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**THE MODERATING ROLE OF CORPORATE
SUSTAINABILITY PRACTICES ON THE
RELATIONSHIP BETWEEN BOARD DIVERSITY AND
FINANCIAL PERFORMANCE OF FIRMS IN
MALAYSIA**



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UUM
Universiti Utara Malaysia

**DOCTOR OF PHILOSOPHY
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**THE MODERATING ROLE OF CORPORATE SUSTAINABILITY
PRACTICES ON THE RELATIONSHIP BETWEEN BOARD DIVERSITY
AND FINANCIAL PERFORMANCE OF FIRMS IN MALAYSIA**

By

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**Thesis Submitted to
School of Economics, Finance and Banking
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ABSTRACT

Financial scandals and crises as well as the collapse of giant corporations globally have raised questions regarding the effectiveness of corporate governance mechanisms. Policymakers worldwide have attempted to tackle this issue by encouraging firms to diversify their board of directors. Previous studies showed that board diversity influenced financial performance. However, the relationship between board diversity and financial performance remains inconclusive due to firms' corporate sustainability practices. Thus, this study examined the relationship between board diversity and financial performance, corporate sustainability practices and financial performance, and the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance. A sample of 104 firms listed on *Bursa Malaysia* from year 2015-17 was analyzed. Five types of board diversity were examined, namely, gender, ethnicity, age, education and outside directors which were measured by Blau's index while Tobin's Q was used as a proxy for financial performance. Content analysis was adopted to measure corporate sustainability practices considering the firm's economic, environmental and social activities. The study also employed three control variables, namely, board size, firm size, and leverage. Using panel corrected standard errors estimator model, this study showed that board diversity, as well as corporate sustainability practices significantly and positively affected financial performance. Furthermore, results from the hierarchical moderated multiple regression model revealed that corporate sustainability practices significantly moderated the relationship between board diversity and financial performance. The main contribution of this study is that corporate sustainability practices, as a moderator, has a strong effect on the relationship between board diversity and financial performance. Thus, the government and regulatory bodies should ensure that firms diversify their board of directors. Also make corporate sustainability practices mandatory to enhance financial performance for their long-term survival and to reduce the risk of collapse.

Keywords: corporate governance, board diversity, financial performance, corporate sustainability practices, Malaysia

ABSTRAK

Skandal dan krisis kewangan serta kejatuhan korporat gergasi di seluruh dunia telah menimbulkan persoalan berkaitan dengan keberkesanan mekanisme tadbir urus korporat. Pembuat dasar di seluruh dunia telah berusaha untuk menangani isu ini dengan menggalakkan firma untuk mempelbagaikan lembaga pengarah mereka. Kajian terdahulu menunjukkan bahawa kepelbagaian lembaga memang mempengaruhi prestasi kewangan firma. Walau bagaimanapun, hubungan antara kepelbagaian lembaga dan prestasi kewangan masih tidak dapat disahkan disebabkan oleh amalan kelestarian korporat firma. Maka, kajian ini menyelidik hubungan antara kepelbagaian lembaga dan prestasi kewangan, amalan kelestarian korporat dan prestasi kewangan, serta peranan moderasi amalan kelestarian korporat ke atas hubungan antara kepelbagaian lembaga dengan prestasi kewangan. Satu sampel daripada 104 syarikat tersenarai di Bursa Malaysia dari tahun 2015-17 telah dianalisis. Lima jenis kepelbagaian lembaga telah diperiksa, iaitu jantina, etnik, umur, pendidikan dan pengarah luar yang diukur dengan indeks *Blau* manakala *Tobin's Q* digunakan sebagai proksi untuk prestasi kewangan. *Content analysis* telah digunakan untuk mengukur amalan kelestarian korporat dengan mengambil kira aktiviti ekonomi, alam sekitar dan sosial firma. Kajian ini juga telah menggunakan tiga pemboleh ubah kawalan, iaitu saiz lembaga pengarah, saiz firma, dan leverage. Dengan menggunakan model *panel corrected standard errors estimator*, kajian ini menunjukkan bahawa kepelbagaian lembaga, serta amalan kelestarian korporat, mempengaruhi secara signifikan dan positif ke atas prestasi kewangan. Tambahan pula, dapatan daripada model *hierarchical moderated multiple regression* menunjukkan bahawa amalan kelestarian korporat memoderasikan secara signifikan hubungan antara kepelbagaian lembaga dengan prestasi kewangan. Sumbangan utama kajian ini ialah amalan kelestarian korporat, sebagai moderator, mempunyai kesan yang kuat terhadap hubungan antara kepelbagaian lembaga dengan prestasi kewangan. Oleh itu, kerajaan dan badan pengawalseliaan harus memastikan bahawa firma mempelbagaikan lembaga pengarah mereka. Juga mewajibkan amalan kelestarian korporat untuk meningkatkan prestasi kewangan bagi kelangsungan hayat jangka-panjang firma dan juga untuk mengurangkan risiko kemusnahan.

Kata kunci: tadbir urus korporat, kepelbagaian lembaga pengarah, prestasi kewangan, amalan kelestarian korporat, Malaysia

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LIST OF ABBREVIATIONS

AGEDIV	Age Diversity
AICPA	The American Institute of Certified Public Accountants
ASEAN	The Association of Southeast Asian Nations
BLUE	Best Linear Unbiased Estimator
BNM	Bank Negara Malaysia
BOD	Board of Directors
BRDSIZE	Board Size
CEO	Chief Executive Officer
CG	Corporate Governance
CO2	Carbon Dioxide
CSP	Corporate Sustainability Practices
CSR	Corporate Social Responsibility
DV	Dependent Variable
EDUDIV	Educational Diversity
ETHDIV	Ethnic Diversity
EVA	Economic Value Added
FGLS	Feasible Generalized Least Square
FRMSIZE	Firm Size
FTSE	Financial Times Stock Exchange
GENDIV	Gender Diversity
GRI	Global Reporting Initiatives
IV	Independent Variable
KLCI	The Kuala Lumpur Composite Index
KLSE	The Kuala Lumpur Stock Exchange
kWh/MWh	Kilowatt Hours /Megawatt Hours
LEVRGE	Leverage
LM	Lagrange Multiplier
MCCG	Malaysian Code of Corporate Governance
MVA	Market Value Added

MYR/ RM	The Malaysian Ringgit
OECD	Organization for Economic Co-Operation and Development
OLS	Ordinary Least Squares
OTDRDIV	Outside Director Diversity
PCSE	Panel-Corrected Standard Errors
RD	Resource Dependence
ROA	Return on Asset
S&P	Standard and Poor
TBL	Triple Bottom Line
USD	United State Dollar
VIF	Variance Inflation Factor



CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The financial and economic crises have diminished the public trust globally in the institutions, principles and the very concept of market economy (Bhaskar & Flower, 2019; Lins, Servaes, & Tamayo, 2017). Financial scandals and crises often originate from lack of effective corporate governance practices in the corporate sectors (Berger, Imbierowicz, & Rauch, 2016; Bhagat & Bolton, 2019; Kato, Li, & Skinner, 2017). Corporate governance “is a system for directing and controlling an organization” (Cadbury, 1992). It is considered the most critical issue in the business world after global financial crisis as it has shaken many economies and led them to recession. It has also received much attention from the policy makers due to the scandals of giant corporations in the world, such as Adelphia, Xerox, Enron, Parmalat, and WorldCom. Till now, regulatory bodies and policy makers are trying to resolve the corporate governance issues globally (Bhagat & Bolton, 2019; Hassan, Marimuthu, & Johl, 2015; Saggar & Singh, 2017).

During the wave of the Asian financial crisis in 1997 and in 2008, activities of the corporate sector affected the entire economy. Financial crises were mainly attributed to poor corporate governance practices (Kato et al., 2017; Laallam, Alom, & Mohamad, 2017; Mohamad & Sulong, 2010). Dias et al. (2016) revealed that during a financial crisis, the financial performance of firms usually deteriorates. A firm’s financial performance is extensively recognized as an indicator of management’s performance. It reflects the management’s effectiveness and efficiency in utilizing

the firm's resources (Miles & Van Clieaf, 2017). Thus, firms are mostly concerned with their financial performance to ensure their long term survival (Odaló, Achoki, & Njuguna, 2016). Moreover, strong financial performance gives a greater ability to the firm to undertake higher financial risks in capital budgeting (Gómez-Bezares, Przychodzen, & Przychodzen, 2017).

The Malaysian economy was seriously affected in 1997 and 2008 where some key enterprises were forced to close such as Renong Berhad, United Engineers (Malaysia) Berhad and Transmile Group Berhad in 2000, 2001 and 2007 respectively. Lack of proper of corporate governance practices were diagnosed as the cause of these corporate failures (Daud, 2012; Haat, Rahman, & Mahenthiran, 2008; Hassan et al., 2015; Norwani, Zam, & Chek, 2011). In addition, Laallam et al. (2017) identified weak corporate governance practices as the cause for lower financial performance among firms in Malaysia.

The FTSE Bursa Malaysia KLCI (Kuala Lumpur Composite Index) denotes the top 30 companies based on market capitalization on the *Bursa Malaysia* Main Market. It is the headline index among all the FTSE Bursa Malaysia Index Series and also represents the benchmark for performance of securities. It also helps local and international investors to make investment decisions in securities listed on *Bursa Malaysia*. In addition, the FTSE *Bursa Malaysia* EMAS Index includes the components of FTSE *Bursa Malaysia* KLCI, FTSE *Bursa Malaysia* Small Cap Index and the FTSE *Bursa Malaysia* Mid-70 Index. The index represents approximately 98% performance of the *Bursa Malaysia* Main Market (FTSE Russel, 2017).

Table 1.1 and Table 1.2 show the performance of companies listed on *Bursa Malaysia* from 2011-2016. The market showed that the financial performance of listed firms were more volatile and declining. From the data, it is observed that improvements in corporate governance practices among listed firms is very much essential to increase investors' trust as well as to enhance the firms' financial performance (Ting, Kweh, Lean, & Ng, 2016).

Table 1.1
Total Net Earnings of FTSE Bursa Malaysia KLCI Index

Year	2011	2012	2013	2014	2015	2016
Total MYR (in millions)	51,400	57,780	59,041	60,562	56,558	54,899
Growth rate	-	12.4%	2.2%	2.6%	-6.6%	-2.9%
Average exchange rate (MYR/USD)	3.10	3.10	3.15	3.30	4.00	4.15
Total USD (in millions)	16,581	18,639	18,743	18,352	14,140	13,229
Growth rate	-	12.4%	0.6%	-2.1%	-23.0%	-6.4%

Source: Corporate Governance in Malaysia (2017)

Table 1.2
Year on Year Capital Return Performance of FTSE Bursa Malaysia KLCI and EMAS Index

Index	2011	2012	2013	2014	2015	2016
FTSE Bursa Malaysia KLCI	0.8%	10.3%	10.5%	-5.7%	-3.9%	-3.0%
FTSE Bursa Malaysia EMAS	1.1%	9.0%	12.4%	-6.1%	-2.3%	-2.8%

Source: FTSE Russel (2017)

The financial scandals and closing down of corporations over the previous years, as well as the financial crisis of 2008, has raised much concern for improving board effectiveness in the corporate sectors globally (Fidanoski, Simeonovski, & Mateska,

2014; Reguera-Alvarado, de Fuentes, & Laffarga, 2017). In this perspective, board diversity has been considered one of the techniques to increase the board effectiveness (Kılıç & Kuzey, 2016). Board diversity defined as the difference in behavior, qualities and other characteristics among individuals and groups in the board (Abdullah, 2014; Fidanoski et al., 2014). In the last decade, research on board diversity has been conducted exponentially as firms were pressured to increase the heterogeneity in their boards (Zhang, 2012). Diverse boards are less likely to engage in groupthink and they will be composed in a better way to deliver value and respond to challenges that may arise. In a diverse board, there is a greater opportunity to consider different points of view which will enable cross-pollination of ideas and better decision making (MCCG, 2017).

Furthermore, the agency theory also postulates that board diversity enhances the independence of the board (Jensen & Meckling, 1976). This helps in the enhancement of the strength of board monitoring and supportive for the decision making process of the board which ultimately reduces the agency costs and increases the firm's financial performance (Kamardin, Latif, Mohd, & Adam, 2014; Ramly, Chan, Mustapha, & Sapiei, 2017). A good number of researchers have examined the connection between board diversity and financial performance but the results are not conclusive till today (Terjesen, Couto, & Francisco, 2016). Accordingly, this study intends to further examine the effects of board diversity on financial performance of firms.

In addition to board diversity, corporate sustainability practice is a widespread management idea that assure long term financial success and survival of a firm (Lopatta, Buchholz, & Kaspereit, 2016; Zahid & Ghazali, 2015). Corporate sustainability practice refers to the use of present resources for living and working that fulfil and incorporate present economic, environmental and social necessities by not spoiling the needs of future generations (Ong, Soh, Teh, & Ng, 2016). Business leaders can also understand the benefits of using sustainability practices in business. It has been shown from previous research that companies which practice sustainability are able to raise capital very easily (Cheng, Ioannou, & Serafeim, 2014; Ioannou & Serafeim, 2015). Dhaliwal, Li, Tsang, and Yang (2011) revealed that after issuing sustainability report, firms were benefitted with a lower cost of financing. Brammer and Pavelin (2008) found that sustainability practices eased regulatory restraints and helped the firm to achieve higher profits.

Moreover, based on the United Nations Global Compact- Accenture- CEO Study 2013, 93 percent of CEOs stated that they consider sustainability as being more important than financial performance to the future success of their business (Flammer, 2013). Organizations are beginning to realize key advantages of using sustainability performance in business such as risk management, attracting new customers, enhancing productivity, brand value and reputation (Schaltegger & Burritt, 2018). For reducing the corporate scandals, it is suggested to consider sustainability practices in addition to the profit maximization goal of the firm (Margolis & Walsh, 2003). A good number of studies largely support the statement that a positive correlation between corporate sustainability practices and financial

performance of firms (Margolis, Elfenbein, & Walsh, 2007; Wang, Dou, & Jia, 2016).

Corporate sustainability practice is the alternative concept of corporate social responsibility or sustainable development (Christofi, Christofi, & Sisaye, 2012). Before the 1990s, the term 'sustainability' was used to mean the ability of a firm to increase its profit gradually. Later, the term 'corporate sustainability practices' incorporates three aspects of business activities namely, economic, social, and environmental (Adams, Thornton, & Sepehri, 2012). The term 'sustainability' has become widely accepted and defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43)¹. Many firms who are credited with their contribution for technological and economic developments have been criticised for creating environmental and social problems like water pollution, air pollution, CO₂ emission, waste, production of unhygienic product, and unhealthy environment of the workers (Hussainey & Walker, 2009). In order to solve these issues, engagement in corporate sustainability practices by the firms were considered as important initiatives (Abd-Mutalib, Jamil, & Wan-Hussin, 2014).

The stakeholder theory (Freeman, 1984) argues that companies should be more responsible to all of their stakeholders in addition to profit. A stakeholder refers to an individual or a group of person who has an influence on, or may be influenced by the

¹ The definition for the term sustainability was given by a Norwegian politician, Gro Harlem Brundtland, who served three terms as Prime Minister of Norway (1981, 1986-89, and 1990-96) and as Director-General of the World Health Organization from 1998-2003.

firms or its activities. Stakeholders comprise of customers, suppliers, investors, employees, local communities who are now more concerned regarding the sustainability practices of business (Amran, Ooi, Mydin, & Devi, 2015). The stakeholder theory also postulates that a firm which maintains and manages good communications with all its stakeholders will enhance the financial performance of the firm after a certain period of time (Donaldson & Preston, 1995; Freeman, 1984). As such, companies attempt to achieve long-term advantages and benefits by making strategic decisions through the application of sustainability practices in their businesses (Chabowski, Mena, & Gonzalez-Padron, 2011; Goyal, Rahman, & Kazmi, 2013).

Since 2007, firms listed on *Bursa Malaysia* have been instructed to publish their sustainability practices in their annual reports (Abd-Mutalib et al., 2014). In 2015, *Bursa Malaysia Securities Berhad* issued a sustainability reporting guide to assist listed issuers in preparing their sustainability statement (Bursa Malaysia Securities Berhad, 2015). In the Malaysian Code of Corporate Governance 2017, boards of listed companies were instructed to review and adopt a strategic plan for their companies which include strategies on environmental, social and governance underpinning sustainability (MCCG, 2017). Therefore, sustainability practice is assumed as one of the most important concerns in business policy to achieve competitive advantage (Suki, 2013).

Janakiraman and Jose (2007) argued that investors prefer to invest their funds in organisations with more green activities and are more sustainability responsible. In

addition, environment friendly companies achieve higher rates of return from their investment (Khanna & Damon, 1999). Thus, corporate sustainability practices are predicted to affect firm's financial performance. As such, many academic researchers have examined the association between corporate sustainability practices and financial performance but the results are still inconclusive to date (Rivera, Muñoz, & Moneva, 2017). They also suggested to conduct further research in this regard to develop a richer understanding of the impact of corporate sustainability practices on financial performance. Thus, this study has empirically examined the relationship between corporate sustainability practices and financial performance them along with the relationship between board diversity and financial performance of firms in Malaysia.

1.2 Problem Statement

Globally, corporate governance continues to be an issue in the financial media as well as in the popular media due to the financial scandals, crises and collapses of giant corporations. The scandals of Wells Fargo and Equifax are in the long line of scandals of large and renowned public corporations in the United states (Bhagat & Bolton, 2019). After each of these scandals and crises, policymakers raised questions regarding the effectiveness of corporate governance mechanisms in corporations. Looking to 1997 and 2008, the Asian economy including the Malaysian economy was badly affected by the financial crises. Poor corporate governance practices have been identified as a main reason and contributing factor to each scandal and crisis (Bhagat & Bolton, 2019; Kato et al., 2017).

In this regard, the World Bank states “corporate governance in East Asian countries has been characterised by ineffective boards of directors, weak internal control, unreliable financial reporting, lack of adequate disclosure, lax enforcement to ensure compliance, and poor audits. These problems are evidenced by unreported losses and understated liabilities. Regulators responsible for monitoring and overseeing such practices failed to detect weaknesses and take timely corrective action” (Laallam et al., 2017, p. 73). Apart from the lack of sound corporate governance, the collapse of giant corporations around the globe such as Xerox, Enron, Parmalat, Tyco, Qwest, and WorldCom at the beginning of the new millennium have left the corporate world in deep fear. In Malaysia, companies such as Renong Berhad, Transmile Group Berhad and United Engineers (Malaysia) Berhad had closed down due to lack of proper corporate governance practices. Such incidents have adversely affected public confidence in the reliability of the reporting of corporate performance (Lins et al., 2017). This has led to the inescapable call for more regulation and laws to restrain and regulate corporate behavior globally (Bhagat & Bolton, 2019).

Corporate scandals in the United States and the Asian crises are a wake-up call for better corporate governance and transparency among Malaysian firms. As a consequence, the regulatory bodies of Malaysia announced the Malaysian Code of Corporate Governance (MCCG) in 2000 as a mechanism to enhance corporate governance practices among listed firms. Since 2001, all firms listed on *Bursa Malaysia* were required to disclose their level of compliance to the MCCG in their annual report. Nonetheless the introduction of the MCCG subsequent to the financial crisis in 1997 had not improved the governance of listed firms in Malaysia (Laallam

et al., 2017). Mindful of this, the regulatory bodies had revised the existing code of corporate governance in 2007, 2012, and 2017 to improve the overall performance of corporate governance as well as the financial performance among firms. However, Laallam et al. (2017) showed that there still remained a few firms that did not follow the recommended practices as stressed in the revised code of 2012, such as the required number of non-executive directors on the audit committees.

The financial performance of firms listed on *Bursa Malaysia* improved after the 2008 financial crisis until 2014 but in 2015 and 2016 the performance of firms showed a decline. Total earnings for companies in FTSE *Bursa Malaysia* KLCI index was lower in 2016 in comparison to 2012 (see Table 1.1 and Table 1.2 in the previous section). It was also much worse when examined in terms of USD where in 2012-2014, the combined profit was about USD18.5 million, while it was roughly 30 percent below that level in 2016. Much worse both the FTSE *Bursa Malaysia* KLCI and EMAS index year on year capital return performance were observed to be negative during 2014-2016. Previous research also found that foreign ownership in securities improves good corporate governance practices and financial performance in Malaysia (Ghazali, 2010; Ting et al., 2016; Yatim, Iskandar, & Nga, 2016). However, it was observed that the percentage of foreign investors in securities of *Bursa Malaysia* had been declining and were more volatile since 2012. This showed investors' lack of confidence to invest their funds in listed securities on *Bursa Malaysia*.

Among the different corporate governance mechanisms, the role of board of directors is considered as a vital factor for the improvement of financial performance and long-term success of a firm. The board of directors is also considered as the most important tool for ensuring proper corporate governance practices and responsible to enhance shareholders' wealth by an effective monitoring and overseeing the activities over upper management teams (MCCG, 2017).

Furthermore, among the many aspects of board roles, board diversity has been considered as an effective mechanism to increase the effectiveness of the boards that help to enhance the financial performance of firms (Kılıç & Kuzey, 2016; MCCG, 2017). Board diversity refers to the variation of characteristic in a board's composition (Gordini & Rancati, 2017). Presently, all the corporations in the world are encouraged to diversify their boards because decisions of the board and their lack of diversity were considered responsible for corporate scandals of Dynegy, Glitnir and Lehman Brothers (Terjesen et al., 2016).

In 2004, Malaysia introduced a policy to ensure women's participation at the decision making level. The policy stipulated that 30 percent of decision makers in all sectors of the economy should be occupied by women. As a result, the percentage of women as decision makers in the public sector increased from 18.8% in 2004 to 32.3% in 2011 (Abdullah, 2014). As an extension, the same policy was adopted among public listed companies to have at least 30 percent women on their boards by 2016 (Abdullah & Ismail, 2013).

As such, Malaysia became the first country in Asia to put in place a target of gender quota. Nonetheless, previous research on listed firms on *Bursa Malaysia* showed that only 6.6 percent of the board of directors are female. Furthermore, it was found that only 28 percent of the boards are ethnically diverse² where most of the boards are not composed of different ethnic groups. In addition 68 percent of directors were between the ages of 51 to 70 years while only 3 percent of the directors were below the age of 40 years. Therefore, less diversity was found among board members in listed firms of Malaysia (Abdullah, 2014).

Studies related to board diversity and firms' financial performance revealed that they are either positively (Ararat, Aksu, & Tansel Cetin, 2015; Post & Byron, 2015; Terjesen et al., 2016) or negatively correlated (Abdullah, 2014; Mahadeo, Soobaroyen, & Hanuman, 2012). Thus, the link between the two variables is not conclusive till date (Abdullah, 2014; Adams, Haan, Terjesen, & Ees, 2015; Roberson, Holmes, & Perry, 2017). In addition, it is unclear in past studies about diversity at the board level and financial performance (Hassan et al., 2015). Furthermore, a good number of studies concerning board diversity and financial performance reported an insignificant direct relationship between the variables (Galbreath, 2018). In fact, little is known about why and when the board diversity would influence financial performance (Roberson et al., 2017). So, it is plausible to carry out further studies to examine the relationship between board diversity and financial performance in a more holistic way (Hassan et al., 2015). Additionally,

²Malaysia is multiracial with many different ethnic groups living in the country. These include Malays, Chinese, Indians, and other indigenous groups. The demographic composition of the population is approximately as follows. Malays (50.1%), Chinese (22.6%), Indian (6.7%), and other groups (12.5%). The remaining resident population are non-citizens (8.2%).

Roberson et al. (2017), Post and Byron (2015) and Umans (2013) stated that as the relationship between board diversity and financial performance have reported mixed results, the concerned parties might benefit from the investigation of critical influences of the interaction on this relationship.

Furthermore, Roberson et al. (2017) and Post and Byron (2015) argued that the variation in results between the relationship between board diversity and financial performance was due to other strategic or contextual factors. Accordingly, it was assumed that a firm's corporate sustainability practice is a possible factor which may cause the inconclusive result between this relationship. Thus, this study examined the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance of firms.

Corporate sustainability practices refer to the ability of a corporation to contribute to the economic, environmental and social improvement (Commission of the European Communities, 2001). At present globally corporate sustainability practices is a pressing issue for all firms to gain competitive advantage in this resource-constrained twenty-first century (Hussain, Rigoni, & Orij, 2018). Lins et al. (2017) found that during the financial crisis of 2008, firms with high corporate sustainability practices earned 4 percent to 7 percent higher stock returns than firms which had low corporate sustainability practice. In addition, market players such as investors, shareholders, and creditors are now more concerned on the social and environmental implications caused by their companies' operations rather than their financial success only (Amran et al., 2015). Accordingly, it is assumed that higher amount of

investment in corporate sustainability practices helps to take effective decisions which bring about stakeholders' trust on the firm and better financial performance.

The stakeholder theory (Freeman, 1984) also supports the notion that when a firm is engaged in corporate sustainability practices, the board can take better decisions to enhance financial performance. In addition, researchers so far had not given attention in examining corporate sustainability practices as a moderator between board diversity and financial performance. Research in the areas of board diversity and corporate sustainability practices were also often treated separately with less attention paid to the interaction of both areas (Fernández-Gago, Cabeza-García, & Nieto, 2016). Therefore, to fill the research gap, this study is a pioneering attempt in examining the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance.

1.3 Research Questions

For this study, the following research questions were established to address the existing issues as identified above.

- i.** What is the effect of board diversity on financial performance?
- ii.** What is the effect of corporate sustainability practices on financial performance?
- iii.** Is there any moderating role of corporate sustainability practices on the relationship between board diversity and financial performance?

1.4 Research Objectives

The main aim of this study is to examine the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance. In order to achieve the main objective, there are some specific objectives that have to be fulfilled, which are:

- i.** To examine the effect of board diversity on financial performance.
- ii.** To examine the effect of corporate sustainability practices on the financial performance.
- iii.** To examine the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance.

1.5 Scope of Research

This study is limited to listed firms on the main market of *Bursa Malaysia*. The main focus of the research is to observe the moderating role of corporate sustainability practices on the association between board diversity and financial performance among firms in Malaysia. A firms' financial performance is measured by Tobin's Q while board diversity is calculated by the Blau index (Blau, 1977). Blau index is the most appropriate and favorable measure of heterogeneity to capture diversification within a group of people in an organization (Buse, Bernstein, & Bilimoria, 2016; Gordini & Rancati, 2017; Harrison & Klein, 2007; Miller & Triana, 2009). Corporate sustainability practices are measured by content analysis from the Sustainability Statement published together with the audited Annual Report of each

firm³. Content analysis has been widely accepted and mostly used to measure corporate sustainability practices (Hoang, Abeysekera, & Ma, 2018; Malarvizhi & Matta, 2016; Nor, Bahari, Adnan, Kamal, & Ali, 2016). To avoid biasness, this study also considered board size, firm size and leverage as control variables to properly examine the relationship between board diversity and financial performance, corporate sustainability practices and financial performance, and the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance.

Data was examined through panel data studies based on the audited published annual reports of selected firms for the financial years 2015, 2016 and 2017. These years are chosen because of latest years and the years after issuing the sustainability guide-2015 by *Bursa Malaysia*. In addition, previous researchers used one or two years of data for measuring corporate sustainability practices (Al-Shaer & Zaman, 2016; Aman, Ismail, & Bakar, 2015; Hashim, Mahadi, & Amran, 2015; Hoang et al., 2018; Malarvizhi & Matta, 2016; Nor et al., 2016; Sundarasan, Je-Yen, & Rajangam, 2016). According to the *Bursa Malaysia Sustainability Reporting Guide -2015*, all listed issuers with market capitalization (excluding treasury shares) of RM2 billion and above in the Main market are obligated to publish their sustainability practices through their annual reports issued for financial years ending on or after December 31, 2016 (Bursa Malaysia Securities Berhad, 2015). Thus, all listed firms in the Main

³ Beginning in December 2016, firms listed on Bursa Malaysia's Main Market were required to include a Sustainability Statement in their annual reports based on the Bursa Malaysia Sustainability Reporting Guide 2015. The Guide was prepared with reference to the UN Sustainable Development Goals (SDGs), and recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). In 2018, it was replaced by an updated second edition of the Bursa Malaysia Sustainability Reporting Guide 2018. Among others, it includes more current case studies, and a new chapter on assurance as a guide on how sustainability may be conducted.

Market of *Bursa Malaysia* with market capitalization of RM2 billion and above were selected for this study.

For examining the relationship between board diversity and financial performance, the agency theory (Jensen & Meckling, 1976) and the resource dependence theory (Pfeffer & Salancik, 1978) were used to develop the hypotheses and explain the relationships. The agency theory assumes that more diversity in the board increases its independency. Thus, the independent board can take decisions properly, manage and control the management effectively which reduces the agency costs and enhances the financial performance (Ramly et al., 2017). The resource dependence theory assumes that board is as an essential link among the firm, external resources and environment that are helpful for maximizing firm performance (Pfeffer, 1973; Pfeffer & Salancik, 2003). For examining moderating role of corporate sustainability practices between board diversity and financial performance, the stakeholder theory (Freeman, 1984) was used. The stakeholder theory argues that when a firm maintains its relationship properly with its stakeholders, it enhances its financial performance over time (Donaldson & Preston, 1995; Freeman, 1984, 2010).

Malaysia was selected for this study as it is one of the most developed capital markets among emerging economies in the McKinsey Asian Capital Markets Development Index (FMT News, 2017). Malaysia, in fact, is outperforming other emerging economies in the development of its capital market. Moreover, there is significant division among its population based on ethnicity (Gill, 2013). Furthermore, very few studies have been conducted on board diversity, corporate

sustainability practices and financial performance in developing countries particularly in Malaysia (Zainal, Zulkifli, & Saleh, 2013). The large number of empirical research in this area of study have been conducted in the perspective of the United States, Australia and other developed countries in the world.

1.6 Organization of the Thesis

This research is organized into five chapters. The background of the study is outlined first in Chapter One. It discusses the issues of corporate governance and the key points that caused the global financial scandals, crises and collapse of large corporations around the world. The chapter also explains how the financial crises affected the Asian economies as well as the Malaysian economy. In addition, the impact of the poor corporate governance practices on financial performance was reviewed. The problem statement is explained through identification of gaps from previous literature and the inconclusive findings between the relationship of board diversity and financial performance. Chapter One also highlights how corporate sustainability practices moderate the relationship between board diversity and financial performance. As a result, research questions and objectives for this study were carefully established. Finally, the scope of the study is discussed.

