on the choice of financing; and (iv) the joint effect of the Omani CG system on earnings management practices. The findings from the thesis's extensive summary descriptive statistics suggest that CG standards in listed firms differ widely over the eleven years investigated. They also show that, on average, better-governed firms disclose more information, employ lower levels of leverage, issue more equity finance and engage less in earnings management practices.

Second, this thesis provides a self-constructed CG index consisting of 72 CG provisions divided into four broad categories, namely board of directors, accounting and auditing, external auditors and internal control systems, and disclosure and transparency. This index can be used to examine CG's role in influencing a number of crucial managerial decisions in Oman.

Third, unlike most prior studies that attempt to examine the effect of individual CG measures (e.g., board or audit characteristics) on CG compliance and disclosure, capital structure decisions and earnings management, this thesis employs an comprehensive measure of CG, comprising 72 CG provisions in investigating these relations. This is in line with recent suggestion in the literature that CG can be better examined by a composite CG index rather than using individual CG mechanisms.

Fourth, this thesis examines some factors that have not been widely investigated in the literature. It does not restrict its analyses to a few types of ownership and board and audit characteristics in examining why and how these determinants influence CG compliance level, capital structure decisions and earnings management. Instead, it contributes to the literature by providing empirical evidence on four types of ownership, namely government ownership, institutional ownership, foreign ownership and block ownership, as well as a number of board characteristics and audit features, including board size, board diversity on the basis of gender, audit firm size, presence of a CG committee and board diversity on the basis of nationality. The thesis's examination shows that these factors significantly influence corporate policy decisions.

Fifth, this thesis contributes to the literature by using a multi-theoretical framework for developing hypotheses and interpreting findings. Unlike a single-theoretical approach, the methodology of using a multi-theoretical framework is useful in order to arrive at uniform theoretical framework that can be used to explain firms' motivations for voluntary CG compliance and disclosure, capital structure and earnings management, especially in complex corporate contexts, such as those in emerging economies, in which voluntary CG Codes may not be able to provide desired outcomes.

Sixth, different from most past studies that exclude financial firms from their analyses, this thesis offers empirical evidence that including these firms does not affect the findings. The evidence suggests that there is no significant difference in terms of CG's effect on CG disclosure, capital structure and earnings management among financial and non-financial firms. Unlike in developed countries, where financial firms are subject to additional governance requirements, the thesis concludes that both financial and non-financial firms in emerging economies are likely to react relatively the same towards CG systems, due to weak corporate regulations and enforcement in such countries.

Finally, distinct from a considerable number of previous studies, this thesis provides empirical evidence on the relationship between CG and each of CG compliance level, capital structure decisions and earnings management using different econometric models and estimations in order to ensure the robustness of its results. The results reported by the robustness analyses confirm the a priori theoretical expectation that an effective CG system leads to better managerial decisions.

Thus, the findings reported in this thesis seek to fill a gap in literature by offering empirical evidence from emerging economies in general and Oman in particular. Although the thesis's findings are fairly robust and important, its weaknesses need to be acknowledged. Due to data limitations, it focuses mainly on how and why internal CG mechanisms drive CG compliance level, capital structure decisions and earnings management practices. Future research may examine how external CG structures, such as the media and the market for corporate and managerial control, as well as Omani context specific issues, such as 'Shariah' Law, cultural practices and social norms impact CG compliance, capital structure decisions and earnings management. In addition, although the thesis's findings based on its weighted and un-weighted CG indices are essentially the same, future research may improve their analyses by employing a weighted CG index. In a similar vein, the thesis's measures for other CG, ownership, capital structure and earnings management variables may or may not accurately reflect actual CG, ownership, capital structure and earnings management in practice due to potential measurement

errors. Finally, due to data limitations, the thesis is limited to Omani firms. Thus, future studies may adopt the thesis's multi-theoretical framework to conduct cross-country analysis.

