School of Accounting

Corporate Environmental Disclosures in Malaysian Public Listed Companies

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DECLARATION

To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signed by,

Michelle Phua Siew Huei

03rd April 2016

LIST OF WORKS RELATED TO THIS THESIS

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   Note: The paper presented is based on the literature review of corporate board gender diversity and corporate environmental practices of Malaysia companies.

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ABSTRACT

This thesis investigates the extent of corporate environmental disclosure by Malaysian listed companies. Specifically, the study aims to examine the impact of board gender diversity in influencing board decision to communicate environmental information in annual reports. This research examines the environmental disclosure of Malaysian listed companies in 2013 as the year represents the period of response from publicly listed companies to the government's various initiatives to boost environmental awareness as well as the new regulation from Securities Commission Malaysia requiring the presence of female directors in the corporate boardroom.

Legitimacy theory is used as the theoretical framework to explain the association between board gender diversity and the extent of corporate environmental disclosure by Malaysian companies. The content analysis method is employed to determine the extent of corporate environmental disclosure based on a disclosure index comprising of 18 environmental items. This disclosure instrument is derived from the Global Reporting Initiatives (GRI) as well as prior studies. Findings of this research reveals that there is a statistically significant association between presence of female directors in corporate boardroom and female directors holding multiple directorships in corporate boardroom on the extent of corporate environmental disclosure of Malaysian listed companies. These findings are consistent with legitimacy theory in that having female directors can assist a company to maintain its license to operate in a society, thus, maintaining the legitimacy of the company.

Overall, the findings of this thesis have several implications for Malaysian policy makers and regulatory bodies. These results can be used as a driver to encourage more female participation in decision making and communication processes of public listed companies. Also, there is a need to enforce and mandate disclosure of environmental information in annual reports of Malaysian listed companies to increase accountability of companies' business operations to the environment as well as to assist investors in making well-informed investment decisions.

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LIST OF ABBREVIATIONS

ACCA	Association of Chartered Certified Accountants
CED	Corporate Environmental Disclosures
CER	Corporate Environmental Responsibility
CG	Corporate Governance
CSR	Corporate Social Responsibility
FDI	Foreign Direct Investments
FemBAC	Female Board Audit Committee Members
FemDir	Female Directors
FemINED	Female Independent Non-Executive Directors
FemMD	Female Directors with Multiple Directorships
GHG	Greenhouse Gas
GLC	Government-Linked Companies
GRI	Global Reporting Initiatives
GTFS	Green Technology Financing Scheme
Ind	Industry
Lev	Leverage
Log	Logarithm
MASB	Malaysian Accounting Standards Board
MaSRA	ACCA Malaysia Sustainability Reporting Awards
MCCG	Malaysian Code on Corporate Governance
MESRA	National Annual Corporate Report Awards
OLS	Ordinary Least Squares
OwnCon	Ownership Concentration
RDT	Resource Dependency Theory
RM	Ringgit Malaysia
RoA	Return on Assets
RP	Research Proposition
SC	Securities Commission
UK	United Kingdom
UN	United Nations
US	United States of America
VIF	Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Background and Motivation of the Study

The business world has come a long way since 1970s when Friedman (1970) first stated that the only goal for a business was to maximise profits for its shareholders. The proponent of this trade-off hypothesis suggested that a company held the sole responsibility to gain profit whereas the government was responsible of taking care of the community at large as well as the environment.

Since two decades ago, the business world has become subjected to increasingly greater scrutiny. ACCA (2004, p4) states that "the trend for better corporate governance and accountability has focused attention on the greater responsibilities an organization has towards all its stakeholder groups and to the environment and society in which it operates." Triple bottom line or corporate social responsibility (CSR) reporting - the combination of financial, social and environmental information - has been gaining prominence in today's businesses. According to Nor Mohamed Yakcop, the Malaysian Minister of Finance II, in order to ensure the sustainability of businesses in the future, a good practice of CSR is crucial to a firm (Yakcop 2004). The operation of business in a society has impacted on the environment. Thus, by integrating environmental sustainability practices into corporate reporting, a company can gain various benefits such as enhancing reputation of the company and ultimately maintaining the license to operate in a society. Scholars and environmental advocates increasingly argue that sustainability and profitability are not mutually exclusive (Barton and Wiseman 2014; Barton 2011).