Chapter Two provides a discussion of the the concept of corporate governance, its mechanisms, benefits of good corporate governance practices and the development of corporate governance in Malaysia. It then explains the financial performance (dependent variable), board diversity (independent variable) and the advantages and types of board diversity. A review of previous literature related to board diversity

and financial performance, corporate sustainability practices and financial performance and the arguments of using a moderating variable in the study are also included in the chapter. Finally, the relevant theories are explained to discuss the relationship among the variables.

Chapter Three provides a discussion of the research methodology. The research framework is first introduced and hypotheses are developed. Then, an explanation is given about the design of the research and definition of variables and measurements. Finally, techniques of panel data analysis are provided with an explanation of fixed and random estimations and the research models.

Chapter Four describes the findings of the study based on the research objectives of the study. Characteristics of the sample are first illustrated followed by the descriptive statistics of all the variables of the study. Results of all the diagnostic tests are also reported followed by a discussion of the results of the empirical analysis for both the direct effect of board diversity and corporate sustainability practices on financial performance and the moderating effects of corporate sustainability practices on the relationship between board diversity and financial performance.

The thesis ends with Chapter Five which provides a recapitulation of the research objectives, hypotheses and results of the study. This is followed by a discussion of the theoretical, practical and academic implications of the results. Finally, limitations and recommendations for future research are highlighted.

CHAPTER TWO

REVIEW OF THE LITERATURE

2.1 Introduction

This chapter discusses the relevant literatures and underlying theories related to board diversity, corporate sustainability practices and financial performance. It also describes the findings of past studies about the relationship between board diversity and financial performance, corporate sustainability practices and financial performance as well as the arguments of using corporate sustainability practices as a moderator on the relationship between board diversity and financial performance.

2.2 Corporate Governance

Interest in corporate governance has received serious consideration in today's world due to the global financial scandals, crises, and economic recessions. Generally, corporate governance is defined as a process to carry out organizational activities dealing with different rules, regulations, procedures and practices that helps a company to make decisions regarding different managerial issues and their stakeholders such as stockholders, customers, creditors, regulatory bodies, government and the employees (OECD, 2004). Corporate governance can also be defined as a system used to manage and control firms including the relationships among different stakeholders and the objectives of the company (Tu, Khanh, & Quyen, 2014).

Shleifer and Vishny (1997) define corporate governance as a system in which the fund providers assure themselves a perfect rate of return from their investments. Kajola (2008) defines corporate governance as a system which distributes the rights, responsibilities and accountabilities among the different stakeholders and helps to make decisions regarding different issues and spells out how to implement and attain the objectives of the company. According to Cadbury (1992), corporate governance is a kind of mechanism for directing and controlling the firm. The World Bank defines corporate governance as the procedures and structures of directing and controlling of firms, which are related to board of directors, management, and all stakeholders of a firm. Therefore, on the basis of previous studies it is observed that corporate governance is a mechanism for directing and controlling a firm towards its goals to meet its stakeholders' interests.

2.2.1 Corporate Governance Mechanisms

Corporate governance mechanisms are divided into two categories: internal and external (Cremers & Nair, 2005; Kamardin & Haron, 2011). The internal mechanisms of corporate governance refer to the board of directors, ownership structure, audit committees, executive compensation, and financial disclosures of the firms. On the other hand, managerial labor markets, legal infrastructure, proxy fights, market for corporate control and product market competitions are treated as external mechanisms of corporate governance.

The board of directors is the apex constituent of internal corporate governance mechanisms of a firm in a unitary board structure system, as is the case in Malaysia

(Abdullah & Ismail, 2013). Shareholders of a firm appoint a group of individuals as the board of directors to safeguard their assets and oversee the management to earn a good rate of return from the investment (McAlister, Marcos, & Ferrell, 2016). The board of directors plays a vital role in operating a business in a risky condition. It is composed of different individuals who utilize their experience, skills and knowledge towards fulfillment of the firm's objectives (Brown & Caylor, 2006). The board is mainly responsible for guiding and approving the firm's strategic decisions, for example, mergers and acquisitions, hiring and firing executives, capital structures and capital budgeting. These strategies, ultimately influence the firm's financial performance (Terjesen et al., 2016).

2.2.2 Benefits of Good Corporate Governance Practices

A large number of benefits from good corporate governance practices have been observed from previous studies. Good corporate governance practices reduce the agency conflict between the managers and shareholders which helps to avoid corruption, frauds, and other bad conducts. Furthermore, it helps to increase the image and goodwill of the firm such that stakeholders are interested to engage with the firm. Thus, good corporate governance practices bring better performance from firms. It simply implies that good-governed firms can achieve high performance while bad-governed firms achieve low performance (Hassan et al., 2015). The board of directors plays a vital role for achieving a good reputation by implementing good governance in the firm (Kemp, 2006; Lin, Liu, & Zhang, 2006).

2.2.3 Corporate Governance Development in Malaysia

In Malaysia, several big corporations were forced to shut down due to the financial crises and economic recession in 1997 and 2008. Weak corporate governance practices was said to be the main cause of these shut downs (Hassan et al., 2015). The aftermath of the financial crisis witnessed several different regulatory bodies took many initiatives to promote corporate governance practices among firm (Hassan et al., 2015).

The different initiatives established to enhance corporate governance in Malaysia since the early 1990s are summarized below:

1. Effective from August 1st, 1994, all listed securities are obligated to form an audit committee according to Section 334 in the Kuala Lumpur Stock Exchange listing requirement.
2. On March 10th, 1998, The Malaysian Institute of Corporate Governance was established as a public limited company on the basis of the Company Act 1965.
3. On March 24th, 1998, A High Level Finance Committee was formulated to determine the framework of corporate governance and ensure its best practices.
4. In case of any necessity, the Security Commission is authorized to formulate further laws and regulations for ensuring good corporate governance.
5. In January 2001, the Finance Committee introduced The Malaysian Code of Corporate Governance (MCCG).
6. A chapter regarding corporate governance practices was published in the manual of the Kuala Lumpur Stock Exchange Listing Requirements in January 2001.

7. On July 2nd, 2001, the Minority Shareholder Watchdog Group was formed as a not-for-profit public limited company based on the Company Act 1965 to increase the participation of minority shareholders of the firm (Said, Zainuddin, & Haron, 2009).
8. In 2011, the Securities Commission Malaysia issued the Corporate Governance Blueprint.
9. The MCCG was revised in 2007, 2012 and 2017 to further develop corporate governance practices and to enhance the performance and long-term survival of listed firms.

2.3 Financial Performance

Stakeholders are usually interested in the financial performance of their firm. These stakeholders are not only the shareholders but also the government, suppliers and the employees of the firm (Wang, Choi, & Li, 2008). Firms are more conscious regarding their financial performance, as it serves as one of the main goals for the long-time survival of a business (Odalo et al., 2016). The study of Carton and Hofer (2006) defined financial performance as the changes of financial condition or outcome due to the effort of the firm's management. However, there is no real consensus for measuring financial performance (Chetty, Naidoo, & Seetharam, 2015; Uwuigbe, Egbide, & Ayokunle, 2011). Usually, the firm's financial performance is measured by two broad categories of measurement, (i) accounting-based measurement such as return on equity, return on asset, and Economic Value Added, and (ii) market-based measurements namely, Tobin's Q, market capitalization, and market value added (Tayeh, Al-Jarrah, & Tarhini, 2015).

Accounting-based financial performance measures refers to how a firm makes profit, utilizes its resources to earn income and it also denotes previous or short-term financial performance. On the contrary, financial performance based on market value of the security represents the behavior of a security in the market, which reflects outsider's perception and prospects of the long-term or future value of a firm (Post & Byron, 2015). Past researchers used accounting based measure to quantify the financial performance in corporate governance studies (Canyon & He, 2017; Duppati, Sune, & Samanta, 2017; Erhardt, Werbel, & Shrader, 2003; Gordini & Rancati, 2017; Iqbal, Ahmad, Basheer, & Nadeem, 2012; Mwangi & Jerotich, 2013; Sun, 2012) and also market-based measures (Boesso, Kumar, & Michelon, 2013; Canyon & He, 2017; Duppati et al., 2017; Feldman & Montgomery, 2015; Gordini & Rancati, 2017; Guo, Pang, & Li, 2017; Klapper & Love, 2004; Lioui & Sharma, 2012). In addition, researchers have adopted both of these measures (Abdullah, 2014; Adams & Ferreira, 2009; Canyon & He, 2017; Duppati et al., 2017; Ehsan & Kaleem, 2012).

Tobin's Q and return on assets have been widely used in previous studies to examine the influence of board diversity on financial performance (Abdullah, 2014; Adams & Ferreira, 2009; Erhardt et al., 2003). Return on assets was frequently used for assessing a performance of firms by financial analysts (Erhardt et al., 2003; San, 2016) whereas Tobin's Q was usually used to measure financial performance in finance studies (Jo & Harjoto, 2011). Tobin's Q is one of the most important financial measures among the different financial measures because it reflects the market value of the firm over its total assets. Moreover, it represents investors'

confidence on the firm as well as the governing performance of the firm. In addition, it indicates the future growth and long-term financial performance of the firm. It is also called a forward-looking measure of financial performance (Ali, Ng, & Kulik, 2014). Shareholders believe that Tobin's $Q > 1$ means that the firm is worth more than its book value. Conversely, Tobin's $Q < 1$ means that the firm is expecting a decline in shareholders' wealth in the long run (Terjesen et al., 2016). Therefore, this study used Tobin's Q for measuring the firms' financial performance.

2.4 Board Diversity

In the last two decades, the term board diversity in firms has been widely used and developed over time. It has been identified as an influential determinant in firms' financial performance (Hassan et al., 2015) and is also an emerging issue in corporate governance research (Rao & Tilt, 2016). Research on board diversity is greatly encouraging as firms are pressurized to diversify their board of directors to ensure the engagement and participation of all their stakeholders (Zhang, 2012). In recent years, workforce diversity in organizations has received considerable attention among practitioners and academia. Along with workforce diversity, board diversity has also gained remarkable attention in the last couple of years (Erdur & Kara, 2015).

Board diversity means heterogeneity among board members. It refers to the tangible or apparent differences among the board members based on gender, age, ethnicity, experience, religion, family status, language and other identifiable characteristics (Bell, 2011; Piekkari, Oxelheim, & Randøy, 2015). According to Walt and Ingley

(2003), board diversity or heterogeneity means the board is comprised of different categories of people in terms of expertise, attributes, and characteristics. Fidanoski et al. (2014) explicated it as difference in behavior, qualities and other characteristics among individuals and groups on the board. In practice, however, research on board diversity has mainly concentrated on gender, ethnicity, age, educational background, functional background and experience of the directors (Milliken & Martins, 1996; Williams & O'Reilly 1998).

2.4.1 Advantages and Disadvantages of Board Diversity

Jensen (1993) argued that board diversity increases the dimensions of monitoring and supervision of management that bring benefits to stockholders by proper utilization of resources, problem solving and strategy formulation. Williams and O'Reilly (1998) opined that greater board diversity brings more resources to problem solving and increases the competitive advantages of a firm. Kandel and Lazear (1992) argued that board diversity reduces the free-riding behavior by increasing mutual monitoring. Furthermore, board diversity helps to reduce information asymmetry, decreases agency conflicts, increases the number of prospective investors and financing opportunities, and brings more knowledge and latest technologies to the firm (Fogel, Lee, Lee, & Palmberg, 2013).

In another study, board diversity was shown to help the firm become more creative and innovative (Nielsen & Huse, 2010). In addition, a diverse board can gather more knowledge and valuable perspectives that help for better decision-making leading to better financial performance (Salleh, Yusoff, & Saad, 2015). A diverse board can

easily understand the demands and interests of all its stakeholders (Abdullah, 2014). According to Ali et al. (2014), a diverse board can assist the firm to become creative and financially successful by expanding the network, thus, bringing different talented persons into the firm.

On the other hand, Putnam (2007) opined that more diverse board decreases cooperation, leads to social loafing and hampers communication while other studies showed that board diversity increases the expenditures of communication and leads to higher turnover of board members (Arrow, 1998; Lang, 1986). Board diversity also influences the board performance negatively, for example, heterogeneity increases conflicts and divisions among board members that may increase the cost of decision-making (Adams et al., 2015). Therefore, it is unclear whether more or less diversity on the board is beneficial to shareholders. Although board diversity brings many advantages to the firm, Abdullah (2014) study found little board diversity among listed firms on *Bursa Malaysia*.

2.4.2 Types of Board Diversity

On the basis of previous studies, two categories of board diversity were found, namely, demographic and cognitive. Demographic refers to the visible or readily identifiable characteristics of the directors such as gender, ethnicity, age, and nationality. On the other hand, cognitive diversity refers to the intangible or less visible identifiable characteristics of board members, including academic background, occupation, firm experience, and membership at other organizations (Milliken & Martins, 1996). Adams et al. (2015) classified board diversity into three

categories: (i) Task-related diversity, for instance, educational background, (ii) Non task-related diversity, for instance, gender, ethnicity, age, nationality, and (iii) Structural diversity, for instance, independence of the board, and non-dual role of the CEO.

2.5 Relationship between Board Diversity and Financial Performance

The relationship between board diversity and financial performance is inconclusive, contradictory and inconsistent till date (Abdullah, 2014; Adams et al., 2015). A large number of research was conducted to examine the relationship between board diversity and firms' financial performance and found mixed results (Post & Byron, 2015). The inconclusive results from previous studies were found due to different time periods of the study (Campbell & Mínguez-Vera, 2008), different institutional perspective (Sabatier, 2015), lack of considering appropriate control variables (Terjesen, Aguilera, & Lorenz, 2015), limited and different categories of measurements (Terjesen et al., 2015).

Previous studies using sample data from various countries found board diversity positively influence financial performance (Campbell & Mínguez-Vera, 2008; Rhode & Packel, 2014). Mahadeo et al. (2012) found that board diversity (in terms of age and gender) has a positively influence on financial performance. Similarly, Terjesen et al. (2015) found that the presence of female board directors bring high financial performance of firms in terms of return on assets and Tobin's Q.

In addition, Ararat et al. (2015) found a positive and significant association between diversity of board demography and financial performance among Turkish firms. They also found that a diverse board helped to reduce the “group think” among the board members that enhanced good monitoring over managers and increased financial performance. Furthermore, García-Meca, García-Sánchez, and Martínez-Ferrero (2015) examined the relationship between board diversity in terms of gender and nationality, and financial performance of bank in nine countries and found a positive relationship. Post and Byron (2015) conducted a meta-analysis of 80 studies and, in most of the studies, found a positive relationship between gender diversity and firms’ financial performance.

Nonetheless, studies have also found a negative or insignificant relationship board diversity and financial performance, for example, Zahra and Stanton (1988), Adams and Ferreira (2009), Shrader, Blackburn, and Iles (1997). Using observations from 2003-2012, Gupta, Lam, Sami, and Zhou (2015) found that board diversity, defined in terms of gender and race, did not add to a firm’s financial performance but it enhanced social, environmental and governing performance. Carter, Simkins, and Simpson (2003) showed a positive and significant relationship between ethnic diversity and financial performance. Tsui and O’reilly (1989) found a negative relationship while Carter, D’Souza, Simkins, and Simpson (2010) found no association between these variables.

Using a sample of 56 Swedish companies, Pohjanen and Bengtsson (2010) found that board diversity, defined in terms of education, had a negative influence on the

performance of firms. Similarly, Mahadeo et al. (2012) examined the relationship between educational diversity and financial performance based on 371 directors from 39 public listed firms listed on Mauritius Stock Exchange and found a negative relationship. Similar findings were found by Bathula (2008) who investigated the influence of educational qualification of board members on financial performance. Using generalized least squares analysis on a longitudinal sample of 156 firms listed on New Zealand Stock Exchange for the year 2004-07, he found that directors with PhD level education was negatively related with financial performance.

2.5.1 Gender Diversity

Gender diversity of board is considered to be an integral part of good corporate governance and has received a lot of consideration in the field of corporate governance (Gallego-Álvarez, García-Sánchez, & Rodríguez-Dominguez, 2010; Terjesen & Sealy, 2016). In the MCCG 2017, board diversity is considered as one of the vital determinants for an effective board of directors. The Malaysian government has stipulated a requirement where all firms listed on *Bursa Malaysia* must appoint at least 30 percent female as board members by the end of 2016 (Ahmad, Kamaruzaman, Hamdan, & Annuar, 2019). This is one of the landmark initiatives in the Malaysian corporate governance scene making it the first country in Asia to do so (Abdullah, 2014). By 2015, 14 countries made it a mandatory requirement while another 16 countries encouraged an increase in the number of female directors on the board of directors of public limited firms (Terjesen et al., 2015).

Similarly, in November 2012, the European Commission released a proposed directive titled “Improving the Gender Balance in Company Boardrooms” to achieve a “quantitative objective of at least 40 percent representation for each gender among non-executive directors by 2020” for firms listed on stock-exchanges in European Union member countries (Gupta et al., 2015, p. 4). The directive was adopted by the European Parliament on November 20, 2013.

Globally, the number of female directors on the board of directors are increasing, for example, in the United Kingdom, there are 24.7 percent female directors appointed onto companies’ board in case of fresh appointment (Sealy & Vinnicombe, 2013). In the S&P 500 companies, the percentage of female directors were 5.6 percent and 12.3 percent in 1990 and 1999, respectively (Farrell & Hersch, 2005) and by the end of 2016, this percentage has increased to 19.9 percent (Catalyst, 2017).

Kennedy and Kray (2014) found differences of moral behavior between female and male directors. Hillman (2015) observed that female directors are more ethical and influential in the decision making process than male directors. Moreover, female directors take more time in decision making such that they can consider both the positive and negative future impact of their decision. Thus, decisions made by both male and female directors are more moral than decisions made by male directors only. A neuroscience specialist shows that females use both sides of their brain in making any decision whereas men use only one side of their brain. This shows that female directors consider all aspects of their stakeholders’ interests (Kansaku, Yamaura, & Kitazawa, 2000). On the contrary, male directors generally make

decisions very quickly by considering only costs and profit without considering other matters related to the decision making (Azmi & Barrett, 2014).

In another study, female directors were reported to play an active role in the board room as compared to the male directors (Virtanen, 2012). Female directors were always interested to ask many questions, show mutual understanding, and try to ensure ethical standards (Bilimoria & Wheeler, 2000; Eagly & Johannesen-Schmidt, 2001; Pan & Sparks, 2012). Pathan and Faff (2013) revealed that females make more preparation before attending any meeting. Adams and Ferreira (2009) found that female directors attended a greater number of board meetings than men directors. Thus, appointing female directors on the board are expected to improve the sincerity and dedication of board members to the firm which will help to increase its financial performance.

Globally, females face many obstacles in their career development (Karam & Jamali, 2013). In Malaysia, more than 50 percent of the population and employees are female. Although a large number of female students having university degrees than male students, the number of female directors on corporate boards is very low (Azmi & Barrett, 2014). For example, female board members made up only 6 percent in finance companies, 7 percent in insurance companies, 7.8 percent in the 100 biggest local companies, 7.6 percent in companies listed on *Bursa Malaysia*, and 8.8 percent in government-linked companies. In addition, the percentages of female board members in Malaysian firms are comparatively lower than in other ASEAN countries such as Thailand and Singapore (Tuminez, Duell, & Majid, 2012). Table

2.1 shows a summary of studies and findings from previous research on the relationship between gender diversity and financial performance.

Table 2.1
Summary of Studies and Findings on the Relationship between Gender Diversity and Financial Performance

Author(s)	Country of Study	Year of Study	Independent Variable (IV)	Dependent Variable (DV)	Relevant Findings
Terjesen et al. (2016)	47 countries	2010	Gender diversity	Financial performance (Return on assets and Tobin's Q)	The presence of female directors showed higher firm performance by market (Tobin's Q) and accounting (return on assets) measures
Erdur and Kara (2015)	Turkey	2006-2013	Gender diversity	Financial performance (Tobin's Q)	When the chair of the executive board is a woman is positively related to Tobin's Q. On the other hand, the ratio of female members in the executive board is negatively related to Tobin's Q.
Post and Byron (2015)	35 countries from five continents	1989-2014	Gender diversity	Financial performance	Female board representation is positively related to accounting returns.
Abdullah (2014)	Malaysia	2007	Gender diversity	Firm performance (Tobin's Q and return on assets)	The relationship between gender diversity and financial performance is negative and significant.
Ali et al. (2014)	Australia	2012	Gender Diversity	Performance (Employee productivity and return on assets).	A positive linear relationship between gender diversity and employee productivity.
Fidasoski et al. (2014)	35 companies from five countries	2008-2012	Gender, diversity	Financial performance (return on assets, Tobin's Q)	Gender diversity is positively related to financial performance.
Rhode and Packel (2014)	USA	2014	Gender diversity	Corporate financial performance	No significant relationship between gender diversity and financial performance.

Source: Compiled from previous literature

2.5.2 Ethnic Diversity

Among the different attributes of board diversity, ethnic diversity was also found to influence the effectiveness of board and financial performance (Gul & Zhang, 2016). Malaysians can be divided into three ethnic groups, namely, Malays, Chinese and Indians. A large number of the population are Malays and they control the country's politics (Abdullah & Ismail, 2013). The Second largest group is the Chinese and they dominate the business and economy of the country. As each ethnic group is different from the other, it is necessary to include ethnic groups on the board of directors. Normally, stakeholders of every firm include all the three ethnic groups. If a director is appointed from a specific ethnic group, (s)he can easily understand the interests and choices of that group. Thus, a board that has a mix of Malay, Chinese and Indian directors can make good strategic decisions which will help to attract all groups of customers and increase financial performance. Moreover, a board that is comprised of directors from these three ethnicity, is treated as a good governance practice and is ethnically balanced (Abdullah & Ismail, 2013).

In addition, a mix of individuals with different philosophies makes the group more synergistic, knowledgeable and innovative which creates new ideas as compared to a group with individuals from a single philosophy (McLeod, Lobel, & Cox Jr, 1996). Carter et al. (2010) found that a board comprised of different ethnic groups can gather more information about all kinds of customers. Thus, the board can easily make decisions that are beneficial for all.

Malaysia is categorized socially, culturally and politically by its heterogeneity. The percentage of different ethnic groups in Malaysia are 67% Malays, 25% Chinese, 7% Indian and 1% others (Gul & Zhang, 2016). The heterogeneity of board members based on ethnicity is a critical issue in Malaysia. After the racial conflict of 1969, the government of Malaysia has declared a National Economic Policy where the Malays and its native group (*Bumiputeras*) should dominate at least 30% of the country's economy. Thus, at least 30% of board members of listed firms on *Bursa Malaysia* are *Bumiputeras* (Abdullah & Ismail, 2013). Table 2.2 shows a summary of studies and findings from previous research on the relationship between ethnic diversity and financial performance.

Table 2.2
Summary of Studies and Findings on the Relationship between Ethnic Diversity and Financial Performance

Author(s)	Country of Study	Year of Study	Independent Variable (IV)	Dependent Variable (DV)	Relevant Findings
Adnan et al. (2016)	Malaysia	2007-2010	Ethnic diversity	Financial performance	Ethnic diversity is negatively and significantly related to financial performance.
Gul and Zhang (2016)	Malaysia	2005-2010	Ethnic diversity	Financial performance	At low levels of ethnic diversity there is a positive relationship but at higher levels of ethnic diversity, the relationship is negative with financial performance.
Fidanoski et al. (2014)	35 companies from five countries	2008-2012	National diversity	Financial performance (ROA, Tobin's Q)	National diversity is negatively related to financial performance.
Rhode and Packel (2014)	USA	2014	Ethnic diversity	Corporate financial performance	No significant relationship between ethnic diversity and financial performance.
Abdullah and Ismail (2013)	Malaysia	2007	Ethnic diversity	Financial performance	Ethnic diversity is found to be positively related to financial performance

Source: Compiled from previous literature

2.5.3 Age Diversity

Age diversity is another significant characteristic of board of directors. The decision-making process by a homogeneous age group might be prejudiced to a specific age group of the market. This is because if the directors belong to the same age group, it is more likely that they are more experienced about customers in their age group. A board composed of directors of different ages, young and old can better understand the choices and demands of different age groups of stakeholders. Thus, it is necessary to appoint board members of different ages (Abdullah & Ismail, 2013). For example, Carter et al. (2003) showed that younger directors are more interested to appoint the women to the board of directors as compared to older directors. This shows that younger directors are more open-minded than older directors.

Hatfield (2002) argued that younger directors have more academic degrees. In addition Jhunjhunwala and Mishra (2012) revealed that they are acquainted with latest technologies. On the other hand, older directors are more experienced which they have gathered from different industries (Jhunjhunwala & Mishra, 2012; Li, Chu, Lam, & Liao, 2011). Thus, a firm can benefit from a board that has mix of young and old directors where they can use the knowledge and experience from these directors to make the strategic decisions for the firm. For example, if the firm wants to bring any new technology for its production process, the firm can use the technological knowledge of the younger directors to justify the operating feasibility, and the older directors' knowledge to judge the costs and benefits of the technology.

Furthermore, Ali et al. (2014) showed that younger directors always prefer to appoint younger managers but older directors want to the senior people to manage the firm. A newly appointed young director will try to follow and get inspiration from other younger directors. For this, Stephenson (2004) suggested that heterogeneity in terms of age can attract and retain talented people in the firm. The combination of different talented people can help to increase its financial performance and achieve a sustainable competitive advantage. Mahadeo et al. (2012) also found that age diversity among directors and financial performance were positively correlated. Table 2.3 shows a summary of studies and findings from previous research on the relationship between age diversity and financial performance.

Table 2.3
Summary of Studies and Findings on the Relationship between Age Diversity and Financial Performance

Author(s)	Country of Study	Year of Study	Independent Variable (IV)	Dependent Variable (DV)	Relevant Findings
Schneid, Isidor, Steinmetz, and Kabst (2016)	Meta-analysis of 74 studies	1984-2013	Age Diversity (AD)	Team outcomes	Age diversity and team outcomes (i.e. performance quality, financial performance, innovation and creativity, effectiveness, and satisfaction) are not significant.
Ali et al. (2014)	Australia	2011 and 2012	Age Diversity	Financial Performance	A negative linear relationship between age diversity and financial performance.
Abdullah and Ismail (2013)	Malaysia	2007	Age diversity	Financial performance	Age diversity found to be negatively related to financial performance.
Mahadeo et al. (2012)	Mauritius	2007	Age diversity	Financial performance	Age diversity positively influenced financial performance.
Overveld (2012)	Dutch	2010	Age diversity	Financial performance	Age diversity and financial performance are positively correlated.

Source: Compiled from previous literature

2.5.4 Educational Diversity

Educational diversity means that the board members are composed of directors with different educational background, task relevant skills and knowledge (Dahlin, Weingart, & Hinds, 2005). Due to the financial crises and business failures, educational diversity has become a concern among researchers (Adnan et al., 2016). In the revised Malaysian Code of Corporate Governance 2017, it is suggested that the firm should appoint directors who are knowledgeable, experienced, professional, skilled as well as have integrity and expertise. Klein (1998) suggested that if a board is more heterogeneous based on different academic backgrounds, the managers of the firm can gather diverse knowledge regarding business operations. Conversely, Baranchuk and Dybvig (2009) opined that educational diversity may create conflicts among board members and the decision-making process might be lengthy.

Research had been conducted to examine the relationship between educational diversity and financial performance in the world. Bathula (2008) found that directors with PhD qualification affected financial performance negatively. Nonetheless, more MBA holders on the board of directors provide more information concerning contemporary issues that helps in effective strategic decision-making. On the other hand, Mahadeo et al. (2012) found that educational diversity negatively affected financial performance. From the previous research, the relationship between education diversity and firm's financial performance is unclear. Thus, this study examined the impact of educational diversity among board of directors on financial performance. Table 2.4 shows a summary of studies and findings from previous research on the relationship between educational diversity and financial performance.

Table 2.4

Summary of Studies and Findings on the Relationship between Educational Diversity and Financial Performance

Author(s)	Country of Study	Year of Study	Independent Variable (IV)	Dependent Variable (DV)	Relevant Findings
Adnan et al. (2016)	Malaysia	2007-2010	Education level of board of directors	Financial performance	Educational diversity has a negative relationship with financial performance.
Fidanoski et al. (2014)	35 companies from five countries	2008-2012	Education diversity	Financial performance (Return on assets, Tobin's Q)	Educational diversity is positively related to financial performance.
Mahadeo et al. (2012)	Mauritius	2007	Educational diversity	Company performance	Negative relationship between educational diversity and company performance.
Pohjanen and Bengtsson (2010)	Sweden	2010	Educational diversity	Company performance	More educational diversity would be negative for firm performance
Bathula (2008)	New Zealand.	2004-2007	Education diversity	Financial performance	Board members with PhD level education is found to be negatively related to financial performance.

Source: Compiled from previous literature

2.5.5 Outside Director Diversity

The director who is not an executive of a firm referred to as an outside director of the firm (Zhang, 2012). According to the MCCG (2000), it is stipulated that more outside directors on the board can bring a wider range of activities to the firm. Moreover, if the board is composed of more outside directors, the board considers the interests of investors and all the stakeholders in decision-making. Adams and Ferreira (2007) argued that the main responsibility of board is to formulate strategic decisions for the firm. In this regard, the presence of outside directors is helpful determinant for making strategic decisions. Fama and Jensen (1983) also argued that independent non-executive directors can monitor the executive management

effectively to ensure the proper utilization of shareholders' investment and rate of return. Furthermore, Terjesen et al. (2016) stated that it has been accepted by researchers, academicians and policy makers that outside directors on the board ensure the transparency, effective monitoring and supervision over the top level management of a firm which enhances financial performance.

According to the resource dependence theory, outside directors bring more resources, knowledge, information and justice to the board (Pfeffer & Salancik, 2003). Moreover, outside directors are more fair to disclose and report the company's activities in their annual report compared to inside directors. For ensuring better governance practices in the firm, it is essential to appoint outside directors in the board, because outside directors to the board, because they are more conscious about the interests of owners and other stakeholders of the firm (Ayuso & Argandoña, 2009).

According to Monks and Minow (2004) both inside and outside directors have the same duties and responsibilities such as, working for the best interests of shareholders, ensuring the best corporate governance practices, carefully making strategic decisions, and ensuring the proper utilization of resources of the firm. Nevertheless, outside directors are neither accountable to the chief executive officer, nor responsible to oversee the daily operations of business assisting them to effectively monitor and control full-time employees. As they are considered to be non-executive independent directors of the company, they are not influenced or biased by any internal or external parties in making decisions. Also they do not

depend on any authority for their salary, promotion or any financial and non-financial benefits. Accordingly, they can safeguard the interests of shareholders and all other stakeholders of the company (Goergen, Mallin, Mitleton-Kelly, Al-Hawamdeh, & Chiu, 2010).

