



THE EFFECT OF FIRM AND COUNTRY CHARACTERISTICS
ON MANDATORY DISCLOSURE COMPLIANCE

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ABSTRACT

Our study investigates the role of firm and country characteristics in determining the level of compliance with mandatory disclosure requirements. We also examine whether the role of firm characteristics hold across different country environments. Our empirical study relies on European Union listed firms included on the STOXX Europe 600 Index and on their level of compliance with IFRS 3, *Business Combinations* disclosure requirements. Our results demonstrate that both firm and country characteristics develop a significant task in explaining the level of compliance with mandatory disclosure requirements. They confirm that firms located in a common-law country have the strongest, and firms located in a French-civil-law country the weakest, level of compliance with IFRS 3 disclosure requirements, with firms located in a Scandinavian- and German-civil-law country placed in the middle. Our findings also suggest that return on assets is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of common-law plus Scandinavian- and German-civil-law countries, while leverage is the main determinant in the group of French-civil-law countries.

Key-words: Mandatory Disclosure; Business Combinations; Firm and Country Characteristics; Legal Systems.

JEL Classification System: M41 – Accounting; M48 – Government Policy and Regulation

RESUMO

O nosso estudo analisa a influência das características das empresas e dos países sobre o nível de cumprimento dos requisitos de divulgação obrigatórios. Também analisamos se o impacto das características das empresas sobre o nível de cumprimento dos requisitos de divulgação obrigatórios varia de acordo com os diferentes países. O nosso estudo empírico baseia-se em empresas cotadas na União Europeia, incluídas no Índice STOXX 600 no final de 2009, e no seu nível de cumprimento dos requisitos de divulgação exigidos pela Norma Internacional e de Relato Financeiro 3, Concentrações de Negócios. Os resultados obtidos indicam que tanto as características das empresas como dos países influenciam de modo significativo o nível de cumprimento dos requisitos de divulgação obrigatórios. Eles demonstram que as empresas localizadas em países com sistemas de *common-law* têm superiores níveis de cumprimento dos requisitos de divulgação, que as empresas localizadas em países com sistemas de *civil-law* Francês têm piores níveis de cumprimento e que as empresas localizadas em países com sistemas de *civil-law* Escandinavo ou Alemão se encontram entre as anteriores em termos de cumprimento dos requisitos de divulgação exigidos pela Norma Internacional e de Relato Financeiro 3. Os nossos resultados também sugerem que a Rendibilidade dos Activos é a principal determinante nas empresas localizadas em países com sistemas de *common-law* e de *civil-law* Escandinavo ou Alemão, e que o rácio de Alavanca Financeira é o principal determinante nas empresas localizadas em países com sistemas de *civil-law* Francês.

Palavras-chave: Divulgação Obrigatória; Combinações de Negócios; Características das Empresas e dos Países; Sistemas Legais.

Sistema de Classificação JEL: M41 – Contabilidade; M48 – Política Governamental e Regulamentação.

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ABBREVIATIONS

IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standard
OLS	Ordinary Least Squares
SFAS	Statement of Financial Accounting Standard
US-GAAP	United States – Generally Accepted Accounting Principles

SUMÁRIO EXECUTIVO

O nosso estudo analisa a influência das características das empresas e dos países sobre o nível de cumprimento dos requisitos de divulgação obrigatórios. Também analisamos se o impacto das características das empresas sobre o nível de cumprimento dos requisitos de divulgação obrigatórios varia de acordo com os diferentes países. Utilizando como base diversas teorias contabilísticas, como as teorias da agência, dos custos políticos, da sinalização, dos custos de propriedade e da contingência, nós desenvolvemos um conjunto de hipóteses que relacionam as características das empresas e dos países com o nível de cumprimento dos requisitos de divulgação obrigatórios presentes na Norma Internacional e de Relato Financeiro 3, Concentrações de Negócios. Nós esperamos encontrar uma relação estatisticamente positiva entre o nível de divulgação e o rácio de alavanca financeira, a rentabilidade, o tamanho, a cotação num mercado estrangeiro e a adoção voluntária das Normas Internacionais e de Relato Financeiro antes do prazo de adopção obrigatória a 1 de Janeiro de 2005. Também esperamos encontrar uma associação negativa entre o nível de divulgação e o grau de concentração do capital. Simultaneamente, temos a expectativa de que as empresas localizadas em países com sistemas de *common-law* tenham superiores níveis de cumprimento dos requisitos de divulgação, que as empresas localizadas em países com sistemas de *civil-law* Francês tenham piores níveis de cumprimento e que as empresas localizadas em países com sistemas de *civil-law* Escandinavo ou Alemão se encontrem entre as anteriores em termos de cumprimento dos requisitos de divulgação exigidos pela Norma Internacional e de Relato Financeiro 3. Finalmente, também esperamos que o impacto das características das empresas varie de acordo com os diferentes países.

Para medir o nível de cumprimento das empresas, construímos um índice de divulgação composto por treze itens que se baseiam nos parágrafos 67 e 68 da Norma Internacional e de Relato Financeiro 3. Se o valor do índice se aproximar de 1, o nível de divulgação é elevado, o que significa que a empresa cumpre mais com os requisitos de divulgação obrigatórios. Um índice igual a 1 significa total cumprimento dos requisitos. São contruídas duas regressões lineares múltiplas que relacionam o índice com as características das empresas e dos países.

O nosso estudo empírico baseia-se em empresas cotadas na União Europeia, incluídas no Índice STOXX 600 no final de 2009, tendo sido analisados os Relatórios e Contas destas empresas para os exercícios findos em 2008.

No geral, os resultados obtidos vão de encontro às nossas expectativas. Eles indicam que tanto as características das empresas como dos países influenciam de modo significativo o nível de cumprimento dos requisitos de divulgação obrigatórios, demonstrando que as empresas localizadas em países com sistemas de *common-law* têm superiores níveis de cumprimento dos requisitos de divulgação, que as empresas localizadas em países com sistemas de *civil-law* Francês têm piores níveis de cumprimento e que as empresas localizadas em países com sistemas de *civil-law* Escandinavo ou Alemão se encontram entre as anteriores em termos de cumprimento dos requisitos de divulgação exigidos pela Norma Internacional e de Relato Financeiro 3. Os nossos resultados também indicam que a Rendibilidade dos Activos é a principal determinante nas empresas localizadas em países com sistemas de *common-law* e de *civil-law* Escandinavo ou Alemão, e que o rácio de Alavanca Financeira é o principal determinante nas empresas localizadas em países com sistemas de *civil-law* Francês.

O nosso estudo contribui para a literatura sobre o cumprimento dos requisitos de divulgação obrigatórios, na medida em que estamos entre os primeiros autores a analisar a influência simultânea das características das empresas e dos países sobre o nível de cumprimento dos requisitos contabilísticos de divulgação obrigatórios. Adicionalmente, nós analisamos diversos países europeus com características institucionais específicas e distintas, os quais aplicam as mesmas normas contabilísticas para empresas cotadas, e não apenas um único país em períodos regulamentares distintos ou diferentes países com normas contabilísticas distintas. Ao nos basearmos em empresas Europeias cotadas, também demonstramos que a importância do estudo dos níveis de cumprimento dos requisitos de divulgação obrigatórios se estende aos países considerados desenvolvidos.

INTRODUCTION

The incentives of firms to disclose voluntary information and to comply with mandatory disclosure requirements are nowadays issues of interest for both the accounting regulators and the accounting researchers. Previous empirical studies suggest that disclosure affects the cost of equity capital (Botosan, 1997; Francis *et al.*, 2005), the cost of debt (Sengupta, 1998; Francis *et al.*, 2005) and the welfare of investors (Gao, 2010). Given the impact of accounting disclosures, regulators are committed to guarantee the accuracy and transparency of financial information, by increasing disclosure requirements and by developing enforcement mechanisms able to assure firm compliance with those incremental disclosure requirements.

Empirical research regarding voluntary disclosure has several years of history. On the contrary, the literature concerning compliance with mandatory disclosure requirements is much more recent. This is probably due to the fact that accounting regulators have been increasing the nature and the extent of disclosures that firms are required to provide for their financial statements users. This stream of literature is mainly documenting the impact of some firm characteristics on the level of compliance with disclosure requirements (e.g. size, leverage, profitability, listing status, type of external auditor). Only few studies analyse the institutional determinants influencing the level of compliance with disclosure requirements, and these studies are mainly developed in African and Asian countries.

The mandatory adoption of IAS/ IFRS by European Union listed firms since 2005 provides an opportunity for research on this issue. The IAS/ IFRS are considered by the markets as high quality accounting standards. They require a larger extent of disclosure, increase transparency and limit management discretion (Daske *et al.*, 2008; Chatham, 2008). However, accounting practices are driven not only by the quality of accounting standards, but also by firm characteristics and by its overall institutional setting, including the legal and political systems of the country in which the firm is domiciled (Soderstrom and Sun, 2007), so that the application of IAS/ IFRS is expected to differ among the different European Union countries. Therefore, the mandatory adoption of IAS/ IFRS by the European Union listed firms endows researchers with a powerful setting to test the institutional determinants of the level of compliance with disclosure requirements, because accounting standards across European Union countries are now the same for listed companies.

We address the gap in our knowledge on the importance of country characteristics in explaining compliance with mandatory disclosure requirements by investigating

simultaneously the role of firm and country characteristics in determining the level of compliance with IFRS 3, *Business Combinations* (2004) disclosure requirements in the European Union setting. We also examine whether the role of firm characteristics hold across different country environments.

Business combinations emerge as a way for companies to strengthen their competitiveness, ease their entrance in new markets or businesses, within the same country or overseas, decrease the risks because decreases the number of competitors, support scale economies and synergies (Marques, 2007). Furthermore, business combinations are regularly of high economic importance to acquirers and can significantly affect their financial statements, thus disclosure on business combinations is decisive for evaluating effects on acquirers' future income and cash-flows (Shalev, 2009). We analyse the level of compliance with IFRS 3 disclosure requirements in order to guarantee that our conclusions are based on a significant issue for both the preparers and the users of financial statements.

Our analysis relies on European Union listed firms belonging to the STOXX Europe 600 Index at the end of 2009. We perform OLS regressions where the dependent variable is a disclosure index that scores the level of corporate compliance with disclosure requirements on IFRS 3, *Business Combinations* (2004). The independent variables are potential determinants of the level of compliance, which assemble firm and country characteristics.

Our results provide empirical evidence that both firm and country characteristics develop a significant task in explaining the level of compliance with mandatory disclosure requirements. Moreover, they confirm that firms located in a common-law country have the strongest, and firms located in a French-civil-law country the weakest, level of compliance with IFRS 3 disclosure requirements, with firms located in a Scandinavian- and German-civil-law country placed in the middle. Our findings also suggest that return on assets is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of common-law plus Scandinavian- and German-civil-law countries, while leverage is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of French-civil-law countries.

Our study offers several contributions to the literature on compliance with mandatory disclosure requirements. First, we believe we are among the earliest to examine the relative importance of both firm and country characteristics in explaining the level of compliance with IFRS disclosure requirements. Most previous studies focus on the effects of firm characteristics on the level of compliance with mandatory disclosure requirements, and

examine the variation of that level of compliance across companies, ignoring the role of country characteristics (e.g. Çürük, 2009; Shalev, 2009). Second, we examine firms from several European Union countries with different institutional environments applying compulsory the same accounting regulations. In contrast, prior literature which consider not only firm-level variables, but also country-level variables, usually analyse different institutional environments within a single country (e.g. Owusu-Ansah and Yeoh, 2005) or different accounting regulations across different countries (e.g. Ali *et al.*, 2004). Third, our results also provide additional insights about the importance of mandatory disclosure compliance for European Union countries. The majority of previous researches have examined mainly African and Asian countries (e.g. Owusu-Ansah, 1998; Akhtaruddin, 2005; Al-Akra *et al.*, 2010), while our study relies on listed firms belonging to several European Union countries.

The remainder of this study is organized as follows. Section 1 reviews the literature on corporate disclosures, in particular the literature concerning compliance with mandatory disclosure requirements. Section 2 develops the theoretical framework of this study. Section 3 describes the research design. Section 4 analyses the research results. Finally, section 5 presents the summary and concluding remarks.

1. LITERATURE REVIEW

Research on corporate disclosure practices and its determinants is an extensive and timely field. Researchers attempt to understand the attitudes of companies towards accounting disclosure and the reasons behind the fact that some companies disclose more information than others (Chavent *et al.*, 2006).

Despite the increment of mandatory disclosure requirements, several companies continue to disclose other types of information beyond those required by accounting standards, laws or stock exchanges listing regulations. The motivations for this behaviour have been the focus of several voluntary disclosure studies (e.g. Chow and Wong-Boren, 1987; Lang and Lundholm, 1993; Depoers, 2000; Eng and Mak, 2003; Chalmers and Godfrey, 2004; Prencipe, 2004; Francis *et al.*, 2005).

The studies concerning mandatory disclosure compliance appear to be in minor number than those related to voluntary disclosure. Actually, if the publication of certain information is compulsory, does not seem reasonable that there are differences among companies applying the same accounting standards disclosure requirements. Nevertheless, a growing body of literature have found discrepancies in firms reports regarding mandatory disclosure compliance (e.g. Chen and Jaggi, 2000; Ali *et al.*, 2004; Shalev, 2009; Çörük, 2009; Ballas and Tzovas, 2010). Our study provides evidence on this issue. There are also a few studies in the field of mandatory disclosure compliance which additionally cover voluntary disclosure (e.g. Cooke, 1993; Inchausti, 1997; Einhorn, 2005).

The mainstream studies on mandatory disclosure compliance are related to compliance with accounting information requirements. However, a few studies assess other types of information, mainly those related to environmental issues (e.g. Frost, 2007; Criado-Jiménez *et al.*, 2008). Our study examines corporate compliance with accounting information disclosure requirements on IFRS 3, *Business Combinations* (2004).