APPENDICES

Appendix 1: A list of the names and industries of the 116 Omani sampled firms

No	Full Firm Name	MSM CODE	SECTOR
1	Oman Filters Industry	OFII	Basic materials
2	Oman Fiber Optic	OFOI	Basic materials
3	Construction. Mat. Industry	CMII	Basic materials
4	Oman Hol Investment	OHII	Basic materials
5	Oman Cement	OCOI	Basic materials
6	Gulf International Chemicals Company	GICI	Basic materials
7	Oman Chlorine	OCHL	Basic materials
8	Oman Textile Holding	OTHI	Basic materials
9	Oman Fisheries	OFCI	Basic materials
10	Oman Oil Marketing	OOMS	Basic materials
11	Muscat Gases	MGMC	Basic materials
12	Packaging Industries	AKPP	Basic materials
13	National Pharm Medicine	NPMI	Basic materials
14	Shell Oman Marketing	SOMS	Basic materials
15	Maha Petroleum	MHAS	Basic materials
16	Majan Glass	MGCI	Basic materials
17	Muscat Thread Mills	MTMI	Basic materials
18	Flexible IND. Packages	FIPC	Basic materials
19	Al Fajar Al Alamia	AFAI	Basic materials
20	Abrasives Manufacturing	ABMI	Basic materials
21	Oman Ceramic Company	OMCI	Basic materials
22	Oman Flour Mills	OFMI	Basic materials
23	Oman Packaging Company	OPCI	Consumer goods
24	Food International	NRCI	Consumer goods
25	Asaffa Foods	SPFI	Consumer goods
26	Areej Vegetable Oil	AVOI	Consumer goods
27	Gulf Plastic Industry	GMPI	Consumer goods
28	Oman International Marketing	OIMS	Consumer goods
29	Dhofar Fisheries	DFII	Consumer goods
30	Dhofar Beverages	DBCI	Consumer goods
31	Oman Refreshment	ORCI	Consumer goods
32	National Mineral Water	NMWI	Consumer goods
33	National Biscuit	NBII	Consumer goods
34	Salalah Mills	SFMI	Consumer goods
35	Sohar Poultry	SPCI	Consumer goods
36	Oman and Emirates INV Holding	OEIO	Consumer goods
37	Omani Euro Foods Industries	OEFI	Consumer goods
38	National Real Esate Development	NRED	Consumer goods
39	Sweets of Oman	OSCI	Consumer goods
40	Dhofar Beverages Food Stuff	DPCI	Consumer goods
41	Nattional Detergent	NDTI	Consumer goods
42	Packaging CO.ILD	PCLI	Consumer goods
43	Oman Agriculture DEV	OADI	Consumer goods
44	Computer Stationery	CSII	Consumer services
45	Al Hassan Engineering	HECI	Consumer services
46	Oman Education & Training Inv	OETI	Consumer services
47	Shaara Hospitality	SAHS	Consumer services
48	Oman Hotels	OHTS	Consumer services
49	Al Batinah Hotels	BAHS	Consumer services
50	Gulf Hotels	GHOS	Consumer services
51	Interior Hotels	INHS	Consumer services
52	Al Buraimi Hotel	ABHS	Consumer services
53	Majan College	BACS	Consumer services
54	Port Services Corporation	PSCS	Consumer services
55	Al Jazeira Services	AJSS	Consumer services
56	National Hospitality Industry	NHIS	Consumer services
57	Salalah Port Service	SPSI	Consumer services
58	Hotels Mgmt. Investment	HMCI	Consumer services
59	Kamil Power	KPCS	Consumer services
60	Renaissance Services	RNSS	Consumer services
61	Dhofar Tourism	DTCS	Consumer services
62	Dhofar University	DHUS	Consumer services