Previously a good number of studies in corporate governance has attempted to establish the advantages of having large number of outside directors on the board for example, Dalton, Daily, Ellstrand, and Johnson (1998), and Pearce and Zahra (1991). Daily and Dalton (1994) argued that as outside directors are independent, they can easily apply their fiduciary duties to safeguard shareholders' interests. Since inside directors are closer to the management, they may find it a little difficult to separate shareholders' interest from the interest of management.

Fama and Jensen (1983) had suggested to increase the percentage of outside directors on the board for effective monitoring and controlling unprincipled behaviors of top level management, thus reducing agency problem that enhances financial performance. In Malaysia, Abdullah, Mohamed, and Mokhtar (2011) observed that inside directors are more attentive on shareholders' interests but outside directors are more concerned for the interests of other stakeholders of the company. Outside directors are considered as external resources of the firm. As such, they are expected (by the firm's stakeholders) to provide accurate information and to safeguard the stakeholders' interests. Table 2.5 shows a summary of studies and findings from previous research on the relationship between outside independent directors and financial performance.

Table 2.5

Summary of Studies and Findings on the Relationship between Outside Directors Diversity and Financial Performance

Author(s)	Country of Study	Year of Study	Independent Variable (IV)	Dependent Variable (DV)	Relevant Findings
Adams and Jiang (2016)	UK	1999-2012	outside board directors	financial performance	The proportion of outsiders on the board is unrelated to financial performance
Terjesen et al. (2016)	47 countries	2010	Outside independent directors	Financial performance (ROA and Tobin's Q)	External independent directors do not contribute to firm performance unless the board is gender diversified.
Pombo and Gutiérrez (2011)	Colombia	1996-2006	Outside directors	Financial performance	Positive relationship between the ratio of outside directors and financial performance.
Kim and Lim (2010)	Korea	1999-2006	Independent outside directors	The valuation of firms	This result implies that not only the quantity but also the quality of independent outside directors affects the valuation of companies.
Arosa, Iturralde, and Maseda (2010)	Spain	2006	Outside directors	Firm performance	The presence of independent directors has a positive effect on performance when the firm is run by the first generation. However, when the firm is run by the second and subsequent generations, the presence of independent directors has no effect on performance.
Peng (2004)	China	1992-1996	Outside directors	Firm Performance	Outside directors has a positive influence on financial performance.

Source: Compiled from previous literature

2.6 Corporate Sustainability Practices

Corporate sustainability practices has become another important issue to policy makers and regulatory bodies due to an increase in population and industrialization.

Planet Earth is getting older day by the day and its natural resources are also diminishing. So, the limited resources and sustaining human life are gradually becoming destroyed. Nowadays, industries are required to reconsider their strategy and operations in such a way that it would not be harmful to society and environment. Corporate sustainability practices is also considered one of the vital determinants to gain a sustainable competitive advantage of the organization. Thus, corporate sustainability practices is a pressing issue for companies all over the world. Companies are trying to increase not only their profitability but also their sustainably activities to gain a competitive advantage in a resource-constrained twenty-first century (Hussain et al., 2018; Lu & Taylor, 2015).

Corporate sustainability practices is the latest concept of corporate social responsibility (CSR), or sustainable development (Christofi et al., 2012). The concept of corporate social responsibility was defined by Bowen in 1953 as “the obligation of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society” (Goyal & Rahman, 2014, p. 289). On the other hand, corporate sustainability practices is an integrated concept of economic, environmental and social contribution of the firm which ensures its long-term financial success and survival (Lopatta et al., 2016). According to Ioannou and Serafeim (2016), corporate sustainability practices is a new concept which refers to a statement that provides information to all stakeholders of the company regarding the economic, environmental, and social aspect of the firm.

Before the 1990s, corporate sustainability practices was referred by business leaders as the ability of a firm to increase its profitability gradually. Although corporate social responsibility, corporate social performance and corporate sustainability practices are interchangeably used in the literature, however, there are some basic differences between them. The term corporate social performance refers to the activities of a firm relating to social aspects only (Wu, 2006). Corporate social responsibility refers to activities related exclusively to social and environmental activities (Van Beurden & Gössling, 2008). Meanwhile, corporate sustainability practices refers to activities related to every dimension of the business, all economic, environmental and social activities (Hussain et al., 2018). Elkington (1999) referred it as the triple bottom line activities of a firm. The main objective of triple bottom line is not to satisfy the shareholders only, like agency theory (Jensen & Meckling, 1976) but also to consider the other stakeholders' interests (Freeman, Harrison, Wicks, Parmar, & De Colle, 2010). In this study, the term corporate sustainability practices denotes the companies' economic, environmental and social activities or simply triple bottom line activities.

Adams et al. (2012) argued that corporate sustainability practices covers the activities of the firms related to every aspects of business environment such as, economic, social and natural. The term sustainability has become widely accepted after the definition given by Gro Harlem Brundtland, the former prime minister of Norway, who defines sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”

(World Commission on Environment and Development, 1987, p. 43). Other definitions of sustainability derived from the literature are shown in Table 2.6.

Table 2.6
Definition of Sustainability by Various Scholars

Author(s)	Definition
San (2016)	Sustainability means living and working by using methods that meet and integrate existing environmental, economic, and social needs without compromising the well-being of future generations.
AICPA (2011)	“Sustainability” is a term that has emerged over time from the “triple bottom-line” consideration of (1) economic viability, (2) social responsibility, and (3) environmental responsibility.
Sharma, Iyer, Mehrotra, and Krishnan (2010)	Sustainable corporation is one that creates profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts.
Hubbard (2009)	Sustainability means meeting the needs of its stakeholders without compromising its ability to meet their needs in the future.
Weber (2008)	Corporate sustainability is the capacity of a firm to continue operating over a long period of time depending on the sustainability of its stakeholder relationship.
Mandelbaum (2007)	Sustainability is a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments.
Perrini and Tencati (2006)	Sustainability is a broad approach that includes various characteristics, in particular relating to the contextual integration of economic, environmental and social aspects. A sustainability-oriented company is one that develops over time by taking into consideration the economic, social and environmental dimensions of its processes and performance.
Krajnc and Glavič (2005)	Corporate sustainability is the development of environmental friendly products by the non-polluting process and minimum use of energy and resources while keeping society and employee welfare in mind.
Labuschagne, Brent, and Van Erck (2005)	Sustainability refers to adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future.
Dyllick and Hockerts (2002)	Corporate sustainability is defined as meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well.
Organisation for Economic Co-operation and Development (OECD, 2001)	Sustainability means the linking of economic, social, and environmental objectives of societies in a balanced way and it takes a long-term perspective about the consequences of today’s activities meeting the challenges of sustainable development requiring that the process through which decisions are reached is informed by the full range of the possible consequences and is accountability to the public.
Commission of the European Communities (2001)	Corporate sustainability is the extent to which a company contributes to environmental, social, and economic development.

Source: Compiled from previous literature

Usually, investors are attracted and interested to invest their funds into those firms which are incorporating corporate sustainability practices into their business. It has been observed from the market that both customers and investors are demanding firm to improve their engagement in sustainability practices (Amran et al., 2015). As a result, it becomes necessary for all firms to increase their sustainability practices in a holistic way. The annual global CEO survey by Price Water House Coopers in 2016, discovered that 76 percent of CEOs from giant companies think that corporate sustainability practices is more important than just financial performance to the success of their business in the 21st century. As a result, firms have become more concerned than ever with the corporate sustainability practices agenda as seen in the Global Risks Report in 2016 by the World Economic Forum (The Star Online, 2017).

Research has also shown that corporate sustainability practices brings firms greater utility (Hoang et al., 2018). Cheng et al. (2014) and Ioannou and Serafeim (2015) showed that firms with high corporate sustainability practices have many alternatives for raising their funds with lower cost of financing. Dhaliwal et al. (2011) also found that issuing corporate sustainability practices report and analyst prediction error are negatively correlated (Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012). The study of Brammer and Pavelin (2008) revealed that sustainability disclosures influences statutory pressures and increase long-term financial benefits.

Over the years, Malaysia has shown progress and development but has increasingly experienced lack of ethical consciousness related to business sustainability. The

increasing rate of population growth, urbanization, establishment of new industries have inflated Malaysia's economic, social, and environmental conditions (Bekhet & Othman, 2017). Malaysia is also experiencing from deforestation for development of housing projects, industrialization, using wood as raw materials, as well as water barrage construction and mining. As a result, water pollution, threatened wildlife, imbalanced biodiversity, damage of rivers and other environmental issues are observed. Other problems, such as air pollution from industrial production and emissions from vehicles and raw dirt are harmful to the natural environment. To reduce these issues and for its long-term survival, Malaysian firms include and become more engaged in corporate sustainability practices in their business (San, 2016).

Bursa Malaysia is playing an important role for improving corporate sustainability practices and its disclosure among its listed firms. Since 2007, a new requirement has been introduced for all public limited companies in Malaysia to report on their sustainability initiatives in their annual report (Abd-Mutalib et al., 2014). In 2015, *Bursa Malaysia Securities Berhad* issued a Sustainability Reporting Guide-2015 to assist listed issuers in preparing the sustainability statement as required under the new requirement. The guide is intended to provide relevant information and guidelines for listed firms to prepare their sustainability statements (Bursa Malaysia Securities Berhad, 2015).

Any amendments to the requirements will be on a staggered basis over three years, beginning from 31st December, 2016 to 31st December, 2018. All listed firms with

market capitalization (excluding treasury shares) of RM2 billion and above on the Main Market are obligated to publish their sustainability practices through their annual reports issued for financial years ending on or after 31st December, 2016 (Bursa Malaysia Securities Berhad, 2015). Furthermore, the revised Malaysian Code of Corporate Governance, 2017 has also instructed directors to review and adopt a strategic plan for the firm which includes strategies on environmental, social and governance underpinning sustainability (MCCG, 2017).

Nonetheless, research shows that corporate sustainability practices of listed firms are still low (Said et al., 2009; Sundarasan et al., 2016; Zahid & Ghazali, 2015). A Harvard Business Review research also found low levels of corporate sustainability practices among Malaysian firms (Ioannou & Serafeim, 2016). However, Burhan and Rahmanti (2012) showed that many big enterprises in developed countries like the United States, United Kingdom, France, Germany, and Japan have a high sustainability practices. Furthermore, in Malaysia, companies used in average 0.31 percent of their total income for community engagement as compared to European companies that contributed at least 1 percent of profit for this purpose (Aman et al., 2015). Thus, it is essential for Malaysian firms to increase their sustainability practices to attract investors, increase financial performance and enhance their competitiveness and long-term survival.

It is a common practice for large companies in developed countries to engage in corporate sustainability practices but it remains a controversial issue in developing countries. It is fact that being involved in sustainability practices increases a firm's

expenditure and reduces resources which decreases the financial performance. Moreover, it is important for the firm in a competitive market to allocate and utilize its resources effectively to increase its profitability rather than sustainability. Most of the firms in developing country are engaged in corporate sustainability practices due to regulatory pressure or to increase their goodwill in the market. It remains unclear to the firms the impact of corporate sustainability practices on financial performance (Rivera, Muñoz, & Moneva, 2017). Also, there is not enough studies conducted to examine the relationship between corporate sustainability practices and financial performance in developing country especially in Malaysia (Zahid & Ghazali, 2015).

2.6.1 Different Dimensions of Corporate Sustainability Practices of Firms

There are three aspects of corporate sustainability practices, namely, economic, environmental and social activities. Integrating these aspects are also called triple bottom line (Elkington, 1999).

2.6.1.1 Economic Sustainability

According to Global Reporting Initiatives (GRI), the economic sustainability of any firms is referred to as its impact on the economic conditions of its stakeholders, and on economic systems at the local, national, and global levels (GRI, 2013). The main objective of economic sustainability is to ensure long-term survival in the market (Baumgartner & Ebner, 2010; GRI, 2013). Zahid and Ghazali (2015) defined economic sustainability as generating sustainable values, attracting prospective investors, attaining the firm's objectives and minimizing risks. In relation to corporate sustainability practices, economic sustainability refers to the impact of a

firm's activities on the stakeholders' economic conditions not on the firms' financial performance (Bursa Malaysia Securities Berhad, 2015).

2.6.1.2 Environmental Sustainability

Environmental sustainability deals with the impact of corporate activities on the environment. This dimension is also called ecological dimension of sustainability (Zahid & Ghazali, 2015). Environmental sustainability includes the impact of a firm's internal and external activities, such as fuel and water usage, after production emissions, and effluents and waste. Moreover, biodiversity, transport, impact of product and services, environmental compliance and costs related to environmental sustainability (Baumgartner & Ebner, 2010).

Furthermore, Moldan, Janoušková, and Hák (2012) defined environmental sustainability to the increasing quality of all the elements which are helpful to survive the life in the world and also keep the environment eligible for using by the next generation. By providing corporate sustainability practices information to their stakeholders, a firm can increase its goodwill and achieve a competitive advantage over their competitor in the market (San, 2016). In relation to the corporate sustainability practices, environmental sustainability means the effects of firm's activities on natural resources like, water, land, air, tree and ecosystems (GRI, 2013). These may also include the organization's usage of energy and water, discharge of emissions, or loss of biodiversity (Bursa Malaysia Securities Berhad, 2015).

2.6.1.3 Social Sustainability

Social sustainability refers to the effect of a firm on its society where it operates its business (Bursa Malaysia Securities Berhad, 2015; GRI, 2013). Moldan et al. (2012) defined social sustainability as the extent to which social identities, social values, social institutions and social relationships can continue into the future. The main objective of social sustainability is to create, maintain and sustain good relationships with all of its present and future stakeholders. Corporate social responsibility activities is one of the most important components of social sustainability (Montiel & Delgado-Ceballos, 2014). A firm can practice social sustainability both inside and outside of its business but it should be cautious about its production processes, products and services as not to harm the society. Furthermore, a firm can spend its fund for enhancing the well-being and education development of the society (Yam, 2012). According to Bursa Malaysia Securities Berhad (2015), examples of social sustainability practices include the firm's relationship with communities, employees, and consumers. Moreover, Zahid and Ghazali (2015) noted that a consideration for human rights, decent labor practices, and producing quality products are also examples of social sustainability.

2.7 The Relationship between Corporate Sustainability Practices and Financial Performance

It is essential for a firm to earn profit to survive in the competitive business market. Adding corporate sustainability practices into the business needs a large amount of expenditures that may reduce the profitability of a firm. However, a good number of studies in the field of corporate sustainability practices have attempted to find the

answer to whether corporate sustainability practices increases or decreases the profitability of a firm (Goyal & Rahman, 2014). The relationship between corporate sustainability practices and financial performance has been analyzed by various scholars with different results. Findings were either positive, negative or neutral (Mwangi & Jerotich, 2013; Rivera et al., 2017). Thus, relationship between corporate sustainability practices and financial performance is inconclusive and debatable.

Al-Tuwaijri, Christensen, and Hughes (2004) emphasized that corporate sustainability practices and financial performance are positively correlated. Schaltegger and Wagner (2006) argued that corporate sustainability practices is an important mechanism to increase the economic value of a firm that help to increase its financial benefits. Jacobs, Singhal, and Subramanian (2010) found a positive association between corporate sustainability practices and financial performance in terms of stock return. Klassen and McLaughlin (1996) showed that a high level of corporate sustainability practices reduced the cost of production, increased sales volume, and financial performance. Similarly, Potoski and Prakash (2005) argued that firms with high sustainability practices are considered less risky during the occasional inspection by regulators. In this way firms can reduce the cost of inspection which reduces aggregate cost and increase financial performance.

Moreover, King and Lenox (2002) showed that activities of a firm related to environmental performance such as, reduced emission, and proper waste management increased the firm's financial performance. Stanny and Ely (2008) found that environmentally sustainable reporting positively influenced the

profitability of a firm. A good number of researchers investigated the relationship between corporate sustainability practices and financial performance and found positive results (Margolis et al., 2007; Van Beurden & Gössling, 2008; Wang et al., 2016). The findings suggested that although corporate sustainability practices require expenditures, the higher financial performance surpasses these expenditures.

Lins et al. (2017) showed that during the financial crisis of 2008, firms with high corporate sustainability practices earned 4 percent to 7 percent higher stock returns than firms which had low sustainability practices. Higher sustainability firms also earned higher rates of profit, higher growth rates and increased sales comparatively to firms with less sustainability practices. These findings recommend that higher levels of investments in corporate sustainability practices results in higher financial performance and trust of stakeholders toward the firm.

According to Freeman (1984), by considering the interests of all its stakeholder a firm, can enhance its financial performance in the long run. The instrumental version of the stakeholder theory proposed that a firm can respond to its stakeholder through the demonstration of corporate sustainability practices which enhance financial performance (Donaldson & Preston, 1995; McWilliams & Siegel, 2001).

Corporate sustainability practices of a firm can enhance financial performance in different ways. Firstly, firms make a strong relationship with all of its stakeholders by engaging corporate sustainability practices. This strong relationship creates a value-creating exchange in addition to their market transaction relationship between

the firm and its stakeholders (Gupta & Krishnamurti, 2018; Hillman & Keim, 2001). The value-creating exchange helps to develop moral capital and relational asset among the stakeholders (Ahn & Park, 2018; Godfrey, 2005; Hillman & Keim, 2001). The moral capital or relational assets are intangible, socially scarce types of resources that are very difficult to achieve by the competitors. These kinds of resources are anticipated to create a competitive advantage for the firms to boost up their financial performance (Lin & Dong, 2018).

Secondly, corporate sustainability practices helps to reduce employee turnover, increase employee commitment, improves customer satisfaction, enhances reputation, and increases customer loyalty (Galbreath, 2010; Galbreath & Shum, 2012; Maignan, 2001; Maignan, Ferrell, & Hult, 1999). Such benefits are anticipated to diminish transaction costs, which in turn make better financial performance (Galbreath & Shum, 2012; Jones, 1995). Thirdly, firms that are committed to corporate sustainability practices, usually operate their business above the legal requirements of the business (Carroll, 1991), their preemptive social activities and programs may save them the costs of complying with stricter regulatory requirements (Hart, 1995).

Finally, engaging in sustainability practices may help prevent the negative impacts and cost of unanticipated accidents (Bansal & Roth, 2000). Such reduced risks might be benefitted to the firm by decreasing cost of debt and cost of equity (El Ghouli, Guedhami, Kwok, & Mishra, 2011; Goss & Roberts, 2011), which ultimately enhance their financial performance. However, some scholars acknowledged that not

every individual sustainability practices in every context always leads to improvements in financial performance (Barnett & Salomon, 2012; Rowley & Berman, 2000). For example, Yusoff, Lehman, and Mohd Nasir (2006) found no visible between corporate sustainability practices and financial performance because corporate sustainability practices is focused on social performance rather than on profit maximization.

Raza, Ilyas, Rauf, and Qamar (2012) conducted a meta-analysis on the literature regarding the relationship between corporate sustainability practices and financial performance for the period of 1972-2012. Among the 76 studies, 48 studies showed a positive relationship, 4 studies showed a mixed relationship, 8 studies showed a negative relationship and 16 studies showed no relationship between corporate sustainability practices and financial performance. As the relationship between the two variables is not conclusive till date, this study further examined the relationship through empirical research. This study also used corporate sustainability practices as a moderator on the relationship between board diversity and financial performance. According to Baron and Kenny (1986), a moderator is a qualitative (for example, sex, race, class) or quantitative variable (for example, level of reward) that affects the direction and/or strength of the relationship between an independent or predictor variable and a dependent or criterion variable.

2.8 Arguments for Using Corporate Sustainability Practices as a Moderating Variable on the Relationship between Board Diversity and Financial Performance

Studies related to board diversity and financial performance showed that they are either positively (Ararat et al., 2015; Post & Byron, 2015; Terjesen et al., 2016) or negatively (Abdullah, 2014; Mahadeo et al., 2012) correlated. Thus, the relationship between the two variables is not conclusive till date (Abdullah, 2014; Adams et al., 2015; Roberson et al., 2017). In addition, it is unclear among previous researches regarding board diversity issue at the board level and financial performance (Hassan et al., 2015). Furthermore, a good number of studies concerning board diversity and financial performance reported an insignificant direct relationship between the variables (Galbreath, 2018). In fact, little is known about why and when board diversity would influence financial performance (Roberson et al., 2017). So, it is plausible to carry out further studies to examine the relationship between board diversity and financial performance in a more holistic way (Hassan et al., 2015). Additionally, Roberson et al. (2017), Post and Byron (2015) and Umans (2013) stated that as the relationship between board diversity and financial performance have reported mixed results, the concerned parties might benefit from the investigation of critical influences of the interaction on this relationship.

Furthermore, Roberson et al. (2017) and Post and Byron (2015) argued that the variation in results between the relationship between board diversity and financial performance was due to other strategic or contextual factors. Accordingly, it was assumed that a firm's corporate sustainability practices is a possible factor which

may cause the inconclusive result between this relationship. The study of Post and Byron (2015) showed that the extent to which a diverse board can positively contribute to financial performance depends on the extent to which boards are motivated to leverage on the diverse knowledge, experience, and values of their members.

At Present, Globally, corporate sustainability practices is a pressing issue for all the firms to gain competitive advantage in this resource-constrained twenty-first century (Hussain et al., 2018). Lins et al. (2017) found that during the financial crisis of 2008, firms with high corporate sustainability practices earned 4 percent to 7 percent higher stock returns than firms which had low corporate sustainability practices. In addition, market players such as investors, shareholders, and creditors are now more concerned on the social and environmental implications caused by their companies' operations rather than their financial success only (Amran et al., 2015). Accordingly, it is assumed that a higher level of investment in corporate sustainability practices help to take effective decisions which bring about stakeholders' trust on the firm and better financial performance.

Research has shown that environment of firms' moderates the relationship between upper level management and financial performance (Haleblian & Finkelstein, 1993). Post and Byron (2015) showed that safeguards of shareholder positively moderated the relationship between board diversity and financial performance. They also observed that high safeguards of shareholder incline to strengthen corporate governance while lower safeguards weaken governance mechanism, similar to the

study by Porta, Lopez de Silanes, and Shleifer (1999). Post and Byron (2015) showed that when shareholder safeguards are weak, there is less motivation for board directors to optimize their decisions because directors cannot easily be held liable for failures of fiduciary responsibilities.

Extending the above work, this study assumed that the firm's economic, environmental and social activities moderate the relationship between board diversity and financial performance. In particular, the degree of corporate sustainability practices determines how board diversity influences financial performance. Specifically, this study argues that a firm's corporate sustainability practices can motivate the diversified board to make effective decisions which in turn enhances the financial performance (Baron, 2008; Rowley & Berman, 2000). This study also finds that the relationship between diverse boards and firms' financial performance is more positive in firm with stronger corporate sustainability practices because such practices motivate boards to improve their decision making.

Moreover, underlying theories of this research include the stakeholder and the resource dependence theory, both of which benefit stakeholders before financial performance. Becoming good to the environment and society are increasing the competitive advantage of a firm, which ultimately enhance its financial performance (Donaldson & Preston, 1995; Waddock & Graves, 1997). Furthermore, according to the stakeholder theory, firms that makes and maintains a good relationship with its stakeholder by demonstrating corporate sustainability practices, anticipated better financial performance comparatively to its competitors who has low corporate

sustainability practices (Freeman, 2004; Jensen, 2001). Logically, then, the mechanism through which diversified boards affect financial performance may be with the support of their corporate sustainability practices as a means of responding to stakeholders needs and interests (Lins, Servaes, & Tamayo, 2017; Rivera et al., 2017). Hence, whether corporate sustainability practices moderate the relationship between board diversity and financial performance needs an empirical study.

2.9 Relevant Theories

Carter et al. (2010, p. 398) argued that “no single theory directly predicts the nature of the relationship between board diversity and a firm’s financial performance but several theories from various fields provide insight into the issue”. The relationship between board diversity and financial performance can be explained by the agency, the resource dependence and the stakeholder theories (Abdullah & Ismail, 2013). These theories can provide the explanation regarding the influence of board diversity on financial performance as well as influence of corporate sustainability practices on the relationship between board diversity and financial performance. These theories have been selected as representing the main roles of the board of directors (Hillman & Dalziel, 2003).

The literature on board composition and financial performance largely draws on the agency theory to make and test predictions. According to the agency theory framework, corporate directors act as monitors of the firm. The diverse board of a firm increases its independence as directors with different categories and background may raise different questions that may not come from directors from a homogeneous

group. However, agency theory does not directly address how and why board diversity may impact financial performance (Carter et al., 2003). Therefore, some other theories are required to explain the relationship between them. The relevant theories related to board diversity, corporate sustainability practices and financial performance are explained in the following sections.

2.9.1 The Agency Theory

Jensen and Meckling (1976) developed the agency theory that has significant implication on the association between board diversity and financial performance. The theory states that in an agency relationship a principal appoints another an agent to carry out some activities on behalf of the principal. Abdullah and Valentine (2009) explained the agency relationship in the case of firms where the shareholders are principal and the managers and executives are agents. Thus, the agency theory states that the shareholders (principal) appoint managers or executives as their agents to operate the business and make decisions on their behalf.

The board of directors are considered as the most important determinants for ensuring effective corporate governance and have the ability to enhance shareholders' wealth through an effective monitoring or control system over top management teams (Coles, McWilliams, & Sen, 2001). According to agency theory, a diverse board increases board independence. So, if the board is more diverse, it is not dependable on the management. This independency of the board helps them to monitor the managers effectively and efficiently which will increase financial performance (Fama & Jensen, 1983; Jensen & Meckling, 1976). The theory also

provides the rationale for the board's critical function of monitoring management on behalf of the shareholders (Eisenhardt, 1989; Fama & Jensen, 1983). Moreover, this theory explains the agency conflict which arises from the relationship between the principal and agent.

2.9.2 The Resource Dependence Theory

The resource dependence theory considers the board as an important link between the company and the outside resources and environment that are indispensable for increasing financial performance (Hillman, Cannella, & Paetzold, 2000; Pfeffer, 1973; Pfeffer & Salancik, 2003). The theory argues that the board of directors act as a resources provider that supplies legitimacy, advice and counsel to firms (Hillman et al., 2000; Hillman & Dalziel, 2003). The outside resources, controlled by some important organizations, can generate uncertainties and obstacles to bring the outside resources to the company. As such, the management of a firm should build good communication and understanding with these outside resources to reduce obstacles and obtain the external resources to improve the overall performance of the firm (Hillman, Shropshire, & Cannella, 2007).

The resource dependence theory also argues that the board of directors is considered as an important resource to reduce outside dependency and uncertainty. Under this view, BOD brings information and expertise to the firm, create channels of communication with the firm's external entities, obtain commitments of support from outside entities, and work to create legitimacy for their company in its external environment (Carter et al., 2010). In this context, board diversity increases the

opportunities to raise funds for the firm and enhances the relationship with competitors and customers (Reguera-Alvarado et al., 2017). For instance, some firms may appoint female directors on their boards to build good relations with their female clients or customers (Liu, Wei, & Xie, 2014). Thus, communications build by women directors with outside resources can increase critical resourcing which help to improve financial performance (Reguera-Alvarado et al., 2017).

Unlike agency theory which focuses only on the disciplinary role of the corporate directors and stresses diversity in terms of director independence, the resource dependence perspective views them as involved business partners and guides. Thus, more heterogeneity in the board can bring more resources which can give more valuable services to the firm that in turn may result in better overall firm performance (Terjesen et al., 2016).

2.9.3 The Stakeholder Theory

Freeman (1984) seminal paper on stakeholder theory argued that a firm is surrounded with many of its stakeholders. Generally an individual or a group of people are called stakeholder who influence the firm or influenced by the firms' activities such as investors, customers, employees, suppliers, NGOs and local communities (Freeman, 1984). Stakeholders are now more aware of the contribution of businesses on the economy, environment and society (Amran et al., 2015). Stakeholders are categorized into two groups, primary and secondary stakeholders. Primary stakeholders are connected with the direct activities of the company and directly influence the internal activities of the company. They include shareholders,

employees, customers and suppliers. On the other hand, secondary stakeholders are a group of individuals such as competitors, the regulatory bodies, the government, consumers' advocates, media and other outside interest groups, who can indirectly influence the external activities of the company (Clarkson, 1995; Freeman, 1984).

The stakeholder theory has been accepted and widely used in the area of corporate sustainability practices (Margolis & Walsh, 2003). Though this theory has a strong ethical foundation (Freeman et al., 2010), the instrumental version has received considerable attention (McWilliams & Siegel, 2001; Surroca, Tribó, & Waddock, 2010). According to the instrumental stakeholder theory, if a firm builds a good relationship with its stakeholders, it will increase financial performance in the long-run (Donaldson & Preston, 1995; Jones, 1995). Freeman (1984) noted that shareholders of any company would want to increase its profitability but this concept is not sufficient for firms to gain a competitive advantage and survive in a failing economy. Thus, the company should be engaged in sustainability activities to manage the diverse group of stakeholders.

The stakeholder theory also stipulates that firms visibly and invisibly are connected with different social constituents and the firm should have contract with these constituents (Donaldson & Preston, 1995; Freeman, 1984; Jones, 1995). The considerations of all stakeholders of the firm make widen the vision of the management and their roles and responsibilities regarding the corporate sustainability practices beyond profit maximization (Mitchell, Agle, & Wood, 1997). The main aim of this theory is that the success and survival of the firm is dependent

on the stakeholders of firm because they provide materials and necessary resources for the firms (Hill & Jones, 1992). If stakeholders are willing to not to provide such kind of resources a firm might be unable to continue its operations that tends to create the insolvency of the firm (Clarkson, 1995; Harjoto, Laksmana, & Lee, 2015). Thus, to survive, a firm needs to cooperate with all of its stakeholders.

The main purpose of stakeholder theory is for the firm to build a strong relationship with its stakeholders. The firm should focus on those stakeholders who can influence the firm directly or indirectly. The theory also argues that managers have the responsibilities to maintain the good relationship with the stakeholders as well as the stockholders (Padachi, Urdhin, & Ramen, 2016). Thus, board diversity, corporate sustainability practices, and financial performance become relevant from the perspective of stakeholder theory as well. A diversified board of a firm could understand the proper societal needs of the stakeholders and thereby create a positive reputation of the firm as well as increase its stockholders' wealth (Hassan et al., 2015).

2.10 Summary of the Chapter

Chapter two describes the literature review and the theoretical aspects of board diversity, corporate sustainability practices and financial performance. In theoretical aspects, the agency and the resource dependence theory have been used to explain the link between board diversity and financial performance. The stakeholder theory has been used to explain the moderating effects of corporate sustainability practices on the relationship between board diversity and financial performance. As suggested

by the agency theory directors should monitor the actions of managers to protect shareholders' interests. The resource dependence theory offers that board of directors provides a mechanism for the firm's link with critical resources that are needed, and the directors also bring resources to the firm. On the other hand, the stakeholder theory suggests that when a firm maintains a good relationship with its stakeholders, it increases the financial performance.