Although profit maximization is the main goal behind the establishment of a firm, it is imperative to note that profit should not be gained at the expense of the stakeholders and community. Global sustainability threats such as global warming, pollution and climate change issues currently faced by the world are the results of industrialization and business operations expansion (Dutta, Lawson, and Marcinko 2012; Johannsdotir 2009). The impact of businesses' operations on the environment can be alarming; hence, businesses are not only responsible to their corporate shareholders alone but also to stakeholders. The society as a whole is in fact not spared by the operations of businesses and is constantly being exposed to environmental threats. Companies operating in the environment have the responsibilities to the environment in which they operate. According to Malaysian Code of Corporate Governance 2012, public listed companies in Malaysia are expected to fulfill responsibility to both their shareholders as well as stakeholders.

There is growing evidence of the effects of greenhouse gas emissions on global warming (Stern 2006). Corporate businesses and assets are affected by the increasingly severe climate change (Babiak and Trendafilova 2011; Pinkse and Kolk 2009). Consequently, this has heightened public concern and anxiety over the adverse environmental impacts of business operation on the community and society at large. The increase of carbon emission after the global financial crisis has led government around the world to be pressured to create a sustainable future for the forthcoming generations. (Peters et al. 2012; Friedlingston et al. 2010). This highlights the importance of improved environmental practices and corporate governance which plays a significant role in enhancing sustainability of a company Michelon, Pilonato, and Ricceri (2015).

The environmental issues affect both developed and developing nations. As a rapidly industrializing economy, Malaysia is no exception. The rate of change in carbon emission in Malaysia is very fast. Nasir and Makmom (2009) recorded an increase of carbon emission by about 70% in 2005 as compared to 1996. Even though Malaysia could be considered as a relatively free zone from climate related disaster, mild climate related disasters such as flash floods, droughts and landslides are likely to become frequent over time (Baharuddin 2007). In recent years, the Malaysian government has taken ample initiatives to improve governance and increase the level of awareness of the importance of environmental sustainability for the future generation. Malaysian Prime Minister Datuk Seri Najib Abdul Razak declared the nation's commitment to reduce carbon emission intensity by 40% by year 2020 as a response towards the climate change issue surrounding the world (MPOC 2014).

The importance of foreign direct investment on Malaysia's economic growth should not be overlooked because as a developing country, Malaysia is competing funds with other emerging economies. After the global financial crisis, Malaysia's foreign direct investment (FDI) inflows recorded a total of RM5.1 billion in year 2009. There was an increase to RM29.1 billion in 2010, and a further increase to RM37.3 billion in 2011. However, the increasing trend of FDI inflow was not sustained. It took a dip in subsequent years. Hence, in order to boost the confidence of foreign investors to invest in Malaysia, Malaysian companies have to take into account the environmental performance as investors nowadays have deviated their decision making consideration from traditional measure of firm performance to the social performance of a firm before deciding whether it is worthwhile to invest (Cowton and Sandberg 2012; Renneboog, Horst, and Zhang 2011). Foreign investors may come from a country where the CSR reporting is prominent; therefore, it is vital for Malaysian companies to disclose CSR information in their annual reports. It is evidenced that companies which exert more effort into CSR and has more disclosures about their CSR practices have the advantage of attracting more foreign funds into their companies (Amran et al. 2013b; Larkin, Benardi, and Bosco 2012; Saleh, Zulkifli, and Muhamad 2010).

As annual report is one of the most common ways for communication between a corporation and their potential investors (Amran, Lee, and Devi 2013; Choi, Chatterjee, and Brown 2013; Saleh, Zulkifli, and Muhamad 2011), management can use this tool to communicate CSR initiatives to the public or stakeholders. The annual report is the main output of a company's reporting system. Companies can provide useful additional information in annual reports in order to facilitate investors in making sound investment decisions (Choi, Chatterjee, and Brown 2013; Haji 2013; Saleh, Zulkifli, and Muhamad 2011). Companies can voluntarily disclose environmental initiatives and practices in their annual reports in order to enhance accountability of the firms to stakeholders.

In Malaysia, corporate environmental disclosure in the annual reports remains voluntary in nature. The launch of ACCA environmental reporting guidelines in 2003 and the sustainability reporting guidelines in 2005 were primarily aimed at encouraging Malaysian companies to embark on voluntary environmental reporting. In a similar vein, Bursa Malaysia introduced the CSR framework in 2006, which requires all Malaysian public listed companies to report their social contributions including environmental-related issues in annual reports. The CSR framework serves as a guideline. It is not mandatory for companies to disclose environmental information in their annual reports.