Previous literature on compliance with accounting standards disclosure requirements recognise that accounting practices do not develop in a vacuum but are determined by a set of influences, highlighting, as determinants of the level of compliance, either firm or country characteristics.

The relationship between firm characteristics and its disclosure policies is tested in several previous studies, which implicitly use the theoretical frameworks of the positive accounting, agency, political costs, signalling, proprietary costs, legitimacy and cost of capital theories, to

identify factors able to explain this association. These studies often test the empirical significance of some corporate characteristics, such as size, leverage, profitability, listing status, scope of business, type of external auditor and ownership structure, among others, on mandatory disclosure compliance with accounting standards. The majority of these studies are performed based on data regarding Asian and African companies.

The impact of firm characteristics on the comprehensiveness of mandatory information contained in the 1991 annual reports of 80 companies listed on the Stock Exchange of Hong Kong is tested by Wallace and Naser (1995). These authors create a disclosure index based on the three Hong Kong regulatory sources at the time and find that the level of compliance in these companies range between 55.3% and 87.2% for unranked variables, and that the extent of mandatory disclosure is positively related to size and scope of business and negatively related to profits. Earnings return, liquidity, leverage, outside ownership and the existence of a foreign registered office are not significant explanatory variables in this study.

Mandatory disclosure compliance in Hong Kong is also examined by Chen and Jaggi (2000), whose disclosure index based on the measurement instrument developed by Wallace and Naser (1995) indicates that the highest score of compliance achieved by one of their 87 sample firms is 83.1% and the lowest is 52.8%. Their results suggest a positive association between the proportion of independent non-executive directors on corporate boards and the wholeness of financial disclosures, adding that the inclusion of this type of directors can improve compliance with disclosure requirements. This association is weaker for family controlled firms when compared with non-family firms.

Owusu-Ansah (1998) investigates the impact of some corporate characteristics on the extent of mandatory disclosure and reporting using a sample of 49 Zimbabwe Stock Exchange listed companies in 1994. The mean level of compliance with the three regulatory sources in this country is 74.4% and the results of a regression analysis reveal that size, age, multinational corporation affiliation, profitability and the proportion of outstanding equity shares held by corporate insiders are statistically and positively related to mandatory disclosure and reporting practices. Furthermore, the quality of external audit firm, type of industry and liquidity are statistically insignificant.

Akhtaruddin (2005) analyses the extent of mandatory disclosure in the 1999 annual reports of a sample of 94 listed companies from Bangladesh. The average rate of compliance in this sample companies is 43.5%. The results of this study indicate that the independent variables tested, which are size, profitability, age and status, meaning whether a company is modern or

traditional, are not related to mandatory disclosure, except where size is measured by sales and then becomes slightly significant.

Çürük (2009) examines the annual reports of 61 non-financial Turkish companies and measures their level of compliance with the disclosure requirements of the European Union Fourth Directive in 1986, 1987, 1991, 1992 and 1995, assessing whether corporate characteristics, such as size, listing status and industry type, influences the level of compliance. The results of this study reveal that the level of compliance in Turkish companies varies between 29.6% and 84.9%, and that being a listed company is significantly and positively related to better levels of compliance.

Shalev (2009) examines 1019 business combinations made by the non-financial Standard & Poor's 500 firms and completed between July 2001 and December 2004. He verifies if the acquirers' 10-K reports comply with the disclosure requirements under SFAS 141, *Business Combinations*. This study provides empirical evidence of a positive association between the degree of disclosure compliance on business combinations and the following two measures of acquirers' future performance: change in return on assets ratio; and stock return. Moreover, a negative association is found between business combinations disclosure level and anomalous values of purchase price allocated to goodwill.

Ballas and Tzovas (2010) investigate the level of compliance with IFRS disclosure requirements of 32 listed and non-listed Greek firms and its association with certain firm characteristics. On the whole, firms comply with about two-thirds of the disclosure requirements and compliance is positively and significantly influenced by listing status.

Corporate characteristics are not the only factor explaining mandatory disclosure practices. The contingency theory emphasizes that the culture and the institutional environment of countries in which firms operate are fundamental for determining accounting choices and disclosure practices (e.g. Carpenter and Feroz, 2001). Hence, contingency theory is the root for some empirical studies related to compliance with accounting disclosure requirements among different countries or different institutional environments within a single country.

Street and Gray (2002) examine the 1998 annual reports of a worldwide sample of 279 companies referring to the use of IAS. They report a significant positive association between firm compliance with IAS disclosure requirements and US listing and/or non-regional listing, belonging to the commerce and transportation industry, referring exclusively to the application of IAS, being audited by a renowned audit firm, and being domiciled in China or Switzerland. Furthermore, there is a noteworthy negative connection between firm

compliance with IAS disclosure requirements and being domiciled in France, Germany or other Western European country. This study does not analyse disclosure compliance with IAS on business combinations.

Ali *et al.* (2004) analyse the level of compliance with disclosure requirements mandated by 14 national accounting standards in the three major countries of South Asia, namely India, Pakistan and Bangladesh. They evaluate the corporate attributes which affect the extent of compliance in these regions. The degree of compliance is positively related to company size, profitability and multinational-company status, and unrelated to financial leverage and size of external auditors. Furthermore, the results indicate significant variation in total disclosure compliance levels across countries and different national accounting standards. The disclosure compliance is higher for standards regarding inventories and tangible fixed assets and it is lower for standards on leases. The authors refer that the small level of compliance with accounting requirements on business combinations is a concern and suggest that regulators should take the necessary proceedings to improve this level. Furthermore, this study also indicates that Pakistan has the highest mean level of compliance.

Owusu-Ansah and Yeoh (2005) examine the impact of legislation on corporate mandatory disclosure practices of companies listed on the New Zealand Exchange Limited. The Financial Reporting Act of 1993 conferred legal assistance to financial reporting standards in New Zealand and made non-compliance illegal in this country. Therefore, these authors analyse financial reports for two years before and two years after this institutional change and find that the average levels of corporate disclosure compliance are considerably higher in the periods after the endorsement of legislation than in the former periods, achieving mean levels of compliance around 94% and 87%, respectively. Furthermore, in the years after the enactment of the legislation there are companies totally complying with mandatory disclosure requirements, while 95.9% is the highest level of compliance in the previous periods.

Hasan *et al.* (2008) study the influence of regulatory changes on the quality of compliance with mandatory disclosure requirements in the annual reports of 86 Bangladeshi listed companies, in 1991 and 1998, a less regulated and a more regulated environment, respectively. This analysis indicates a significant improvement in the quality of compliance with mandatory disclosure requirements during the more regulated period. Additionally, it finds that size, the qualification of accounting staff and the type of auditor are significantly and positively related to compliance.

Al-Akra *et al.* (2010) investigate the influence of accounting disclosure regulation, governance reforms and ownership changes, resulting from privatisation, on mandatory disclosure compliance of a sample of 80 non-financial Jordanian companies listed on the Amman Stock Exchange, covering years before and after the regulatory reform period, 1996 and 2004, correspondingly. The mean level of mandatory disclosure compliance with IFRS is considerably higher in 2004 than in 1996, demonstrating that the introduction of governance and disclosure regulation results in superior disclosure levels.

The current study provides several contributions to the literature on compliance with mandatory disclosure requirements. We believe we are among the first to examine simultaneously the importance of firm and country characteristics in explaining the level of compliance with IFRS disclosure requirements by firms applying compulsory these standards. We examine firms from several countries with different institutional environments applying the same accounting principles, as opposed to some previous studies which mainly analyse different institutional contexts within a single country or different accounting rules across different countries. In addition, we scan corporate compliance with IFRS 3 disclosure requirements, which is a subject not much explored in previous researches. Finally, by analysing listed companies from several European Union countries, this study demonstrates that mandatory disclosure compliance is also an important issue for developed countries.

2. HYPHOTESSES DEVELOPMENT

There are several theories that explain disclosure practices by companies: agency and political costs theories, signalling theory, legitimacy and institutional theories, proprietary costs theory, and contingency theory (Lopes and Rodrigues, 2007). Based on these theoretical considerations and on previous empirical research regarding disclosure practices, including both mandatory disclosure compliance and voluntary disclosure, we develop a set of hypotheses that relate both firm and country characteristics to compliance with mandatory disclosure requirements.

2.1. FIRM CHARACTERISTICS

2.1.1. LEVERAGE

Based on the agency theory developed by Jensen and Meckling (1976), some authors argue that firms with higher leverage are liable to disclose more information in order to reduce its asymmetries and the agency costs of debt, among owners, managers and creditors. Creditors are concerned about potential capital transfers from companies to shareholders, while managers are willing to favour the interests of shareholders in disadvantage of creditors.

Cost of capital theory also argues that managers are encouraged to disclose further information in order to reduce the information asymmetry problem and, consequently, to decrease the cost of capital. This relationship between disclosure and the cost of capital theory is developed by Diamond and Verrecchia (1991).

Following these approaches, some prior studies on mandatory disclosure compliance (e.g. Wallace and Naser, 1995; Ali *et al.*, 2004) and on voluntary disclosure (e.g. Lopes and Rodrigues, 2007) hypothesize that higher levels of disclosure can be used to reduce the agency costs and information asymmetries, alleviating concerns related to firm financial position (Ferguson *et al.*, 2002). Actually, a higher debt level involves the commitment to satisfy the needs of long-term creditors for information and may therefore be an incentive for firms to provide more information in their annual reports. In addition, Francis *et al.* (2005) refer that firms more dependent on external financing are liable to achieve higher levels of disclosure, because they believe that will lead to a lower cost of external financing. Ahmed

and Courtis (1999), in their meta-analysis of 29 studies, also highlight a positive connection between disclosure levels and leverage.

Therefore, in our study we hypothesize a positive association between leverage and the level of compliance with mandatory disclosure requirements.

2.1.2. PROFITABILITY

Profitability ratios measure the quality of corporate investments. Therefore, the higher the profitability ratio, the more firms are willing to disclose information on their investments. This tendency is supported by the agency, signalling and political costs theories (Inchausti, 1997).

Agency theory suggests that managers may use external information in order to achieve personal advantages. Signalling theory involves the idea that owners wish to provide favourable information to the market in order to raise the value of their shares. Political costs theory argues that firms want to minimize information asymmetries and political pressures, with the intention of justifying the level of their profits (Inchausti, 1997).

Some previous studies in the fields of mandatory disclosure compliance (e.g. Owusu-Ansah, 1998; Ali *et al.*, 2004) and voluntary disclosure (e.g. Watson *et al.*, 2002) already hypothesize a significant positive association between profitability ratios and disclosure accuracy. However, mixed results can be found among those studies, because some report lack of significance for this variable. Owusu-Ansah (1998) and Ali *et al.* (2004) find a positive association between mandatory disclosure compliance and profitability, while Akhtaruddin (2005) reports no effect. Lemos *et al.* (2009) suggest that there is no association between voluntary disclosure and profitability, while Watson *et al.* (2002) find evidence only for some of the years under investigation. The willingness of firms to disclose favourable information to the market is also visible in Shalev (2009). Shalev's (2009) study suggests that better levels of disclosure are positively related to acquirers' future performance as measured by the change in return on assets ratio.

Therefore, we expect a positive association between profitability and the level of compliance with mandatory disclosure requirements.

2.1.3. OWNERSHIP STRUCTURE

A broader ownership structure in a company is frequently associated with better levels of compliance with disclosure requirements (Owusu-Ansah, 1998). Agency theory supports this consideration in modern companies characterized by a separation between ownership and control. According to this conjecture, agency costs may arise from contradictory interests between managers and owners, who demand more adequate information for monitoring their investments (Jensen and Meckling, 1976).

Some previous voluntary disclosure studies report a positive association between the level of corporate disclosure and wider firm ownership structures, non-family controlled and with a majority of unrelated directors on board composition (e.g. Ho and Wong, 2001; Chau and Gray, 2002; Bujaki and McConomy, 2002; Prencipe, 2004).

In the field of mandatory disclosure studies the results are less consensual. Wallace and Naser (1995) find no support for a relationship between ownership structure and disclosure compliance. Owusu-Ansah (1998) concludes that companies with higher proportion of equity shares held by insiders are associated with better levels of disclosure compliance, despite the author's initial assumption of a negative association between those variables. Chen and Jaggi (2000) suggest a positive association between the proportion of independent non-executive directors on corporate boards, particularly for non-family controlled firms, and the accuracy of financial disclosures.

Considering the theoretical framework, we expect to find a negative association between ownership concentration and the level of compliance with mandatory disclosure requirements.

2.1.4. SIZE

Corporate size is regularly considered significantly and positively related to disclosure levels in previous mandatory (e.g. Ali *et al.*, 2004) and voluntary (e.g. Depoers, 2000) disclosure studies. Different theoretical justifications for this association can be found.

Proprietary costs theory developed by Verrecchia (1983) and Dye (1985) supports the idea that managers quantify the costs and benefits of disclosing information, and do not disclose when costs prevail over benefits. Managers of larger firms are likely to sense that the cost of supplying non-proprietary information to the public is minimal, when compared with smaller firms' managers. In fact, the cost of generate, assemble and disseminate detailed information

is believed to be relatively higher for smaller firms than for larger ones (Singhvi and Desai, 1971; Buzby, 1975; Stanga, 1976), because generally the latter already collects this information for internal purposes and also because it is supposed to have better resources, such as developed information systems, that facilitate this assignment. These authors also suggest that smaller companies have a tendency to withhold information which they consider could endanger their competitive position.

Moreover, since the raise of funds in the securities market is regularly associated with larger firms, those firms' managers may well realize the benefits of better disclosure, in terms of easier marketability and financing, as a result of reduced uncertainty (Singhvi and Desai, 1971). This relationship between disclosure and the cost of capital is recognised by the cost of capital theory (Diamond and Verrecchia, 1991).