Continuation: Appendix 1		MSM CODE	SECTOR
63	Salalah Beach Resort	SHCS	Consumer services
64	Galfar Engineering and COM	GECS	Consumer services
65	Al Omaniya Financial Services	AOFS	Financial
66	Global Investment	GFIC	Financial
67	Gulf Investment Services Company	GISI	Financial
68	Al Batinah Dev & Inv. Holding	DBIH	Financial
69	Al Sharqia Investment	SIHC	Financial
70	Al Shurooq Investment	SISC	Financial
71	Financial Services	FSCI	Financial
72	National Bank of Oman	NBOB	Financial
73	Dhofar Investment and Development	DIDI	Financial
74	Dhofar Insurance	DICS	Financial
75	Oman Investment and Finance	OIFC	Financial
76	Muscat National Holding	MNHI	Financial
77	Oman United Institution	OUIS	Financial
78	Oman Orix Leasing	ORXL	Financial
79	National Finance	NFCI	Financial
80	Ominvest	OMVS	Financial
81	Bank Dhofar	BKDB	Financial
82	National Finance	NSCI	Financial
83	Fin Corporation	FINC	Financial
84	Muscat Finance	MFCI	Financial
85	United Finance	UFCI	Financial
86	HSBC Bank Oman	HBMO	Financial
87	Transgulf IND.INV. Holding	TGII	Financial
88	ONIC.Holding	ONIC	Financial
89	Bank Muscat	BKMB	Financial
90	Taageer Finance	TFCI	Financial
91	Bank Sohar	BKSB	Financial
92	Alaml Fund	AIGI	Financial
93	Alhi Bank	ABOB	Financial
94	Oman Cable Industry	OCAI	Industrial
95	Al Oula	DMGI	Industrial
96	Al Anwar Ceramic Tiles	AACT	Industrial
97	Gulf Plastic Industries	AKPI	Industrial
98	Al Jazeera Steel Product Company	ATMI	Industrial
99	Dhofar Cattle-feed	DCFI	Industrial
100	Gulf Stone	GSCI	Industrial
101	National Aluminium	NAPI	Industrial
102	Raysut Cement	RCCI	Industrial
103	Oman Chromite	OCCI	Industrial
104	Cement and Gypsum Products	CGPI	Industrial
105	Voltamp Energy	VOES	Industrial
106	Alanwar Holding	AAIT	Industrial
107	Medical Company	MIIA	Healthcare
108	Oman Medical Projects	OMPS	Healthcare
109	Nawras	NWRS	Telecommunications
110	Oman Telecommmunication	OTEL	Telecommunications
111	National Gas	NGCI	Oil & Gas
112	Enginering and Investment	ONES	Utilities
113	Acwa Power Barka	APBS	Utilities
114	SMN Power Holding	SMNP	Utilities
115	United Power	UECS	Utilities
116	Sohar Power	SHPS	Utilities

Appendix 2: A Full list of the Omani corporate governance index provisions

Omani Corporate Governance Index				
Section	**No.**	**OCGI Provision**	**Range of Scores**	**Total provision Per Section**
Board & Directors				**39**
	1	Whether the board of directors' number is between 5 and 12.	0-1	
	2	Whether the directors are clearly classified into executive, non-executive and independent directors.	0-1	
	3	Whether the roles of chairperson and CEO are split.	0-1	
	4	Whether the third of its board's members is independent directors.	0-1	
	5	Whether the board is composed by a majority of non-executive directors.	0-1	
	6	Whether the directors' membership number on other firms are specified and disclosed.	0-1	
	7	Whether directors' membership number on other firms are less than 5.	0-1	
	8	Whether the board meets at least four times a year.	0-1	
	9	Whether the board meetings' dates are disclosed.	0-1	
	10	Whether individual directors' meetings record is disclosed.	0-1	
	11	Whether individual directors' meetings attendance record at the general assembly is disclosed.	0-1	
	12	Whether directors' remuneration, interests and share options are disclosed.	0-1	
	13	Whether top five managers' remuneration are disclosed.	0-1	
	14	Whether individual directors' service contracts, and notice period and severance fees are disclosed.	0-1	
	15	Whether the board approves interim and annual financial statements.	0-1	
	16	Whether a board's report on the going concern status of firm is disclosed.	0-1	
	17	Whether the board has conducted a review on the effectiveness of firm's internal control systems.	0-1	
	18	Whether there is a narrative on directors' nomination procedures.	0-1	
	19	Whether a remuneration committee has been established.	0-1	
	20	Whether remuneration's committee jurisdictions and duties are disclosed.	0-1	
	21	Whether the remuneration committee's members are disclosed.	0-1	
	22	Whether the chairperson of remuneration committee is an independent.	0-1	
	23	Whether the majority of remuneration committee are independent.	0-1	
	24	Whether remuneration's committee's members' remuneration is disclosed.	0-1	
	25	Whether remuneration's committee members' meetings attendance record is disclosed.	0-1	
	26	Whether a nomination committee has been established.	0-1	
	27	Whether nomination's committee jurisdictions and duties are disclosed.	0-1	