In an effort to boost the level of CSR reporting amongst Malaysian public listed companies, several CSR reporting awards are introduced such as the Prime Minister CSR Awards, the National Annual Corporate Report Awards (MESRA) to incentivize and give recognition to companies for their CSR efforts. The purpose of these awards is to improve reporting of CSR initiatives in companies' annual reports. Also, since annual report is one of the common avenues of communicating CSR effort, these awards will encourage companies to voluntarily engage in better communication with the shareholders and stakeholders.

Disclosure of corporate environmental information in annual reports augurs well with the nation's sustainability agenda to achieve the Malaysian Vision 2020. Voluntary disclosure of environmental initiatives is an important area of research in the social accounting field (Adhikari et al. 2015; Xu et al. 2014; Kim, Kim, and Kim 2014). Prior studies have found that corporations that released and disclosed information on environmental activities in annual reports have better financial performance; boost investors' confidence and improved corporate reputation in the capital market (Qiu, Shaukat, and Tharyan 2014; Kim, Kim, and Kim 2014; Yusoff, Mohamad, and Darus 2013).

The global financial crisis in year 2008 led to a serious loss of confidence of investors to invest in companies (Peters et al. 2012; Michelon and Parbonetti 2010; Pinkse and Kolk 2009). The faltering of investors' confidence in corporation threatens the legitimacy of companies around the world. Prior studies show that companies disclose environmental information to gain society's approval in order to continue their business operations. As firms voluntarily disclose more environmental information, they can gain more competitive advantage such as improving overall corporate reputation, boosting investors' trust in the managing of their firms and the ability to attract more foreign direct investment (Babiak and Trendafilova 2011; Burritt and Schaltegger 2010). Corporate environmental disclosure in annual reports is a strategy that can be managed by companies to communicate their initiatives and effort to protect the environment to the public. As a result, it is imperative that corporate environmental information is disclosed in annual reports to increase the credibility of the company, public confidence, and ultimately protect the legitimacy of the company.

Voluntary disclosure of corporate environmental information is mostly explained by legitimacy theory (Haji 2013; Mustafa, Othman, and Perumal 2012; Post, Rahman, and Rubow 2011). Suchman (1995) posits that an organization operates business in a society thus, a social contract exists between the business and the society it operates in. In order to survive in a society, the management has to be accountable to both shareholders and stakeholders alike. The company has to act within the boundaries of the social contract in order to gain legitimacy which is vital for a company's existence (Liao, Luo, and Tang 2015; Faisal, Tower, and Rusmin 2012). Given that this is crucial for a company's survival, the management has the incentive to voluntarily disclose environmental initiatives and practices implemented by the company in order to gain approval from the society to continue their operations. According to Bohren and Strom (2010), good corporate governance is a pre-requisite to successful operations of any businesses as it can create an environment of trust among society which can help to bring legitimacy to the company. Management's attempt for companies to be legitimate is by way of disclosing environmental information on a voluntary basis.

Corporate governance in terms of board gender diversity is gaining its significance in determining the strategic direction of the company. The role of female in supporting environmentally responsible practices has acquired global attention. A number of countries such as Norway and France have imposed gender quota for female directors to be seated on corporate boards. In Malaysia, the Securities Commission has rolled out the Blueprint that recommends one-third female representation in listed corporate boardrooms of Malaysian listed companies. The presence of female directors in the boardroom can inject positive changes to a company by bringing diverse skills and experiences which facilitate decision making (Liao, Luo, and Tang 2015; Landry, Benardi, and Bosco 2014; Seto-

Pamies 2013). Given the central importance of the board of directors in shaping environmental strategy, gender compositional factors that are associated with greater environmental responsibility is worthy to be identified. Female directors are generally found to be more likely than their male peers in pursuing environmentally sustainable practices (Post, Rahman, and Rubow 2011). Recent empirical studies, although inconclusive, have shown that board gender diversity is a determinant of corporate environmental disclosure (Amran, Lee, and Devi 2013; Amran, Periasamy, and Zulkifli 2011).

In this premise, it is a good window of opportunity to study legitimacy theory by examining the association between corporate board gender diversity and the extent of corporate environmental disclosure in Malaysian listed companies.