Watts and Zimmerman (1990), with reference to the positive accounting theory, suggest that larger firms rather than smaller firms are subject to higher political visibility and to further political costs. Thus, they are predisposed to disclose more information in order to improve confidence and reduce those costs.

Consistent with previous studies, we expect to find a positive association between firm size and the level of compliance with mandatory disclosure requirements.

2.1.5. INTERNATIONAL LISTING STATUS

Companies listed on foreign stock exchanges are expected to have greater levels of compliance with disclosure requirements, because they need their accounts to be understood by those markets and potential investors.

The theoretical arguments that support the above mentioned are similar to those for the hypotheses related to leverage and size, and derive from the signalling, cost of capital and agency costs theories, since better levels of compliance are interpreted as a good signal by the markets, can lessen the cost of capital and reduce shareholders' monitoring costs.

Street and Gray (2002) provide empirical evidence for a positive relationship between compliance with IAS disclosure requirements and non-regional listing status. El-Gazzar *et al.* (1999) also report a positive association between foreign listing status and IAS compliance. A positive relationship between multiple listing status and the levels of voluntary disclosure is empirically demonstrated by many authors (e.g. Cooke, 1989; Hossain *et al.*, 1995; Lopes and Rodrigues, 2007).

Therefore, we expect firms listed on foreign stock exchanges to have a higher level of compliance with mandatory disclosure requirements.

2.1.6. EARLY IAS/ IFRS ADOPTION

In 2002, the European Union Parliament approved a regulation that required all listed European Union companies to prepare their consolidated financial statements in accordance with IAS/ IFRS for years beginning on or after January 1, 2005. Member States could also extend this obligation to individual financial statements and to non-listed companies. Before this instruction and for several reasons, some companies already applied these standards voluntarily.

Daske *et al.* (2008) examine the economic consequences of mandatory IAS/ IFRS reporting around the world. They report positive capital market effects, which are most pronounced for firms that voluntarily switch to IAS/ IFRS, when compared with firms applying these accounting standards for the first time in the year of mandatory adoption.

Firms that use IAS/ IFRS only since the mandatory adoption are effectively forced to adopt these accounting standards and thus are expected to react leisurely to this requirement. Jermakowicz and Gornik-Tomaszewski (2006) refer that a majority of companies converging to IAS/ IFRS by the 2005 deadline would not adopt these standards if not required by the European Union regulation. Early adopter firms are more likely to make significant changes to their reporting practices. Indeed, some of them may perhaps adopt IAS/ IFRS as part of a wider strategy to increase their commitment to transparency and reduce information asymmetries.

Consequently, we expect early adopter firms to have higher levels of compliance with mandatory disclosure requirements.

2.2. COUNTRY CHARACTERISTICS

The conceptual framework developed in this section relies on the contingency theory. This theory rises in the management literature in the late 1960s and 1970s. The contingency theory provides an alternative model of organizational performance, which supports the idea that appropriate managerial decisions and actions depend on the distinctive characteristics of each

situation (Bartol *et al.*, 1995). The roots of contingency theory belong to the management and organizational contexts. Nevertheless, its introduction in the fields of management accounting and financial accounting followed rapidly, being the works developed by Hayes (1977) and Thomas (1986), respectively, among the first studies pursuing these approaches. The contingency theory is particularly important for accounting studies that cover several countries because it goes beyond firm characteristics and takes into consideration the impact of these countries cultural and institutional environments on accounting practices (Lopes and Rodrigues, 2007).

The accounting literature provides empirical evidence that a country institutional environment influences the quality of accounting information, being quality interpreted as less earnings management (e.g. Ball *et al.*, 2000; Leuz *et al.*, 2003; Francis *et al.*, 2005; Gaio, 2010), higher value relevance (e.g. Ali and Hwang, 2000; Arce and Mora, 2002) or higher levels of information disclosed (e.g. Adhikari and Tondkar, 1992; Archambault and Archambault, 2003). Apart from the accounting standards, the legal and political systems as well as the financial reporting incentives, all affect accounting quality. Thus, differences in accounting quality among European Union countries are likely to remain despite IAS/ IFRS compulsory adoption because accounting quality is strongly influenced by the institutional settings of the country in which the firm is domiciled (Soderstrom and Sun, 2007).

Regarding institutional settings, La Porta *et al.* (1998) classify the countries based on the origin of their commercial laws, which is historically predetermined. In general, commercial laws derive from common-law tradition, which is English in origin, and civil-law tradition, which draws from Roman law. The civil-law tradition incorporates three major groups, which are the French, German and Scandinavian civil-law systems. Laws vary a lot across countries, part because of differences in legal origin.

The common-law legal system is mainly characterized by the separation between the executive and the judicial systems. Laws are developed by judges, through decisions of courts and similar tribunals, rather than through legislative statutes. Conversely, in the civil-law legal system, laws are written into a collection, codified, and not determined by judges. Those laws are fundamentally developed according to the priorities of governments (Soderstrom and Sun, 2007).

This traditional classification of countries is also highly correlated with investor protection and the quality of enforcement rules concerning investor rights (La Porta *et al.*, 1998). According to La Porta *et al.* (1998), investor protection is stronger in common-law countries

(e.g. the United Kingdom; the United States; Australia) than in civil-law countries (e.g. France; Germany). They also find that the quality of enforcement rules is high in Scandinavian- and German-civil-law countries, followed by common-law countries, and low in French-civil-law countries.

Legal systems have also been influencing accounting standards setting in countries through the years. In common-law countries accounting standards are traditionally set by private organizations and their main objective is to satisfy investor requirements for information. On the contrary, in civil-law countries accounting standards are a constituent of the commercial law and historically subject to political influences, turning accounting into a measure to split profits among tax authorities, shareholders, banks and labour unions (Soderstrom and Sun, 2007). Jermakowicz and Gornik-Tomaszewski (2006) add that many Continental European Union listed companies maintain two accounting systems, the international and the national, because the latter is used for purposes of taxation, profit distribution, and financial services control.

Similarly, Arce and Mora (2002) refer that civil-law legal system is characterized by a creditor-oriented capital structure, mainly reliant on banking, strongly influenced by tax authorities and by the presence of governmental rather than professional regulatory bodies on accounting standard setting. In contrast, common-law legal system is considered to have an investor-oriented legislation, where accounting standards are issued independently from tax authorities and intimately observed by professional regulatory bodies.

Furthermore, Soderstrom and Sun (2007) underline the fact that IASB lacks enforcement power and emphasize the importance of each country legal system in assuring accounting quality following the compulsory adoption of IAS/ IFRS among European Union countries.

Considering the role of legal systems in influencing accounting practices, we expect that firms located in common-law countries have the strongest, and firms located in French-civil-law countries the weakest, level of disclosure compliance, with firms located in Scandinavian- and German-civil-law countries placed in the middle. We can also expect the role of firm characteristics to differ across different country environments.

3. RESEARCH DESIGN

3.1. SAMPLE AND DATA

Our analysis relies on European Union listed firms belonging to the STOXX Europe 600 Index at the end of 2009. This index derives from the STOXX Europe Total Market Index. It includes the highest financial and non-financial companies ranked by free float market capitalization across seventeen European countries, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Since Switzerland and Norway are not European Union countries, companies domiciled in these countries are excluded and, thus, our sample reduces to 539 companies.

The consolidated financial statements for the reporting period ending in 2008, of the 539 companies mentioned above, are downloaded from their websites. Under IFRS, the Notes to the financial statements do not have a pre-defined order. Consequently, we use a keyword search for the words “Acquisition” or “Business Combination” in order to find information on business combinations. To guarantee comprehensiveness of data collection, we examine the titles of the Notes in the annual reports to cover the possibility of a different title for this subject. After excluding financial statements prepared under US-GAAP and business combinations considered by the companies as immaterial, both individually and in aggregate, information on material business combinations is found in the Notes for 350 companies. Data concerning firm characteristics are collected from the Thomson Worldscope Database. After excluding firms that lacked sufficient data, 328 valid observations remained. To ensure that the regression results are not unduly sensitive to outliers, we exclude observations with studentized residuals absolute value greater than two. Thus, the final sample is composed of 302 companies. Appendix 1 contains a list of the sample companies and respective countries of domicile and economic sectors according to STOXX Europe 600 Index.

3.2. VARIABLES MEASUREMENT

In order to test the hypotheses described in Section 3, one dependent variable and some independent variables are identified and computed. The dependent variable is a disclosure index that scores the level of corporate compliance with disclosure requirements on IFRS 3,

Business Combinations (2004), and the independent variables are potential determinants of the level of compliance, which assemble firm and country characteristics.

3.2.1. DEPENDENT VARIABLE

IFRS 3, *Business Combinations* (2004), specifies the reporting rules for business combinations. It requires business combinations to be accounted for using the purchase method of accounting. At acquisition date, the acquirer must allocate the cost of the business combination by recognising, at fair value, the identifiable assets, liabilities and contingent liabilities of the acquired entity. Any proportion of the identifiable assets, liabilities and contingent liabilities of the acquired entity attributable to minority interests is also recognised at fair value. Any difference between the cost of acquisition and the acquirer's share of the identifiable assets, liabilities and contingent liabilities of the acquired entity is treated as an asset (goodwill) or, if negative, is recognised as a gain in the income statement (negative goodwill).

Furthermore, IFRS 3 requires the acquirer to disclose information that enables users of financial statements to evaluate the nature and financial effect of a business combination that occurs during the current reporting period or after the end of the reporting period but before the firm financial statements are authorized for issue. To measure the level of corporate compliance with disclosure requirements on business combinations, we construct a disclosure index, based on paragraphs 67 and 68 of IFRS 3. The index comprises the thirteen items presented in Table 1.

For each material business combination, a company must disclose the name and a description of the combined entity or business. For the description we verify if the company discloses at least the industry and the geographical location of the acquired entity. It must also disclose the date of the business combination, at least the month and the year of the operation, as well as the percentage of voting equity interests acquired. Moreover, it is required to disclose the price paid for the acquired entity, its fair and book values, plus a description of both in terms of assets, liabilities and contingent liabilities recognised. Furthermore, it should disclose if any goodwill or negative goodwill arose from the business combination and a description of the factors that support its recognition. The results of the combined entity since the acquisition date included in the consolidated income statement of the acquirer must also be disclosed. Finally, we analyse if a company discloses this information individually for each

material business combination or in aggregate. Nonetheless, for business combinations explicitly considered by companies as individually immaterial, the aggregate disclosure of information is considered correct and is totally scored.

TABLE 1 - Dependent Variable: Index of compliance with IFRS 3 disclosure requirements

Items	Description	Score
1. Name of the combined entity/ business	Name of the entity or business acquired.	(0;0.5;1)
2. Description of the combined entity/ business	Description of the acquired entity or business – at least the industry and the geographical location.	(0;0.5;1)
3. Acquisition date	The date of acquisition – at least the month and the year.	(0;0.5;1)
4. Percentage acquired	The percentage of voting equity interests acquired.	(0;0.5;1)
5. Cost of the business combination	The price paid for the acquired entity.	(0;0.5;1)
6. Fair values	The fair values of the acquired assets and liabilities.	(0;0.5;1)
7. Description of fair values	Decomposition by class of assets and liabilities.	(0;0.5;1)
8. Book values	The book values of the acquired assets and liabilities.	(0;0.5;1)
9. Description of book values	Decomposition by class of assets and liabilities.	(0;0.5;1)
10. Goodwill (negative goodwill)	The difference between the cost of the business combination and the fair value of the acquired entity, recognised as an asset (goodwill) or as a gain in the income statement (negative goodwill).	(0;0.5;1)
11. Description of goodwill (negative goodwill)	Description of the factors that comprise the goodwill (or negative goodwill) recognition.	(0;0.5;1)
12. Results of the acquired entity	The results of the acquired entity since the acquisition date included in the consolidated income statement of the acquirer for the reporting period.	(0;0.5;1)
13. Information individually or in aggregate	The information must be individually disclosed for each material business combination.	(0;0.5;1)

While examining the Notes to the firms consolidated financial statements, we verify that those items are in some cases totally or partially disclosed, while in other cases they are not disclosed. Thus they are scored as follows: 1 if the item is totally disclosed; 0,5 if the item is partially disclosed; and 0 if the item is not disclosed. We assume that each disclosure item is equally important, therefore, the total score is calculated as the unweighted sum of the score given to each item. In scoring for each item, the applicability of the item to each company is considered. Non-applicable situations are rare. For example, if a company reports that there is not any goodwill or negative goodwill arising from a business combination, then the item

regarding an explanation of the factors that comprise the goodwill or the negative goodwill recognition, are not applicable to that firm. Accordingly, a company is not penalized when an item is not relevant to the business combination reported.

The disclosure index for each company is calculated as follows:

$$INDEX = \left[\sum_{i=1}^n d_i \right] / n \quad (1)$$

Where,

INDEX = disclosure index;

d_i = index item i , which assumes 1 if the information (item) is totally disclosed, 0,5 if it is only partially disclosed and 0 otherwise;

n = is the number of items applicable to that company.

Therefore, the INDEX is a ratio of the actual scores awarded to a company to the scores which that company is expected to earn. It represents the total details given by a firm on the set of disclosure items as a percentage of the total details that each firm should disclose.

If the value of the INDEX approaches to 1 the level of disclosure compliance is high, which means that the company provides more information. A score equal to 1 means full compliance.

3.2.2. INDEPENDENT VARIABLES

To analyze the determinants of compliance with disclosure requirements on business combinations, a set of variables regarding firm and country characteristics are identified and computed. Table 2 provides details concerning those variables.

The country-level variables are all binary variables. COMMON assumes 1 if the company is domiciled in a common-law country and 0 otherwise. FRENCH assumes 1 if the company is domiciled in a French-civil-law country and 0 otherwise. SCAN_GER assumes 1 if the company is domiciled in a Scandinavian– or German-civil-law country and 0 otherwise.