Continuation: Appendix 2			
	28	Whether the nomination committee's members are disclosed.	0-1
	29	Whether the chairperson of nomination committee is an independent.	0-1
	30	Whether the majority of nomination committee's members are independent.	0-1
	31	Whether nomination's committee members' compensation is disclosed.	0-1
	32	Whether nomination's committee members' meetings attendance record is disclosed.	0-1
	33	Whether a risk committee has been established.	0-1
	34	Whether risk's committee jurisdictions and duties are disclosed.	0-1
	35	Whether the risk committee's members are disclosed	0-1
	36	Whether the chairperson of risk committee is an independent.	0-1
	37	Whether the majority of risk committee's members are independent.	0-1
	38	Whether risk's committee members' remuneration is disclosed.	0-1
	39	Whether risk's committee members' meetings attendance record is disclosed.	0-1
Accounting & Auditing			**7**
	40	Whether an audit committee has been established.	0-1
	41	Whether audit's committee jurisdictions and duties are disclosed.	0-1
	42	Whether the audit committee's members are disclosed.	0-1
	43	Whether the chairperson of audit committee is an independent.	0-1
	44	Whether the majority of audit committee's members are independent.	0-1
	45	Whether audit committee's members' compensation is disclosed.	0-1
	46	Whether audit's committee members' meetings attendance record is disclosed.	0-1
External Auditors & Internal Control Systems			**4**
	47	Whether an external auditor's report on adequacy and efficacy of firm's internal control systems is disclosed.	0-1
	48	Whether an external auditor report's on firm's compliance with its internal control system is disclosed.	0-1
	49	Whether an external auditor report's on firm's ability to carry out its activities is disclosed.	0-1
	50	Whether an external auditor report's on frauds is disclosed.	0-1
Disclosure and Transparency			**22**
	51	Whether there is a narrative on the distribution of shareholding.	0-1
	52	Whether there is a narrative on how the firm is doing its activities in order to achieve its objectives.	0-1
	53	Whether there is a narrative on investment opportunities.	0-1
	54	Whether there is a narrative on firm's financial and operational performance.	0-1

Continuation: Appendix 2				
	55	Whether there is a narrative on risks and concerns and how are assessed and managed by the firm.	0-1	
	56	Whether there is a narrative on firm's performance in comparison to board based index of MSM.	0-1	
	57	Whether the firm has obtained a certificate from external auditor on its CG practices.	0-1	
	58	Whether the firm has provided a separate chapter in its annual report on CG	0-1	
	59	Whether the firm provides a statement on the compliance or non-compliance with the code.	0-1	
	60	Whether there is a narrative on penalties and strictures that might be imposed on the firm.	0-1	
	61	Whether there is a narrative on financial transactions that may have conflict of interests.	0-1	
	62	Whether there is a narrative on high and low market share prices during each month.	0-1	
	63	Whether there is a narrative on the professional profile of external auditor.	0-1	
	64	Whether there is a narrative on dividend policy.	0-1	
	65	Whether there is a narrative on firm's loans.	0-1	
	66	Whether the firm posts its results online.	0-1	
	67	Whether there is a narrative on firm's convertible instrument.	0-1	
	68	Whether firm sends its half-yearly results to each shareholders or not.	0-1	
	69	Whether there is a narrative on firm's analysis of segment and product wise performance.	0-1	
	70	Whether there is a narrative on how firm sees and predicts its future.	0-1	
	71	Whether the firm includes management discussion and analysis chapter as part of its annual report.	0-1	
	72	Whether there is a narrative on directors' biography, experience and responsibilities.	0-1	
Four Sections	**Total**	**Corporate Governance Provisions**		**72**