1.2 Research Questions

Environmental issues such as the greenhouse gas emissions on global warming have become more pronounced due to the increase in business operations across the globe. Corporate business and assets are influenced by the potential for increasing severe climate change. The Malaysian government has responded by initiating various policies and commitments to encourage companies in Malaysia to be socially and environmentally responsible corporate citizens.

This thesis examines the extent of corporate environmental disclosure practices of listed companies in Malaysia for the year 2013. The year 2013 is chosen as companies are expected to be more stable and are likely to respond to government's policies, initiatives and the enhanced corporate governance landscape. These authoritative documents emphasize on the importance and roles played by the company's board of directors to ensure social responsibility and environmental sustainability.

The objectives of the study are:

1) to determine the extent of corporate environmental disclosures by Malaysian listed companies; and
2) to investigate the influence of board gender diversity on corporate environmental disclosures of Malaysian listed companies.

Hence, two research questions are addressed:

1) What is the extent of corporate environmental disclosures by Malaysian listed companies?
2) What is the association between corporate board gender diversity and corporate environmental disclosures by Malaysian listed companies?

1.3 Research Gap

Numerous studies have been done to examine the factors influencing corporate environmental disclosures in companies' annual reports (Ahmad and Haraf 2013; Choi, Chatterjee, and Brown 2013; Babiak and Trendafilova 2011; Benardi and Threadgill 2010; Galbreath 2010). These studies examined the effect of firm characteristics such as firm size, profitability and leverage on the extent of corporate social responsibility disclosure. Also, these studies are done prior to the release of Corporate Governance Blueprint 2011 and Malaysian Code of Corporate Governance 2012. Ever since the introduction of these documents, the government has stressed upon the importance of sustainability in business and the role that management and directors have to play in ensuring the interest of both shareholders as well as stakeholders are taken care of. Hence, there is a need to update our knowledge on the extent of corporate environmental disclosures after the introduction of these documents by examining the year 2013 annual report which is the most up-to-date credible source of information available. It is anticipated in this research that Malaysian listed companies will respond to the rising expectations from stakeholders by disclosing greater environmental information in annual reports.

As early as the 1970s, environmentalists and governments were aware of environmental sustainability issues surrounding the world. Ever since then, there is an increased pressure for corporations to reduce the impact of their business operations on the environment as companies are seen as major sources of pollution (Yusoff and Darus 2014; Ahmad and Haraf 2013; Peters et al. 2012). The media plays a part in disseminating information on environment disasters as well as the issue of limited supplies of natural resources. Hence, stakeholders express concern on how companies react to this information and assume responsibilities for their actions to preserve the environment. Hence, it is expected that Malaysian listed firms will respond to the rising environmental sustainability concerns by the society and will attempt to meet the society's expectations by disclosing environmental practices, efforts and initiatives in their corporate annual reports to demonstrate that they are good corporate citizens.

Also, a review of past literature shows that the impact of corporate board gender diversity on the extent of corporate environmental disclosures is still lacking and inconclusive (Zhang, Zhu, and Ding 2012; Bear, Rahman, and Post 2010; Adams and Ferreira 2009; Zelechowski and Bilimoria 2006). Corporate governance structure of a firm is always linked to the firm's financial performance (Post, Rahman, and Rubow 2011; Rahman et al. 2011; Michelon and Parbonetti 2010; Prado-Lorenzo and Garcia-Sanchez 2010). However, with the recent release of CG Blueprint 2011 and MCCG 2012, the management and board of directors have to look further than firm performance to include social and environmental performance of a company. Gender diversity of a board may play an important role in ensuring the interest of both shareholders and stakeholders. Prior studies document that female directors are more socially responsible and care about a wider range of stakeholders (Seto-Pamies 2013; Park, Choi, and Kim 2012; Zhang, Zhu, and Ding 2012; Nielson and Huse 2010). Given the importance of environment in running business operations and establishing legitimacy, environmental reporting is thus crucial to a firm, and the board of directors has to ensure that the management and the company are accountable and responsible to the society as a whole.

In the premise, this thesis attempts to examine the association between corporate board gender diversity and the extent of corporate environmental disclosures of Malaysian listed companies. The annual report will be the source of information to assess the extent of corporate environmental disclosure by Malaysian listed companies in year 2013.