The firm-level variables comprise either continuous or binary variables. The continuous firm-level variables are LEVERAGE, ROA, OWNERSHIP and SIZE. The binary firm-level variables are XLIST and EARLY. LEVERAGE is the firm total debt divided by its total

market capitalization, ROA is the company return on assets ratio and measures its profitability, OWNERSHIP is the percentage of closely held shares and SIZE is the natural logarithm of the firm market capitalization. The XLIST variable assumes 1 if the firm is listed on a foreign stock exchange and 0 otherwise. The EARLY variable assumes the values 1 or 0, if the firm applied IAS/ IFRS before the mandatory adoption in 2005 or not, respectively.

TABLE 2 - Independent variables definition and measurement

Panel A: Country-level variables

Variable name	Variable label	Variable measurement
COMMON	Common-law country	Coded as 1 if the firm is located in a common-law country and 0 otherwise.
FRENCH	French-civil-law country	Coded as 1 if the firm is located in a French-civil-law country and 0 otherwise.
SCAN_GER	Scandinavian– and German–civil-law country	Coded as 1 if the firm is located in a Scandinavian– and German–civil-law country and 0 otherwise.

Panel B: Firm-level variables

Variable name	Variable label	Variable measurement
LEVERAGE	Leverage ratio	Firm total debt divided by market capitalization.
ROA	Profitability ratio	Firm return on assets.
OWNERSHIP	Ownership structure	Percentage of closely held shares as reported by the Thomson Worldscope Database.
SIZE	Firm size	Natural logarithm of the firm market capitalization.
XLIST	International listing status	Coded as 1 if the firm is listed on a foreign stock exchange and 0 otherwise.
EARLY	IAS/ IFRS early adopter firm	Coded as 1 if the firm applied IAS/ IFRS before the mandatory adoption in 2005 and 0 otherwise.

3.2.3. RESEARCH METHOD

Our study aims to investigate the role of firm and country characteristics in determining the level of compliance with IFRS 3 disclosure requirements. Firstly, we present descriptive statistics for the entire sample and data analysis by country. Secondly, we estimate several OLS regression models. The equations of the two main regressions are:

$$INDEX_j = \alpha_0 + \alpha_1 COMMON_j + \alpha_2 LEVERAGE_j + \alpha_3 ROA_j + \alpha_4 OWNERSHIP_j + \alpha_5 SIZE_j + \alpha_6 XLIST_j + \alpha_7 EARLY_j + \epsilon_j \quad (2)$$

$$INDEX_j = \alpha_0 + \alpha_1 COMMON_j + \alpha_2 FRENCH_j + \alpha_3 LEVERAGE_j + \alpha_4 ROA_j + \alpha_5 OWNERSHIP_j + \alpha_6 SIZE_j + \alpha_7 XLIST_j + \alpha_8 EARLY_j + \epsilon_j \quad (3)$$

In Equations (2) and (3), we combine firm-level and country-level determinants of the degree of compliance with IFRS 3 disclosure requirements in order to assess whether firm-level characteristics and country-level characteristics both develop a significant role in explaining compliance with mandatory disclosure requirements. The difference between these two equations relies on the fact that Equation (2) only considers two groups of countries based on their legal origin, the common-law and civil-law countries, while in Equation (3) the civil-law countries are split into two sub-groups, the French-civil-law countries and the Scandinavian– and German-civil-law countries.

Appendixes 2 and 3 present evidence of the abovementioned equations compliance with the multiple linear regression model assumptions.

4. RESULTS

4.1. DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 3 presents the descriptive statistics for the variables included in the regressions. The level of compliance with IFRS 3 disclosure requirements (INDEX) is high with a mean of 84.5%. Firm compliance range from a score of 38% to 100%, meaning that there are firms with lower levels of compliance with IFRS 3 disclosures requirements and others full complying.

According to the data presented in Panel B, the items with lower levels of compliance are those related to the description of the combined entities or businesses, the presentation and description of the book values right before the acquisition date and the description of the factors underlying the recognition of goodwill or negative goodwill. This information is essential for knowing the investments undertaken by the acquirer and for understanding the difference between the acquisition cost and the pre-acquisition book values of the acquired firms assets and liabilities, namely the write-up of the acquired firms assets and liabilities to fair value and the amount assigned to goodwill. In addition, these figures are very important for investors in order to comprehend the impact of the business combination on the current and future performance of the acquirer. Henning *et al.* (2000) provide empirical evidence on the value relevance of this kind of information.

The descriptive statistics related to the independent variables are presented in Panel A. The mean values for the variables LEVERAGE and ROA are, respectively, 27.8% and 6.4%. The percentage of closely held shares in each firm (OWNERSHIP) range from 0% to 88%, but the mean and the median are both around 20%. Firms listed on a foreign stock exchange (XLIST) and firms applying IFRS before the mandatory adoption in 2005 (EARLY) comprise, respectively, 28% and 16% of the sample. The variable SIZE is very similar among the sample companies, since its mean, median, maximum and minimum values are quite identical.

Table 4 reports data analysis by country. Panel A presents the mean of each variable by country and Panel B presents the results of parametric independent samples t-tests regarding the differences in those means. There is a large cross-country variation on the level of compliance with IFRS 3 disclosure requirements (INDEX). The level of compliance is significantly higher in common-law countries when compared with civil-law countries.

TABLE 3 - Descriptive statistics

Panel A: General information on the dependent variable and on all the firm-level variables (n = 302)

	Mean	SD	Median	Min	Max
INDEX	0.845	0.147	0.880	0.380	1.000
LEVERAGE	0.278	0.165	0.283	0.000	0.883
ROA	0.064	0.077	0.060	-0.544	0.349
OWNERSHIP	0.239	0.219	0.173	0.000	0.880
SIZE	15.163	1.195	14.914	12.099	18.420
XLIST ^a	0.280	0.449	0.000	0.000	1.000
EARLY ^a	0.160	0.369	0.000	0.000	1.000

Panel B: Detailed information on the dependent variable (n = 302)

	Mean	SD
1. Name of the combined entity/ business	0.985	0.118
2. Description of the combined entity/ business	0.719	0.360
3. Acquisition date	0.937	0.236
4. Percentage acquired	0.822	0.370
5. Cost of the business combination	0.978	0.142
6. Fair values	0.942	0.221
7. Description of fair values	0.901	0.291
8. Book values	0.772	0.415
9. Description of book values	0.762	0.421
10. Goodwill (negative goodwill)	0.985	0.103
11. Description of goodwill (negative goodwill)	0.602	0.481
12. Results of the acquired entity	0.803	0.395
13. Information individually or in aggregate	0.785	0.412
INDEX	0.845	0.147

INDEX is the aggregate of a firm compliance with IFRS 3 disclosure requirements; *LEVERAGE* is a firm total debt at year-end divided by its market capitalization at year-end; *ROA* is a firm return on assets ratio; *OWNERSHIP* is the percentage of closely held shares as reported by the Thomson Worldscope Database; *SIZE* is the natural logarithm of a firm market capitalization at the end of the year; *XLIST* is an indicator that equals 1 if the firm is listed on a foreign stock exchange and 0 otherwise; *EARLY* is an indicator that equals 1 if the firm applied IAS/IFRS before the mandatory adoption in 2005 and 0 otherwise.

^a The mean values for these variables represent the percentage of firms listed on a foreign stock exchange (*XLIST*) and firms applying IAS/IFRS before the mandatory adoption in 2005 (*EARLY*).

Differences are also found across civil-law countries. The *INDEX* is significantly higher in Scandinavian-civil-law countries, as well as in German-civil-law countries, when compared

with French-civil-law countries. Therefore, the univariate analysis provides preliminary evidence supporting the hypothesis that country characteristics develop a significant role in explaining the level of compliance with mandatory disclosure requirements.

A more detailed analysis shows that the mean of the INDEX in the Netherlands is statistically higher when compared with the mean of all the other countries in the same group (84.1% *versus* 76.4%). It is also not statistically different in comparison with the mean of the Scandinavian and German legal origin countries (84.1% *versus* 85.6%). The Netherlands is thus a country relatively similar to the Scandinavian- and German-civil-law countries, as opposed to the other French-civil-law countries, considering compliance with mandatory disclosure requirements. A possible explanation for this finding is that, in contrast to the other countries in the French-civil-law group, the Netherlands have superior laws facilitating private enforcement through liability standards facing firms when investors seek to recover losses due to the lack of material information (La Porta *et al.*, 2006).¹ La Porta *et al.* (2006) provide strong evidence that legislation facilitating private enforcement through liability rules is a key issue for stock market development. Some previous studies did actually exclude the Netherlands from the group of civil-law countries (e.g. Arce and Mora, 2002).

Finally, the results for the control variables are consistent with the literature. The level of ownership concentration (OWNERSHIP) is significantly higher in civil-law countries when compared with common-law countries. Furthermore, the number of firms applying IFRS before the mandatory adoption in 2005 is significantly higher in Scandinavian-civil-law countries and German-civil-law countries, when compared with the other groups of countries. The variables LEVERAGE and ROA are not statistically different across the groups of countries analysed.

Table 5 presents correlations between variables. The level of compliance with IFRS 3 disclosure requirements (INDEX) is positively correlated with LEVERAGE, ROA and XLIST and negatively correlated with OWNERSHIP.

Hence, Table 5 shows that leveraged firms, profitable firms and firms listed on foreign stock exchanges are more likely to disclose according to mandatory disclosure requirements.

¹ La Porta *et al.* (2006) create an index to measure the liability standard of each country. The greater the level of the liability standard index, the less is the bureaucratic difficulties in recuperating losses by investors in a particular country. The La Porta *et al.* (2006) measure for the liability standard in the Netherlands is 0.89, which is significantly higher when compared with 0.47, the mean of all the countries analysed by La Porta *et al.* (2006), or even when compared with the other French legal origin countries (e.g. France = 0.22; Belgium = 0.44).

TABLE 4 - Data analysis by country
Panel A: Means by country

	n	INDEX	LEVERAGE	ROA	OWNERSHIP	SIZE	XLIST^a	EARLY^a
<i>Common-law</i>								
United Kingdom	99	0.909	0.257	0.070	0.129	14.844	0.192	0.040
Ireland	3	0.937	0.316	0.078	0.144	14.903	0.667	0.000
Mean	102	0.910	0.259	0.071	0.129	14.846	0.206	0.039
<i>Scandinavian-civil-law</i>								
Denmark	9	0.878	0.332	0.063	0.288	14.687	0.111	0.111
Finland	15	0.859	0.256	0.083	0.240	14.705	0.133	0.200
Sweden	22	0.852	0.315	0.072	0.210	14.993	0.182	0.091
Mean	46	0.859	0.299	0.074	0.235	14.839	0.152	0.130
<i>German-civil-law</i>								
Austria	9	0.770	0.235	0.045	0.444	14.857	0.111	0.444
Germany	32	0.875	0.263	0.059	0.303	15.560	0.656	0.781
Mean	41	0.852	0.257	0.056	0.334	15.406	0.537	0.707
<i>French-civil-law</i>								
Belgium	9	0.780	0.294	0.053	0.401	15.353	0.222	0.556
France	45	0.741	0.234	0.059	0.322	15.805	0.244	0.022
Greece	6	0.757	0.354	0.036	0.308	14.647	0.167	0.167
Italy	17	0.822	0.382	0.036	0.269	15.550	0.294	0.000
Netherlands	19	0.841	0.271	0.060	0.197	15.032	0.474	0.053
Portugal	5	0.694	0.449	0.059	0.506	14.876	0.400	0.200
Spain	12	0.791	0.337	0.082	0.308	15.765	0.333	0.083
Mean	113	0.777	0.294	0.056	0.305	15.494	0.301	0.088
Mean of all countries	302	0.845	0.278	0.064	0.239	15.163	0.278	0.162

Panel B: Tests of Means (t-statistics)

	INDEX	LEVERAGE	ROA	OWNERSHIP	SIZE	XLIST^a	EARLY^a
Common vs Civil	6.892***	-1.425	1.122	-7.133***	-3.355***	-2.099**	-5.256***
Common vs Scand+German	3.176***	-0.837	0.436	-5.320***	-1.484	-1.966*	-6.450***
Common vs French	7.374***	-1.527	1.446	-6.466***	-4.036***	-1.607	-1.490
Scand+German vs French	3.569***	-0.641	0.866	-0.768	-2.427**	0.488	5.292***

INDEX is the aggregate of a firm compliance with IFRS 3 disclosure requirements; *LEVERAGE* is a firm total debt at year-end divided by its market capitalization at year-end; *ROA* is a firm return on assets ratio; *OWNERSHIP* is the percentage of closely held shares as reported by the Thomson Worldscope Database; *SIZE* is the natural logarithm of a firm market capitalization at the end of the year; *XLIST* is an indicator that equals 1 if the firm is listed on a foreign stock exchange and 0 otherwise; *EARLY* is an indicator that equals 1 if the firm applied IAS/IFRS before the mandatory adoption in 2005 and 0 otherwise. Country data is according to STOXX Europe 600 Index at 2009 year-end.

^a The mean values for these variables represent the percentage of firms listed on a foreign stock exchange (*XLIST*) and firms applying IAS/IFRS before the mandatory adoption in 2005 (*EARLY*).

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively.

In contrast, firms with higher levels of ownership concentration are less likely to comply with mandatory disclosure requirements. The independent variables included in the regressions are not highly correlated with each other. The exceptions are for firms listed on foreign stock exchanges, which are more likely to be larger as well as early adopters, and for firms with higher levels of ownership concentration which are also more likely to be early adopters.