Based on the findings of previous studies regarding board diversity, corporate sustainability practices and financial performance, the following conclusions can be made: First, the link between board diversity and financial performance is not conclusive till date. Some studies suggest further examination of the relationship by using influences of a third interaction variable (moderating) on that relationship. Thus, further empirical research is needed. Second, it was stated from previous literature that financial performance is influenced by corporate sustainability practices of the organization. However, the findings of these studies were also inconclusive and debatable. Thus, the relationship between corporate sustainability practices and financial performance is still debatable. The research framework, hypotheses development and research methods are discussed in the next chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology involves a systematic procedure for conducting a research (Kothari, 2009). It deals with the gathering, analyzing and explaining data to achieve the objectives of research. This chapter describes the research design and methods employed to address the research problems discussed in Chapter One. Firstly, the research framework, development of hypotheses, operational definitions of the variables, model specifications and measurement of variables are discussed here. Secondly, this chapter reports the statistical techniques which were used to analyze the data. Finally, the chapter ends with an explanation of the control variables used in this study.

3.2 Research Framework

This study uses a firm's financial performance as the outcome variable and board diversity as the explanatory variable. There are two ways board diversity might influence financial performance. First, this study explains the influence of board diversity on financial performance relying on the resource dependence theory, and the agency theory. Second, this study aims to examine the moderating role of corporate sustainability practices in the relationship between board diversity and financial performance based on the stakeholder theory. Figure 3.1 shows the research framework for this study.

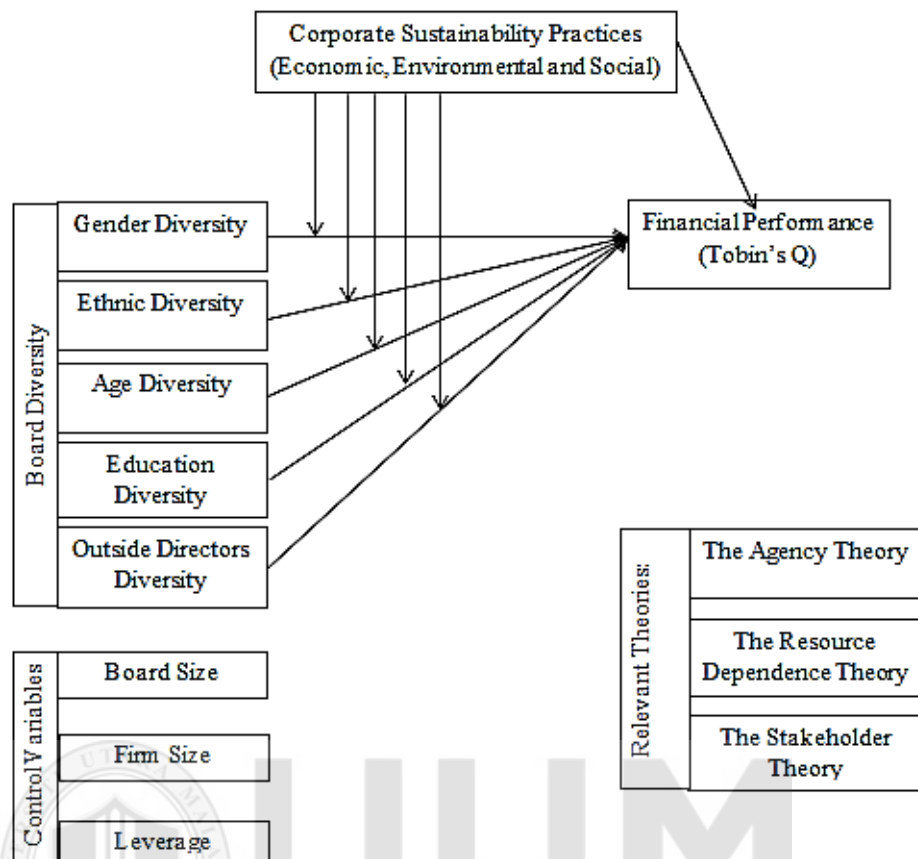


Figure 3.1
Research Framework

To describe the connection between board diversity, corporate sustainability practices and financial performance, a theoretical underpinning is also required. Previous researchers suggested to use a multi theoretical framework, because any single theory could not properly explain the effect of board diversity on financial performance (Carter et al., 2010; Lynall, Golden, & Hillman, 2003). On the basis of agency theory, it is argued that board diversity increases board independence, which ultimately promotes the ability of the board to monitor the firm's management (Fama & Jensen, 1983; Jensen & Meckling, 1976). Subsequently, more efficient monitoring of management is likely to promote financial performance (Alm & Winberg, 2016). However, several scholars argued that the agency theory alone could not give any

strong support on the effect of board diversity on financial performance (Carter et al., 2010). Thus, the agency theory alone seems to be inadequate to clarify the relationship between board diversity and financial performance.

Another theory, namely the resource dependence theory, has also been applied to explain the relationship between board diversity and financial performance over time (Carter et al., 2010). The resource dependence theory argues that when a firm improves its social relationships, it increases financial performance (Hafsi & Turgut, 2013; Hillman et al., 2000; Pfeffer, 1973; Pfeffer & Salancik, 2003). The theory also postulates that the board of directors is a resource to the firm including their reputation, expertise, information network and better advice which they bring with them (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978). Under this view, the board of directors create channels of communication with the firm's external constituents, bring along information and expertise to the firm, obtain commitments of support from external constituents, and work to create legitimacy for their firms in its external environment (Carter et al., 2010; Liu et al., 2014). In addition, a diverse board expands the possibilities of access to finance and improves relations with competitors and customers (Reguera-Alvarado et al., 2017). Thus, according to the resource dependence theory, board diversity provides more valuable services to the firm which in turn may result in better financial performance (Terjesen et al., 2016).

To explain the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance, this study refers to the stakeholder theory which is an emerging theory and appropriate to use based on

the literature on sustainability (Margolis & Walsh, 2003). In the stakeholder theory, Freeman (1984) stated that consideration of the concept of profit maximization based on the shareholder view is not sufficient for a firm to gain competitive advantage and survive in a failing economy by managing its diverse stakeholders. Thus, the main objective of stakeholder theory is to create a strong relationship between the firm and all of its stakeholders. A diversified board would better understand stakeholders' needs and create a positive image of the firm to the stakeholders which could help to increase the wealth of the organization (Hassan et al., 2015). Although the stakeholder theory has a strong moral foundation (Freeman et al., 2010), the instrumental version drew substantial attention among researchers (McWilliams & Siegel, 2001; Surroca et al., 2010). The instrumental version of this theory argues that when a firm maintains its relationship with all its stakeholders properly, it enhances the firm's financial performance in the long-run (Donaldson & Preston, 1995; Jones, 1995).

3.3 Hypotheses Development

This section provides a discussion of the development of the hypotheses based on the research questions and research framework. In this research, three main variables are carefully considered, namely: board diversity (as an independent variable), financial performance (as a dependent variable) and corporate sustainability practices (as a moderating as well as independent variable). Board diversity was measured by gender, ethnicity, age, education, and outside directors' diversity. Financial performance was measured by Tobin's Q while corporate sustainability practices was measured by the firm's economic, environmental and social activities.

The following hypotheses were established to measure the relationship between board diversity and financial performance.

3.3.1 Gender Diversity and Financial Performance

Gender diversity implies to the presence of both male and female directors on the board. Several theoretical arguments exist regarding the relationship between the presence of women on the board of directors and financial performance (Kılıç & Kuzey, 2016). Female directors are risk averse and more detail-focused than male directors (Graham, Stendardi Jr, Myers, & Graham, 2002; Stendardi, Graham, & O'Reilly, 2006). Comprising both male and female directors on a board can place the firm in a better position to evaluate the risks and return related to decisions such as business expansion, investment in new projects or business diversity. However, based on inconsistent and contradicting results from previous studies, there is no concluding decisions over the relationship between gender diversity on the board of directors and financial performance (Kılıç & Kuzey, 2016).

A large number of literature investigated the relationship between gender diversity and financial performance (Post & Byron, 2015) and among these, many found a positive relationship between gender diversity and financial performance (Campbell & Mínguez-Vera, 2008; Dezsö & Ross, 2012; Isidro & Sobral, 2015; Liu et al., 2014; Low, Roberts, & Whiting, 2015; Lückerath-Rovers, 2013; Terjesen et al., 2016). Nonetheless, a few studies did not show any relationship between the variables (Boubaker, Dang, & Nguyen, 2014; Chapple & Humphrey, 2014) while others showed a negative relationship (Adams & Ferreira, 2009; Shrader et al., 1997).

In addition, Matsa and Miller (2013) showed both positive and negative relationship between gender diversity and financial performance.

Liu et al. (2014) found a significant positive effect of gender diversity of board members and financial performance of firms in China. Isidro and Sobral (2015) found similar findings in a sample of European firms. Low et al. (2015) found that more female board directors positively influenced financial performance from sample of firms in Malaysia, Hong Kong, Singapore and South Korea. Lückerath-Rovers (2013) examined the effect of female directors on financial performance on a sample of Dutch firms and concluded that boards with female directors performed better than other firms which had no female directors. Consequently, the following hypothesis was posited:

H₁: Gender diversity positively influences financial performance.

3.3.2 Ethnic Diversity and Financial Performance of Firms

Ethnic diversity on a board of directors usually provides firms with more comprehensive non-redundant resources and more extensive networks of relationships (Singh, 2007). Since individuals from different ethnic groups possess versatile attitudes, cognitive functions and beliefs (Robinson & Dechant, 1997), these attributes promote viewing issues from different perspectives, healthy debates and discussions (Williams & O'Reilly 1998). Consequently, it is likely to result in effective problem-solving skills and high-quality decision-making regarding the firm's financial matters.

However, the previous literature also acknowledged that the presence of ethnic diversity on the board could result in adverse outcomes in decision-making and thereby lower financial performance. It is argued that the widely varying opinions of team members from diverse ethnic groups could be counterproductive due to the risk of increased emotional conflict and interpersonal clashes within the group, which could affect financial performance adversely (Tsui, Egan, & O'Reilly, 1992). Moreover, homogenous groups are likely to enjoy greater interaction among the members and greater team cohesion than heterogeneous groups (Horwitz & Horwitz, 2007; Tsui & O'reilly, 1989).

The agency theory argues that ethnic diversity on the board of directors is anticipated to provide better monitoring since it makes the board more censorious than the non-ethnically diverse board (Carter et al., 2003; Kim, Pantzalis, & Park, 2013). On the other hand, the resource dependence theory argues that a diverse board is a resource of an organization which provides strategic decisions for its survival and enhance its financial performance (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978). Thus, this study hypothesized that:

H₂: Ethnic diversity positively influences financial performance.

3.3.3 Age Diversity and Financial Performance

Age diversity of board members has also the potential to enrich both the performance of the board as well as its financial performance. This may because directors with different ages have different backgrounds, experiences,

communication skills and social networks. Presently, the younger generation are more skilled in utilizing the computers and the internet and they are more informed and better experienced with online business. On the other hand, the older generation is more experienced with offline business, because they have spent more time in this field. Both online and offline business experts are necessary for any firm, because most of the firms are involved in both types of business (Dagsson & Larsson, 2011). Francis, Hasan, and Wu (2012) showed that age diversity of board members positively influenced financial performance among firms. Overveld (2012) found a positive relationship between age diversity and financial performance. On the other hand, Abdullah and Ismail (2013) found a negative relationship between age diversity and financial performance of firms in Malaysia. The above arguments lead to the following hypothesis:

H₃: Age diversity positively influences financial performance.

3.3.4 Education Diversity and Financial Performance

Education diversity means that board members having different educational background, task relevant skills and knowledge (Dahlin et al., 2005). Prior studies argued that boards comprising directors from different educational backgrounds bring different viewpoints for monitoring and controlling duties by which the shareholders can benefit through better utilization of resources, problem solving and developing best strategies (Jensen, 1993; Williams & O'Reilly 1998). However, other studies argued that directors from different educational backgrounds create

boardroom conflicts and complicated the decision making process (Baranchuk & Dybvig, 2009; Putnam, 2007).

Many researchers have examined the relationship between education diversity and financial performance (Anderson, Reeb, Upadhyay, & Zhao, 2011; Boadi & Osarfo, 2019). Bathula (2008) found that a director with a doctoral background negatively affected financial performance. On the other hand, Pohjanen and Bengtsson (2010) found that education diversity among board members negatively affected firm's financial performance. Similarly, Mahadeo et al. (2012) found that boards which comprised of a higher mix of educational background decrease firm's financial performance. From the previous literature, it was observed that the relationship between board members' educational diversity and firms' financial performance is still inconclusive and inconsistent. So, this study assumes the following hypothesis:

H₄: Education diversity positively influences financial performance.

3.3.5 Outside Director Diversity and Financial Performance

A board member who is not an executive director is called an outside director (Zhang, 2012). Outside directors are considered as non-executive independent directors of the company. The resource dependence theory argues that outside directors would provide more information, resources and legitimacy to the firm (Ayuso & Argandoña, 2009; Fernández-Gago, Cabeza-García, & Nieto, 2018; Pfeffer & Salancik, 2003). Moreover, MCCG (2000) suggested that an outside

director can bring a wider view of the firms' activities that help the board to become more responsive to all of its stakeholders.

Quite a large literature has analyzed the effect of outside directors on financial performance and found inconclusive results. For example, Tulung and Ramdani (2018), Pombo and Gutiérrez (2011), Kim and Lim (2010), and Florackis and Ozkan (2009) showed that the percentage of outside directors positively influenced financial performance. On the other hand, Arosa et al. (2010), Bhagat and Black (2001) found that the existence of outside directors did not increase the value of the firm. Moreover, Kang, Cheng, and Gray (2007) found mixed results between the two variables. In addition, the agency theory also postulates that the presence of outside directors increases the independence of the board (Jensen & Meckling, 1976). This helps to enhance the strength of board monitoring and becomes supportive in the decision making process which ultimately reduces agency costs and increases financial performance (Kamardin et al., 2014; Ramly et al., 2017). Thus, the following hypothesis was developed.

H₅: Outside director diversity positively influences financial performance.

3.3.6 Corporate Sustainability Practices and Financial Performance

The proper practices of corporate sustainability practices of a firm also enhances its financial performance over time (Lins et al., 2017; Rivera et al., 2017). Corporate sustainability practices enhance goodwill that eventually influences financial performance favorably. Usually, customers of corporate sustainability practices

oriented firms are willing to pay the premium price for the product of that firm (Hasan, Kobeissi, Liu, & Wang, 2018). Firms which have corporate sustainability practices can attract and retain qualified and dedicated employees which in turn enhances its financial performance (Baron, 2008; Rowley & Berman, 2000).

Furthermore, balanced economic, environmental and social engagements may help the firm in reducing its cost of capital and the high price of its products (Porter & Van der Linde, 1995). Consequently, it may make the firm more profitable as compare to the firms with less sustainability practices at the same pattern of systematic risks (Charlo, Moya, & Muñoz, 2015). Therefore, the following hypothesis was posited:

H_6 : Corporate sustainability practices positively influence financial performance.

3.3.7 Moderating Hypotheses

Underlying theories of this research include the stakeholder theory and the resource dependence theory, both of which benefit stakeholders before financial performance. Becoming good to the environment and society are increasing the competitive advantage of firms, which ultimately enhance their financial performance (Donaldson & Preston, 1995; Waddock & Graves, 1997). Previous literature showed that a diversified board of directors enhances a firm's financial performance (Ararat et al., 2015; Post & Byron, 2015; Terjesen et al., 2016). However, findings are predominantly mixed for a direct relationship between the two variables (Galbreath,

2018) and as such an alternative examination is necessary (Hermalin & Weisbach, 2003). One alternative explanation may be that board diversity may influence financial performance in the presence of other aspects of the business such as moral capital, and relational assets of the firm (Rao & Tilt, 2016).

The stakeholder theory argues that firms should make a mutual association with its stakeholders by improving its moral, ethical and social standards, for example, through demonstrating robust corporate sustainability practices (Freeman, 2004; Jensen, 2001). Reasonably, through these activities, board diversity may affect financial performance more with the support of their corporate sustainability practices as a means of responding to stakeholder needs and interests. From previous research, it was also found that corporate sustainability practices enhances a firm's financial performance (Lins et al., 2017; Rivera et al., 2017). Hence, this empirical study is necessary to examine whether corporate sustainability practices moderates the relationship between board diversity and firms' financial performance. Thus, the following hypotheses were proposed:

H₇: Corporate sustainability practices moderates the relationship between gender diversity and financial performance.

H₈: Corporate sustainability practices moderates the relationship between ethnic diversity and financial performance.

H₉: Corporate sustainability practices moderates the relationship between age diversity and financial performance.

H_{10} : Corporate sustainability practices moderates the relationship between education diversity and financial performance.

H_{11} : Corporate sustainability practices moderates the relationship between outside director diversity and financial performance.

3.4 Research Design

A research design requires plan and structure of investigation for collecting and analyzing data to find answers to the research questions. The plan refers to the overall scheme or program of the research while structure reflects the conceptual framework used to specify the relationships among the study variables (Krathwohl, 1985). According to Creswell (2013), a “research design refers to the plan or proposal to conduct a research and involves the intersection of philosophy, strategies of inquiry and specific methods”.

Normally, researchers use three types of research approaches, i.e., quantitative, qualitative, or the mixed method. This study examines the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance among Malaysian firms. To fulfill the objective, this study conducted a quantitative research with the use of different statistical methods and analyses. This is the best approach when the research problem calls for the recognition of issues which affect a result or perception of the best predictors of outcomes or to test a theory or explanation (Creswell, 2013).

This study also employed panel study for investigating the relationship between the independent and dependent variables. The panel study is a longitudinal study and it minimizes the repeated sampling error effects (Islam, 2011). Moreover, this study followed positivism or deductive approach research philosophy. By using deduction, the researcher could gather knowledge from established theories to create one or more hypotheses and tries to undergone an empirical examination to test the hypotheses. Finally the conclusions were drawn by logical reasoning.

3.5 Operational Definition of Variables

The operational definitions of the variables used in this study and their source are given in Table 3.1.

Table 3.1
Operational Definition of Variables

Variables	Operational Definitions	Source
Financial Performance	Financial performance refers to the measurement of changes of the financial outcome of companies based on Tobin's Q.	Gordini and Rancati (2017)
Board Diversity	Board diversity refers to the composition of board members with different characteristics and backgrounds such as gender, ethnicity, age, education and outside directors.	Harjoto et al. (2015)
Gender Diversity	Gender diversity means the heterogeneity of board members on the basis of gender, male or female.	Harjoto et al. (2015)
Ethnic Diversity	Ethnic diversity refers to the composition of board members on the basis of their ethnicity: 'Malay', 'Chinese', 'Indian' or 'Others' in the context of Malaysia.	Gul and Zhang (2016)
Age Diversity	Age diversity refers to differences in age distribution among board members categorized into the following age brackets: 'Below 41 years old', '41 – 50 years old', '51 – 60 years old', '60 – 70 years old', and 'Over 71 years old'.	Harjoto et al. (2015)
Educational Diversity	Educational diversity refers to composition of the board members and their educational background: business degree, technical degree, law degree, or liberal arts degree.	Anderson et al. (2011).
Outside	Outside director refers to a director of a firm when	Zhang (2012).

Variables	Operational Definitions	Source
Directors Diversity	(s)he is not an executive of that firm and is also an independent director.	
Corporate Sustainability Practices	Corporate sustainability practices is an integrated concept of economic, environmental and social contribution of the firm which ensures its long-term financial success and survival.	Lopatta et al. (2016).
Economic Sustainability	Economic sustainability is defined as the firm's impact on the economic conditions of its stakeholders, and on the economic systems at the local, national, and global levels.	GRI (2013)
Environmental Sustainability	Environmental sustainability is defined as the environmental dimension of sustainability which concerns the firm's impact on living and non-living natural systems, including land, air, water and the ecosystems.	GRI (2013)
Social Sustainability	Social sustainability refers to the firm's impact on the social system in which it operates.	GRI (2013)
Board Size	Board size is defined as the total number of members on the firm's board of directors.	Chen, Crossland, and Huang (2016)
Firm Size	Firm size refers to the total assets of a firm.	Odalo et al. (2016).
Leverage	Leverage is defined as the ratio of total debt to total assets of a firm.	Jizi (2017)

3.6 Measurement of Variables

There are three parts in the research framework of this study. The first part is the financial performance of firms. The second part is board diversity which has five dimensions namely: gender, ethnicity, age, education, and outside director diversity. The third part that is corporate sustainability practices which are divided into three core areas: economic, environmental and social. The measurement of variables is discussed in the following sections.

3.6.1 Financial Performance

Financial performance is defined as a measure of the change of the financial state or financial outcome of companies that results from management's decisions and the implementation of those decisions by members of the company (Carton & Hofer,

2006). This study measured financial performance by a market-based measure which is Tobin's Q. It is one of the most important market-based financial measure frequently used to measure a firm's financial performance. Barzegar and Babu (2008) argued that the Tobin's Q ratio shows the ability of the management to create income from an asset. According to Hu and Izumida (2008), Tobin's Q provides a viewing window into the company through the market value of the securities issued and captures the long-term impact of company actions. According to Feldman and Montgomery (2015), Tobin's Q represents not only the investors' evaluation in terms of share price but also reflects the future prospects of the firm.

If Tobin's Q is greater than 1.0, this means the firm is worth more than its book value. However, a value of less than 1.0 means that the market is expecting the firm to destroy shareholders' wealth in the long term (Terjesen et al., 2016). It is also a signal of the stockholders' and creditors' wealth positions in the firm (Carter et al., 2010). Tobin's Q is measured by the summation of the market value of equity and book value of total debts divided by the book value of total assets (Conyon & He, 2017; Gordini & Rancati, 2017) Many previous researchers used Tobin's Q in their study as a proxy to measure financial performance such as, Duppati et al. (2017), Guo et al. (2017), Gordini and Rancati (2017), Conyon and He (2017), Feldman and Montgomery (2015) and Klapper and Love (2004).

3.6.2 Board Diversity

Board diversity is referred to as tangible or apparent differences among the board members in terms of gender, age, race, ethnicity, religion, language and other

distinguished characteristics that affect their interactions and relationships with other board members and stakeholders (Bell, 2011; Piekkari et al., 2015). In this study, board diversity is operationalized as differences in gender, ethnicity, age, education and outside directors (Harjoto et al., 2015).

This study employs Blau's index (Blau, 1977) to calculate all the different variables of board diversity. Blau's index is an appropriate measure of heterogeneity (Miller & Triana, 2009). It is one of the most commonly approaches to measure diversification within a group of individuals in an organization (Harrison & Klein, 2007). There is no negative value in Blau's index. The value of Blau's index consists of a zero point to represent homogeneity in the sample data until bigger numbers (less than 1) when there is a higher diversity (Buse et al., 2016). Many studies have used the Blau's index to measure diversity, such as Gordini and Rancati (2017), Buse et al. (2016), Carmen Diaz-Fernandez, Rosario Gonzalez-Rodriguez, and Pawlak (2014), Kaczmarek, Kimino, and Pye (2012), Ararat, Aksu, and Tansel Cetin (2010), Miller and Triana (2009), and Campbell and Mínguez-Vera (2008).

3.6.2.1 Gender Diversity

Gender diversity means the heterogeneity of board members on the basis of gender, male or female (Harjoto et al., 2015). In this study gender diversity was measured by Blau's heterogeneity index (Blau, 1977) which was also employed by Campbell and Mínguez-Vera (2008). Blau's heterogeneity index is stated as $1 - \sum_i p_i^2$, where i represents the two categories: male or female and p_i represents the proportion of board members belonging to category i . The Blau index thereby ranges between 0

representing no diversity and a maximum value of 0.5 when there is an equal number in each category which is similar to the study of Gordini and Rancati (2017).

3.6.2.2 Ethnic Diversity

Ethnic diversity refers to the composition of board members on the basis of their ethnicity (Gul & Zhang, 2016). As Malaysia is a multi-ethnic country, the population of this country encompasses primarily of three main ethnic groups; Malays, Chinese and Indians (Abdullah & Ismail, 2013). In addition to these three ethnic groups, Malaysia's population is made up of other indigenous ethnic groups, and non-residents. As such, a board can be composed of directors from other countries (Gul & Zhang, 2016). This study identified the ethnicity of board members from information provided in firm's annual report. Generally, the Malays were easily recognized as they have Muslim names while the ethnicity of other directors were identified from their biography disclosed in the annual report (Gul & Zhang, 2016). Names and photographs of the directors were good indicators to detect their ethnicity.

This study categorized the ethnicity of board members into four categories: 'Malay', 'Chinese', 'Indian' or 'Others' (Gul & Zhang, 2016). The degree of ethnic heterogeneity is calculated by using Blau's heterogeneity index (Blau, 1977). Blau's heterogeneity index is specified as $1 - \sum p_i^2$. Where p_i is the proportion of board members in each of the i number of groups. Therefore, ethnic diversity of board members ranged from 0 when the board was represented by only one ethnic group to

0.75 when all four ethnic groups were represented equally which is similar to the study of Gul and Zhang (2016).

3.6.2.3 Age Diversity

Age diversity refers to differences in age distribution among board members. For this study, age was categorized into five age brackets: 'Below 41 years old', '41 – 50 years old', '51 – 60 years old', '60 – 70 years old', and 'Over 71 years old' (Harjoto et al., 2015; Kang et al., 2007). Age diversity was also calculated by using Blau's heterogeneity index (Blau, 1977). Blau's heterogeneity index is specified as $1 - \sum p_i^2$. Where p_i is the proportion of board members in each age category. Therefore, age diversity was 0 when only one age group was represented in the board and 0.80 when members from all five age brackets were represented equally (Harjoto et al., 2015). Other researcher also measured age diversity by Blau index (Tanikawa, Kim, & Jung, 2017).

3.6.2.4 Education Diversity

Education diversity means that the board members have different educational backgrounds, task relevant skills and knowledge (Dahlin et al., 2005). In this study, education diversity is measured by using Blau's heterogeneity index (Blau, 1977) on the basis of the proportion of directors with a business degree, liberal arts degree, a technical degree, a law degree or other degrees (Anderson et al., 2011). Blau's heterogeneity index is specified as $1 - \sum p_i^2$. Where p_i is the proportion of board members from each type of degree. Therefore, education diversity could range from 0 when only one type of educational degree was represented by all board members to

0.80 when all five types of educational degree were equally represented among the board members. Other study had also used Blau's index to measure education diversity of board members such as Alhosani, Katsanis, and Alkass (2017).

3.6.2.5 Outside Director Diversity

An outside director of a firm refers to a director who is not an executive of the firm and also is independent (Zhang, 2012). Outside directors heterogeneity was calculated by using Blau's heterogeneity index (Blau, 1977) on the basis of the proportion of non-executive independent directors (outside directors) and remaining directors (inside directors). Blau's heterogeneity index is specified as $1 - \sum p_i^2$. Where p_i is the proportion of board members from each type of directors. Therefore, outside directors' diversity could range from 0 when only one type of board member is on the board to 0.50 where inside and outside directors are equally represented in the board. Studies that used Blau's index to measure inside and outside directors in the board include Adams, Akyol, and Verwijmeren (2018), and Zhang (2012).

3.6.3 Corporate Sustainability Practices

The notion of corporate sustainability practices refers to the way of living and working that meet and integrate the economic, environmental, and social needs without destroying the betterment of upcoming generations (San, 2016). Corporate sustainability practices is extensively used to describe firms' activities which have effects on the economic, environmental and social performance (Ioannou & Serafeim, 2012). In spite of approximately 50 years of previous research on corporate sustainability practices (Margolis & Walsh, 2003), there is still no

conclusion on the proper measurement of sustainability practices of an organization (Ameer & Othman, 2012; Montiel & Delgado-Ceballos, 2014).

Montiel and Delgado-Ceballos (2014) suggested two methods of data collection to capture corporate sustainability practices. First, by using different secondary databases in the form of different sustainability indexes such as, the Dow Jones Sustainability Index, DJSI (López, Garcia, & Rodriguez, 2007), Kinder Lydenberg, and Domini (KLD) index (Hillman & Keim, 2001; Mattingly & Berman, 2006), and the ASSET4 ESG index (Trumpf, Endrikat, Zopf, & Guenther, 2015). These indexes are measured by interviews, surveys, or by content analysis of sustainability disclosure (Chatterji & Levine, 2006; Soana, 2011). However, there are some limitations for using these types of secondary sources. For example, risk of subjectivity, because the interpretation of corporate sustainability practices may vary from agency to agency (Soana, 2011). Moreover, every rating agency may use different approaches for measuring corporate sustainability practices which provide different results for the same company (Chatterji & Levine, 2006). Transparency and reliability of the results are other issues for using these kinds of secondary sources for measuring corporate sustainability practices.

Second, a firm's corporate sustainability practices may be measured by constructing a new sustainability index by using a researcher's own primary data or content analysis from any secondary data (Montiel & Delgado-Ceballos, 2014). This type of index may encounter some limitations with subjectivity. However, this type of index allows for a greater consideration to contextual factors. Thus, this study collected

corporate sustainability practices data by content analysis from the selected firms' Sustainability Statement part of their published annual report as required based on the *Bursa Malaysia Sustainability Reporting Guide -2015*.

Before using data on corporate sustainability practices from the disclosure part of a firm's annual report, it should be justified whether corporate sustainability practices of a firm and its level of disclosure is related or otherwise. Herbohn, Walker, and Loo (2014) found that the relationship between corporate sustainability practices and sustainability disclosures is significantly positive. Al-Tuwaijri et al. (2004) also found similar results between environmental performance and disclosures. Therefore, using the firm's sustainability disclosure is appropriate to measure corporate sustainability practices.

Bursa Malaysia has taken various initiatives to promote corporate sustainability practices of listed firms such as launching its Corporate Sustainability Reporting Guide-2015 and sustainability portal, incorporating corporate social responsibility disclosures into the listing requirements and conducting a corporate social responsibility reporting survey. In this study, corporate sustainability practices reflects the information regarding economic, environmental and social issues which are published in annual reports. Corporate sustainability practices were measured by content analysis based on the *Bursa Malaysia's* Corporate Sustainability Reporting Guide-2015 which was formulated according to the Global Reporting Initiative Framework (GRI) which was launched in 2013. The GRI sustainability reporting guideline is widely accepted and used by companies and researchers to measure the

corporate sustainability practices (Tetrault Sirsly, 2015). The items of measuring corporate sustainability practices are given below.