1.4 Significance of the Study

As globalization and climate change has become more prominent nowadays, investors require businesses to be responsible and accountable for their actions and impact of the business operations in the society. In order to maintain the legitimacy of a firm in a society, companies should incorporate environmental information disclosures in their annual reports to continuously gain approval and support from the public.

This research is significant due to several reasons. First, prior studies in the area of social responsibility are mostly conducted within the context of developed economies such as the United States and Europe where the disclosure for CSR activities are mandated and regulations are established. A research in Malaysian context, where there is no mandatory reporting for CSR initiatives and low environmental awareness, provides rich insights on a voluntary disclosure setting.

Second, in Malaysia, the initiative to include female into decision making positions has been initiated by the government back in year 2004. In year 2011, the Securities Commission CG Blueprint has stated that at least 30% of corporate board of directors' seat must be allocated to female directors by year 2016. Prior studies document that there are significant relationship between female directors and the environmental performance of a firm (Amar, Chang, and McIllkenny 2015; Seto-Pamies 2013; Boulouta 2013). However, very limited number of the studies in Malaysia has researched on the association between female directors in the boardroom and the extent of CSR disclosure. Hence, this research will contribute to this particular knowledge gap.

Third, since year 2006, various initiatives and effort had been taken by the Malaysian government and Bursa Malaysia to increase environmental awareness in Malaysia. It is reasonable to assume that the set-up of CSR funds by Malaysian government has coerced Malaysian listed companies to take CSR seriously and be more responsible towards environmental issues in Malaysia. The listed companies' effort in responding to such initiatives will be communicated to exert their legitimacy through various means such as annual reports. Thus, the examination of corporate environmental disclosure practices of Malaysian listed companies in year 2013 provides an important insight into the extent of corporate environmental disclosure in annual reports.

Fourth, this research will be of significance to policy makers such as Bursa Malaysia and Securities Commission as the findings from this study will be appropriate and useful for the policy makers to set a policy on gender diversity in corporate boardrooms and to deliberate minimum requirement on corporate environmental disclosures in the country.

1.5 Thesis Outline

The remainder of this thesis is structured as follows: Chapter 2 provides an overview on corporate environmental reporting in Malaysia. Literature review on the theory framing the study and the development of hypotheses is covered in Chapter 3. Chapter 4 provides the research methodology adopted for the research, the construction of the corporate environmental disclosure index and the measurement for independent and control variables. Chapter 5 provides the descriptive statistics and multiple regression results for variables incorporated in the study. Chapter 6 concludes the thesis by providing a summary of research findings, the practical and theoretical implications of the thesis results, assumptions employed and limitations and avenues for future research.

CHAPTER 2

CORPORATE ENVIRONMENTAL REPORTING IN MALAYSIA

2.1 Introduction

This chapter reviews the corporate environmental reporting status in Malaysia and the government's effort in boosting environmental practices to maintain balance between sustainability and economic development. The chapter also provides an overview on the development of corporate environmental reporting in Malaysia from the early 1980s till year 2013. The remainder of the chapter will be organized as follows: Section 2.2 provides the definition of corporate social responsibility; Section 2.3 reviews on the corporate environmental landscape in Malaysia and the government's effort and initiative to encourage better environmental reporting among corporations in Malaysia. Section 2.4 provides an overview of the development of corporate environmental reporting in Malaysia and the final section, Section 2.5 will be the chapter's summary.

2.2 Corporate Social Responsibility Definition

An organization could not exist in isolation as it needs to draw on vital resources from the environment in order to survive. The environment is described as the natural surrounding which includes land, water, air and the whole ecosystem that co-exist with an organization in a society. In general, this shows that an organization's business operations will directly or indirectly impact the natural environment. Hence, businesses must be actively engaged in and be accountable for its action and its impact on the environment. Businesses should realize that environment protection is the key to sustainable business development. Since business operations are the main cause of environmental problems (Dutta, Lawson, and Marcinko 2012; IPCC 2011), organizations should play a major role in protecting the natural resources and environment so as to ensure sustainability and the continued existence of the company.

Corporate environmental reporting is one of the major themes within CSR. It provides information on the impact of corporation's activities have on the natural environment and the corporation's effort to alleviate or control such impact for instance by recycling, proper waste disposal system and restoration among others. A greater involvement in protecting the environment will lead to a better disclosure of environmental reporting in annual report. In order to establish trust and maintain legitimacy of a corporation in a society, environmental reporting is becoming increasingly significant and company must consider disclosing environmental information to demonstrate corporate responsibility towards to society which in turn can add value and competitive advantage to the company.