TABLE 5 - Correlation matrix

	INDEX	LEVERAGE	ROA	OWNERSHIP	SIZE	XLIST
INDEX	1	-	-	-	-	-
LEVERAGE	0.113**	1	-	-	-	-
ROA	0.185***	-0.100**	1	-	-	-
OWNERSHIP	-0.133**	0.045	0.018	1	-	-
SIZE	-0.034	0.019	0.008	0.064	1	-
XLIST	0.113**	-0.016	-0.034	0.067	0.223***	1
EARLY	0.069	-0.035	0.019	0.221***	0.027	0.188***

INDEX is the aggregate of a firm compliance with IFRS 3 disclosure requirements; *LEVERAGE* is a firm total debt at year-end divided by its market capitalization at year-end; *ROA* is a firm return on assets ratio; *OWNERSHIP* is the percentage of closely held shares as reported by the Thomson Worldscope Database; *SIZE* is the natural logarithm of a firm market capitalization at the end of the year; *XLIST* is an indicator that equals 1 if the firm is listed on a foreign stock exchange and 0 otherwise; *EARLY* is an indicator that equals 1 if the firm applied IAS/IFRS before the mandatory adoption in 2005 and 0 otherwise.

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively (n = 302).

4.2. REGRESSION RESULTS

Table 6 presents regression summary statistics resulting from the OLS estimation of Equations (2) and (3). We use different specifications of these two equations to test the role of firm and country characteristics in explaining the level of compliance with IFRS 3 disclosure requirements. Thus, Column 1 in Table 6 includes only the firm-level characteristics. The majority of the firm-level variables coefficients are statistically significant. As expected, leverage, profitability and international listing are positively related and ownership concentration is negatively related, to the level of compliance with IFRS 3 disclosure requirements. *SIZE* and *EARLY* do not show significance.

In Columns 2 and 3 of Table 6 we regress the level of compliance with IFRS 3 disclosure requirements on country-level characteristics, considering respectively the partition of countries in two groups (common-law *versus* civil-law) and in three groups (common-law *versus* Scandinavian- and German-civil-law *versus* French-civil-law). All the country-level variables coefficients are statistically significant. As expected, firms located in civil-law countries have on average a lower level of compliance with IFRS 3 disclosure requirements, when compared with firms located in common-law countries. Further, firms located in a common-law country have the strongest, and firms located in a French-civil-law country the weakest, level of compliance with IFRS 3 disclosure requirements, with firms located in a Scandinavian- and German-civil-law country placed in the middle. The country-level variables have higher explanatory power considering the partition in three groups (14.3%), when compared with the partition in two groups (9.9%). Our results are consistent with those of Jaggi and Low (2000), who examine the impact of legal systems on mandatory and voluntary financial disclosures by firms from six countries, concluding that firms from common-law countries are related to higher levels of financial disclosures in comparison with firms from civil-law countries.

In Columns 4 and 5 of Table 6 we combine firm-level and country-level determinants of the level of compliance with IFRS 3 disclosure requirements in order to assess whether firm-level characteristics and country-level characteristics both develop a significant role in explaining compliance with mandatory disclosure requirements. The regression results presented in Column 5 of Table 6, with the highest explanatory power (20.6%), show that only three firm-level characteristics explain the level of compliance with IFRS 3 above and beyond the country environment, namely leverage (LEVERAGE), profitability (ROA) and international listing (XLIST). The partition of the adjusted R^2 show that both firm-level and country-level characteristics have substantial incremental explanatory power. However, the country-level variables are playing a more important role in explaining the level of compliance (incremental adjusted $R^2 = 12.5\%$) than the firm-level variables (incremental adjusted $R^2 = 6.3\%$).

These results are quite different from those of Gaio (2010). Gaio's (2010) study suggests that firm characteristics are the major determinant of earnings quality around the world, with strong incremental explanatory power beyond the power of a country overall environment.

TABLE 6 - Role of firm and country characteristics - Regressions Results

	Exp. Sign	C1	C2	C3	C4	C5
Intercept		0.902*** (8.510)	0.811*** (82.119)	0.856*** (58.575)	0.738*** (7.096)	0.733*** (7.169)
Country-level variables:						
COMMON	+		0.099*** (5.823)	0.055*** (2.743)	0.108*** (5.996)	0.069*** (3.218)
FRENCH	-			-0.079*** (-4.047)		-0.068*** (-3.340)
Firm-level variables:						
LEVERAGE	+	0.132*** (2.652)			0.152*** (3.224)	0.154*** (3.314)
ROA	+	0.396*** (3.708)			0.351*** (3.466)	0.337*** (3.378)
OWNERSHIP	-	-0.113*** (-2.942)			-0.040 (-1.053)	-0.026 (-0.694)
SIZE	+	-0.007 (-1.037)			0.000 (-0.063)	0.003 (0.385)
XLIST	+	0.043** (2.261)			0.046** (2.563)	0.046*** (2.612)
EARLY	+	0.034 (1.461)			0.056** (2.557)	0.028 (1.225)
Adjusted R²		0.081	0.099	0.143	0.179	0.206
F-Value		5.445***	33.911***	26.016***	10.356***	10.769***
Adjusted R²						
Incremental: firm-level					0.080	0.063
Incremental: country-level					0.098	0.125
Common					0.001	0.018
					0.179	0.206

INDEX is the aggregate of a firm compliance with IFRS 3 disclosure requirements; *COMMON* is an indicator that equals 1 if a firm is located in a common-law country and 0 otherwise; *FRENCH* is an indicator that equals 1 if a firm is located in a French-civil-law country and 0 otherwise; *LEVERAGE* is a firm total debt at year-end divided by its market capitalization at year-end; *ROA* is a firm return on assets ratio; *OWNERSHIP* is the percentage of closely held shares as reported by the Thomson Worldscope Database; *SIZE* is the natural logarithm of a firm market capitalization at the end of the year; *XLIST* is an indicator that equals 1 if the firm is listed on a foreign stock exchange and 0 otherwise; *EARLY* is an indicator that equals 1 if the firm applied IAS/ IFRS before the mandatory adoption in 2005 and 0 otherwise. Country data is according to STOXX Europe 600 Index at 2009 year-end.

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively (n = 302).

However, we analyse a significantly different issue, which is the level of compliance with mandatory disclosure requirements, instead of the level of earnings management without necessarily violation of accounting rules. Meaning that, while Gaio (2010) analyses earnings quality, which is a multidimensional concept and difficult to measure, our study analyses compliance with the requirements of an accounting standard, implying that Gaio (2010) does not have specific rules to scrutinize and we do. Moreover, our sample companies include only European Union listed firms applying compulsory the same accounting regulations, which is different from the sample companies used by Gaio (2010), that includes not only European Union listed companies, but also other companies located in different continents.

Finally, to investigate whether the role of firm characteristics hold across different country environments, we estimate regression Equation (3) including the interaction of the two country-level variables (COMMON and FRENCH) with the three firm-level characteristics which explain the level of compliance with IFRS 3 above and beyond the country environment (LEVERAGE, ROA and XLIST). Column 1 in Table 7, presents the results of this regression. While the ROA and XLIST estimates are statistically significant independently of the country environment, the LEVERAGE estimate is statistically significant only in the group of French-civil-law countries.

In order to make clear these results, we split the sample into two groups: on the one hand, common-law plus Scandinavian- and German-civil-law countries; and on the other hand, French-civil-law countries. We further apply the regression analysis for the INDEX on the three firm-level characteristics which explain the level of compliance with IFRS 3 above and beyond the country environments. Table 7 presents the results for the two groups of countries, respectively in Columns 2 and 3. The primary finding that firm-level characteristics explain the level of compliance with IFRS 3 disclosure requirements remain unaffected. However, they have higher explanatory power in French-civil-law countries (12.0%), when compared with the group of common-law plus Scandinavian- and German-civil-law countries (5.1%). Furthermore, our findings suggest that ROA is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of common-law plus Scandinavian- and German-civil-law countries, while LEVERAGE is the main determinant in the group of French-civil-law countries.

These findings are consistent with the literature, since one of the most relevant difference between the group of common-law countries plus Scandinavian- and German-civil-law countries, and the group of French-civil-law countries, relies on their law-making orientation.

TABLE 7 - Role of firm characteristics in different country environments - Regressions Results

	Exp. Sign	C1	C2	C3
Intercept		0.787*** (23.544)	0.845*** (46.064)	0.632*** (16.882)
Country-level variables:				
COMMON	+	0.095** (2.224)		
FRENCH	-	-0.154*** (-3.385)		
Firm-level variables:				
LEVERAGE	+	0.074 (0.832)	0.039 (0.778)	0.330*** (3.607)
ROA	+	0.429*** (2.614)	0.311*** (3.193)	0.477* (1.857)
XLIST	+	0.061** (2.053)	0.032* (1.685)	0.069** (2.147)
COMMON x LEVERAGE		-0.038 (-0.327)		
COMMON x ROA		-0.223 (-0.999)		
COMMON x XLIST		-0.040 (-0.913)		
FRENCH x LEVERAGE		0.256** (2.179)		
FRENCH x ROA		0.048 (0.179)		
FRENCH x XLIST		0.008 (0.213)		
Adjusted R²		0.223	0.051	0.120
F-Value		8.833***	4.365***	6.090***
n		302	189	113

INDEX is the aggregate of a firm compliance with IFRS 3 disclosure requirements; *COMMON* is an indicator that equals 1 if a firm is located in a common-law country and 0 otherwise; *FRENCH* is an indicator that equals 1 if a firm is located in a French-civil-law country and 0 otherwise; *LEVERAGE* is a firm total debt at year-end divided by its market capitalization at year-end; *ROA* is a firm return on assets ratio; *XLIST* is an indicator that equals 1 if the firm is listed on a foreign stock exchange and 0 otherwise. Country data is according to STOXX Europe 600 Index at 2009 year-end.

C1 includes all firms (n = 302); C2 includes firms located in common-law countries plus Scandinavian- and German-civil-law countries (n = 189); C3 includes firms located in French-civil-law countries (n = 113).

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively.

The former group is characterized by a strong investor-oriented legislation with lower levels of governmental influence, and the latter is considered to issue more creditor-oriented laws, particularly influenced by governmental pressures (Arce and Mora, 2002; Soderstrom and Sun, 2007). In countries with higher investor protection, like common-law countries, firms are more easily able to get investor financing at lower costs (Soderstrom and Sun, 2007). On the contrary, in countries with lower investor protection and higher governmental influence, like French-civil-law countries, investors are more likely to raise the cost of capital invested (Soderstrom and Sun, 2007). Furthermore, firms from French-civil-law countries finance themselves traditionally in banks. Since banks price-protect themselves by charging higher interests, and upper debt levels encloses the obligation to satisfy the needs of long-term creditors for information, these may therefore be an incentive for firms from French-civil-law countries to provide more information in their financial statements.

Hence, our results are in accordance with this market and capital structure influence, so that in French-civil-law countries, leverage is the most significant firm-level variable in determining the level of compliance, while in common-law countries and Scandinavian- and German-civil-law countries, the capital structure is not so relevant. In common-law countries, return on assets is more important as it influences shareholders and investors rights. Firms from common-law countries usually disclose more information and are currently more accurate unless the information is not considered favourable, which is consistent with Shalev's (2009) study regarding United States firms, who suggests that acquirers tend to provide less forthcoming disclosure on less favourable acquisitions. In our study, we find that the higher the profitability ratio, the more firms are willing to disclose information regarding their investments.

5. SUMMARY AND CONCLUSIONS

We investigate the role of firm and country characteristics in determining the level of compliance with IFRS 3, *Business Combinations* (2004) disclosure requirements and also examine whether the role of firm characteristics hold across different country environments. Disclosure on business combinations is potentially decisive for evaluating acquirers' future profits or losses and cash-flows because these operations are regularly of high economic relevance to acquirers (Shalev, 2009). We analyse the level of compliance with IFRS 3 disclosure requirements in order to guarantee that our conclusions are based on a significant issue for both the preparers and the users of financial statements.

Using a framework that combines agency, political costs, signalling, and proprietary costs theories, as well as the contingency theory, we develop a set of hypotheses that relate firm and country characteristics to the level of compliance with disclosure requirements on business combinations.

Our results demonstrate that both firm and country characteristics develop a significant task in explaining the level of compliance with mandatory disclosure requirements. Furthermore, they confirm that firms located in a common-law country have the strongest, and firms located in a French-civil-law country the weakest, level of compliance with IFRS 3 disclosure requirements, with firms located in a Scandinavian- and German-civil-law country placed in the middle. Our findings also suggest that return on assets is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of common-law plus Scandinavian- and German-civil-law countries, while leverage is the main determinant of the level of compliance with IFRS 3 disclosure requirements in the group of French-civil-law countries.

Our study makes several contributions to the literature regarding compliance with mandatory disclosure requirements. We believe we are among the first to examine the importance of firm and country characteristics in explaining the level of corporate compliance with mandatory disclosure requirements on IFRS 3, *Business Combinations* (2004). In addition, we analyse the institutional environments of several countries, specifically, of European Union listed firms included on the STOXX Europe 600 Index at the end of 2009, and not only one country or different institutional contexts within a single country.

Our results are also important for regulators as it gives additional evidence that despite IAS/ IFRS mandatory adoption by listed firms in European Union, differences regarding the

application of accounting standards remain across countries heterogeneity, threatening the intended transparency and accuracy of financial statements. The diverse enforcement mechanisms in those countries are likely to play an important role in the explanation of these differences and the homogeneity of enforcement mechanisms among countries applying the same accounting standards could be a way to achieve total compliance.

Despite the contributions given by our study, it has some limitations. It concentrates on a single reporting year, which is 2008, and on a single accounting standard, more specifically, on paragraphs 67 and 68 of IFRS 3, *Business Combinations* (2004). In future researches, it would be interesting to analyse the impact of firm and country characteristics on mandatory disclosure compliance concerning other IAS/ IFRS requirements, and also to analyse whether there are differences on the levels of compliance with disclosure requirements across different IAS/ IFRS.