Table 3.2
Items of Measuring Corporate Sustainability Practices

Dimensions of Corporate Sustainability Practices	Items
Economic Sustainability	(1) Procurement practices, (2) Community investment, (3) Indirect economic impact.
Environmental Sustainability	(1) Emissions, (2) Waste and effluent, (3) Water, (4) Energy, (5) Biodiversity, (6) Supply Chain (Environmental), (7) Product and Services Responsibility (Environmental), (8) Materials, (9) Compliance (Environmental), (10) Land remediation, contamination or degradation.
Social Sustainability	(1) Diversity, (2) Human Rights, (3) Occupational Safety and Health, (4) Anti-competitive behavior, (5) Anti-corruption, (6) Labor practices, (7) Society, (8) Product and Services Responsibility (Social), (9) Supply Chain (Social), (10) Compliance (Social).

Source: Bursa Malaysia Securities Berhad (2015)

3.6.3.1 Economic Sustainability

Economic sustainability refers to the firms' impact on its stakeholders' economic conditions and on economic systems at the local, national, and global levels (GRI, 2013). It encompasses financial costs and benefits with the following three items and corresponding indicator(s).

1. Procurement practices: Spending on local suppliers at significant location of operations.

Indicator:

- i) Funds allocated from the procurement budget which is used for spending on local suppliers.

2. Community investment: Voluntary contributions made by an organisation to enhance socio-economic benefits and create a positive social impact.

Indicator:

- i) Funds invested in the community for external beneficiaries such as not-for-profit organisations.

3. Indirect economic impact: In addition to direct economic impact, any impact for financial transaction between a firm and its stakeholders.

Indicator:

- i) Firm's impact on its local communities and economies, either positively or negatively.

3.6.3.2 Environmental Sustainability

Environmental sustainability refers to the organization's impact on living and non-living natural systems (GRI, 2013). It includes the following ten items and corresponding indicators.

1. Emissions: Emissions refer to the discharge of environmentally hazardous substances for example, dust, dark smoke and emissions with metallic compounds into the atmosphere. Emissions also encompass discharge of greenhouse gas for example, carbon dioxide (CO₂), methane and nitrous oxide.

Indicator:

- i) Emissions in tons of CO₂

2. Waste and effluent: Waste is broken down into hazardous and non-hazardous waste where hazardous waste is governed by local environmental regulations i.e. the Environmental Quality (Scheduled Wastes) Regulations 2005. Non-hazardous waste includes general waste such as paper and plastic. Effluent is defined as any liquid that is disposed as waste or waste water.

Indicator:

- i) Total weight or volume of non-hazardous waste generated.

3. Water: Considers consumption and efficiency of water usage for industrial processes and general purposes.

Indicators:

- i) Total volume of water used
- ii) Percentage of water recycled and reused
- iii) Water usage per product / output

4. Energy: Considers the efficient use and consumption of electricity as well as energy generated from renewable sources.

Indicators:

- i) Total energy consumed (kWh/MWh)
- ii) By increasing efficiency and taking conservation initiatives, reducing the energy consumption.
- iii) Energy intensity – kWh/MWh per employee / man-hours / square meter

5. Biodiversity: Related to the identification and assessment of risk associated with biodiversity by reporting on the potential impact on terrestrial, fresh water and marine environment.

Indicators:

- i) Different operating sites in number as well as in percentage where risks of biodiversity have been measured and supervised for example, terrestrial, fresh water and marine environment for oil & gas sector.
- ii) Areas of High Conservation Value avoided
- iii) Effects of production process, finished products, and services on biodiversity in both protected and outside of protected areas.
- iv) Territories protected or reinstated (Qualitative disclosure)

6. Supply Chain (Environmental): All significant environmental impacts observed or assessed in the supply chain in relation to products and services produced and/or offered.

Indicators:

- i) Assessment of new and existing suppliers to identify environmental impacts for example, resource use, waste management, and impact on biodiversity.
- ii) Results of supplier monitoring/auditing.
- iii) Actions on supplier's non-compliance to supplier's environmental impacts assessment for example, training and communications.

7. Product and Services Responsibility (Environmental): The environmental impact of products and services in the course of their lifecycle including product design, development, and testing.

Indicators:

- i) Product stewardship (product's impact on the environment)

- ii) Benzene, lead and sulphur content in fuels
- iii) Product innovation to reduce impacts for example, eco-friendly, and less chemicals or toxic substances.

8. Materials: Materials are components used as inputs in the production of goods. This theme encompasses the sourcing and composition of materials used in the production of goods (and packaging). It discusses the practice and commitment to responsible sourcing and management of materials, and how these were given consideration in the fabrication of a product.

Indicators:

- i) Ratio of raw materials sourced from sustainable sources
- ii) Policies and commitment to certified raw materials sourcing
- iii) Amount of materials used
- iv) Recycled input materials' percentage

9. Compliance (Environmental): Compliance identifies the adherence of an organization's activities to relevant laws and guidelines. It outlines an organization's degree of observance to laws and guidelines governing its business, as well as efforts undertaken in assessing the anticipated environmental impact of its activities.

Indicator:

- i) Total amount of fines and non-monetary approvals for non-compliance of environmental regulations.

10. Land remediation, contamination or degradation: Land contamination may adversely affect or render land unproductive. Contamination occurs for the activities

of the firm or previous user. Contamination may be of natural origin, in various states (solid, liquid or gas), and may affect soil quality (degradation) and its surrounding ecological and environmental receptors. Land remediation, on the other hand, refers to the efforts taken to remove or reduce pollutants or contaminants in the soil. This theme requires disclosure on the management of soil quality and initiatives assumed in the remediation of contaminated land.

Indicators:

- i) Land remediated or in need of remediation for the existing or intended land use, according to applicable legal designations.
- ii) Number of operations for the year and how many have conducted environmental impact assessments.
- iii) Disclosure on current practice and soil management strategy
- iv) Total number of locations that are already decommissioned or going to be decommissioned.

3.6.3.3 Social Sustainability

Social sustainability refers to the firm's impact on the social system in which it operates (GRI, 2013). It includes the following ten items and corresponding indicators.

- 1. Diversity:** Diversity, specifically in the workforce, management and board is characterized by gender, age, etc.

Indicators:

- i) The percentage of employees in each category on the basis of gender, age, and ethnicity

- ii) The percentage of directors on the basis of gender, age, and ethnicity
- iii) Employment arrangement – local and foreign

2. Human Rights: In accordance with the United Nations Universal Declaration on Human Rights, this is defined as/to include: the right to not be discriminated against, not be enslaved, be treated with dignity, the right to take rest and get vacation including periodic holidays with pay and reasonable working hours, and the right to liberty of giving opinion.

Indicators:

- i) Percentage of employees who got training on human rights policies and procedures relevant to activities of firm.
- ii) Percentage of existing and new suppliers assessed for human rights policies and practices
- iii) Number of discrimination incidents
- iv) Measures taken to support freedom of association

3. Occupational Safety and Health: In accordance with the International Labour Organisation, occupational safety and health refers to the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers.

Indicators:

- i) Percentage of workers undergoing safety and health training per annum
- ii) Number of work-related injuries per annum

- iii) Rate of work-related injuries per annum
- iv) Number of work related fatalities (includes employees and contractors)
- v) Accident frequency rate
- vi) Severity rate
- vii) Number and percentage of workers undergoing health surveillance
- viii) Brief description of the Health, Safety and Environment organisational chart and the its committee (if available) at the work site

4. Anti-competitive behaviour: Concerning ethical business practices without affecting consumer choice, pricing, and market efficiency

Indicator:

- i) Total number of legal actions which have been completed or pending about anti-competitive behaviour.

5. Anti-corruption: According to Transparency International Malaysia, corruption refers to the abuse of delegated power for private benefit. This theme discusses activities that promote transparency and guard against various forms of corruption for example, bribery, extortion, fraud, undue pressure or influence, and collusion or anti-competitive behaviour.

Indicators:

- i) Percentage of employees who have completed training on anti-corruption form each category of employee.

- ii) Percentage of activities identified for incurring the corruption

6. Labour practices: The equal justice of employees on the basis of terms and conditions of employment and developments of employee's skills and knowledge.

Indicators:

- i) Mean hours of training annually per employee from each category of employee
- ii) Number of employee turnover from each type of employee based on age category and gender.
- iii) Rate of employee turnover (broken down by employee type) on the basis of gender and age category.
- iv) Employee benefits

7. Society: The impact of organizations on society and local communities.

Indicators:

- i) Initiatives for underprivileged people to increase the access of financial services.
- ii) Disclosure of social impact assessment performed (if any) and current practices in order to mitigate negative impacts
- iii) Number of people who are financially or physically displaced but compensated
- iv) Different Operations or activities where unintentional resettlement occurred, the number of employees who are resettled and how their livelihoods are affected for this unintentional resettlement.

8. Product and Services Responsibility (Social): The impact of products and services on the wellbeing of society, including privacy, health and safety.

Indicators:

- i) Number of complaints
- ii) Customer relationship management (grievance mechanism)
- iii) Number of incidents of cyber attacks

9. Supply Chain (Social): Relates to significant and potential social impacts on society in the supply chain.

Indicators:

- i) Assessment of new and existing suppliers to identify existing or potential negative social impacts
- ii) Results of supplier monitoring/auditing
- iii) Actions on supplier's non-compliance to social impacts assessment

10. Compliance (Social): Compliance identifies the adherence of an organisation's activities to relevant laws and guidelines. It outlines an organisation's degree of observance to laws and guidelines governing its business, as well as efforts undertaken in assessing the anticipated impact of its activities.

Indicator:

- i) Total amount of fines and total number of non-financial sanctions for nonconformity of laws and regulations.

3.6.4 Control Variables

To avoid biasness of results, this study uses board size, firm size and leverage as control variables because their effects have been found in the literature on board diversity, corporate sustainability practices and financial performance.

3.6.4.1 Board Size

Board size is an important factor of good corporate governance practices in firms (Bonn, Yoshikawa, & Phan, 2004). Board size refers to the number of board members in the firm's board of directors (Chen et al., 2016). Based on previous studies, it was found that there is a positive correlation between board size and financial performance (Adams & Mehran, 2003; Chen, Firth, Gao, & Rui, 2006; Mak & Kusnadi, 2005; Shukeri, Shin, & Shaari, 2012). On the other hand, some scholars opined that there is a negative association between board size and financial performance (Mishra, Randøy, & Jenssen, 2001; Singh & Davidson, 2003). In addition, there is no definite conclusion regarding the relationship between board size and financial performance.

There are two reasons for including board size as a control variable in this study. First, it has a strong relationship with financial performance (Wiersema & Bantel, 1992). Second, board size has an impact on the decision making process of the board of directors that in turn influence the firm's financial performance. Jensen (1993) argued that larger boards are less effective for monitoring and supervising management because of the problem of freeriding and the longer time needed in making decisions. On the other hand, Dalton, Daily, Johnson, and Ellstrand (1999)

argued that large boards increase the pool of resources and expertise by which the firm may benefit. Board size has also been used as a control variable by many researchers such as Chen et al. (2016) and Carter et al. (2010). For this study board size was calculated by counting the total number of board members from annual reports.

3.6.4.2 Firm Size

Another important control variable in this study is firm size which is defined on the basis of different measures such as total assets, sales, turnover rate, number of employees or revenues. Firm size is among the many variables which may significantly influence financial performance (Odalo et al., 2016). Vijayakumar and Tamizhselvan (2010) found that firm size positively affected financial performance. On the other hand, Vishal and Saravanan (2007) explored the influence of firm size on turnover and found a negative relationship between them.

According to Bhunia and Khan (2011) different measures may be utilized for firm size, such as sales, natural log of total assets, log of market capitalization or number of employees. This study used the natural log of total assets to measure firm size as it is the most popular proxy for firm size observed in empirical corporate finance research (Odalo et al., 2016). This proxy was used by other researchers including Jizi (2017), Pervan and Višić (2012), Vijayakumar and Tamizhselvan (2010), and Lemmon, Roberts, and Zender (2008).

3.6.4.3 Leverage

Leverage was another control variable utilized in this study. Hutchinson and Gul (2004) noted that leverage indicates how companies choose to finance their operations. Higher leverage increases agency problems in terms of monitoring costs (Akhtaruddin & Haron, 2010). Andrade and Kaplan (1998) found that high-leveraged firms are more likely to experience financial distress. Even though these firms have a high positive operating margin, they suffered from financial distress when the debt level is high. In relation to financial performance, Mir and Nishat (2004) found that a high leverage gave an adverse signal about the firm's financial performance. On the other hand, Ahuja and Majumdar (1998) found a positive relationship between levels of debt and financial performance. They concluded that a higher debt level is related to higher firm performance.

This study used the ratio of total debt to total assets to measure leverage which has been used as a proxy of leverage by many researchers including Jizi (2017), Foong and Idris (2012), Akhtaruddin and Haron (2010), Erickson, Park, Reising, and Shin (2005), and Mak and Kusnadi (2005).

3.7 Population and Sample

Population means the whole number of people, things or events of interest where the researcher intends to examine (Sekaran & Bougie, 2013). The population of this study was all firms listed on *Bursa Malaysia* with a total of 805 firms as at 31st December, 2016.

In addition, a sample is a subgroup or subset of the population. By assessing the sample, the researcher is to be able to conclude which would be generalizable to the population of interest (Sekaran & Bougie, 2013).

To determine a sample size Roscoe (1975) suggested the following rules of thumb:

1. For any research sample size should be more than 30 but less than 500.
2. Sample size should be at least 30, when the samples are divided into many subsamples, like male and females, younger and older.
3. In multivariate analyses, the sample size should be at least 10 times more than the number of variables of the study.
4. Sample size may be 10 to 20 in cases of simple experimental research

Listed firms on *Bursa Malaysia* are classified under eleven categories: (i) industrial products, (ii) consumer products, (iii) mining, (iv) construction, (v) infrastructure project companies, (vi) plantation, (vii) trading/services, (viii) property, (ix) technology, (x) REITS, and (xi) finance. The finance sector is also operated under other regulatory bodies and their disclosure requirements are different. Therefore, many studies did not include finance firms in their study sample (Ahmed Haji, 2013; Haniffa & Cooke, 2005; Said et al., 2009). Accordingly, this study included all listed non-finance firms whose market capitalization is more than RM 2 billion and above for its target sample. According to the *Bursa Malaysia Sustainability Guide-2015*, these firms were also required to disclose their Sustainability Statement in their annual report for the year ended 2016.

From the 805 public listed firms on *Bursa Malaysia*, this study selected 104 firms on the basis of market capitalization for the year 2015, 2016 and 2017. Thus, the total number of firm-year observations was 312. In addition to the requirement of *Bursa Malaysia Sustainability Reporting Guide-2015*, there were other reasons for selecting large companies. As large companies are more visible to the public, they would carry out more activities which have greater impact on society (Hackston & Milne, 1996). The years 2015, 2016 and 2017 were selected because they provided the most recent data regarding board diversity, corporate sustainability practices and financial performance. This study is similar with the study of Ahmad et al. (2019) and Zahid and Ghazali (2015) which used three years of data from 2011, 2012 and 2013 in Malaysia.

This study selected the firms for its sample size based on market capitalization. Therefore, a non-probability sampling technique was used for this study. Under non-probability sampling, there are two types of sampling techniques, namely purposive and convenience. Following purposive sampling, this study selected 104 firms on the basis of market capitalization, as they provided information required for this study (Nor et al., 2016). This sample size was similar to the study of Bakar, Ghazali, and Ahmad (2019) who also selected the firms whose market capitalization was RM2 billion and above on the *Bursa Malaysia Main Market* where they found 102 firms for 2016.

3.8 Data Sources and Collection

This study collected secondary data of listed securities on *Bursa Malaysia* for 2015-2017. These years were selected because of most recent years. In addition, from the previous literature it was found that most research on corporate sustainability practices used data from a year or two years as shown in Table 3.3.

Table 3.3
Summary of the Literature where Content Analysis was used to Measure Corporate Sustainability Practices

Authors(Year of Publication)	Journal Title	How Corporate Sustainability Practices was measured	No. of firms	Years of data	Country
Hoang et al. (2018)	<i>Journal of Business Ethics</i>	Binary coding '0' and '1'	133 Vietnamese listed firms	2010 (1 year)	Vietnam
Sundarassen et al. (2016)	<i>Corporate Governance</i>	1/0 (Yes/No)	225companies listed on <i>Bursa Malaysia</i>	2011 and 2012 (2 years)	Malaysia
Al-Shaer and Zaman (2016)	<i>Journal of Contemporary Accounting & Economics</i>	Score of 0- 4 coding scale	333 firms listed in the UK FTSE350	2012 (1 year)	UK
Malarvizhi and Matta (2016)	<i>The British Accounting Review</i>	0 to 3 scale	85 firms listed on the Bombay Stock Exchange	2014 (1 year)	India
Nor et al. (2016)	<i>Procedia Economics and Finance</i>	Yes/ No	Top 100 companies based on market capitalization	2011 (1 year)	Malaysia
Aman et al. (2015)	<i>2nd International Conference on Management and Muamalah</i>	Using '0' and '1' to measure the score	Top 100 firms listed on the Main Market of <i>Bursa Malaysia</i>	2014 (1 year)	Malaysia
Hashim et al. (2015)	<i>Procedia Economics and Finance</i>	Score of 1 = Yes 0 = No	82 IFIs in Gulf Council Cooperation (GCC) and Non-GCC countries	2011 and 2012 (2 years).	GCC and Non GCC
Zahid and Ghazali (2015)	<i>World Journal of Science, Technology</i>	Binary Variable, '0' and '1'	113 companies listed on	2011, 2012 and 2013	Malaysia

Authors(Year of Publication)	Journal Title	How Corporate Sustainability Practices was measured	No. of firms	Years of data	Country
	<i>and Sustainable Development</i>		<i>Bursa Malaysia</i>	(3 years)	
Ahamed, Almsafir, and Al-Smadi (2014)	<i>International Journal of Economics and Finance</i>	Number of sentences used in the annual report.	3 firms listed on <i>Bursa Malaysia</i>	2007 to 2011 (5 years)	Malaysia
Jangu, Darus, Zain, and Sawani (2014)	<i>Procedia-Social and Behavioral Sciences,</i>	Number of sentences of disclosure and a six-point “Likert” scale	100 public listed companies on <i>Bursa Malaysia</i>	2010 (1 year)	Malaysia
Harun, Rashid, and Alrazi (2013)	<i>World Applied Sciences Journal</i>	Polychotomous scoring system 0 = For non-disclosure 4 = Most comprehensive disclosure	15 commercial banks as listed by Bank Negara Malaysia (the Central Bank of Malaysia)	2012 (1 year)	Malaysia
Ahmed Haji (2013)	<i>Managerial auditing journal</i>	For quantity ‘0’ and ‘1’, for quality 0 to 3 scale	85 firms listed on <i>Bursa Malaysia</i>	2006 and 2009 (2 years)	Malaysia
Abdullah et al. (2011)	<i>Corporate Ownership & Control</i>	Both quantity and quality of disclosure. No. of pages and ‘0’ and ‘1’	Top 100 non-financial companies listed on <i>Bursa Malaysia</i>	2007 (1 year)	Malaysia

Data was collected from each firm’s annual report on the *Bursa Malaysia* website. The annual reports were selected as the source of data because they are most accessible and acceptable sources of firms’ financial information in Malaysia (Sadou, Alom, & Laluddin, 2017). The annual reports were used to gather information for all dimensions of the independent variables of this study, namely, gender, ethnicity, age, education and outside director diversity as well as for the control variable, board size. The information of proxies of financial performance

such as Tobin's Q and other control variables, namely, leverage and firm size were collected from the financial database, Thomson Reuters DataStream.

Data for the moderating variable, corporate sustainability practices were also collected from the annual reports of the selected firms by content analysis. Amran (2012) revealed that many Malaysian firms used the annual report to disclose their sustainability information. Moreover, Deegan and Rankin (1996) found that annual reports are more reliable than any other sources of sustainability information. Content analysis has been widely used for collecting data on corporate sustainability practices in many previous research (Aras, Aybars, & Kutlu, 2010; Aras & Crowther, 2008; Janggu, Joseph, & Madi, 2007; Said et al., 2009; Saleh, Zulkifli, & Muhamad, 2011; Uadiale & Fagbemi, 2012; Uwuigbe & Egbide, 2012).

3.8.1 Procedure of Collecting Data for Corporate Sustainability Practices

Corporate sustainability practices which may also be referred to a triple bottom line practices, is linked to a disclosure framework that highlights three important areas, namely, economic, environmental and social performance of any firm (Choudhuri & Chakraborty, 2009; GRI, 2013). In this study, corporate sustainability practices of 104 non-financial firms listed on *Bursa Malaysia* were measured by content analysis for 2015-2017. Normally, content analysis is applied on the written documents, particularly the documents which are historical in nature, where the researcher normally looks at the frequency of the categories, such as words, sentences or page count (Myers, 2013).

Previous studies used different measurements for content analysis, such as by the quality of disclosure, or the extent of disclosure. The former refers to an evaluation of the quality of disclosures using a quality index to distinguish between poor and excellent disclosure of items while the latter relies on the counting of words, sentences or pages (Hooks & van Staden, 2011). In measuring quality of disclosure, the index used varied between researchers, where some used dichotomous variables for disclosure and non-disclosure (Ghazali, 2007; Haniffa & Cooke, 2005) where a score of 1 was given to disclosures, and 0 for non-disclosures. Others used a more detailed index, with a scale of 0 to 3, where a score of 3 was for quantitative disclosure, 2 for qualitative disclosure with specific explanations, 1 for general qualitative disclosure and 0 for non-disclosure (Saleh et al., 2011; Zainal, Zulkifli, & Saleh, 2013). Others adapted scoring guidelines by established sustainability frameworks such as the GRI, with a scale of 0 to 2 (Othman, Darus, & Arshad, 2011), where the score of 0 denotes no disclosure, 1 for general disclosure, while the score of 2 represents detailed and quantified disclosure.

The extent of disclosure approach as a measurement of sustainability reporting relies on the counting of words, sentences or pages. However, there are benefits and limitations of each different method. Word count, for instance, is easy to use and was mostly utilized in earlier sustainability research (Deegan & Gordon, 1996; Haniffa & Cooke, 2005; Zeghal & Ahmed, 1990). However, Milne and Adler (1999) suggested that a good basis for a measurement might not be provided by counting individual words, as it lacked meaning without a complete sentence. As such, most researchers favored counting sentences as the method for identifying quantity of reporting

(Ahmad, Sulaiman, & Siswantoro, 2003; Amran & Devi, 2008; Milne & Adler, 1999). However, this method omits the consideration for disclosures in the form of tables and graphs (Al-Tuwaijri et al., 2004; Unerman, 1999). Page count, on the other hand, might be less accurate since different firms may use different margins, formats and font sizes (Hackston & Milne, 1996). Thus, these differences might lead to unreliable comparisons of sustainability reporting between firms. However, the benefit of page count is that it reflects the total space given to a topic (Unerman, 2000), and it does not ignore disclosures in the form of graphs and tables (Al-Tuwaijri et al., 2004).

This study used the sentence count method to measure the extent of corporate sustainability practices of a firm. The justification for using this type of measurement is that sentences provide the true meaning which may not be captured by individual words (Milne & Adler, 1999). The problem of omission of information which are in the form of charts, tables, graphs and pictures which may result from using this method (Al-Tuwaijri et al., 2004; Unerman, 1999) was countered by taking 15 words of the captions on the charts, tables, graphs and pictures as equal to one sentence (Hooks & van Staden, 2011).

3.8.2 Content Analysis

Content analysis covers the quantification of qualitative information obtained through a systematic analysis of related information, thus giving a means for submitting it to statistical analysis (Sekaran & Bougie, 2013). According to Stone, Dunphy, and Smith (1966), content analysis is a technique for making references by

systematically and objectively identifying specific characteristics within text. The researcher can obtain the data by observing and analyzing the content or message of an advertisement, newspaper articles, letters, and other similar sources. This method examines the message itself and involves the design of a systematic observation and recording procedure for quantitative description of the manifest content of communication. Content analysis also measures the extent of emphasis on or omission of a given analytical category. The unit of analysis may be words (different words, or types of words in the message), characters (individuals or objects), themes (proportions) and space and time measures (length and duration of the message).

The primary goal of content analysis is to transform a verbal, non-quantitative document into quantitative data by using the numbers for each verbal or non-quantitative document (Sekaran & Bougie, 2013). It thus appears that content analysis is an excellent approach that can turn words into numbers. Annual reports were obtained from each of the firm's website to measure the quantity of sustainability disclosure. Thereafter, these documents were analyzed to verify the existence of any economic, environmental and social information based on the *Bursa Malaysia Sustainability Reporting Guide-2015*. The guide was selected being the latest guideline and also as a mandatory requirement to all listed firms on *Bursa Malaysia*. In addition, the guideline was developed according to the Global Reporting Initiative, G4 reporting framework which is internationally recognized and extensively used around the world to provide guidance for sustainability reporting (Hussain et al., 2018).

3.8.2.1 Validity and Reliability of Content Analysis

It is essential to check the validity and reliability for exercising content analysis in research (Unerman, 2000). Thus, researchers should be careful in coding the text for validity and reliability of content analysis (Milne & Adler, 1999). The validity of content analysis refers to the degree of the measurement process which actually measures the phenomenon that the researcher aims to measure (McKinnon & Dalimunthe, 1993). Hence, validity refers to both the research design and the data generating process. Consequently, validity is dependent on the appropriate formulation of content categories, operational definitions, sampling method and the recording unit used (Harun et al., 2013). In this study, the validity of data for corporate sustainability practices was tested through a pilot test prior to the actual analysis. For the pilot study, 10 percent of the total number of sample were randomly selected which comprised of 11 firms.

On the other hand, reliability means the possibility of repeating the same results on repetitive trials (Neuendorf, 2016). In short, reliability provides assurance that particular research outcomes can be duplicated, while validity provides the assurance that the claims emerging from the research are borne out in fact. According to Ameer and Othman (2012) reliability indicates how the data are free from random error. Reliability is of paramount importance in content analysis to generate systematic and objective inferences from communication content (Kassarjian, 1977). To accomplish reliability of content analysis, multiple coders may be used or alternatively a single coder can score two times with a specific time interval. As there is no single

common approach for checking reliability, researchers can use any suitable method which they think is appropriate for their study (Unerman, 2000).

For reliability, data was coded twice separated by a four-month gap. The second round of data entry was started after the complete entry of all data from the first round, and not after analysis of each annual report. This was done to avoid the possibility that the first and second round scores might influence each other (Ghazali & Weetman, 2006). If any deviations were found between the entries, the specific annual report was further analyzed and data correctly entered. Mentionable that, in the second round of data entry twelve companies' data was not found as in the first round of data entry. Thus, the annual reports of those companies were re-examined and corrected the data.

3.9 Data Analysis

This study used multiple regression analysis to investigate the relationship between the independent variable (board diversity) and dependent variable (financial performance); and moderator (corporate sustainability practices) and dependent variable (financial performance). To examine the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance, Hair, Black, Babin, and Anderson (2010) hierarchical moderated multiple regression model was used. According to Creswell (2002) the best way to describe the relationship between the independent and dependent variables is to form a research equation based on regression statistical techniques. The research equation was formed based on the research framework.

3.10 Model Specifications

To investigate the effect of board diversity on financial performance, corporate sustainability practices on financial performance, and the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance, the following analytical models were specified, with variable code names and descriptions..

3.10.1 Board Diversity and Financial Performance of Firms

The following regression model was developed for this association:

$$TQ_{it} = \alpha + \beta_1 GENDIV_{it} + \beta_2 ETHDIV_{it} + \beta_3 AGEDIV_{it} + \beta_4 EDUDIV_{it} + \beta_5 OTDRDIV_{it} + \beta_6 BRDSIZE_{it} + \beta_7 FRMSIZE_{it} + \beta_8 LEVRGE_{it} + \varepsilon_{it} \text{ --(i)}$$

where:

- TQ = Tobin's Q (Market-based financial performance measure)
- $GENDIV$ = Gender diversity (measured by Blau Index)
- $ETHDIV$ = Ethnic diversity (measured by Blau Index)
- $AGEDIV$ = Age diversity (measured by Blau Index)
- $EDUDIV$ = Education diversity (measured by Blau Index)
- $OTDRDIV$ = Outside director diversity (measured by Blau Index)
- $BRDSIZE$ = Board size (measured by the total number of board members)
- $FRMSIZE$ = Firm size (measured by the natural log of total assets)
- $LEVRGE$ = Leverage (measured by total debt divided by total assets)
- α = Constant
- β = Regression coefficient
- ε = Error
- i = Observation
- t = Year of observation

3.10.2 Corporate Sustainability Practices and Financial Performance of Firms

The regression model for this association is as follows:

$$TQ_{it} = \alpha + \beta_1 CSP_{it} + \beta_2 BRDSIZE_{it} + \beta_3 FRMSIZE_{it} + \beta_4 LEVRGE_{it} + \varepsilon_{it} \text{ -----(ii)}$$

where:

<i>TQ</i>	= Tobin's Q (Market-based financial performance measure)
<i>CSP</i>	= Corporate sustainability practices (measured by content analysis)
<i>BRDSIZE</i>	= Board size (measured by the total number of board members)
<i>FRMSIZE</i>	= Firm size (measured by the natural log of total assets)
<i>LEVRGE</i>	= Leverage (measured by total debt divided by total assets)
α	= Constant
β	= Regression coefficient
ε	= Error
<i>i</i>	= Observation
<i>t</i>	= Year of observation

3.10.3 Moderating Effect of Corporate Sustainability Practices on the Relationship between Board Diversity and Financial Performance

To evaluate the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance, hierarchical moderated multiple regression model was used. Hierarchical moderated multiple regression model measures the effect of an explanatory variable (i.e. the moderator) on the relationship between another explanatory and explained variable of a study (Tariq, Badir, & Chonglertham, 2019). This regression model is more appropriate to evaluate the effect of a moderating variable (Han, Yoon, Suh, Li, & Chae, 2019; Li, Sharp, Bergh, & Vandenberg, 2019; Ruiz-Jiménez, del Mar Fuentes-Fuentes, & Ruiz-Arroyo, 2016; Tran & Pham, 2019). It is an extension of the general multiple regression model of a study (Hair et al., 2010) but it enhances the regression analysis by adding a new third interaction variable in the existing multiple regression model. Sharma, Durand, and Gur-Arie (1981), Baron and Kenny (1986) and Hair et al. (2010), described the nature of a moderating variable as a variable that affects the direction and/or strength of the relationship between the independent and dependent variables.