As corporations began to grow and develop as a result of industrial revolution and globalization, the natural environment experienced problems that concern the sustainability of the nature and ecosystems. Global warming has become a major concern in the world. Governments worldwide have responded and are working together to control and alleviate global warming. According to the Climate Change Report in year 2007, greenhouse gas (GHG) emissions from business operations are to be held liable for issues on environmental degradation and the constant rising of global temperature (Pachauri and Reisinger 2007).

Recently, the corporate world has seen rampant corporate collapses especially during the global financial crisis 2008. These scandals demonstrate the need for improved corporate governance which should include the responsibility of a business to extend beyond satisfying the interest of shareholders and stakeholders. A thorough environmental reporting practices by firms will assist to infuse stakeholders' perceptions and confidence towards an organization's integrity and management (Faisal, Tower, and Rusmin 2012; Post, Rahman, and Rubow 2011; Bear, Rahman, and Post 2010; Brammer, Millington, and Pavelin 2009). Prior studies found that the involvement of corporations in environmental activities and initiatives can create a positive image for the corporations, thereby, developing confidence with stakeholders (Ahmad and Haraf 2013; Amran et al. 2013b; Babiak and Trendafilova 2011; Burritt and Schaltegger 2010).

In a broad term, corporate social responsibility (CSR) is defined as a corporation's effort to voluntarily interact and disclose information on social and environmental concern for the benefit of stakeholders. This interaction and voluntary disclosure of information is not required by the law and the reason a company may be motivated to do so was to maintain the license to operate in the society (Kim, Kim, and Kim 2014; Monteiro and Aibar-Guzman 2010; Lu and Castka 2009). The Securities Commission of Malaysia views CSR as the contribution done by corporations to ensure a sustainable future. Also, based on the Securities Commission definition, corporations need to have strong corporate governance in which the responsibility of the management and board of directors extend beyond the shareholders to include the interest of stakeholders because everyone in the society is affected directly or indirectly a firm's operations.

There is currently no universal definition for CSR. The World Business Council for Sustainable Development defined CSR as commitment by corporations to contribute continually to the economy as well as to the society at large. Another definition of CSR which is provided by the Institute of Directors, UK where they defined CSR as an act from organizations to voluntarily go beyond the rules and regulations protect the environment. CSR is also defined as a concept whereby the balance between economic growth and environmental development is imperative in order to achieve a sustainable future.

2.3 Corporate Environmental Landscape in Malaysia

Corporate environmental reporting is part of CSR initiatives that can be taken by corporations to demonstrate that they are good corporate citizens. As a result of on-going urbanization and industrialization which continuously cause adverse effects to the natural environment, business should not take key environmental issues lightly which include deforestations, pollutions, global warming to name a few.

Malaysia has enacted environmental protection policies since 1935. These policies include the Forest Enactment Act 1935, Land Conservation Act 1960 and Environmental Quality Act 1975. Even though the CSR concept was advocated in 1970s in Western countries, it was first introduced in Malaysia by multinational companies in the 1980s (Teoh and Thong 1984). The Malaysian economy is highly dependent on the world's economy as it exports palm oil, petroleum and electronic goods to various countries around the world. Since

Malaysia relies on foreign direct investment (Amran and Haniffa 2011; Saleh, Zulkifli, and Muhamad 2011) for economic growth, the local companies must adopt the trends that are practiced and set by the multinational companies. In order to stay competitive and gain access to global markets, Malaysian companies have to follow suit and strive to be good corporate citizens (Amran et al. 2013b; Haji 2013; Mustafa, Othman, and Perumal 2012). Corporate environmental reporting serves the purpose of communicating firms' environmental practices. In a CSR conference in year 2004, Datuk Seri Najib Tun Razak in a speech has indicated clearly the benefits of practicing environmental reporting such as building positive corporate image and helps to improve firm's financial performance (Razak 2004).

As an emerging economy with industrialization and agriculture to boost economic growth, Malaysia is facing problems with regards to environmental sustainability issues such as land erosion, environmental pollution and climate change. The Malaysian government, which has the primary role to ensure balance between fiscal growth and environmental sustainability, has focused on the environmental façade when developing the 9th Malaysian plan (2006-2010). This can be clearly seen through keynote speeches given by authorities in Malaysia who had always underlined the significance of environmental sustainability in the operations of businesses (Badawi 2006; Yakop 2004; Razak 2004).