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APPENDIXES

APPENDIX 1 – SAMPLE COMPANIES

Company	Country of Domicile	Economic Sector
A P Moller - Maersk A/S	Denmark	Industrial Goods & Services
Aberdeen Asset Management PLC	United Kingdom	Financial Services
Abertis Infraestructuras SA	Spain	Industrial Goods & Services
Accor SA	France	Travel & Leisure
ACERINOX	Spain	Basic Resources
Adidas AG	Germany	Personal & Household Goods
Aegis Group Plc	United Kingdom	Media
Aegon NV	Netherlands	Insurance
Aggreko Plc	United Kingdom	Industrial Goods & Services
Ahold (Koninklijke Ahold NV)	Netherlands	Retail
Akzo Nobel NV	Netherlands	Chemicals
Alcatel-Lucent	France	Technology
Alfa Laval AB	Sweden	Industrial Goods & Services
Allianz SE	Germany	Insurance
Alpha Bank AE	Greece	Banks
Alstom SA	France	Industrial Goods & Services
AMEC PLC	United Kingdom	Oil & Gas
Amlin PLC	United Kingdom	Insurance
Andritz AG	Austria	Industrial Goods & Services
Anglo American PLC	United Kingdom	Basic Resources
Anheuser-Busch InBev NV	Belgium	Food & Beverage
ARM Holdings Plc	United Kingdom	Technology
Arriva Plc	United Kingdom	Travel & Leisure
Assa Abloy AB	Sweden	Construction & Materials
Associated British Foods PLC	United Kingdom	Food & Beverage
Atkins WS PLC	United Kingdom	Industrial Goods & Services
Atlas Copco AB	Sweden	Industrial Goods & Services
Aurubis AG	Germany	Basic Resources
Aviva PLC	United Kingdom	Insurance
AXA SA	France	Insurance
Babcock International Group	United Kingdom	Industrial Goods & Services
BAE Systems PLC	United Kingdom	Industrial Goods & Services
Balfour Beatty PLC	United Kingdom	Construction & Materials
BAM (Koninklijke BAM Groep NV)	Netherlands	Construction & Materials
Banca Carige SpA	Italy	Banks
Banca Monte dei Paschi di Siena SpA	Italy	Banks
Banca Popolare di Milano Scarl	Italy	Banks
Banco de Sabadell SA	Spain	Banks
Barclays PLC	United Kingdom	Banks
BASF SE	Germany	Chemicals
Bayer AG	Germany	Chemicals
Bayerische Motoren Werke AG	Germany	Automobiles & Parts
BCA POPOLARE EMILIA ROMAGNA	Italy	Banks
Beiersdorf AG	Germany	Personal & Household Goods
Belgacom SA	Belgium	Telecommunications
BG Group PLC	United Kingdom	Oil & Gas
Bilfinger Berger AG	Germany	Construction & Materials
BNP Paribas	France	Banks
BOSKALIS WESTMINSTER	Netherlands	Construction & Materials

Company	Country of Domicile	Economic Sector
Bourbon SA	France	Oil & Gas
British American Tobacco PLC	United Kingdom	Personal & Household Goods
British Sky Broadcasting Group PLC	United Kingdom	Media
BT Group PLC	United Kingdom	Telecommunications
Bunzl PLC	United Kingdom	Industrial Goods & Services
Bureau Veritas SA	France	Industrial Goods & Services
Buzzi Unicem SpA	Italy	Construction & Materials
Cable & Wireless PLC	United Kingdom	Telecommunications
Cap Gemini SA	France	Technology
Capita Group PLC/The	United Kingdom	Industrial Goods & Services
Carillion PLC	United Kingdom	Industrial Goods & Services
Carlsberg A/S	Denmark	Food & Beverage
Casino Guichard Perrachon SA	France	Retail
Celesio AG	Germany	Retail
Centrica PLC	United Kingdom	Utilities
Charter International PLC	United Kingdom	Industrial Goods & Services
Chemring Group Plc	United Kingdom	Industrial Goods & Services
Christian Dior SA	France	Personal & Household Goods
Cie de Saint-Gobain	France	Construction & Materials
Cimpor Cimentos de Portugal SGPS SA	Portugal	Construction & Materials
CNP Assurances	France	Insurance
Cobham PLC	United Kingdom	Industrial Goods & Services
Coca Cola Hellenic Bottling Co SA	Greece	Food & Beverage
Cofinimmo	Belgium	Real Estate
Commerzbank AG	Germany	Banks
Compass Group PLC	United Kingdom	Travel & Leisure
COOKSON GRP	United Kingdom	Industrial Goods & Services
Corio NV	Netherlands	Real Estate
CREDITO VALTELLINES	Italy	Banks
CRH PLC	Ireland	Construction & Materials
Criteria Caixacorp SA	Spain	Financial Services
CSM	Netherlands	Food & Beverage
Daily Mail & General Trust	United Kingdom	Media
Danisco A/S	Denmark	Food & Beverage
Danske Bank A/S	Denmark	Banks
Dassault Systemes SA	France	Technology
DCC Plc	Ireland	Industrial Goods & Services
Delhaize Group	Belgium	Retail
Deutsche Telekom AG	Germany	Telecommunications
Diageo PLC	United Kingdom	Food & Beverage
DSV A/S	Denmark	Industrial Goods & Services
EADS	France	Industrial Goods & Services
EDF SA	France	Utilities
EFG Eurobank Ergasias SA	Greece	Banks
Elekta AB	Sweden	Health Care
Elisa OYJ	Finland	Telecommunications
Enel SpA	Italy	Utilities
ENI SpA	Italy	Oil & Gas
Eramet	France	Basic Resources
Erste Group Bank AG	Austria	Banks

Company	Country of Domicile	Economic Sector
Essilor International SA	France	Health Care
ETS COLRUYT	Belgium	Retail
Eurasian Natural Resources Corp	United Kingdom	Basic Resources
Experian PLC	United Kingdom	Industrial Goods & Services
Fiat SpA	Italy	Automobiles & Parts
Finmeccanica SpA	Italy	Industrial Goods & Services
Firstgroup Plc	United Kingdom	Travel & Leisure
FLSmidth & Co A/S	Denmark	Construction & Materials
Fomento de Construcciones y Contratas SA	Spain	Construction & Materials
Fortum Oyj	Finland	Utilities
France Telecom SA	France	Telecommunications
Fresenius SE	Germany	Health Care
Fugro NV	Netherlands	Oil & Gas
G4S PLC	United Kingdom	Industrial Goods & Services
Galp Energia SGPS SA	Portugal	Oil & Gas
Gas Natural SDG SA	Spain	Utilities
GDF Suez	France	Utilities
GEA Group AG	Germany	Industrial Goods & Services
Gemalto NV	France	Industrial Goods & Services
Getinge AB	Sweden	Health Care
GlaxoSmithKline PLC	United Kingdom	Health Care
Greene King PLC	United Kingdom	Travel & Leisure
Grifols SA	Spain	Health Care
Halma PLC	United Kingdom	Industrial Goods & Services
HEIDELBERGCEMENT	Germany	Construction & Materials
Heineken NV	Netherlands	Food & Beverage
Henkel AG & Co KGaA	Germany	Personal & Household Goods
Hennes & Mauritz AB	Sweden	Retail
Hermes International	France	Personal & Household Goods
Home Retail Group PLC	United Kingdom	Retail
Homeserve PLC	United Kingdom	Industrial Goods & Services
Husqvarna AB	Sweden	Personal & Household Goods
Iberdrola SA	Spain	Utilities
ICADE	France	Real Estate
ICAP PLC	United Kingdom	Financial Services
IG Group Holdings PLC	United Kingdom	Financial Services
Iliad SA	France	Technology
Imerys SA	France	Basic Resources
Imperial Tobacco Group PLC	United Kingdom	Personal & Household Goods
Imtech NV	Netherlands	Industrial Goods & Services
INCHCAPE	United Kingdom	Retail
Indra Sistemas SA	Spain	Technology
Informa PLC	United Kingdom	Media
ING Groep NV	Netherlands	Insurance
Intercell AG	Austria	Health Care
International Power PLC	United Kingdom	Utilities
Intertek Group PLC	United Kingdom	Industrial Goods & Services
Intesa Sanpaolo SpA	Italy	Banks
Invensys PLC	United Kingdom	Technology
Investec PLC	United Kingdom	Financial Services

Company	Country of Domicile	Economic Sector
ITV PLC	United Kingdom	Media
Jardine Lloyd Thompson Group PLC	United Kingdom	Insurance
JC Decaux SA	France	Media
Jeronimo Martins SGPS SA	Portugal	Retail
Johnson Matthey PLC	United Kingdom	Chemicals
Kazakhmys PLC	United Kingdom	Basic Resources
KBC Groep NV	Belgium	Banks
Kerry Group PLC	Ireland	Food & Beverage
Kesa Electricals PLC	United Kingdom	Retail
Kinnevik Investment AB	Sweden	Financial Services
Klepierre	France	Real Estate
Kone OYJ	Finland	Industrial Goods & Services
Konecranes Oyj	Finland	Industrial Goods & Services
Koninklijke DSM NV	Netherlands	Chemicals
KONINKLIJKE KPN NV	Netherlands	Telecommunications
Ladbrokes PLC	United Kingdom	Travel & Leisure
Lafarge SA	France	Construction & Materials
Land Securities Group PLC	United Kingdom	Real Estate
Lanxess AG	Germany	Chemicals
Legal & General Group PLC	United Kingdom	Insurance
Linde AG	Germany	Chemicals
Logica PLC	United Kingdom	Technology
London Stock Exchange Group PLC	United Kingdom	Financial Services
LVMH Moet Hennessy Louis Vuitton SA	France	Personal & Household Goods
L'Oreal SA	France	Personal & Household Goods
Lottomatica SpA	Italy	Travel & Leisure
M6-Metropole Television	France	Media
Man Group PLC	United Kingdom	Financial Services
Mapfre SA	Spain	Insurance
Marfin Investment Group SA	Greece	Financial Services
Marks & Spencer Group PLC	United Kingdom	Retail
Meda AB	Sweden	Health Care
Mediaset SpA	Italy	Media
Mediobanca SpA	Italy	Banks
Meggitt PLC	United Kingdom	Industrial Goods & Services
Merck KGaA	Germany	Health Care
Metso Oyj	Finland	Industrial Goods & Services
Mitie Group PLC	United Kingdom	Industrial Goods & Services
Modern Times Group AB	Sweden	Media
Mondi PLC	United Kingdom	Basic Resources
Muenchener Rueckversicherungs AG	Germany	Insurance
National Grid PLC	United Kingdom	Utilities
Nationale A Portefeuille	Belgium	Financial Services
Neopost SA	France	Technology
Neste Oil OYJ	Finland	Oil & Gas
Nokia OYJ	Finland	Technology
Nokian Renkaat OYJ	Finland	Automobiles & Parts
Nordea Bank AB	Sweden	Banks
Nutreco Holding NV	Netherlands	Food & Beverage
Oesterreichische Post AG	Austria	Industrial Goods & Services

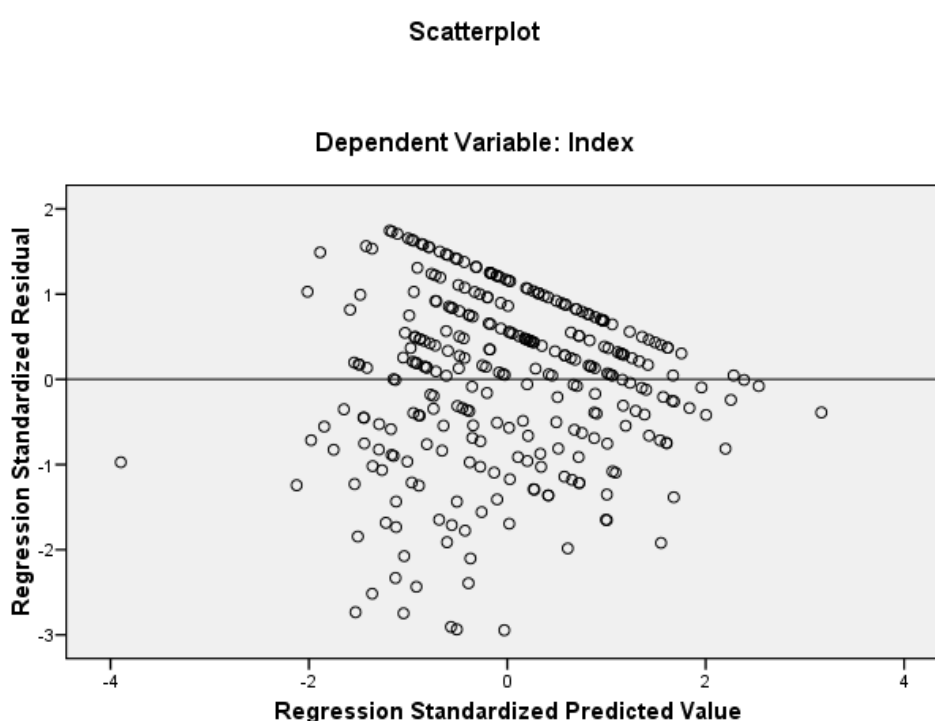
Company	Country of Domicile	Economic Sector
OMV AG	Austria	Oil & Gas
Outokumpu OYJ	Finland	Basic Resources
Pearson PLC	United Kingdom	Media
Pennon Group PLC	United Kingdom	Utilities
Petrofac Ltd	United Kingdom	Oil & Gas
PHILIPS ELECTRONICS (Koninklijke Philips Electr	Netherlands	Personal & Household Goods
Piraeus Bank SA	Greece	Banks
Pirelli & C SpA	Italy	Automobiles & Parts
Pohjola Bank PLC	Finland	Banks
Porsche Automobil Holding SE	Germany	Automobiles & Parts
Portugal Telecom SGPS SA	Portugal	Telecommunications
QinetiQ Group PLC	United Kingdom	Industrial Goods & Services
Raiffeisen International Bank Holding AG	Austria	Banks
Randstad Holding NV	Netherlands	Industrial Goods & Services
Ratos AB	Sweden	Financial Services
Rautaruukki OYJ	Finland	Basic Resources
Reckitt Benckiser Group PLC	United Kingdom	Personal & Household Goods
Reed Elsevier NV	Netherlands	Media
Rentokil Initial PLC	United Kingdom	Industrial Goods & Services
Rexam PLC	United Kingdom	Industrial Goods & Services
Rheinmetall AG	Germany	Automobiles & Parts
Rhoen Klinikum AG	Germany	Health Care
Rotork Plc	United Kingdom	Industrial Goods & Services
RSA Insurance Group PLC	United Kingdom	Insurance
RWE AG	Germany	Utilities
SABMiller PLC	United Kingdom	Food & Beverage
Safran SA	France	Industrial Goods & Services
Sage Group PLC/The	United Kingdom	Technology
Salzgitter AG	Germany	Basic Resources
Sampo Oyj	Finland	Insurance
Sandvik AB	Sweden	Industrial Goods & Services
Sanofi-Aventis SA	France	Health Care
Sanoma Oyj	Finland	Media
Scania AB	Sweden	Industrial Goods & Services
Schneider Electric SA	France	Industrial Goods & Services
Schroders PLC	United Kingdom	Financial Services
SCOR SE	France	Insurance
Scottish & Southern Energy PLC	United Kingdom	Utilities
Securitas AB	Sweden	Industrial Goods & Services
Serco Group PLC	United Kingdom	Industrial Goods & Services
SGL Carbon SE	Germany	Industrial Goods & Services
SIG Plc	United Kingdom	Industrial Goods & Services
Skanska AB	Sweden	Construction & Materials
SKF AB	Sweden	Industrial Goods & Services
Smiths Group PLC	United Kingdom	Industrial Goods & Services
Societe Generale	France	Banks
Sodexo	France	Travel & Leisure
Software AG	Germany	Technology
Solvay SA	Belgium	Chemicals
SSAB AB	Sweden	Basic Resources