This study has selected the moderating variable namely corporate sustainability practices to examine its effect on the relationship between board diversity (explanatory variables) and financial performance (outcome variable) of firms in Malaysia. In order to test for the moderating effect, a model by Baron and Kenny (1986) was used. This model was also used in other studies such as Ruiz-Jiménez et al. (2016), Golden and Shriner (2019), Han et al. (2019), Li et al. (2019) and Tran and Pham (2019).

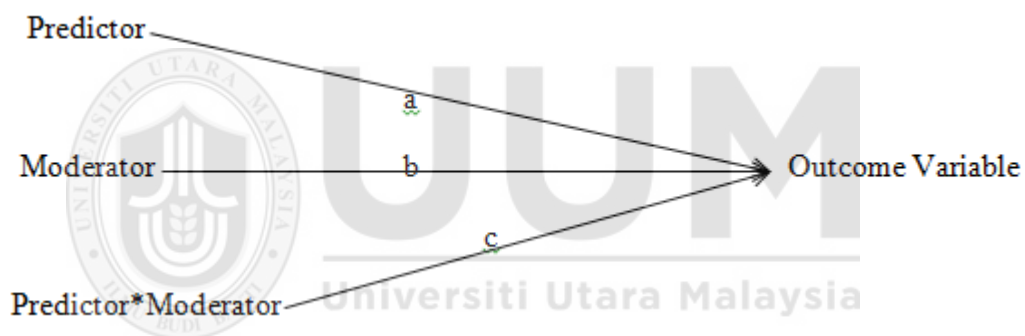


Figure 3.2
The Moderating Effect Model
Source: Baron and Kenny (1986)

According to Baron and Kenny (1986), the model shown in Figure 3.2 has three causal paths to examine the relationship among the variables. Path a reflects the effect of the predictor while Path b indicates the effect of the moderator. Path c represents the interaction effect of both the predictor and the moderator on the outcome variable (path a and b). If Path c is found to be significant, the moderating

effect is identified. The following regression model (Hair et al., 2010) was used to analyze the moderating effects in this study.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_1X_2 \text{----- (iii)}$$

- where: b_0 = intercept
 b_1X_1 = linear effect of X_1
 b_2X_2 = linear effect of X_2
 $b_3X_1X_2$ = moderating effect of X_2 on X_1

Thus, following Baron and Kenny (1986) and Hair et al. (2010) the subsequent hierarchical moderated multiple regression model was developed to test for the moderation effect of corporate sustainability practices according to the developed hypotheses of this study.

$$TQ_{it} = \alpha + \beta_1GENDIV_{it} + \beta_2ETHDIV_{it} + \beta_3AGEDIV_{it} + \beta_4EDUDIV_{it} + \beta_5OTDRDIV_{it} + \beta_6BRDSIZE_{it} + \beta_7FRMSIZE_{it} + \beta_8LEVRGE_{it} + \beta_9CSP_{it} + \beta_{10}GENDIV * CSP_{it} + \beta_{11}ETHDIV * CSP_{it} + \beta_{12}AGEDIV * CSP_{it} + \beta_{13}EDUDIV * CSP_{it} + \beta_{14}OTDRDIV * CSP_{it} + \varepsilon_{it} \text{----- (iv)}$$

where:

- TQ = Tobin's Q (Market-based financial performance measure)
 $GENDIV$ = Gender diversity (measured by Blau Index)
 $ETHDIV$ = Ethnic diversity (measured by Blau Index)
 $AGEDIV$ = Age diversity (measured by Blau Index)
 $EDUDIV$ = Education diversity (measured by Blau Index)
 $OTDRDIV$ = Outside director diversity (measured by Blau Index)
 CSP = Corporate sustainability practices (measured by content analysis)
 $BRDSIZE$ = Board size (measured by the total number of board members)
 $FRMSIZE$ = Firm size (measured by the natural log of total assets)
 $LEVRGE$ = Leverage (measured by total debt divided by total assets)

α = Constant
 β = Regression coefficient
 ε = Error
 i = Observation
 t = Year of observation

*GENDIV*CSP* = Interaction term
*ETHDIV*CSP* = Interaction term
*AGEDIV*CSP* = Interaction term
*EDUDIV*CSP* = Interaction term
*OTDRDIV*CSP* = Interaction term

For a given value of an independent variable, the coefficient β allows the prediction of the resulting change in financial performance. The independent variables that explained the amount of variation is called the coefficient of determination or *R*-squared (R^2). This represents the proportion of the variance in the dependent variable that is predictable from the independent variable.

In order to run a hierarchical moderated multiple regression model, three steps or models were involved (Aguinis, 1995; Anderson, 1986; Sharma et al., 1981). Firstly, the dependent variable was regressed on the independent variables, Model 1. Then, the dependent variable was regressed on the independent variables and moderator, Model 2. Finally, the dependent variable was regressed on the independent variables, moderator and interaction terms (independent variables*moderator), Model 3. Models 1, 2 and 3 are presented in hierarchical moderated multiple regression as in Table 4.20, to show the moderating effects of corporate sustainability practices on the relationship between board diversity and financial performance.

For the moderating effects of corporate sustainability practices on board diversity and financial performance, Model 1 shows the regression results of board diversity and financial performance. Model 2 presents the regression results of board diversity and corporate sustainability practices on financial performance, while model 3 shows the regression results of board diversity, corporate sustainability practices and interaction terms (Board Diversity x Corporate Sustainability Practices) on financial performance. After the three models (Models 1, 2 and 3) had been run, changes in R^2 of Model 3 were compared with changes in R^2 of Model 2. Moderating effect is detected if changes in R^2 of Model 3 are larger than R^2 in Model 2. Following Baron and Kenny (1986), changes in strength and/or direction of the interaction terms of Model 3 were also examined to detect or verify the existence of a moderating variable in the model. If the strength and/or directions of the interaction terms are different than the independent variable, a moderating variable and moderating effect are detected.

3.11 Methods of Data Analyses

This study used panel data relating board diversity, corporate sustainability practices, and financial performance. According to Hsiao (2014) a panel data set is one that follows a given sample of individuals over time and thus provides multiple observations on each individual in the sample. Panel data allows observing and measuring the variables and changes over time across entities. Among the different econometric models, panel models are more popular for analyzing longitudinal or panel data (Hsiao, 2014; Torres-Reyna, 2007). Panel data modeling incorporates both time series and cross-sectional data. The main advantage of this method is that

it allows identification of particular parameters without making any restrictive assumptions (Verbeek, 2008). It has space as well as time dimensions (Gujarati & Porter, 2003).

There are many benefits in using panel data analysis. It provides a great deal of data points, increasing the degrees of freedom and reducing the collinearity among the explanatory variables. It improves the efficiency of econometric estimates and allows analysis of various economic questions which are not detectable through the examination of cross sectional or time series data analysis (Hsiao, 2003). In addition, Baltagi (2008) argued that when firms are examined over a period, panel data includes heterogeneity, more variability, less collinearity (among variables), more degrees of freedom, more efficiency, dynamics of changes, a larger sample size, and more informative data, and thus, bias is minimized.

Panel data models can be estimated through three different methods, namely, common constant, fixed effect and random effect models. The common constant method is also called pooled ordinary least squares (OLS) method. This method assumes that there are no differences between the estimated cross sections and data set is priori homogeneous. However, this case is restrictive and more cases involve inclusion of fixed effects and random effects models in the estimation method (Asteriou & Hall, 2007). Fixed effect model account the individuality of each cross sectional unit included in the sample by letting the intercept vary for each firm, however, it assumes that the slope coefficients are constant across the firms (Sheikh & Wang, 2011). The random effect model is different from the fixed effect model in

the way that it handles the constant for each section not fixed, but as a random parameter (Asteriou & Hall, 2007). To ensure the appropriateness of the model, several tests underlying the regression model was tested which are normality, multicollinearity, heteroscedasticity, groupwise heteroscedasticity, auto-correlation and cross sectional dependency (Hair, Black, Babin, Anderson, & Tatham, 1998).

3.11.1 Diagnostic Tests

This study applies multivariate analysis to examine the complex relationship between board diversity, corporate sustainability practices and financial performance as used in previous studies (Adams & Ferreira, 2009; Carter et al., 2010; Jackling & Johl, 2009) which may be impossible to do by using univariate or bivariate analysis (Hair et al., 1998). However, several diagnostic tests, namely, normality, multicollinearity, heteroscedasticity, auto-correlation and cross sectional dependency, were conducted beforehand to verify that the regression model meets the Best Linear Unbiased Estimator (BLUE) assumptions (Rahman, Ahmad, & Abdullah, 2012). A regression model can achieve the BLUE assumptions if it is linear, unbiased and its expected value is equal to the true value and it contains minimum variance (Gujarati, 2009).

3.11.1.1 Normality Test

Normality means the degree to which the sample data distribution corresponds to a normal distribution (Hair et al., 2010). Normality appears to be the widely used in statistical procedures as in the classical linear regression model where the (unobserved) disturbance vector is assumed to be normally distributed. Non-normal

data will lead to substantially incorrect statements in the analysis of economic models. In this study, the skewness and kurtosis tests were conducted to check for normality. Kline (2015) recommended that data is normally distributed if the skewness and kurtosis are between ± 3 and ± 10 , respectively. Previous studies which used these tests include Zhu, Wang, and Bart (2016), Haniffa and Hudaib (2006), Haniffa, Rahman, and Ali (2006), and Berument and Kiymaz (2001).

3.11.1.2 Multicollinearity Test

Multicollinearity occurs when two or more independent variables in a multiple regression model are highly correlated (Gujarati, 2009; Hair et al., 2010). The basic objective of a multicollinearity test is to measure the degree of correlation between independent variables. It would be a perfect multicollinearity if the correlation between two independent variables is equal to 1 or -1. In this study, variance inflation factor (VIF) and Pearson correlation coefficient were used to detect for the existence of multicollinearity. A Pearson correlation value higher than 0.80, means there is correlation between independent variables. In addition, the rule of thumb for VIF is that its value should not exceed 10 to avoid multicollinearity problem (Gujarati, 2009). Yasser, Al Mamun, and Ahmed (2017), and Rahman, Ibrahim, and Ahmad (2017) applied these tests in their respective studies.

3.11.1.3 Heteroscedasticity Test

Heteroscedasticity is a problem when unequal variance is present and it is one of the most classical assumption violations in multivariate regression (Hair et al., 1998) which has to be solved to meet the BLUE assumption. Wooldridge (2003) suggested

using the White general test to detect for heteroscedasticity, and in addition, once the problem has been identified, it can be solved by applying the White test heteroscedasticity consistent variance. The data is said to be homoscedastic if the variance of error term appears to be constant over the range of independent variables (Hair et al., 2010). However, if it does not happen then the heteroscedasticity problem exists in the data. In this study Breusch-Pagan / Cook-Weisberg test was used to identify the heteroscedasticity problem. This test was also applied by several studies, for example, Rahman et al. (2017), Kumar, Kumar, Gupta, and Sharma (2017).

3.11.1.4 Auto-correlation Test

Autocorrelation test is used to point out the correlation between members of series of observation with respect to time (regarding time series data) and space (regarding cross sectional data) (Gujarati, 2009). To detect autocorrelation, Wooldridge test is used in this study similar to Duppati et al. (2017), and Shahzad, Wales, Sharfman, and Stein (2016).

3.11.2 Panel Data Tests

It was necessary to select the appropriate model to analyze data as this study used panel data. This study started by conducting the Breusch-Pagan Lagrange multiplier test in order to compare between the OLS and random effects model. Results of the Lagrange multiplier test showed a significant chi-square value, indicating a low p -value of less than 0.05. Thus, the null hypothesis rejected the suitability of pooled estimates. Hence, the random effects method is preferred over pooled OLS. Then,

the Hausman test was employed to decide between fixed or random effects model as being more suitable for this study as suggested by Gujarati and Porter (1999). The Hausman test was significant at the 5% level which met the asymptotic assumption. Thus, the null hypothesis was rejected. Therefore, based on the test, the fixed effect model was assumed to be more appropriate to analyze the panel data.

However, the potential econometric problems of heteroscedasticity, group wise heteroscedasticity and cross sectional dependence were found in the data. Fixed effects models with group wise heteroscedasticity cannot be efficiently estimated with OLS. To solve these issues, this study used a feasible generalized least squares (FGLS, or `xtgls` command in Stata) to correct the standard error (Wooldridge, 2010). However, Beck and Katz (1995) suggested that for cross sectional time-series data, researchers should use OLS with heteroscedastic panels corrected standard errors (OLS-PCSE, or `xtpcse` command in Stata), because the standard errors of the estimated coefficients based on FGLS may underestimate the true sampling variability. Their Monte-Carlo analysis shows that OLS-PCSE performed better than FGLS in estimating the standard errors (Moundigbaye, Messemer, Parks, & Reed, 2019; Nithithanatchinnapat & Joshi, 2019).

Moreover, the FGLS estimator is more appropriate for panels with $T > N$ and PCSE is more suitable for panels with $T < N$ (Miao, Gu, Zhang, Zhen, & Wang, 2019). Another advantage of this technique is that it allows for disturbances that are heteroscedastic and contemporaneously corrected across panels (Reed & Webb, 2010). The PCSE standard error estimate is robust not only to unit heteroscedasticity

but it is also robust against possible contemporaneous correlation across the units (Bailey & Katz, 2011). Thus, this study assumed that PCSE is the most suitable estimator for analyzing the panel data, as this study constituted 104 Malaysian firms for the period of three years (Almaqtari, Al - Homaidi, Tabash, & Farhan, 2019; Marques, Fuinhas, & dos Santos Gaspar, 2016). Therefore, this study adopted PCSE estimator to estimate the relationship between the variables.

3.12 Summary of the Chapter

This chapter describes the development of hypotheses and research framework for the study. Firstly, the research design which was derived from the assumption of the relationships between board diversity, corporate sustainability practices, and financial performance are explained. Secondly, the operational definitions of the key variables and their measurement are also described. Thirdly, this chapter specifies the regression models that were used to analyze the data. Finally, the population and sampling, data collection procedures and methods of data analysis to examine the hypothesized relationships are explained.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

Chapter Four presents the outcome of the empirical analyses based on the research methodology that was explained in Chapter Three. The chapter starts with the descriptive statistics of the variables used in the study. This is followed by a discussion of the analyses of multicollinearity, heteroscedasticity, group wise heteroscedasticity, autocorrelation and cross sectional dependence as diagnostic tests. The chapter then describes the results of the multiple regression analysis of the direct relationship between board diversity and financial performance, and corporate sustainability practices and financial performance. The hierarchical moderated multiple regression model was also explained on the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance. The chapter also includes a discussion of this study's results in comparison to previous studies.

4.2 Sample Characteristics

The sample used in this study comprised of 104 firms from ten sectors listed on *Bursa Malaysia*. Firms whose market capitalization were above RM2 billion were selected. Table 4.1 shows that the sample comprised of five firms from Construction (4.81%), 15 firms from Consumer Products (14.42%), 25 firms from Industrial Products (11.54%), one firm from Hotels (0.96%), six firms from REITs (05.77%), 11 firms from Plantation (10.58%), 11 firms from Properties (10.58%), three firms

from Technology (2.88%), 36 firms from Trading (34.62%), and four firms from Infrastructure (3.84%). The list of sample firms is included in Appendix A.

Table 4.1
Distribution of Sample Firms by Industry

SL No.	Type of Industry	Number of Firms	Percentage	Cumulative percentage
1	Construction	5	4.81	4.81
2	Consumer Products	15	14.42	19.23
3	Industrial Products	12	11.54	30.77
4	Hotel	1	0.96	31.73
5	REITs	6	05.77	37.5
6	Plantations	11	10.58	48.08
7	Property	11	10.58	58.66
8	Technology	3	02.88	61.54
9	Trading/Services	36	34.62	96.16
10	Infrastructure	4	03.84	100
Total		104	100.00	

Globally, female's representation on corporate boards has attracted the attention of many scholars of corporate governance literature. In 2011, the cabinet of Malaysia formulated a policy regarding female participation in decision making positions in firms on *Bursa Malaysia*. The policy stipulates that 30% of decision makers should be occupied by women in all firms to ensure women's participation at the decision making level by 2016 (Ahmad et al., 2019).

Table 4.2 shows the different aspects of board diversity for the period of 2015-2017 for the sample firms. Table 4.2 shows that the percentage of female directors is 16% while male directors are 84% for the period 2015-2017. This finding shows that the percentage of female directors on *Bursa Malaysia* has not met the Cabinet policy requirement. Hassan and Marimuthu (2014) showed that the average percentage of female directors of firms on *Bursa Malaysia* is 5.9 percent in 2009, while Lee-Kuen,

Sok-Gee, and Zainudin (2017) found that the mean percentage of female directors in Malaysia was 8.61% for 2009-2013.

Table 4.2 shows that the largest number of directors were Chinese (44.92%), followed by Malay (39.75%), Indian (3.29%) and Other (12.04%). The findings are similar to the study by Abdullah (2014). Table 4.2 also shows that a majority of the directors were comparatively old between the ages of 60 - 70 (36.07%). This is followed by the age group of 51 - 60 years (33.21%) while the lowest number of directors was below 41 years (4.79%). This shows that the number of younger directors is very low among firms listed on *Bursa Malaysia*.

In terms of education, Table 4.2 shows that most of the directors hold a Business degree (54.88%) while the lowest number of board directors is from Liberal Arts background (6.85%). It can also be seen that the number of inside directors (55.30%) are slightly higher than outside directors (44.70%) among the listed firms of *Bursa Malaysia* for the period 2015-2017.

Table 4.2
Directors' Profile in Sample Firms on Bursa Malaysia (2015-2017)

Attribute	Diversity	Percentage (%)
Gender	Male	84.00
	Female	16.00
Ethnicity	Malay	39.75
	Chinese	44.92
	Indian	3.29
	Other	12.04
Age	Below 41years old	4.79
	41 - 50 years old	12.82
	51 - 60 years old	33.21
	60 - 70 years old	36.07
	Over 70 years old	13.11

Attribute	Diversity	Percentage (%)
Education	Business degree	54.88
	Liberal Arts degree	6.85
	Technical degree	20.09
	Law degree	9.66
	Other degree	8.52
Inside/ Outside directorship	Inside directors	55.30
	Outside directors	44.70

4.3 Descriptive Statistics of Variables

Descriptive statistics explain the basic characteristics of the data of this study. The main objective of this statistics is simply to summarize the data and explain their main features.

Table 4.3 shows the descriptive statistics of the dependent variables, the independent variables, the control variable and the moderating variable used in the study. The dependent variable is Tobin's Q, while the independent variables are gender diversity (GENDIV), ethnic diversity (ETHDIV), age diversity (AGEDIV), educational diversity (EDUDIV), and outside director diversity (OUTDIRDIV). Corporate sustainability practices (CSP) is the moderating variable, while board size (BRDSIZE), firm size (FRMSIZE), and leverage (LEVRGE) are the control variables.

Firm performance, as measured by Tobin's Q, varied from as low as 0.21 to a maximum of 13.87 with a mean of 1.90. The mean is similar to those reported by Abdullah and Ismail (2013) among top 100 non-financial listed firms on *Bursa Malaysia* in 2007, and Hassan, Marimuthu, and Johl (2015) who examined 60 top non-financial listed firms on *Bursa Malaysia* for the period 2009-2013.

Table 4.3 shows that the mean, minimum and maximum values for gender diversity are 0.2358, 0.00 and 0.4938 respectively. Based on the Blau index (Blau, 1977) the range of minimum to maximum is 0.00 to 0.50 for gender diversity of a firm. The result of this study indicates that gender diversity is very low among firms in Malaysia. In addition, there was a great variation in gender diversity among the firms when there was no gender diversity ($GENDIV = 0$) and high gender diversity ($GENDIV = 0.4938$).

Table 4.3 also shows the mean, minimum and maximum values for ethnic diversity are 0.4341, 0.00 and 0.7160 respectively. Based on the Blau index (Blau, 1977) the range of minimum to maximum is 0.00 to 0.750 for ethnic diversity in this study with four ethnic categories (Malay, Chinese, Indian, Other). Results showed that a moderate level of ethnic diversity existed among board directors of the selected firms on *Bursa Malaysia*.

Furthermore, Table 4.3 shows the mean, minimum and maximum values for age diversity are 0.6214, 0.2449 and 0.7901 respectively. Based on the Blau index (Blau, 1977) the range of minimum to maximum is 0.00 to 0.80 for age diversity in this study with five age categories. Results showed a high level of age diversity among board directors of the selected firms on *Bursa Malaysia*.

In addition, Table 4.3 shows the mean, minimum and maximum values for education diversity are 0.5360, 0.1653 and 0.7812 respectively. Based on the Blau index (Blau, 1977) the range of minimum to maximum is 0.00 to 0.80 for education diversity in

this study with five categories of educational background. Results showed a moderate level of educational diversity among board directors of the selected firms on *Bursa Malaysia*.

The mean, minimum and maximum values for outside director diversity are 0.4660, 0.0 and 0.5 respectively. Based on the Blau index (Blau, 1977) the range of minimum to maximum is 0.00 to 0.50 in this study with two categories of directors. This study found a high level of outside director diversity among board directors of the selected firms on *Bursa Malaysia*.

Table 4.3 also shows the descriptive statistics for the control variables used in this study, namely, board size, firm size, and leverage. The mean, minimum and maximum values of board size are 9.0577, 5 and 17 respectively. Results showed that the minimum number of board size was 5 directors, while the maximum board size was 17 directors. The mean, minimum and maximum values of firm size, measured by the log of total asset of the firm, are 6.7798, 5.2769 and 8.1590 respectively. The mean, minimum and maximum values of leverage are 0.2538, 0.00 and 0.6851 respectively. Results showed that some firms had no debt while others had 68.51% debt of their total assets.

Table 4.3 also shows the descriptive statistics for the moderating variable, corporate sustainability practices. The mean score, minimum and maximum values are 164.9583, 0.00 and 1098 respectively. Results showed that some firms had no

corporate sustainability practices, while some had a high level of corporate sustainability practices as disclosed in their annual reports.

Table 4.3
Descriptive Statistics of Variables

Variable	Number of observations	Mean	Standard Deviation	Minimum	Maximum
TQ	312	1.8971	2.0267	0.2108	13.8700
GENDIV	312	0.2358	0.1521	0	0.4938
ETHDIV	312	0.4341	0.1883	0	0.7160
AGEDIV	312	0.6214	0.1012	0.2449	0.7901
EDUDIV	312	0.5360	0.1471	0.1653	0.7812
OTDRDIV	312	0.4660	0.0440	0	0.5
BRDSIZE	312	9.0577	2.1164	5	17
FRMSIZE	312	6.7798	0.5612	5.2769	8.1590
LEVRGE	312	0.2538	0.1663	0	0.6851
CSP	312	164.9583	157.7669	0	1098

Note:

TQ = Tobin's Q, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

4.4 Multicollinearity

Multicollinearity Diagnostic Test can be used to test for multicollinearity problems in the model. Multicollinearity is an issue of having a high degree of correlation between independent variables which could inflate the regression results. Hair, Black, Babin, Anderson, and Tatham (2006) noted that multicollinearity problems exist when the variance inflation factor (VIF) values are above 10 (or Tolerance value is less than 0.10). Results of the multicollinearity test are shown in Table 4.4.

As shown in Table 4.4, there appears to be no evidence of the problem of multicollinearity in the model as all variables has variance inflation factors that are less than 10 and tolerance values that are more than 0.10.

Table 4.4
Multicollinearity Diagnostic Test

Variable	Tobin's Q	
	Variance Inflation Factor, VIF	Tolerance value
GENDIV	1.21	0.8280
ETHDIV	1.11	0.8994
AGEDIV	1.07	0.9327
EDUDIV	1.11	0.9014
OTDRDIV	1.05	0.9526
CSP	1.11	0.9039
BRDSIZE	1.34	0.7448
FRMSIZE	1.46	0.6862
LEVRGE	1.42	0.7058
Mean VIF	1.21	

Note:

TQ = Tobin's Q, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

It is also essential to check for multicollinearity after the inclusion of the interaction variables in the model. The interaction variables raise concerns of multicollinearity between the interacted variables and the original components. To avoid this problem, the moderator and predictor variables are centered (Cohen, West, & Aiken, 2014; Frazier, Tix, & Barron, 2004; West, Aiken, & Krull, 1996). Centering also facilitates the interpretation of the interaction and predictors and helps to achieve accurate estimated coefficients (Frazier et al., 2004; West et al., 1996). After the creation of the interaction terms, the result of the multicollinearity test is as shown in Table 4.5.

Table 4.5 shows no evidence of multicollinearity in the model as all variables variance inflation factors that are less than 10 and tolerance values that are more than 0.10.

Table 4.5
Multicollinearity Diagnostic Test after Inclusion of the Interaction Terms

Variable	Tobin's Q	
	Variance Inflation Factors	Tolerance value
GENDIV	1.23	0.8153
ETHDIV	1.21	0.8250
AGEDIV	1.09	0.9204
EDUDIV	1.15	0.8731
OTDRDIV	1.13	0.8857
BRDSIZE	1.37	0.7315
FRMSIZE	1.50	0.6672
LEVRGE	1.48	0.6764
CSP	1.34	0.7470
GENDIV*CSP	1.29	0.7742
ETHDIV*CSP	1.63	0.6120
AGEDIV*CSP	1.20	0.8310
EDUDIV*CSP	1.33	0.7525
OTDRDIV*CSP	1.68	0.5960
Mean VIF	1.33	

Note:

All interactions terms are formed with centered variables. TQ = Tobin's Q, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

Table 4.6 shows the correlation matrix conducted to further test for multicollinearity in the model. Correlation analysis was used to identify the existence of multicollinearity among independent variables, which may affect their relationship with the dependent variable in the regression analysis (Pallant, 2007). Hair et al. (2006) and Tabachnick, Fidell, and Ullman (2007) recognized the problem of multicollinearity if the correlation between variables is more than 0.9. Unreliable and unstable regression coefficients can be caused by high multicollinearity (Hamilton, 2012). One of the common ways to check for multicollinearity is the Pearson and Spearman Correlations.

4.5 Normality Test

Normality test is to ensure that the data and variables are normally or not normally distributed. Kline (2015) argued that when the value of skewness and kurtosis are within ± 3 and ± 10 respectively, data is considered normal. Z-values are used to further check for normality and calculated by dividing statistic over standard error of skewness and kurtosis respectively and compared to a specific critical value. Hair et al. (2010), suggested that critical values at ± 2.58 (0.01 significant level) and ± 1.96 (0.05 significant level) are widely used in previous studies.

Table 4.6 shows the Z-values for each variable included in the model. All variables were found to be normal except for outside director diversity (OTDRDIV), corporate sustainability practices (CSP) and Tobin's Q. Thus, the distributions of the data are not normal.

Table 4.7 shows the Pearson correlation matrix where the highest correlation between dependent variable Tobin's Q and the control variable firm size is 0.52. Since the highest values are less than 0.9, there is no evidence of multicollinearity among the variables in the model.

Table 4.6
Skewness and Kurtosis Test for Normality

Variables	Skewness			Kurtosis			Normal
	Statistic	Standard Error	Z Value	Statistic	Standard Error	Z Value	
GENDIV	-0.373	.138	-2.7046	-1.011	.275	-3.6739	√
ETHDIV	-0.718	.138	-5.1990	-.251	.275	-0.9116	√
AGEDIV	-0.948	.138	-6.8673	0.869	.275	3.1568	√
EDUDIV	-0.559	.138	-4.0538	-0.305	.275	-1.1090	√
OTDRDIV	-4.628	.138	-33.5351	41.017	.275	149.0612	X
BRDSIZE	0.721	.138	5.2215	0.489	.275	1.7774	√
FRMSIZE	0.098	.138	0.7127	-0.534	.275	-1.9411	√
LEVRGE	0.286	.138	2.0702	-0.736	.275	-2.6754	√
CSP	2.373	.138	17.1963	8.465	.275	30.7624	X
TQ	2.912	.138	21.0992	9.446	.275	34.3263	X

Note:

X = not normal, √ = normal.

TQ = Tobin's Q, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

Several researchers had suggested that violation of the normality assumption may not cause any serious problems in a large sample size. According to Gujarati and Porter (2009), it is not necessary for large data to have normality for their estimations. Gujarati and Porter (2009) defined large sample size is where the number of observations is more than 100. Accordingly, the arguments of these studies showed that the observations of this study of 312 firms can be treated as large. Thus, the violation of normality is not a serious issue and the normality assumptions can be waived for this study.

Table 4.7
Correlation Matrix

	TQ	GENDIV	ETHDIV	AGEDIV	EDUDIV	OTDRDIV	BRDSIZE	FRMSIZE	LEVRGE	CSP
TQ	1									
GENDIV	0.1677***	1								
ETHDIV	0.2169***	0.113**	1							
AGEDIV	0.2036***	0.0542	-0.115**	1						
EDUDIV	-0.0164	0.196***	-0.169***	0.1712***	1					
OTDRDIV	0.0963*	0.070	0.0692	-0.0853	-0.012	1				
BRDSIZE	0.2105***	0.273***	-0.1357**	0.1031*	0.0562	-0.152***	1			
FRMSIZE	0.5158***	-0.0498	-0.032	-0.0791	0.0139	-0.0018	0.300***	1		
LEVRGE	0.2604***	-0.0359	0.1977***	0.0297	0.0066	-0.0253	0.257***	0.453***	1	
CSP	0.0133	0.0341	-0.0004	-0.0121	0.0263	-0.0057	0.132**	0.190***	-0.105*	1

Note:

***Correlation is significant at the 0.01 level, **Correlation is significant at the 0.05 level,

*Correlation is significant at the 0.1 level.

TQ = Tobin's Q, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

4.6 Test of Heteroscedasticity

Cai and Hayes (2008) noted that homoscedasticity is an essential consideration among the assumptions of the ordinary least squares regression model. Homoscedasticity refers to the constant variation of the residual as the errors process should be homogenous across units. Problem is found on the data when the variance of error terms is unequal. In multiple regression model, and for analyzing panel data, heteroscedasticity is a major concern as it can invalidate the efficiency of statistical results (Brooks, 2014; Hair et al., 2010). It is argued that ignoring the presence of heteroscedasticity can result in inefficient coefficient estimations and biased standard errors (Baltagi, 2008). To detect for heteroscedasticity, the formal statistical test Breusch and Pagan (1979) was used in this study. According to Brooks (2014) the null hypothesis of the Breusch-Pagan test is homoscedasticity; and if the null hypothesis is rejected, then it is a case of heteroscedasticity. If the p -value < 0.05 , then

the null hypothesis is rejected, therefore, it results in non-acceptance of the null hypothesis of homoscedasticity.