Appendix 3: Definition of the Omani corporate governance index provisions and measurement

No	Corporate Governance Provision	Acronym	Source	Measurement
Section 1: The board and Directors				
1	The board of directors' number	BDN	CA 95	A binary number of 1 if the directors' number between 5 and 12, 0 otherwise.
2	Directors' Classification.	DCD	OCGC 3.4	A binary number of 1 if directors are clearly classified into executive, non-executive and independent directors, 0 otherwise.
3	Role Duality	DUAL	OCGC 3.2	A binary number of 1 if the roles of chairperson and CEO are split, 0 otherwise.
4	Board's independence	BIDs	OCGC 1.3	A binary number of 1 if the third of its board's members is independent, 0 otherwise.
5	Majority of board's directors	MBDs	OCGC 1.1	A binary number of 1 if the board is composed by a majority of non-executive directors, 0 otherwise.
6	Membership of directors on other firms' boards	MDOFBs	OCGC (P.27)	A binary number of 1 if membership of directors on other firms' boards is disclosed, 0 otherwise.
7	Membership's number of board of directors on other firms' boards	MNBOFBs	CA 95	A binary number of 1 if each board's member has no more than 5 memberships on other firms, 0 otherwise.
8	Frequency of board meetings	FBMs	OCGC 4.0	A binary number of 1 if the board meets at least four times a year, 0 otherwise.
9	Board meetings' dates	BMDs	OCGC (P.27)	A binary number of 1 if the board meetings number and dates are disclosed, 0 otherwise.
10	Individual directors' meetings attendance at the board	IBDMs/B	OCGC (P.27)	A binary number of 1 if individual directors' meetings attendance record is disclosed, 0 otherwise.
11	Individual directors' meetings attendance at general assembly	IBDMs/GA	OCGC (P.27)	A binary number of 1 if individual directors' meetings attendance record at the general assembly is disclosed, 0 otherwise.
12	Board of directors' remuneration	BDR	OCGC (P.27)	A binary number of 1 if there are details of remuneration to all directors individually, 0 otherwise.
13	Top five officers' remuneration	5OFR	OCGC (P.27)	A binary number of 1 if there are details of remuneration to the top 5 officers individually, 0 otherwise.
14	Board service contracts	BSC	OCGC (P.27)	A binary number of 1 if there are details of service contracts, notice period and severance fees to all directors, 0 otherwise.
15	Approving financial statement	AFS	OCGC 5.13	A binary number of 1 if the board approves interim and annual financial statements, 0 otherwise.
16	Going concern	GC	OCGC 5.14	A binary number of 1 if the board reports to shareholders about the going concern status of the firm, 0 otherwise.
17	Review of internal control systems	RICSs	OCGC (P.26)	A binary number of 1 if the board states that it conducted a review on states that it conducted a review on, 0 otherwise.
18	Narrative on directors' nomination procedures.	DN	OCGC (P.27)	A binary number of 1 if there is narrative on directors' nomination, 0 otherwise.