Company	Country of Domicile	Economic Sector
SSL International PLC	United Kingdom	Personal & Household Goods
Standard Chartered PLC	United Kingdom	Banks
Svenska Handelsbanken AB	Sweden	Banks
Swedbank AB	Sweden	Banks
Sydbank A/S	Denmark	Banks
Symrise AG	Germany	Chemicals
Tate & Lyle PLC	United Kingdom	Food & Beverage
Technip SA	France	Oil & Gas
Tele2 AB	Sweden	Telecommunications
Telefonica SA	Spain	Telecommunications
Telekom Austria AG	Austria	Telecommunications
TeliaSonera AB	Sweden	Telecommunications
Terna Rete Elettrica Nazionale SpA	Italy	Utilities
Tesco PLC	United Kingdom	Retail
ThyssenKrupp AG	Germany	Industrial Goods & Services
Titan Cement Co SA	Greece	Construction & Materials
Tomkins Plc	United Kingdom	Industrial Goods & Services
Travis Perkins PLC	United Kingdom	Industrial Goods & Services
TrygVesta AS	Denmark	Insurance
UBISOFT Entertainment	France	Personal & Household Goods
Ultra Electronics Holdings	United Kingdom	Industrial Goods & Services
Umicore	Belgium	Chemicals
Unibail-Rodamco SE	France	Real Estate
UniCredit SpA	Italy	Banks
United Business Media Ltd	United Kingdom	Media
United Internet AG	Germany	Technology
Vallourec SA	France	Industrial Goods & Services
Vedanta Resources PLC	United Kingdom	Basic Resources
Veolia Environnement	France	Utilities
Vienna Insurance Group	Austria	Insurance
Vinci SA	France	Construction & Materials
Vivendi	France	Media
Vodafone Group PLC	United Kingdom	Telecommunications
Voestalpine AG	Austria	Basic Resources
Volkswagen AG	Germany	Automobiles & Parts
VOPAK (Koninklijke Vopak NV)	Netherlands	Industrial Goods & Services
VT Group PLC	United Kingdom	Industrial Goods & Services
Wacker Chemie AG	Germany	Chemicals
Wartsila Oyj	Finland	Industrial Goods & Services
Weir Group Plc/The	United Kingdom	Industrial Goods & Services
Whitbread PLC	United Kingdom	Travel & Leisure
William Demant Holding	Denmark	Health Care
William Hill PLC	United Kingdom	Travel & Leisure
Wincor Nixdorf AG	Germany	Technology
Wolseley PLC	United Kingdom	Industrial Goods & Services
Wolters Kluwer NV	Netherlands	Media
WOOD GRP (JOHN)	United Kingdom	Oil & Gas
WPP PLC	United Kingdom	Media
Xstrata PLC	United Kingdom	Basic Resources
YIT OYJ	Finland	Construction & Materials
Zardoya Otis SA	Spain	Industrial Goods & Services
Zodiac Aerospace	France	Industrial Goods & Services
Zon Multimedia Servicos de Telecomunicac	Portugal	Media

APPENDIX 2 – ASSUMPTIONS EVIDENCE FOR THE LINEAR MULTIPLE REGRESSION MODEL (SPSS OUTPUTS) – EQUATION (2)

Linearity

Linearity is recognized by the random distribution of dots around the residual line in the following scatter plot.



Non-autocorrelation (no multicollinearity)

VIF values lower than 10 or Tolerance values greater than 0.1 reveal no multicollinearity.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF	
1	(Constant)	,738	,104		,000	,533	,942			
	Common	,108	,018	,349	,000	,073	,144	,807	1,239	
	Leverage	,152	,047	,170	,324	,059	,245	,980	1,020	
	ROA	,351	,101	,183	,346	,152	,550	,982	1,018	
	Ownership	-,040	,038	-,060	-,105	,293	-,115	,035	,850	1,177
	Size	,000	,007	-,003	-,063	,950	-,014	,013	,919	1,088
	Xlist	,046	,018	,140	2,563	,011	,011	,081	,914	1,094
	Early	,056	,022	,141	2,557	,011	,013	,100	,891	1,122

^a. Dependent Variable: Index

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions								
				(Constant)	Common	Leverage	ROA	Ownership	Size	Xlist	Early	
1	1	4,730	1,000	,00	,01	,01	,01	,01	,01	,00	,01	,01
	2	1,064	2,108	,00	,19	,00	,02	,02	,02	,00	,06	,30
	3	,654	2,689	,00	,04	,00	,12	,04	,04	,00	,71	,05
	4	,584	2,847	,00	,21	,04	,08	,12	,00	,00	,00	,50
	5	,527	2,997	,00	,10	,03	,68	,00	,00	,14	,13	
	6	,299	3,977	,00	,23	,29	,01	,64	,00	,01	,01	,01
	7	,139	5,829	,01	,17	,63	,07	,16	,01	,01	,04	,01
	8	,003	41,069	,99	,05	,00	,00	,00	,99	,04	,00	,00

a. Dependent Variable: Index

Correlations

		Index	Common	Leverage	ROA	Ownership	Size	Xlist	Early
Pearson Correlation	Index	1,000	,319	,113	,185	-,133	-,034	,113	,069
	Common	,319	1,000	-,082	,065	-,359	-,190	-,115	-,238
	Leverage	,113	-,082	1,000	-,100	,045	,019	-,016	-,035
	ROA	,185	,065	-,100	1,000	,018	,008	-,034	,019
	Ownership	-,133	-,359	,045	,018	1,000	,064	,067	,221
	Size	-,034	-,190	,019	,008	,064	1,000	,223	,027
	Xlist	,113	-,115	-,016	-,034	,067	,223	1,000	,188
	Early	,069	-,238	-,035	,019	,221	,027	,188	1,000
Sig. (1-tailed)	Index	.	,000	,025	,001	,010	,279	,025	,116
	Common	,000	.	,078	,131	,000	,000	,023	,000
	Leverage	,025	,078	.	,041	,219	,368	,389	,271
	ROA	,001	,131	,041	.	,379	,445	,280	,369
	Ownership	,010	,000	,219	,379	.	,132	,124	,000
	Size	,279	,000	,368	,445	,132	.	,000	,320
	Xlist	,025	,023	,389	,280	,124	,000	.	,001
	Early	,116	,000	,271	,369	,000	,320	,001	.
N	Index	302	302	302	302	302	302	302	302
	Common	302	302	302	302	302	302	302	302
	Leverage	302	302	302	302	302	302	302	302
	ROA	302	302	302	302	302	302	302	302
	Ownership	302	302	302	302	302	302	302	302
	Size	302	302	302	302	302	302	302	302
	Xlist	302	302	302	302	302	302	302	302
	Early	302	302	302	302	302	302	302	302

Residual mean equals to zero

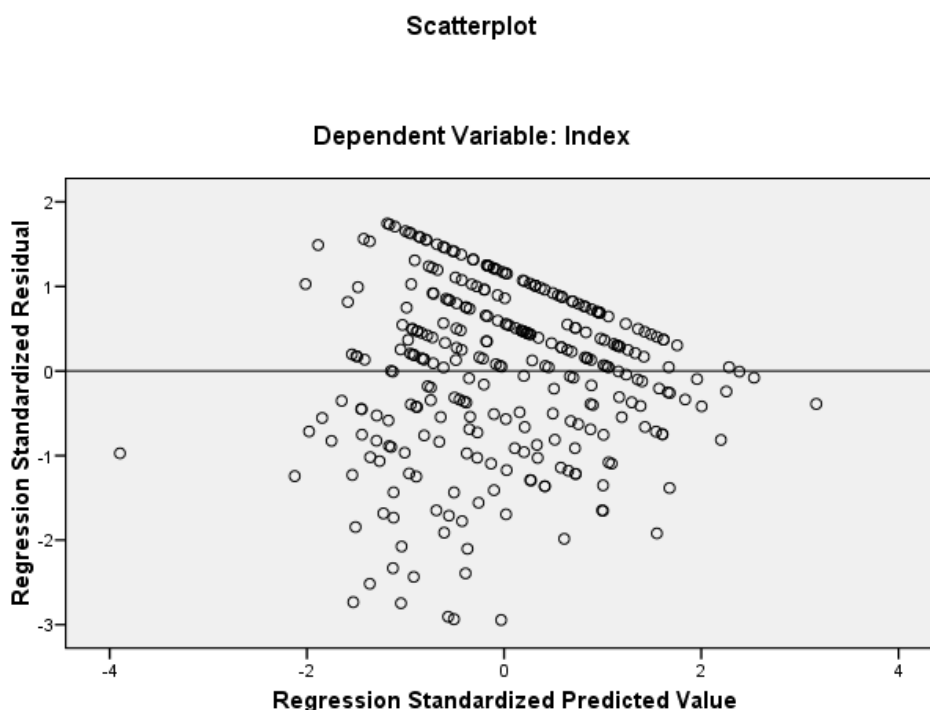
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,5898	1,0519	,8447	,06545	302
Std. Predicted Value	-3,895	3,166	,000	1,000	302
Standard Error of Predicted Value	,012	,064	,021	,006	302
Adjusted Predicted Value	,6225	1,0565	,8447	,06550	302
Residual	-,39275	,23281	,00000	,13180	302
Std. Residual	-2,945	1,746	,000	,988	302
Stud. Residual	-2,977	1,763	,000	1,001	302
Deleted Residual	-,40269	,23905	-,00001	,13534	302
Stud. Deleted Residual	-3,018	1,769	-,001	1,005	302
Mahal. Distance	1,390	67,785	6,977	5,882	302
Cook's Distance	,000	,051	,003	,006	302
Centered Leverage Value	,005	,225	,023	,020	302

a. Dependent Variable: Index

Homoscedasticity

Homoscedasticity occurs when the residuals are randomly distributed around the residual line. This is recognized by the random distribution of dots in the following scatter plot.



Residuals independency

This assumption is examined by Durbin-Watson statistics. If the value is close to 2, the errors are considered statistically independent from one another.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,445 ^a	,198	,179	,13336	2,102

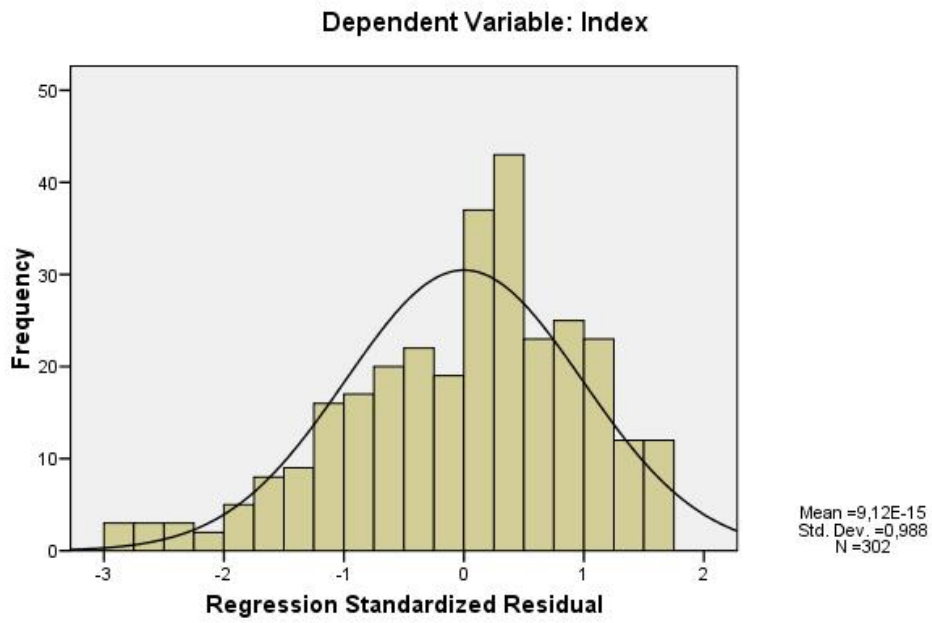
a. Predictors: (Constant), Early, ROA, Size, Leverage, Ownership, Xlist, Common

b. Dependent Variable: Index

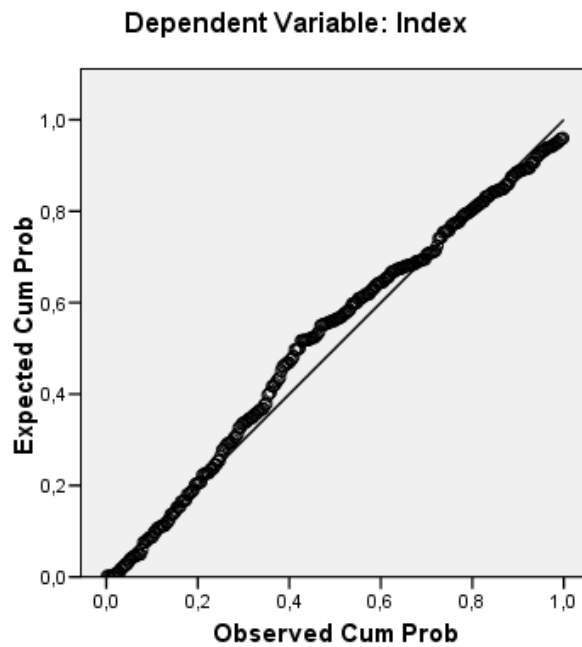
Normal distribution of residuals

The law of large samples and central limit theorem can be applied to derive the normality of residuals distribution. The following graphs also support this assumption.