Table 4.8 shows the result of the Breusch-Pagan / Cook-Weisberg Test for heteroscedasticity where the chi square value is 219.18 and the corresponding p -value < 0.01 . As the null hypothesis is rejected, the heteroscedasticity problem was found in the model.

Table 4.8
Results of Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

	Tobin's Q
Chi square (1)	219.18
Prob > Chi square	0.0000

4.7 Groupwise Heteroscedasticity Test

To further assess the presence of heteroscedasticity, especially in the fixed effect model, this study conducted the modified Wald test as suggested by Greene (2003).

According to Greene (2003), the null hypothesis assumed that there is no groupwise heteroscedasticity in the model. Based on the modified Wald test, if the null hypothesis is rejected, then groupwise heteroscedasticity is detected in the model.

Table 4.9 shows the results of the Wald test where the value of chi square statistics is $3.7e+08$ with corresponding p -value < 0.01 indicating that the null hypothesis is rejected. Since the null hypothesis is rejected, groupwise heteroscedasticity problem was found in the fixed effect model for Tobin's Q.

Table 4.9

Results of Modified Wald Test for Groupwise Heteroscedasticity in the Fixed Effect Regression Model

	Tobin's Q
Chi square	3.7e+08
Prob > Chi square	0.000

4.8 Autocorrelation

Autocorrelation is the issue of error components being correlated across time due to high similarities. The regression model assumes that the error term of units is not correlated and not influenced by other units. Although this is a violation of the ordinary assumption, it is a common issue in panel or time-series analysis (Wooldridge, 2010).

Gujarati and Porter (2009) suggested that a Lagrange multiplier test is most suitable for serial correlation and to detect first-order autocorrelation. Furthermore, Wooldridge test for autocorrelation in panel data was used to detect serial or first-order autocorrelation. Results of the test in Table 4.10 show that this model was found to be not significant at $p > 0.10$. The result failed to reject the null hypothesis and thus, data for Tobin's Q model had no first-order autocorrelations. However, this can only be accurate if the panel data is free from cross-sectional dependence as explained by Petersen (2009).

Table 4.10

Results of Wooldridge Test for Autocorrelation in Panel Data

	Tobin's Q
$F(1, 103)$	1.952
Prob > F	0.1654

4.9 Results of the Lagrange Multiplier Test

This step involved conducting Breusch-Pagan Lagrange multiplier test in order to compare between the ordinary least squares and random effects models. The primary difference between the two models is their consideration of individual effects. Hence, a statistical test can be created on the basis of the notion of the presence or absence of u_i - denoting random effect. For this determination, the Breusch-Pagan Lagrange multiplier test is appropriate. The test is primarily based on the idea that if u_i is equal to zero for the entire i 's, then there is no individual heterogeneity and this indicates that the pooled ordinary least squares model is more suitable to be used. If on the other hand, the Lagrange multiplier test generates a significant chi-square value, indicating a low p -value that is less than 0.05, the null hypothesis rejects suitability of the pooled estimates model. Table 4.11 shows that prob > chi square is positive at the 0.00 level. So, it is safe to use the random effects over the pooled ordinary least squares model.

Table 4.11
Results of Breusch and Pagan Lagrangian Multiplier Test for Random Effects

	Tobin's Q
Var (u)	0
Chi square	249.97
Prob > Chi square	0.00

4.10 Results of Hausman Test

Based on Gujarati and Porter (2009), the Hausman test was employed to decide between fixed or random affects as a more appropriate model for this study. Furthermore, the fixed effects model considers the presence of correlation between

independent variables and error term, whereas the random effect model does not consider it.

The null hypothesis assumes the use of random effects and the alternative hypothesis assumes the use of the fixed effects. The Hausman specification test is used when running the models to examine whether or not there is a correlation between the explanatory variables and the error term (Baltagi, 2008). If a significant p -value is generated, the null hypothesis is rejected and the fixed effects model is selected. In this study, the Hausman test was conducted and results showed significance at the 5% level. Thus, the null hypothesis was rejected. Therefore, based on the Hausman test, the fixed effect model is more appropriate to be used to analyze the panel data for this study.

Table 4.12
Results of Hausman Test for Selecting Fixed or Random Effects Model

	Tobin's Q
Chi square	18.08
Prob > Chi square	0.0343

4.11 Cross-Sectional Dependence

Cross-sectional dependence, also known as contemporaneous correlation, refers to the correlation of the residuals across entities. Petersen (2009) identified two forms of cross-dependence: one is when the firm residuals are correlated across years, and the other when the residuals of a particular year are correlated across firms. He argued that finance and economic data are more likely to have this problem as

entities have strong similarities in between and across time. Ignoring the problem could produce under- or over-estimation of the true estimation of coefficients.

Pesaran's test is an appropriate test to explore whether the data has cross-sectional dependence problem. It is the most appropriate test for panel data that has large cross-sectional units and small time-series (Hoyos & Sarafidis, 2006). Pesaran's test was applied to the model and confirmed the existence of cross-sectional dependence in the model as shown in Table 4.13. Accordingly, the presence of the problem has to be corrected.

Table 4.13

Results of Pesaran's Test of Cross Sectional Independence in Panel Data

	Tobin's Q
Pesaran's test of cross sectional independence	5.951, Pr = 0.0000
Average absolute value of the off-diagonal elements	0.724

4.12 Multiple Regression Analysis

Multiple regression analysis was performed using STATA 13 software to determine the influence of the independent variables (gender diversity, ethnic diversity, age diversity, educational diversity, outside director diversity) on the dependent variable (Tobin's Q), the influence of the moderating variable (corporate sustainability practices) on the dependent variable (Tobin's Q) and the effect of the moderating variable (corporate sustainability practices) on the relationship between independent variables (gender diversity, ethnic diversity, age diversity, educational diversity, outside director diversity) and the dependent variable (Tobin's Q). According to

Sekaran and Bougie (2011, p. 365), “STATA is a general purpose statistical software package which supports various statistical and econometric methods, graphics, and enhanced features for data manipulation, programming and matrix manipulation”. Rodríguez (2017) further added that STATA is a powerful statistical package with smart data-management facilities, wide collection of up-to date statistical techniques and an outstanding system for producing publications and quality graphs.

From the diagnostic tests, this study found that the fixed effect model was more appropriate to run the multiple regressions. However, the potential econometric problems of heteroscedasticity, groupwise heteroscedasticity and cross sectional dependence were found in the data. Fixed effects models with groupwise heteroscedasticity cannot be efficiently estimated with ordinary least squares. To solve these issues, this study used a feasible generalized least squares (FGLS, or `xtgls` command in Stata) to correct the standard error (Wooldridge, 2010). However, Beck and Katz (1995) suggested that for cross-sectional time-series data, researchers should use ordinary least squares with heteroscedastic panels corrected standard errors (OLS-PCSE, or `xtpcse` command in Stata) because the standard errors of the estimated coefficients based on FGLS may underestimate the true sampling variability. Monte-Carlo analysis showed that OLS-PCSE performs better than FGLS in estimating the standard errors (Moundigbaye et al., 2019; Nithithanatchinnapat & Joshi, 2019).

Moreover, the FGLS estimator is more appropriate for panels with $T > N$ and PCSE is more suitable for the panel with $T < N$ (Miao et al., 2019). Another advantage of

this technique is that it allows for disturbances that are heteroscedastic and contemporaneously corrected across panels (Reed & Webb, 2010). The PCSE standard error estimate is robust not only to unit heteroscedasticity but it is also robust against possible contemporaneous correlation across the units (Bailey & Katz, 2011). Thus, this study assumed that PCSE is the most suitable estimator for analysing the panel data, as this study constituted 104 firms for the period of 3 years (Almaqtari et al., 2019; Marques et al., 2016). Therefore, this study adopted PCSE estimator to estimate the relationship among the variables.

Many studies conducted their research by using the PCSE approach to deal with the problems of heteroscedasticity, groupwise heteroscedasticity, first-order serial correlation, and cross-sectional dependence. For example, Jiang, Habib, and Hu (2011) examined the effects of different classes of ownership concentration on information asymmetry conditional upon corporate voluntary disclosures for the period of 2001–2005 for 175 New Zealand firms. Habib and Jiang (2012) also used PCSE to examine the relationship between managerial ownership and income smoothing for the firms listed on the New Zealand Stock Exchange for the period of 2000-2009. Ayadi and Boujelbène (2015) examined the link between the internal governance mechanisms and the value relevance of accounting earnings by using PCSE. Therefore, this study also adopted the PCSE estimator approach to run all multiple regression models to handle the problems of heteroscedasticity, groupwise heteroscedasticity and cross-sectional dependence in the data. Results of multiple regression analysis are presented in the following sections.

4.13 The Relationship between Board Diversity and Financial Performance

The results of the multiple regression to examine the relationship between board diversity and financial performance measured by Tobin's Q is shown in Table 4.14. The χ^2 -statistics that explains the overall significance of the model was found to be significant at the 0.000 levels with R^2 of 0.3685. It shows that the regression model consisting of gender diversity (GENDIV), ethnic diversity (ETHDIV), age diversity (AGEDIV), educational diversity (EDUDIV), outside director diversity (OTDRDIV), board size (BRDSIZE), firm size (FRMSIZE), and leverage (LEVRGE) could explain 36.85 percent changes in Tobin's Q. The predictors from board diversity variables, such as, gender diversity, ethnic diversity, age diversity, education diversity, and outside director diversity were found to be significant supporting the hypotheses. Meanwhile among the three control variables, board size, and firm size are negatively significant whereas leverage is insignificant. The results of the regression analysis indicate that all the independents variables and two control variables have an impact on financial performance measured by Tobin's Q. However, the control variable, leverage, had no impact on financial performance.

Table 4.14
Regression Results of the Relationship between Board Diversity and Financial Performance Measured by Tobin's Q

Variables	Expected Signs	Beta Coefficient	z-statistics	p-value
GENDIV	+	1.831	5.17	0.000***
ETHDIV	+	2.127	14.64	0.000***
AGEDIV	+	3.883	7.05	0.000***
EDUDIV	+	0.324	1.81	0.070*
OTDRDIV	+	3.441	2.76	0.006***
BRDSIZE		-0.0912	-4.99	0.000***
FRMSIZE		-1.682	-17.41	0.000***
LEVRGE		0.182	0.67	0.502
Constant		8.535	7.32	0.000***
R^2	0.3685			
Wald χ^2 -Statistics	300611.80			
Sig χ^2 - Statistics	0.0000			
Observations	312			

Note:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity,

EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size,

FRMSIZE = firm size, LEVRGE = leverage

Results of each of these variables are further discussed in the following sections.

4.13.1.1 Gender Diversity and Financial Performance

The coefficient estimation of gender diversity (GENDIV) is 1.831 with z -value of 5.17 ($p < 0.01$). This result indicates that a 1-point increase in gender diversity will result in an increase of 1.831 point in Tobin's Q. The result shows that there is a positive and significant relationship between gender diversity and financial performance, which appears to suggest that more gender diversity on the board of directors will enhance financial performance. Thus this result supports Hypothesis H_1 .

This result appears to suggest that when the board is formed by some proportion of male and female directors, financial performance will be higher. The positive result might be due to female directors who have a better attendance record than their male counterpart in board meetings, and women directors are more likely to become members of monitoring committees. This result suggests that gender-diverse boards allocate more effort to monitoring that enhances financial performance (Adams & Ferreira, 2009). Moreover, boards that comprise of both male and female directors are in a better position to evaluate the risks and returns related to decisions, for example, business expansion, investment in a new projects, or business diversification that ultimately reduce the risk and enhance financial performance.

In addition, this result is consistent with the findings of Lee-Kuen et al. (2017), Terjesen et al. (2016), Gordini and Rancati (2017), Reguera-Alvarado et al. (2017), Fidanoski et al. (2014) Campbell and Mínguez-Vera (2008), Nguyen and Faff (2007) Terjesen et al. (2016), Kılıç and Kuzey (2016) Liu et al. (2014), Fidanoski et al. (2014), Julizaerma and Sori (2012) , Mahadeo et al. (2012), Isidro and Sobral (2015), Marimuthu and Kolandaisamy (2009) but inconsistent with the study of Abdullah and Ismail (2013), and Hassan et al. (2015). The inconsistent result might be due to the use of a different measurement for board diversity, or different period of study. However, studies that used Blau index to measure diversity were mostly found to show a positive relationship between gender diversity and financial performance.

4.13.1.2 Ethnic Diversity and Financial Performance

The coefficient estimation of ethnic diversity (ETHDIV) is 2.127 with a z-value of 14.64 ($p < 0.01$). This result indicates that a 1-point increase in ethnic diversity will result in an increase of 2.127 point in Tobin's Q. The result shows that there is a positive and significant relationship between ethnic diversity and financial performance, which suggests that when the board of directors is comprised of Malay, Chinese, Indian and Other ethnic, it enhances financial performance. Thus, this result supports Hypothesis H_2 .

Malaysia is a multi-racial country made up of three major ethnic groups, namely, Malays, Chinese and Indians. The result suggests that if a board is formed by directors of all this ethnic groups, it can make better strategic decisions which help to

attract all categories of customers and increases financial performance. It may be due to the reason that if directors are appointed from each ethnic group, they can easily understand the interests and choices of all ethnic groups in Malaysia. The result is consistent with the studies by Cheong and Sinnakkannu (2014), and Marimuthu and Kolandaisamy (2009) but does not support the study by Hassan et al. (2015).

4.13.1.3 Age Diversity and Financial Performance

The coefficient estimation of age diversity (AGEDIV) is 3.883 with a z -value of 7.05 ($p < 0.01$). This result indicates that a 1-point increase in age diversity will result in an increase of 3.883 point in Tobin's Q. The result shows that there is a positive and significant relationship between age diversity and financial performance, which suggests that if the board is comprised of directors with different age levels, it will increase the financial performance. Thus, this result supports Hypothesis H_3 .

Generally, the composition of the board made up of different age groups can better understand the choices and demands of stakeholders of all ages. Conversely, if the directors are from the same age group, they may be more experienced with customers who are about their age group only. As such, age diversity helps the board to make better strategic decisions by integrating the knowledge and experience of both the older and younger directors that will increase financial performance. The result is consistent with the study by Hassan et al. (2015), Mahadeo et al. (2012), and Darmadi (2011) but inconsistent with the study by Abdullah and Ismail (2013) and Ali et al. (2014).

4.13.1.4 Education Diversity and Financial Performance

The coefficient estimation of education diversity (EDUDIV) is 0.324 with a z -value of 1.81 ($p < 0.10$). This result indicates that a 1-point increase in education diversity will result in an increase of 0.324 point in Tobin's Q. The result shows that there is a positive and significant relationship between education diversity and financial performance, which indicates that if the board is formed by directors from various academic backgrounds, it will increase financial performance. Thus, this result supports Hypothesis H_4 .

This positive result may be attributed to the idea that heterogeneity in academic backgrounds among directors brings together their diverse knowledge regarding business management and operations. Moreover, a diverse academic background will bring about different viewpoints to better monitor and control managers and executives by which the firm can benefit through better utilization of resources, problem solving and developing best strategies. The result is consistent with the study by Fidanoski et al. (2014), and Anderson et al. (2011) but is inconsistent with the study by Sitthipongpanich and Polsiri (2013).

4.13.1.5 Outside Director Diversity and Financial Performance

The coefficient estimation of outside director diversity (OTDRDIV) is 3.441 with a z -value of 2.76 ($p < 0.01$). This result indicates that a 1-point increase in outside directors' diversity will result in an increase of 3.441 point in Tobin's Q. The result shows that there is a positive and significant relationship between outside director diversity and financial performance, which suggests that if the board has both

independent and non-independent directors, it will increase financial performance. Thus, the result supports Hypothesis H_5 .

The presence of both independent (outside) and non-independent (inside) directors on the board of directors enhance the strength of board monitoring and support in the decision making process which ultimately reduces agency costs and increase the financial performance. The results are consistent with the study of Duchin, Matsusaka, and Ozbas (2010), Kweh, Ahmad, Ting, Zhang, and Hassan (2019), Mahadeo et al. (2012), but inconsistent with the results of Duchin et al. (2010), Zabri, Ahmad, and Wah (2016).

4.13.1.6 Summary of Results of the Relationship between Board Diversity and Financial Performance

To summarize the results regarding the hypotheses related to the predictive power of board diversity towards financial performance, it can be concluded that Hypotheses H_1 , H_2 , H_3 , H_4 and H_5 are significant. This shows that board diversity from all five aspects (gender diversity, ethnic diversity, age diversity, educational diversity, outside director diversity) significantly influence financial performance of selected firms on *Bursa Malaysia*. The results support both the agency theory (Jensen & Meckling, 1976) and the resource dependence theory (Pfeffer & Salancik, 1978). A summary of predictor coefficient test regression and a summary of hypotheses results are shown in Table 4.15 and Table 4.16, respectively.

Table 4.15

Summary of Multiple Regression Results of Board Diversity and Financial Performance as Measured by Tobin's Q

Independent Variables	Expected Sign	Financial Performance (Tobin's Q)
GENDIV	+	Significant (+)
ETHDIV	+	Significant (+)
AGEDIV	+	Significant (+)
EDUDIV	+	Significant (+)
OTDRDIV	+	Significant (+)

Note:

GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity

Table 4.16

Summary of Hypotheses Test Results of the Effects of Board Diversity on Financial Performance of Listed Firms in Malaysia

Hypotheses	Decision
<i>H</i> ₁ : Gender diversity positively influences financial performance	Supported
<i>H</i> ₂ : Ethnic diversity positively influences financial performance	Supported
<i>H</i> ₃ : Age diversity positively influences financial performance	Supported
<i>H</i> ₄ : Educational diversity positively influences financial performance	Supported
<i>H</i> ₅ : Outside director diversity positively influences financial performance	Supported

4.13.2 Corporate Sustainability Practices and Financial Performance

Results of the multiple regressions of corporate sustainability practices and financial performance measured by Tobin's Q are shown in Table 4.17. The χ^2 -statistic that explains the overall significance of the model was found to be significant at the 0.000 level with R^2 of 0.2836. This shows that the regression model consisting of corporate sustainability practices (CSP), board size (BRDSIZE), firm size (FRMSIZE), and leverage (LEVRGE) could explain 28.36 percent changes in Tobin's Q. The predictor corporate sustainability practices was found to be significantly positive with financial performance lending support to the hypothesis. Meanwhile of the three control variables, board size (BRDSIZE) and firm size

(FRMSIZE) are significantly negative whereas leverage (LEVRGE) is insignificant.

The coefficient estimation of corporate sustainability practices is .0015787 with z -value of 4.58 ($p < 0.01$). This result indicates that a 1-point increase in corporate sustainability practices will result in an increase of .0015787 point in Tobin's Q. The result shows that there is a positive and significant relationship between corporate sustainability practices and financial performance, which appears to suggest that more corporate sustainability practices enhances financial performance. Thus, the result supports Hypothesis H_6 .

The result implies that when a firm considers the interest of all of its stakeholders by increasing its economic, environmental and social activities, it enhances its financial performance. The possible explanation for the result could be that corporate sustainability practices of a firm reduces employee turnover, increases employee commitment, enhances customer satisfaction and loyalty, and improves the reputation of the firm. Thus, customers of firms that are involved in sustainability practices are willing to pay a premium price for the firm's product which ultimately enhances financial performance. Moreover, firms which are heavily involved in corporate sustainability practices are considered less risky during inspections carried out by regulators. As such, the firm can reduce the costs of inspection which reduces aggregate costs and increases financial performance.

This result supports the stakeholder theory (Freeman, 1984) and is consistent with studies of Wang and Hsu (2011), Wang (2016), Saleh et al. (2011), Ahamed et al.

(2014), Taib and Ameer (2012), Razali (2018), and Ong et al. (2016) but is inconsistent with the findings of San (2016).

Table 4.17
Regression Results of the Relationship between Corporate Sustainability Practices and Financial Performance

Variables	Expected Signs	Beta Coefficient	Z-statistics	P-value
CSP	+	0.0015787	4.58	0.000***
BRDSIZE		-0.0691705	-10.64	0.000***
FRMSIZE		-1.880915	-16.60	0.000***
LEVRGE		0.0872491	0.23	0.816
Constant		14.9933	19.52	0.000***
R ²	0.2836			
Wald χ^2 -Statistics	443.05			
Sig χ^2 - Statistics	0.0000			
Observations	312			

Note:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

4.13.2.1 Summary Results of the Relationship between Corporate Sustainability Practices and Financial Performance

This study attempts to test the hypothesis of the relationship between corporate sustainability practices and financial performance and concluded that Hypothesis H_6 is significant. It indicates that corporate sustainability practices significantly influence financial performance among selected firms on *Bursa Malaysia*. A summary of predictor coefficient test regression and results of hypotheses tests are shown in Table 4.18 and 4.19, respectively.

Table 4.18

Summary of Multiple Regression Result of CSP on Financial Performance of Firms in Malaysia

Independent Variable	Expected Sign	Financial Performance (Tobin's Q)
Corporate Sustainability Practices	+	Significant (+)

Table 4.19

Summary of Hypotheses Test Result of the Effect of Corporate Sustainability Practices on Financial Performance

Hypothesis	Decision
H_6 : Corporate sustainability practices positively influence financial performance	Supported

4.13.3 Moderating effects of Corporate Sustainability Practices on the Relationship between Board diversity and Financial Performance

Results of the moderating effects of corporate sustainability practices on the relationship between board diversity, namely, gender diversity (GENDIV), ethnic diversity (ETHDIV), age diversity (AGEDIV), educational diversity (EDUDIV), and outside director diversity (OTDRDIV) and financial performance measured by Tobin's Q are presented and discussed in this section. The moderator variable for this study, corporate sustainability practices, which is measured by content analysis from the firms' audited annual reports is expected to moderate the relationship between board diversity and financial performance. Hierarchical moderated multiple regression model was used to test these relationships. Results of the regression tests are presented in Table 4.20.

4.13.3.1 Hierarchical Multiple Regression Test

Discussion in the earlier part of Chapter Four noted that this study employed hierarchical multiple regression to examine the moderating effects of corporate sustainability practices on the relationship between board diversity (GENDIV, ETHDIV, AGEDIV, EDUDIV, OTDRDIV) and financial performance. Results of the hierarchical regression analyses are presented based on the analyses of Model 1, Model 2 and Model 3.

Regression analyses was performed in three separate stages or models as suggested by Baron and Kenny (1986). In Model 1, this study examined the relationship between the independent variables, (GENDIV, ETHDIV, AGEDIV, EDUDIV, OTDRDIV) and the dependent variable Tobin's Q. In Model 2, this study examined the relationship between the independent variables (GENDIV, ETHDIV, AGEDIV, EDUDIV, OTDRDIV) with the inclusion of the moderating variable, corporate sustainability practices, and the dependent variable, Tobin's Q. In Model 3, the study examined the relationship between the independent variables with the inclusion of the moderating variable together with the interaction terms.

Table 4.20
Moderating Effects of Corporate Sustainability Practices on the Relationship between Board Diversity and Financial Performance

Variable	Model 1		Model 2		Model 3	
	β	p-value	β	p-value	β	p-value
GENDIV	1.8309	0.000***	1.8055	0.000***	1.8958	0.000***
ETHDIV	2.1269	0.000***	2.1656	0.000***	2.0161	0.000***
AGEDIV	3.8832	0.000***	3.8827	0.000***	3.7604	0.000***
EDUDIV	.3240	0.070*	0.2956	0.108	.2229	0.254
OTDRDIV	3.4408	0.006***	3.4085	0.005***	4.6184	0.006***
BRDSIZE	-.0912	0.000***	-.1041	0.000***	-.1109	0.000***
FRMSIZE	-1.6819	0.000***	-	0.000***	-1.8992	0.000***
LEVRGE	.1824	0.502	1.8083			
CSP			.5878	0.051*	0.4800	0.113
GENDIV*CSP			.0016	0.000***	0.0022	0.000***
ETHDIV*CSP					0.0121	0.000***
AGEDIV*CSP					0.0028	0.012***
EDUDIV*CSP					-.01449	0.0000***
OTDRDIV*CSP					.00319	0.051 *
Constant	8.5349	0.000***	9.1594	0.000***	9.3492	0.000***
R ²	0.3685		0.3829		0.4174	
R ² Change			0.0144		0.0345	
Sig χ^2 - Statistics	0.0000		0.0000		0.0000	
Wald χ^2 -Statistics	300611.8		168000000		114655.65	

Note:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices.

Table 4.21
Summary of the Moderating Effects of Corporate Sustainability Practices on Board Diversity and Financial Performance Measured by Tobin's Q

Independent Variables	Dependent Variable (Tobin's Q)		
	Model 1	Model 2	Model 3
GENDIV	Significant (+)	Significant (+)	Significant (+)
ETHDIV	Significant (+)	Significant (+)	Significant (+)
AGEDIV	Significant (+)	Significant (+)	Significant (+)
EDUDIV	Significant (+)	Insignificant (+)	Insignificant (+)
OTDRDIV	Significant (+)	Significant (+)	Significant (+)
CSP		Significant (+)	Significant (+)
GENDIV*CSP			Significant (+)
ETHDIV*CSP			Significant (+)
AGEDIV*CSP			Significant (-)
EDUDIV*CSP			Significant (+)
OTDRDIV*CSP			Significant (-)

Note:

GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, CSP = corporate sustainability practices

Board diversity variables which comprised of GENDIV ETHDIV, AGEDIV,

EDUDIV, and OTDRDIV and the dependent variable, Tobin's Q, are introduced in Model 1. Results as in Table 4.20 shows that Model 1 is significant at the 0.000 level with R^2 of 0.3685 which indicate that the model has a good fit and could explain 36.85 percent in Tobin's Q. All the predictors were found to be significant GENDIV ($\beta = 1.830941, p = 0.000$), ETHDIV ($\beta = 2.126889, p = 0.000$), AGEDIV ($\beta = 3.883203, p = 0.000$), EDUDIV ($\beta = 0.3239941, p = 0.070$) OTDRDIV ($\beta = 3.440795, p = 0.006$), and each had positive impact on Tobin's Q. These results support the notion that diversity among board members enhances financial performance as measured by Tobin's Q.

In Model 2, corporate sustainability practices was included as a moderating variable. Results shown in Table 4.20 shows that this model is significant at the 0.000 level with $R^2 = 0.3829$ which is greater than the $R^2 = 0.3685$ in Model 1. The model therefore could explain better the variation in Tobin's Q with the inclusion of corporate sustainability practices. Furthermore, five predictors were found to be significant GENDIV ($\beta = 1.805542, p = 0.000$), ETHDIV ($\beta = 2.165562, p = 0.000$), AGEDIV ($\beta = 3.882698, p = 0.000$), OTDRDIV ($\beta = 3.408522, p = 0.005$) and CSP ($\beta = 0.0016173, p = 0.000$) and have positive impact on Tobin's Q. Other predictor EDUDIV ($\beta = 0.2956063, p = 0.108$) is insignificant on Tobin's Q. The results in model 2 indicate that among the different board diversity, gender, ethnic, age, outside director diversity and corporate sustainability practices positively influence the financial performance whereas education diversity in board has no impact on financial performance measured by Tobin's Q.

Model 3 examined the relationship between the independent variables inclusive of the moderating variable together with the interaction variables (GENDIV, ETHDIV, AGEDIV, EDUDIV, OTDRDIV, CSP, GENDIV*CSP, ETHDIV*CSP, AGEDIV*CSP, EDUDIV*CSP and OTDRDIV*CSP) and the dependent variable (Tobin's Q). The result as shown in Table 4.20 shows that this model was found out to be significant at the 0.000 level with R^2 of 0.4174 which is higher than R^2 of 0.3829 in Model 2. The result showed that corporate sustainability practices and its interactions with board diversity could explain the variation in Tobin's Q better compared to Model 2. Results also showed that corporate sustainability practices moderate (strengthen) the relationship between board diversity and financial performance. Details of the results for Model 3 is discussed and presented in the following paragraphs.

4.13.3.2 The Moderating Effects of Corporate Sustainability Practices on the Relationship between Gender Diversity and Financial Performance

The interaction terms of GENDIV*CSP and Tobin's Q were examined. The hierarchical regression result in Table 4.20 shows that GENDIV*CSP interacted positively and significantly with Tobin's Q ($\beta = 0.0121$, $p = 0.000$). Hence, the result in Model 3 showed that corporate sustainability practices moderate the relationship between gender diversity and Tobin's Q. Thus, the result supports Hypothesis H_7 . The result revealed that in the presence of higher corporate sustainability practices, a gender-diverse board enhanced the financial performance of firms and vice versa. A possible reason for this positive result could be that a gender-diverse board makes strategic decisions for the firm to organize more corporate sustainability practices,

since these activities enhance the reputation and image of the firm to the public. Coupled with good image and high reputation, a gender-diverse board has a strategic advantage over their competitors.

4.13.3.3 The Moderating Effects of Corporate Sustainability Practices on the Relationship between Ethnic Diversity and Financial Performance

The interaction terms of ETHDIV*CSP and Tobin's Q are examined. The hierarchical regression result in Table 4.20 shows that the interaction term ETHDIV*CSP had a positive and significant impact on Tobin's Q ($\beta = 0.0028$, $p = 0.012$). Thus, the result in Model 3 showed that corporate sustainability practices moderate the relationship between ethnic diversity and Tobin's Q. Thus, this result supports Hypothesis H_8 . The result implies that a board of directors comprised of Malay, Chinese, Indians and Other has more impact on financial performance in the presence of corporate sustainability practices. A plausible explanation may be that an ethnically-diverse board can make appropriate decisions by considering the interest of stakeholders from all races which bring their trust which, in turn, enhances financial performance.

4.13.3.4 The Moderating Effects of Corporate Sustainability Practices on the Relationship between Age Diversity and Financial Performance

The interaction terms of AGEDIV*CSP and Tobin's Q were examined. The hierarchical regression result in Table 4.20 shows that the interaction term AGEDIV*CSP was found to be negative and significant ($\beta = -0.01449$, $p = 0.000$). Thus, the result in Model 3 showed that corporate sustainability practices negatively

and significantly moderate the relationship between age diversity and Tobin's Q. Thus, this result supports Hypothesis H_9 . The earlier result showed that the direct relationship between age diversity and financial performance is positive but in the presence of corporate sustainability practices, the relationship became negative. The negative moderation result might be that corporate sustainability practices is not a preference to all ages. Accordingly, when the firm has corporate sustainability practices, some directors from a specific age group were not motivated to make relevant effective and efficient decisions for the firm. Therefore, age diversity of board directors affects financial performance negatively in the presence of corporate sustainability practices.