Continuation: Appendix 3

19	Remuneration committee's existence	R1CE	OCGC (P.28)	A binary number of 1 if the remuneration committee is established, 0 otherwise.
20	Remuneration committee's terms & reference	R1CT&R	OCGC (P.28)	A binary number of 1 if there is a narrative on brief description of its jurisdictions and duties, 0 otherwise.
21	Remuneration committee's composition	R1CC	OCGC (P.28)	A binary number of 1 if its members are disclosed, 0 otherwise.
22	Remuneration committee's chairperson	R1CCP	OCGC (P.28)	A binary number of 1 if its chairperson is independent, 0 otherwise.
23	Remuneration committee's majority of its members	R1CMMs	OCGC (P.28)	A binary number of 1 if the majority of its members are independent, 0 otherwise.
24	Remuneration committee's remuneration	R1CR	OCGC (P.28)	A binary number of 1 if its members' compensation is disclosed, 0 otherwise.
25	Remuneration committee's individual directors meetings	R1CIMs	OCGC (P.28)	A binary number of 1 if individual member's meetings attendance record is disclosed, 0 otherwise.
26	Nomination committee's existence	NCE	OCGC (P.28)	A binary number of 1 if the nomination committee is established, 0 otherwise.
27	Nomination committee's terms & reference	NCT&R	OCGC (P.28)	A binary number of 1 if there is a narrative on brief description of its jurisdictions and duties is disclosed, 0 otherwise.
28	Nomination committee's composition	NCC	OCGC (P.28)	A binary number of 1 if its members are disclosed, 0 otherwise.
29	Nomination committee's chairperson	NCCP	OCGC (P.28)	A binary number of 1 if its chairperson is independent, 0 otherwise.
30	Nomination committee's majority of its members	NCMMs	OCGC (P.28)	A binary number of 1 if the majority of its members are independent, 0 otherwise.
31	Nomination committee's remuneration	NCR	OCGC (P.28)	A binary number of 1 if its members' compensation is disclosed, 0 otherwise.
32	Nomination committee's individual directors meetings	NCIMs	OCGC (P.28)	A binary number of 1 if individual member's meetings attendance record is disclosed, 0 otherwise.
33	Risk Committee's existence	R2CE	OCGC (P.28)	A binary number of 1 if the risk committee is established, 0 otherwise.
34	Risk Committee's terms & reference	R2CT&R	OCGC (P.28)	A binary number of 1 if there is a narrative on brief description of its jurisdictions and duties is disclosed, 0 otherwise.
35	Risk Committee's composition	R2CC	OCGC (P.28)	A binary number of 1 if its members are disclosed, 0 otherwise.
36	Risk Committee's chairperson	R2CCP	OCGC (P.28)	A binary number of 1 if its chairperson is independent, 0 otherwise.
37	Risk Committee's majority of its members	R2CMMs	OCGC (P.28)	A binary number of 1 if the majority of its members are independent, 0 otherwise.
38	Risk Committee's remuneration	R2CR	OCGC (P.28)	A binary number of 1 if its members' compensation is disclosed, 0 otherwise.
39	Risk Committee's individual directors meetings	R2CIMs	OCGC (P.28)	A binary number of 1 if individual member's meetings attendance record is disclosed, 0 otherwise.