Histogram



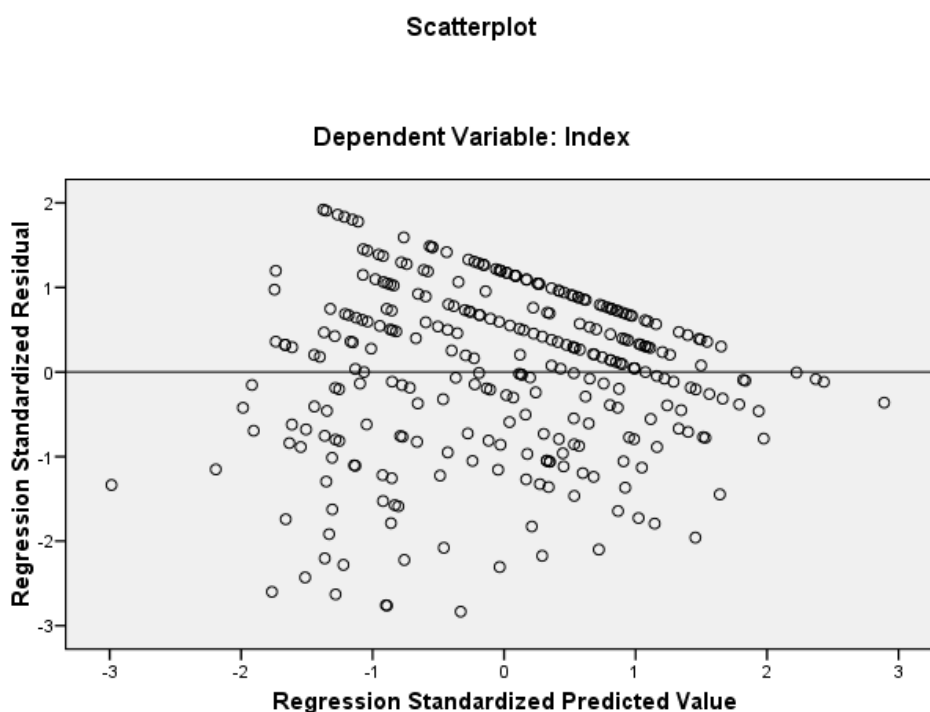
Normal P-P Plot of Regression Standardized Residual



APPENDIX 3 – ASSUMPTIONS EVIDENCE FOR THE LINEAR MULTIPLE REGRESSION MODEL (SPSS OUTPUTS) – EQUATION (3)

Linearity

Linearity is recognized by the random distribution of dots around the residual line in the following scatter plot.



Non-autocorrelation (no multicollinearity)

VIF values lower than 10 or Tolerance values greater than 0.1 reveal no multicollinearity.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	,733	,102		7,169	,000	,532	,934		
	Common	,069	,021	,221	3,218	,001	,027	,111	,558	1,791
	French	-,068	,020	-,224	-3,340	,001	-,108	-,028	,589	1,699
	Leverage	,154	,046	,172	3,314	,001	,062	,245	,980	1,020
	ROA	,337	,100	,175	3,378	,001	,140	,533	,980	1,020
	Ownership	-,026	,038	-,039	-,694	,488	-,100	,048	,839	1,191
	Size	,003	,007	,021	,385	,701	-,011	,016	,903	1,108
	Xlist	,046	,018	,140	2,612	,009	,011	,081	,914	1,094
	Early	,028	,023	,071	1,225	,221	-,017	,074	,776	1,289

a. Dependent Variable: Index

Collinearity Diagnostic^a

Model	Dimension	Eigen value	Condition Index	Variance Proportions									
				(Constant)	Common	French	Leverage	ROA	Ownership	Size	Xlist	Early	
1	1	5,100	1,000	,00	,00	,01	,01	,01	,01	,01	,00	,01	,01
	2	1,124	2,130	,00	,18	,05	,00	,02	,02	,00	,00	,02	,08
	3	,916	2,360	,00	,01	,13	,00	,00	,00	,00	,00	,06	,39
	4	,652	2,796	,00	,01	,00	,00	,14	,02	,00	,00	,69	,10
	5	,529	3,105	,00	,03	,00	,04	,74	,01	,00	,00	,14	,04
	6	,323	3,972	,00	,00	,11	,05	,00	,85	,00	,00	,02	,16
	7	,244	4,573	,00	,28	,35	,55	,02	,00	,00	,00	,01	,11
	8	,109	6,831	,01	,47	,34	,34	,06	,07	,01	,01	,02	,12
	9	,003	42,760	,99	,02	,01	,00	,00	,00	,00	,98	,04	,00

^a. Dependent Variable: Index

Correlations

		Index	Common	French	Leverage	ROA	Ownership	Size	Xlist	Early
Pearson Correlation	Index	1,000	,319	-,356	,113	,185	-,133	-,034	,113	,069
	Common	,319	1,000	-,552	-,082	,065	-,359	-,190	-,115	-,238
	French	-,356	-,552	1,000	,075	-,075	,235	,214	,039	-,155
	Leverage	,113	-,082	,075	1,000	-,100	,045	,019	-,016	-,035
	ROA	,185	,065	-,075	-,100	1,000	,018	,008	-,034	,019
	Ownership	-,133	-,359	,235	,045	,018	1,000	,064	,067	,221
	Size	-,034	-,190	,214	,019	,008	,064	1,000	,223	,027
	Xlist	,113	-,115	,039	-,016	-,034	,067	,223	1,000	,188
	Early	,069	-,238	-,155	-,035	,019	,221	,027	,188	1,000
Sig. (1-tailed)	Index	.	,000	,000	,025	,001	,010	,279	,025	,116
	Common	,000	.	,000	,078	,131	,000	,000	,023	,000
	French	,000	,000	.	,096	,098	,000	,000	,248	,004
	Leverage	,025	,078	,096	.	,041	,219	,368	,389	,271
	ROA	,001	,131	,098	,041	.	,379	,445	,280	,369
	Ownership	,010	,000	,000	,219	,379	.	,132	,124	,000
	Size	,279	,000	,000	,368	,445	,132	.	,000	,320
	Xlist	,025	,023	,248	,389	,280	,124	,000	.	,001
	Early	,116	,000	,004	,271	,369	,000	,320	,001	.
N	Index	302	302	302	302	302	302	302	302	302
	Common	302	302	302	302	302	302	302	302	302
	French	302	302	302	302	302	302	302	302	302
	Leverage	302	302	302	302	302	302	302	302	302
	ROA	302	302	302	302	302	302	302	302	302
	Ownership	302	302	302	302	302	302	302	302	302
	Size	302	302	302	302	302	302	302	302	302
	Xlist	302	302	302	302	302	302	302	302	302
	Early	302	302	302	302	302	302	302	302	302

Residual mean equals to zero

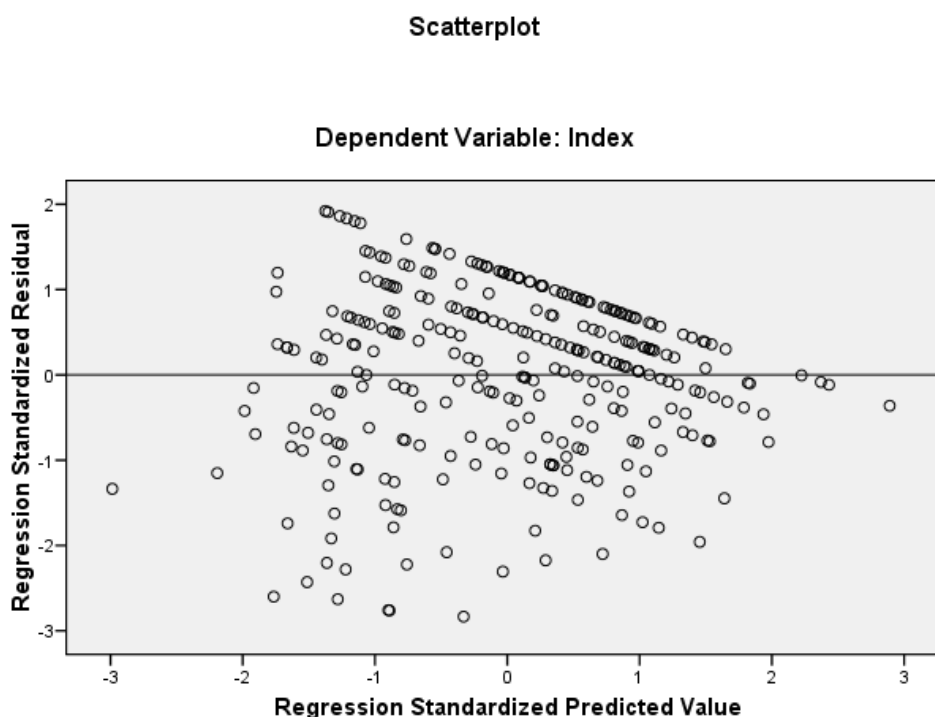
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,6352	1,0475	,8447	,07015	302
Std. Predicted Value	-2,987	2,890	,000	1,000	302
Standard Error of Predicted Value	,014	,063	,022	,006	302
Adjusted Predicted Value	,6824	1,0517	,8448	,07013	302
Residual	-,37154	,25179	,00000	,12936	302
Std. Residual	-2,834	1,920	,000	,987	302
Stud. Residual	-2,862	1,942	,000	1,002	302
Deleted Residual	-,37890	,25763	-,00003	,13343	302
Stud. Deleted Residual	-2,897	1,952	-,001	1,005	302
Mahal. Distance	2,509	67,922	7,974	6,010	302
Cook's Distance	,000	,068	,004	,007	302
Centered Leverage Value	,008	,226	,026	,020	302

^a. Dependent Variable: Index

Homoscedasticity

Homoscedasticity occurs when the residuals are randomly distributed around the residual line. This is recognized by the random distribution of dots in the following scatter plot.



Residuals independency

This assumption is examined by Durbin-Watson statistics. If the value is close to 2, the errors are considered statistically independent from one another.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,477 ^a	,227	,206	,13112	2,106

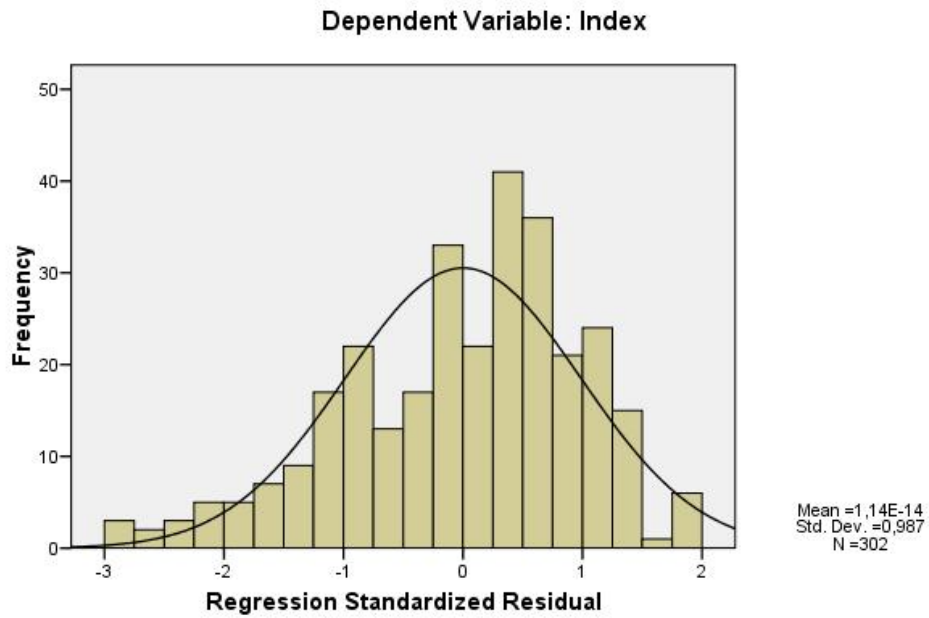
a. Predictors: (Constant), Early, ROA, Size, Leverage, Ownership, Xlist, French, Common

b. Dependent Variable: Index

Normal distribution of residuals

The law of large samples and central limit theorem can be applied to derive the normality of residuals distribution. The following graphs also support this assumption.

Histogram



Normal P-P Plot of Regression Standardized Residual