4.13.3.5 The Moderating Effects of Corporate Sustainability Practices on the Relationship between Educational Diversity and Financial Performance

The interaction terms of EDUDIV*CSP and Tobin's Q were also examined. The hierarchical regression result in Table 4.20 shows that the interaction term EDUDIV*CSP has a positive and significant impact on Tobin's Q ($\beta = 0.00319$, $p = 0.051$). The result in Model 3 indicates that corporate sustainability practices positively moderates the relationship between educational diversity and Tobin's Q. Thus, this result supports Hypothesis H_{10} . The possible explanation for this finding could be that in the presence of corporate sustainability practices, directors from different educational backgrounds utilized their knowledge, experiences and perception to make better decisions which enhances the financial performance.

4.13.3.6 The Moderating Effects of Corporate Sustainability Practices on the Relationship between Outside Director Diversity and Financial Performance

The interaction terms of OTDRDIV*CSP and Tobin's Q were examined. The hierarchical regression result in Table 4.20 shows that the interaction term OTDRDIV*CSP was found to be negative and statistically significant impact ($\beta = -0.02948$, $p = 0.000$). This shows that corporate sustainability practices negatively moderates the relationship between outside director diversity and Tobin's Q. Thus, this result supports Hypothesis H_{11} . The result shows that the direct relationship between outside director diversity and financial performance is positive but in the presence of corporate sustainability practices, the relationship was found to be negative. The negative result might be due to the presence of insider directors (who are also executives of the firm) uninterested in investing money in corporate sustainability practices as this requires more expenditures which might decrease financial benefits. Thus, when a firm is more involved in corporate sustainability practices, boards with outside director diversity cannot make more effective decisions, which reduce its financial performance.

4.13.3.7 Summary Results of the Moderating Role of Corporate Sustainability Practices on the Relationship between Board Diversity and Financial Performance

Results of the analyses regarding the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance show that Hypotheses H_7 , H_8 , H_9 , H_{10} and H_{11} are significant. This shows that corporate sustainability practices significantly moderate the different aspects of

board diversity and financial performance of selected firms on *Bursa Malaysia*.

Thus, this study showed that the relationship between board diversity and financial performance is stronger (or weaker) in the presence of corporate sustainability practices. This findings are similar with the study of Singh, Pradhan, Panigrahy, and Jena (2019) who investigated the moderating role of sustainability practices on the relationship between self-efficacy and workplace well-being among executives employed in manufacturing companies in India. They found that the relationship between self-efficacy and workplace well-being was stronger among executives in companies with high levels of sustainability practices and vice versa. The summary of the moderating effects of corporate sustainability practices on the relationship between board diversity and financial performance and the hypotheses test results are shown in Table 4.22 and Table 4.23, respectively.

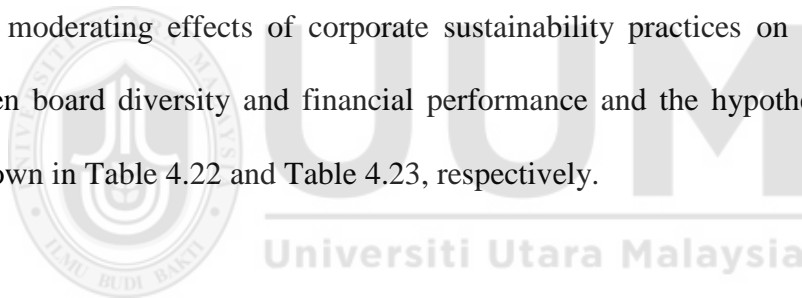


Table 4.22

Summary Results of the Moderating Effects of Corporate Sustainability Practices on the Relationship between Board Diversity and Financial Performance

Independent Variables	Tobin's Q	Interaction Variables	Tobin's Q
GENDIV	Significant (+)	GENDIV*CSP	Significant (+)
ETHDIV	Significant (+)	ETHDIV*CSP	Significant (+)
AGEDIV	Significant (+)	AGEDIV*CSP	Significant (-)
EDUDIV	Significant (+)	EDUDIV*CSP	Significant (+)
OTDRDIV	Significant (+)	OTDRDIV*CSP	Significant (-)

Note:

GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, CSP = corporate sustainability practices

Table 4.23

Summary of Hypotheses Results of the Effects of Corporate Sustainability Practices on the Relationship between Board Diversity and Financial Performance

Hypotheses	Decision
<i>H₇</i> : Corporate sustainability practices moderate the relationship between gender diversity and financial performance.	Supported
<i>H₈</i> : Corporate sustainability practices moderate the relationship between ethnic diversity and financial performance.	Supported
<i>H₉</i> : Corporate sustainability practices moderate the relationship between age diversity and financial performance.	Supported
<i>H₁₀</i> : Corporate sustainability practices moderate the relationship between education diversity and financial performance.	Supported
<i>H₁₁</i> : Corporate sustainability practices moderate the relationship between outside director diversity and financial performance.	Supported

4.14 Summary of the Chapter

Chapter Four provides a discussion of the empirical analyses of this study based on the research methods explained in Chapter Three. The chapter starts with an explanation of the sample characteristics followed by descriptive statistics, diagnostic tests, multiple regression models and robustness tests. The study also conducted post estimation tests to ensure the best fit of the model. Since the models had heteroscedasticity and cross-sectional dependence problems, a panel-corrected standard errors (PCSE) estimator model was used to examine the direct relationship between board diversity-financial performance, and corporate sustainability practices-financial performance.

Furthermore, hierarchical moderated multiple regression model was used to measure the moderating role of corporate sustainability practices. Empirical results showed that board diversity, namely, gender diversity, ethnic diversity, age diversity, educational diversity, and outside director diversity, as well as corporate sustainability practices significantly and positively affected financial performance. In

addition, results from the hierarchical moderated multiple regression model showed that corporate sustainability practices significantly moderate the relationship between board diversity and financial performance.



CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter recapitulates the findings of the study in relation to the research objectives, summarizes the results of the analysis, and discusses the main contributions and implications of the study. In addition, this chapter acknowledges the limitations of the study and provides suggestions for future research. The chapter ends with some concluding remarks.

5.2 Recapitulation of the Findings

To recapitulate, the major findings are presented according to the objectives of the study.

5.2.1 The Effect of Board Diversity (Gender, Ethnicity, Age, Education, and Outside Director) on Financial Performance

The panel corrected standard errors (PCSE) estimator model of this study showed that gender diversity (GENDIV) has a positive and statistically significant predictor of financial performance. The result indicates that gender diversity is a significant determinant and may contribute to an increase in financial performance. This result appears to suggest that when the board is formed by both male and female directors, the financial performance of firms is likely to be higher. The positive result might be due to the fact that gender-diverse boards allocate more effort in monitoring and supervising management that enhances financial performance. Moreover, boards

with directors, both male and female, are expected to be better in their evaluation of risks and returns of potential capital budgeting decisions such as business expansion or diversification, or investments in new projects which reduce risk, and enhance financial performance.

Ethnic diversity was also found to have a positive and statistically significant relationship to financial performance of the selected firms on *Bursa Malaysia*. The result indicates that a board of directors who are comprised of Malay, Chinese, Indian and Other ethnicity enhances the firm's financial performance. Three major ethnic groups make up the Malaysian population, namely, Malays, Chinese and Indians. The result suggests that if the board is a mix of directors from all ethnic groups, they are in a better position to understand the views, interests and choices of all ethnic groups without isolating any one group. This will help the firm to maintain its current customers or may even attract new customers, thus, increasing the firm's financial performance.

The result also shows that age diversity (AGEDIV) of board members positively and significantly affects financial performance. This suggests that when the board includes a mix of both old and young directors, the very experienced and inexperienced directors, collectively they bring diversity of perspectives, thus, enhancing financial performance. Presumably, the young directors can propose different approaches and contemporary perspectives which may be unfamiliar to the old directors which will benefit its stakeholders, as well as the long-term future of the firm.

Educational diversity (EDUDIV) was also found to have a positive and statistically significant impact on firms' financial performance indicating that a board made up of a mix of directors with different background qualification will increase the firm's financial performance. A less homogenous educational board brings more knowledge and skills allowing the firm the benefit of approaching problems from a wider perspective which leads to higher quality decisions, and a more comprehensive oversight regarding the operations of the business.

Outside director diversity (OTDRDIV) was observed to have a positive and statistically significant effect on financial performance. Results showed that a board that is made up of a mix of both independent (outside) and non-independent (inside) directors will enhance its financial performance. The presence of both independent and non-independent directors on the board encourage productive board discussions, varied perspectives, thoughts and opinions, improves the strength of the monitoring and decision-making process which ultimately reduces agency costs. A diverse board improves the firm's reputation and branding and leads to an increase in financial performance.

5.2.2 The Effect of Corporate Sustainability Practices on Financial Performance

The PCSE estimator model of regression analysis showed that corporate sustainability practices positively and significantly affect financial performance. This result implies that the more corporate sustainability practices, the higher the financial performance of selected firms on *Bursa Malaysia*. This shows that when a firm takes care of the interest of its stakeholders by increasing its economic,

environmental and social activities, it enhances its financial performance. A possible explanation for the result could be that the firms have developed sustainability processes, for example, for employee engagement which reduces employee turnover, and increases employee commitment, or for stakeholder engagement which enhances customer satisfaction and loyalty, and improves the reputation of the firm. In addition, a firm that is able to successfully manage sustainability practices will achieve competitive advantage, resulting in above-average performance.

5.2.3 The Moderating Role of Corporate Sustainability Practices on the Relationship between Board Diversity (Gender, Ethnicity, Age, Education, and Outside Director) and Financial Performance

A summary of results from the hierarchical moderated multiple regression model shows a positive and significant relationship between the interaction term GENDIV*CSP and financial performance. The result shows that corporate sustainability practices positively moderate the relationship between gender diversity and financial performance. Thus, in the presence of a larger number of corporate sustainability practices, a gender-diverse board enhances financial performance. A possible reason for the positive result may be that a gender diverse board can make strategic decisions for the firm since these activities enhance the reputation and image of the firm to the society. Due to the firm's good image and high reputation, a gender-diverse board has a strategic advantage over its competitors.

The hierarchical regression result also shows that the interaction between ETHDIV*CSP and financial performance is positive and statistically significant. The result showed that corporate sustainability practices positively moderate the relationship between ethnic diversity and financial performance. Thus, a board that comprised of Malay, Chinese, Indians and Other have a better impact on the firm's financial performance in the presence of corporate sustainability practices. The result may be attributed to the fact that an ethnically-diverse board is likely to be in a better position to take care of the interests of stakeholders from different ethnic groups.

The findings of the interaction term between AGEDIV*CSP and financial performance indicate that corporate sustainability practices negatively and significantly moderate the relationship between age diversity and financial performance. The result shows that the direct relationship between age diversity and financial performance is positive but in the presence of corporate sustainability practices, the result is negative. The negative moderation result might be due to the fact that the concern of the firm's involvement in corporate sustainability practices may appeal differently to directors of different ages. Thus, when such a firm is involved in corporate sustainability practices, these directors may not be motivated to make effective and efficient decisions for the firm. As such, age diversity affects the financial performance of firms negatively in the presence of corporate sustainability practices.

The hierarchical regression result of this study also shows that the interaction term between EDUDIV*CSP and financial performance was positive and statistically significant. It indicates that corporate sustainability practices positively moderate the relationship between education diversity and financial performance. The possible explanation for this finding could be that in the presence of corporate sustainability practices, directors from different educational backgrounds utilize their knowledge, experiences and skills to make better decisions which enhances financial performance.

The findings of the results also show that OTDRDIV*CSP and financial performance were found to be negative and statistically significant. This shows that corporate sustainability practices negatively moderate the relationship between outside director diversity and financial performance. Results showed that the direct relationship between outside director diversity and financial performance was positive but in the presence of corporate sustainability practices, the relationship was negative. The negative result may be due to decisions taken by insider directors (also executives of the firm) who may not be interested to invest funds in corporate sustainability practices as it increases the expenditures of the firm, which may cause a decline in financial benefits. Thus, when a firm is involved in more corporate sustainability practices, outside directors cannot make effective decisions due to the non-cooperation from inside directors which reduce financial performance. Table 5.1 shows a summary of these findings.

Table: 5.1

Summary of Findings Based on Research Objectives

Research Objectives	Findings
i. To examine the effect of board diversity on financial performance.	There is a positive and statistically significant effect of board diversity on financial performance.
ii. To examine the effect of corporate sustainability practices on financial performance.	There is a positive relationship between corporate sustainability practices on financial performance and statistically significant.
iii. To examine the moderating role of corporate sustainability practices on the relationship between board diversity and financial performance.	Significant moderating role of corporate sustainability practices on the relationship between board diversity and financial performance.

5.3 Contributions and Implications of the Study

Several contributions emerged from this research and the findings of this study add to the body of knowledge in terms of theoretical, methodological, contextual and empirical contributions. The contributions and policy implications are discussed in the following sections.

5.3.1 Theoretical Contribution

The conceptual contributions of this study are drawn from the reviews of the literature and the analysis of the findings. The main contribution of this study is the inclusion of corporate sustainability practices or triple bottom line performance as a moderating variable on the relationship between board diversity and financial performance of selected firms listed on *Bursa Malaysia*. This study found that corporate sustainability practices has a strong effect to moderate the relationship between board diversity and financial performance. Thus, this provides contributing

evidence to explain the mechanisms behind the link between board diversity and financial performance.

This study also contributes to the literature of board diversity, corporate sustainability practices and firm's financial performance in Malaysia. The agency theory has been repeatedly used in previous studies to elucidate the association between board diversity and financial performance. On the other hand, some of the previous researchers used the resource dependence theory or the stakeholder theory separately to establish the relationship (Abdullah, Ismail, & Nachum, 2016; Bear, Rahman, & Post, 2010; Reguera-Alvarado et al., 2017). A few studies used all of the three theories together (Kiel & Nicholson, 2003). This study has adopted all the three theories to explain the relationship between board diversity and financial performance, corporate sustainability practices and financial performance, and the moderating effects of corporate sustainability practices on the board diversity-financial performance relationship. Agency theory, the resource dependence theory and the stakeholder theory complement each other for explaining the relationship among the stockholders, other stakeholders, and the management. Moreover, all three theories discouraged the unprincipled behavior of management (Hussain et al., 2018).

This study differs from previous studies in examining the relationship between board diversity and financial performance by using five dimensions for board diversity, namely gender, ethnicity, age, education and outside directors. Most of the previous studies defined board diversity based on gender only. Studies that focused only on

gender diversity of is not enough to justify the impact of board diversity on financial performance (Harjoto et al., 2015). Several attempts have been made to comprehend the relationship between board diversity and financial performance as well as corporate sustainability practices and financial performance independently but this study has examined them jointly. To the best of the author's knowledge, this is one of the pioneer studies attempting to examine the moderating effects of corporate sustainability practices on the relationship between board diversity and financial performance of firms.

5.3.2 Methodological Contribution

This study used content analysis for collecting data of corporate sustainability practices and board diversity from the published annual reports of Malaysian listed firms that are used by a few researchers in Malaysia. This study has adopted the Blau Index (Blau, 1977) for measuring the dimensions of board diversity which is rarely done in previous studies. In addition, to the best the of author's knowledge this is one of the pioneer studies to measure corporate sustainability practices based on the *Bursa Malaysia Sustainability Reporting Guide, 2015*.

5.3.3 Contextual Contribution

A good number of studies on board diversity and financial performance had been conducted in the perspective of developed countries like the United States, Australia, and European countries. However, this study focused on a developing country, and especially, Malaysia which operates in a markedly multi-ethnic environment (Malay, Chinese, Indians and others) for effective and balanced

corporate governance practices (Abdullah & Ismail, 2013). Other countries such as Hong Kong are predominantly homogeneous in terms of ethnic identity.

5.3.4 Empirical Contributions

Unlike previous studies, this study did not only examine the direct relationship between board diversity and financial performance but also examined a new focus area which is the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance. Using hierarchical moderated multiple regression analysis, this study offers new evidence that corporate sustainability practices significantly moderate the relationship between board diversity and financial performance. This result provides empirical evidence that corporate sustainability practice is an effective tool in addition to board diversity for enhancing a firm's financial performance. The inclusion of corporate sustainability practices as a moderator is a new contribution to corporate governance knowledge.

5.3.5 Policy Implications

This research has a number of useful policy implications for both the public and private sectors. The findings of the study offer new insights to policymakers by examining the association between board diversity and financial performance, and how board diversity influence financial performance. Policy makers are encouraged to use the findings of this study for aligning and revising the present policies, legal framework and code of corporate governance especially in the Malaysian scenario. Stock market authorities can adopt the findings of this study to evaluate the current

state of board diversity and how it should be revised. The results of this study are useful to managers and executives of firms who are seeking to enhance their financial performance through board diversity and corporate sustainability practices.

Presently, all corporations in the world are encouraged to diversify their boards as the decisions of the board of directors and their lack of diversity are considered responsible for corporate scandals of giant corporations globally. A number of contemporary studies on corporate governance and agency theory suggest that board diversity has significant effects on the effectiveness of the board of directors and, thus, on financial performance. Similarly, the results of this study also indicate that diversified boards are better than non-diversified boards for enhancing financial performance. In addition, corporate sustainability practices has a significant moderating role to change the board diversity-financial performance relationship. Thus, the findings of this study are worthy to other developing countries, especially ASEAN member countries, as they are somewhat culturally, economically, and politically similar to Malaysia.

Finally, the study might be beneficial to academicians and researchers who wish to undertake further research on board diversity, corporate sustainability practices, and financial performance. The research framework used in this study may also be replicated in other contexts and populations.

5.4 Limitations of the Study and Suggestions for Future Research

The results and limitations of this study provide insights into potential research areas of board diversity that may require the attention of researchers in the future, especially for research in Malaysia.

First, this study selected a sample size of the top 104 public listed companies where the outcome may not be generalized to other smaller public companies or private firms. Since there are nearly 800 companies listed on the *Bursa Malaysia* main market, taking the top 104 firms may affect the robustness of the results. To overcome this limitation and to generalize the findings, further study may be conducted by taking a sample of smaller public or private firms.

Second, this study uses data from Malaysian firms only. Another interesting route for further research would be conducting a comparative study in neighboring countries such as Singapore, China, Thailand and Indonesia since each country would have different corporate governance procedures and policies. It will be helpful to study the similarities and differences in other countries in shaping the board of directors for the betterment of the organization.

Third, this study focused on only one board characteristic, namely, board diversity to examine its impact on financial performance. Other characteristics, such as political connection, multi-directorship, and CEO duality, are also important variables that might be considered in future research.

Finally, the sample firms were selected based on market capitalization, and only 23 items were used for measuring corporate sustainability practices, whereas, all the selected items of corporate sustainability practices may not be necessary for each firm. Future research may select only appropriate items to measure corporate sustainability practices based on the different types of firm.

5.5 Conclusion

This study has examined and analyzed the relationship between board diversity and financial performance of selected firms on *Bursa Malaysia*, as well as the moderating effect of corporate sustainability practices on the relationship between board diversity and financial performance. The motivation for studying corporate governance mechanisms originates from the inconclusive findings of the relationship between board diversity and financial performance. A possible reason for this may be due to the corporate sustainability practices within the firms. Thus, this study included corporate sustainability practices as a moderator in the relationship between board diversity and financial performance relation which has not been tested before. This study found that board diversity in terms of gender diversity, ethnic diversity, age diversity, educational diversity, and outside director diversity as well as corporate sustainability practices significantly and positively affected financial performance. The study also found that corporate sustainability practices significantly moderated the relationship between board diversity and financial performance.

The findings have policy implications for the government and regulatory bodies to place more emphasis on diversifying the board of directors and following up on mandatory corporate sustainability practices to enhance financial performance among listed firms on *Bursa Malaysia*. This may help to ensure their long-term sustainability as well as to reduce the risk of financial distress, or bankruptcies in the future.



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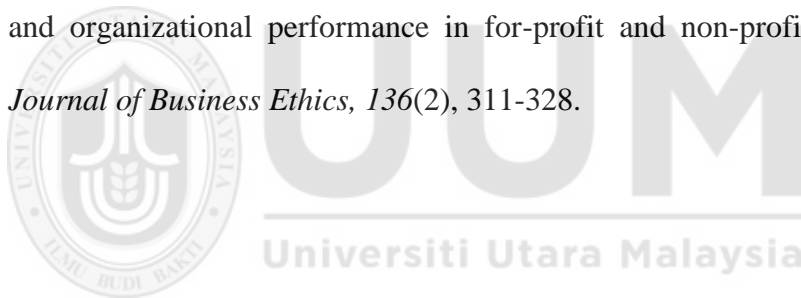
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Appendix A

List of the Sample Firms

List of the Sample Firms of Bursa Malaysia Based on Market Capitalization (More than RM 2 billion) as at December 31, 2016

SL NO.	NAME OF THE FIRMS	Market Capital (RM)	SECTOR	CODE
1	EKOVEST BERHAD	2.695b	CONSTRUCTION	8877
2	GAMUDA BERHAD	13.020b	CONSTRUCTION	5398
3	IJM CORPORATION BERHAD	12.516b	CONSTRUCTION	3336
4	SUNWAY CONSTRUCTION GROUP BERHAD	2.650b	CONSTRUCTION	5263
5	WCT HOLDINGS BERHAD	3.142b	CONSTRUCTION	9679
6	BRITISH AMERICAN TOBACCO (MALAYSIA) BERHAD	13.072b	CONSUMER PRODUCTS	4162
7	CARLSBERG BREWERY MALAYSIA BERHAD	4.566b	CONSUMER PRODUCTS	2836
8	DUTCH LADY MILK INDUSTRIES BERHAD	3.702b	CONSUMER PRODUCTS	3026
9	FRASER & NEAVE HOLDINGS BHD	9.184b	CONSUMER PRODUCTS	3689
10	HEINEKEN MALAYSIA BERHAD	5.619b	CONSUMER PRODUCTS	3255
11	HONG LEONG INDUSTRIES BERHAD	3.279b	CONSUMER PRODUCTS	3301
12	KAREX BERHAD	2.245b	CONSUMER PRODUCTS	5247
13	MSM MALAYSIA HOLDINGS BERHAD	3.128b	CONSUMER PRODUCTS	5202
14	NESTLE (MALAYSIA) BERHAD	19.224b	CONSUMER PRODUCTS	4707
15	ORIENTAL HOLDINGS BERHAD	4.126b	CONSUMER PRODUCTS	4006
16	PADINI HOLDINGS BERHAD	2.217b	CONSUMER PRODUCTS	7052
17	PANASONIC MANUFACTURING MALAYSIA BERHAD	2.226b	CONSUMER PRODUCTS	3719
18	PPB GROUP BERHAD	20.130b	CONSUMER PRODUCTS	4065
19	QL RESOURCES BERHAD	6.065b	CONSUMER PRODUCTS	7084
20	UMW HOLDINGS BERHAD	6.788b	CONSUMER PRODUCTS	4588
21	CAHYA MATA SARAWAK BERHAD	4.588b	INDUSTRIAL PRODUCTS	2852
22	DRB-HICOM BERHAD	3.364b	INDUSTRIAL PRODUCTS	1619
23	HARTALEGA HOLDINGS BERHAD	9.796b	INDUSTRIAL PRODUCTS	5168
24	KOSSAN RUBBER INDUSTRIES BERHAD	4.131b	INDUSTRIAL PRODUCTS	7153
25	LAFARGE MALAYSIA BERHAD	4.843b	INDUSTRIAL PRODUCTS	3794
26	PETRONAS CHEMICALS GROUP BERHAD	58.640b	INDUSTRIAL PRODUCTS	5183
27	PETRONAS GAS BERHAD	37.596b	INDUSTRIAL PRODUCTS	6033
28	PETRON MALAYSIA REFINING & MARKETING BHD	2.379b	INDUSTRIAL PRODUCTS	3042
29	PRESS METAL BERHAD	10.183b	INDUSTRIAL	8869

SL NO.	NAME OF THE FIRMS	Market Capital (RM)	SECTOR	CODE
			PRODUCTS	
30	SCIENTEX BERHAD	4.197b	INDUSTRIAL PRODUCTS	4731
31	TOP GLOVE CORPORATION BHD	6.781b	INDUSTRIAL PRODUCTS	7113
32	V.S. INDUSTRY BERHAD	2.433b	INDUSTRIAL PRODUCTS	6963
33	SHANGRI-LA HOTELS (MALAYSIA) BERHAD	2.257b	HOTEL	5517
34	CAPITALAND MALAYSIA MALL TRUST	3.052b	REITS	5180
35	IGB REAL ESTATE INVESTMENT TRUST	5.956b	REITS	5227
36	KLCC PROPERTY HOLDINGS BERHAD	14.082b	REITS	5235
37	PAVILION REAL ESTATE INVESTMENT TRUST	5.326b	REITS	5212
38	SUNWAY REAL ESTATE INVESTMENT TRUST	5.007b	REITS	5176
39	YTL HOSPITALITY REIT	2.028b	REITS	5109
40	BATU KAWAN BERHAD	8.065b	PLANTATION	1899
41	BOUSTEAD PLANTATIONS BERHAD	2.624b	PLANTATION	5254
42	FELDA GLOBAL VENTURES HOLDINGS BERHAD	7.150b	PLANTATION	5222
43	GENTING PLANTATIONS BERHAD	9.315b	PLANTATION	2291
44	HAP SENG PLANTATIONS HOLDINGS BERHAD	2.730b	PLANTATION	2216
45	IJM PLANTATIONS BERHAD	29.272b	PLANTATION	1961
46	IOI CORPORATION BERHAD	26.538b	PLANTATION	2445
47	KUALA LUMPUR KEPONG BERHAD	2.043b	PLANTATION	5126
48	SARAWAK OIL PALMS BERHAD	2.415b	PLANTATION	9059
49	TSH RESOURCES BERHAD	5.807b	PLANTATION	2089
50	UNITED PLANTATIONS BERHAD	2.348b	PLANTATION	3417
51	EASTERN & ORIENTAL BERHAD	4.564b	PROPERTY	8206
52	ECO WORLD DEVELOPMENT GROUP BERHAD	2.760b	PROPERTY	5283
53	IGB CORPORATION BERHAD	4.026b	PROPERTY	1597
54	IOI PROPERTIES GROUP BERHAD	11.493b	PROPERTY	5249
55	MAH SING GROUP BERHAD	3.686b	PROPERTY	8583
56	MALAYSIAN RESOURCES CORPORATION BERHAD	3.423b	PROPERTY	1651
57	OSK HOLDINGS BERHAD	2.287b	PROPERTY	5053
58	S P SETIA BERHAD	10.561b	PROPERTY	8664
59	SUNWAY BERHAD	7.465b	PROPERTY	5211
60	UEM SUNRISE BERHAD	5.989b	PROPERTY	5148
61	UOA DEVELOPMENT BHD	4.408b	PROPERTY	5200
62	INARI AMERTRON BERHAD	4.329b	TECHNOLOGY	166
63	MALAYSIAN PACIFIC INDUSTRIES BERHAD	2.812b	TECHNOLOGY	3867

SL NO.	NAME OF THE FIRMS	Market Capital (RM)	SECTOR	CODE
64	UNISEM (M) BERHAD	2.502b	TECHNOLOGY	5005
65	AIRASIA X BERHAD	2.116b	TRADING/SERVICES	5238
66	AEON CO. (M) BHD	3.285b	TRADING/SERVICES	6599
67	AIRASIA BERHAD	11.630b	TRADING/SERVICES	5099
68	MALAYSIA AIRPORTS HOLDINGS BERHAD	13.821b	TRADING/SERVICES	5014
69	BUMI ARMADA BERHAD	4.546b	TRADING/SERVICES	5210
70	ASTRO MALAYSIA HOLDINGS BERHAD	13.909b	TRADING/SERVICES	6399
71	AXIATA GROUP BERHAD	47.024b	TRADING/SERVICES	6888
72	BERMAZ AUTO BERHAD	2.389b	TRADING/SERVICES	5248
73	BINTULU PORT HOLDINGS BERHAD	2.903b	TRADING/SERVICES	5032
74	BERJAYA LAND BERHAD	2.500b	TRADING/SERVICES	4219
75	BERJAYA SPORTS TOTO BERHAD	3.702b	TRADING/SERVICES	1562
76	BOUSTEAD HOLDINGS BERHAD	5.311b	TRADING/SERVICES	2771
77	DIALOG GROUP BERHAD	10.536b	TRADING/SERVICES	7277
78	UEM EDGENTA BERHAD	2.578b	TRADING/SERVICES	1368
79	GAS MALAYSIA BERHAD	4.252b	TRADING/SERVICES	78
80	GD EXPRESS CARRIER BERHAD	34.441b	TRADING/SERVICES	4715
81	GENTING MALAYSIA BERHAD	37.551b	TRADING/SERVICES	3182
82	GENTING BERHAD	22.258b	TRADING/SERVICES	3034
83	HAP SENG CONSOLIDATED BERHAD	49.418b	TRADING/SERVICES	5225
84	IHH HEALTHCARE BERHAD	4.418b	TRADING/SERVICES	5878
85	KPJ HEALTHCARE BERHAD	3.019b	TRADING/SERVICES	3859
86	MAGNUM BERHAD	5.950b	TRADING/SERVICES	5264
87	MALAKOFF CORPORATION BERHAD	48.893b	TRADING/SERVICES	6012
88	MAXIS BERHAD	33.434b	TRADING/SERVICES	3816
89	MISC BERHAD	7.582b	TRADING/SERVICES	2194
90	MMC CORPORATION BERHAD	7.717b	TRADING/SERVICES	138
91	MY E.G. SERVICES BERHAD	24.598b	TRADING/SERVICES	5681
92	PETRONAS DAGANGAN BHD	4.344b	TRADING/SERVICES	4634
93	POS MALAYSIA BERHAD	11.445b	TRADING/SERVICES	5218
94	SAPURA ENERGY BERHAD	2.817b	TRADING/SERVICES	5279
95	SIME DARBY BERHAD	63.316b	TRADING/SERVICES	4197
96	TENAGA NASIONAL BHD	77.981b	TRADING/SERVICES	5347
97	TELEKOM MALAYSIA BERHAD	24.239b	TRADING/SERVICES	4863
98	WESTPORTS HOLDINGS BERHAD	13.299b	TRADING/SERVICES	5246
99	YINSON HOLDINGS BERHAD	3.672b	TRADING/SERVICES	7293
100	YTL CORPORATION BERHAD	16.475b	TRADING/SERVICES	4677
101	DIGI.COM BERHAD	38.953b	INFRASTRUCTURE PROJECT COS.	6947
102	LINGKARAN TRANS KOTA HOLDINGS BERHAD	3.107b	INFRASTRUCTURE PROJECT COS.	6645
103	TIME DOTCOM BERHAD	5.297b	INFRASTRUCTURE PROJECT COS.	5031
104	YTL POWER INTERNATIONAL BHD	12.296b	INFRASTRUCTURE PROJECT COS.	6742