Continuation: Appendix 3				
Section 2: Accounting and Auditing				
40	Audit Committee's existence	ACE	OCGC 7.0	A binary number of 1 if the audit committee is established, 0 otherwise.
41	Audit Committee's terms & reference	ACT&R	OCGC (P.27)	A binary number of 1 if there is a narrative on brief description of its jurisdictions and duties is disclosed, 0 otherwise.
42	Audit Committee's composition	ACC	OCGC (P.27)	A binary number of 1 if its members are disclosed, 0 otherwise.
43	Audit Committee's chairperson	ACCP	OCGC 7.2	A binary number of 1 if its chairperson is independent, 0 otherwise.
44	Audit Committee's majority of its members	ACMMs	OCGC 7.1	A binary number of 1 if the majority of its members are independent, 0 otherwise.
45	Audit Committee's remuneration	ACR	OCGC 7.6	A binary number of 1 if its members' compensation is disclosed, 0 otherwise.
46	Audit Committee's individual directors meetings	ACIMs	OCGC (P.27)	A binary number of 1 if individual member's meetings attendance record is disclosed, 0 otherwise.
Section 3: External Auditors & Internal Control Systems				
47	Internal control systems	ICSs	OCGC 9.4.A	A binary number of 1 if the external auditor reports on adequacy and efficacy of firm's internal control systems, 0 otherwise.
48	Compliance with internal control systems	CICSs	OCGC 9.4.C	A binary number of 1 if the external auditor reports on firm's compliance with its internal control systems, 0 otherwise.
49	Ability of the firm to carry out its activities	AFCOAs	OCGC 9.4.B	A binary number of 1 if the external auditor reports on firm's ability to carry out its activities, 0 otherwise.
50	Frauds	Fs	OCGC 9.5	A binary number of 1 if the external auditor reports about whether there are frauds or not, 0 otherwise.
Section 4: Disclosure & Transparency				
51	Ownership structure	OSD	OCGC (P.28)	A binary number of 1 if there is a narrative on distribution of shareholding, 0 otherwise.
52	Industry structure and development	ISD	OCGC 16.1	A binary number of 1 if there is a narrative on how the firm conducts its activities, 0 otherwise.
53	Investment opportunities	IOs	OCGC 16.2	A binary number of 1 if there is a narrative on investment opportunities, 0 otherwise.
54	Financial and operational performance	FOP	OCGC 16.7	A binary number of 1 if there is a narrative on firm's financial and operational performance, 0 otherwise.
55	Risks and concerns	R3Cs	OCGC 16.5	A binary number of 1 if there is a there is a narrative on risks and concerns and how are assessed and managed by the firm. narrative on how the firm assesses its current and future risks, 0 otherwise
56	General performance	GP	OCGC 16.3	A binary number of 1 if there is a narrative on firm's performance in comparison to the index of MSM (relevant sector), 0 otherwise.
57	Certificate from external auditor	CEA	OCGC 28	A binary number of 1 if the firm has external auditor's certificate on CG, 0 otherwise.

Continuation: Appendix 3

58	Chapter on CG	CCG	OCGC 26	A binary number of 1 if the firm provides a separate chapter in its annual report on CG, 0 otherwise.
59	Compliance/non-compliance	C/Non-C	OCGC (P.27)	A binary number of 1 if there is statement on the compliance or non-compliance with the code, 0 otherwise.
60	Penalties and strictures	PSs	OCGC (P.27)	A binary number of 1 if there is a narrative on whether the firm faced any penalties and strictures or not, 0 otherwise.
61	Related party transactions	RPT	OCGC 19	A binary number of 1 if there is a narrative on related party transactions or not, 0 otherwise.
62	Market price data	MPD	OCGC (P.28)	A binary number of 1 if there is a narrative on high and low market share prices during each month, 0 otherwise.
63	External auditor's profile	EAP	OCGC (P.28)	A binary number of 1 if there is a narrative on professional profile of the external auditor, 0 otherwise.
64	Dividend Policy	PDs	CA 105	A binary number of 1 if there is a narrative on dividend policy, 0 otherwise.
65	Firm's loan	FL	OCGC (P.28)	A binary number of 1 if there is a narrative on loans or any external finance, 0 otherwise.
66	Publishing results online	PRO	OCGC (P.28)	A binary number of 1 if the firm posts its results online, 0 otherwise.
67	Convertible instruments	CIs	OCGC (P.28)	A binary number of 1 if there is narrative on whether the firm has convertible instrument or not, 0 otherwise.
68	Sending half- yearly results to shareholders	SHYRSs	OCGC (P.28)	A binary number of 1 if the half-yearly results were sent to each shareholder, 0 otherwise.
69	Firm's analysis of products	FAP	OCGC 16.3	A binary number of 1 if there is a narrative on analysis of segment and product wise performance, 0 otherwise.
70	Outlook future	OLF	OCGC 16.4	A binary number of 1 if there is a narrative on how the firm sees and predicts its future, 0 otherwise.
71	Management discussion & analysis	MD&A	OCGC (P.28)	A binary number of 1 if the firm includes management discussion chapter as part of its annual report, 0 otherwise.
72	Disclosure of directors' biography	DDB	OCGC (P.28)	A binary number of 1 if there is a narrative on directors' biography, experience and responsibilities, 0 otherwise.

Note: OCGC refers to the Omani Corporate Governance Code and CA refers to Omani Companies Act.

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