New policies were subsequently introduced such as the National Policy on the Environment in 2002 and National Policy on Climate Change in 2009 to further accentuate the importance of ecological sustainability for the benefit of both the present and future generations. Sustainability is also included as one of the three goals the country will strive to achieve in the New Economic Model. In year 2006, during the budget speech by the then Prime Minister, Datuk Seri Abdullah Ahmad Badawi, had announced that it is compulsory for listed companies to report their CSR initiatives in their annual reports (Badawi 2006). This shows that the Malaysian government is committed to ensuring environmental sustainability for the future generations.

Following the mandatory requirement to disclose CSR initiatives in annual reports, a guideline for public listed companies to report their CSR practices in annual reports has been released by Bursa Malaysia- the country's stock exchange in year 2006. Although the disclosure of corporate social responsibility (CSR) information is mandated, the extent of information reported is up to the discretion of individual companies. Companies can report CSR initiatives on four main themes namely the community, workplace, marketplace and environment. The CSR framework serves only as a guideline; hence, it is not mandatory for firms to report CSR activities as per the guideline provided.

To further enhance government's effort in encouraging companies to be sustainable, the government has allocated a huge amount of funds- RM510 million for the protection of rivers; RM350 million for management of coral reefs; RM200 million for the restoration of forests and RM70 million to protect wildlife during the tabling of the 9th Malaysian plan on March 3, 2006. Also, in year 2009, the Malaysian Prime Minister, Datuk Seri Najib Tun Razak declared that Malaysia would be committed to reduce carbon emissions by up to 40% intensity by year 2020 in response to the imminent issue of climate change. In order to deal with the rising issue of climate change, several initiatives had been taken by the government such as the introduction of Green Technology Financing Scheme (GTFS) which allows the green bank to provide financial support for companies to purchase green machines. In late 2009, the Green Technology Policy was introduced by the Malaysian government to support the idea for green technology development in Malaysia.

Also contributing to the effort to raise awareness of the importance of environmental reporting is the Malaysian accounting body- the Malaysian Accounting Standards Board (MASB) which has stated clearly in MASB 1 that environmental reports should be prepared and disclosed in annual reports. Other organizations such as the Companies Commission of Malaysia and Malaysian Institute of Integrity are also actively promoting corporate social and environmental reporting to be in line with the country's vision to be responsible corporate citizens.

For government-linked companies (GLCs), Khazanah Nasional Berhad, the Malaysian government strategic investment fund had launched the Silver Book on 25th September 2006 as part of its GLCs transformation program. The Silver Book contains guidelines for GLC to practice and report CSR initiatives in annual reports. It covers corporate social and environmental obligations of corporations to the society and is vital to support the country's vision to be ranked among the fully developed nations by year 2020.

In year 2011, the Securities Commission of Malaysia has published a CG Blueprint to update and review corporate governance structure in Malaysia. The focus of the blueprint is on the role of corporate board of directors in achieving good corporate governance and to provide and maintain sustainable growth in the society (Securities Comission 2011). Also, the role of female directors in corporate board has been incorporated in this Blueprint 2011. The Blueprint has recommended that companies include gender diversity into their boardroom as female directors brings different perspectives to a board, are more inclined to social and environmentally responsible activities and care about a wider range of stakeholders (Seto-Pamies 2013; Bear, Rahman, and Post 2010; Benardi and Threadgill 2010; Adams and Ferreira 2009). The government has made it a requirement for listed companies to have at least 30% of their board of directors' seats to be allocated to female directors by year 2016 (Securities Comission 2011). This is indeed a major milestone in corporate governance for Malaysian publicly listed companies to have female representations in the board.

A revised MCCG which was published in year 2012 highlights the importance of economic, social and governance in running daily business operations. Both the Blueprint 2011 and MCCG 2012 document the crucial roles of board of directors in extending the responsibility of the management and corporation to go beyond reporting to shareholders alone and include the wider interests of stakeholders and the public.

The timeline of the Malaysian corporate environmental landscape is captured in Table 2.1.

Table 2.1: Timeline of Malaysian corporate environmental landscape

Year	Malaysian government's initiatives
1935	Forest Enactment Act 1935
1960	Land Conservation Act 1960
1975	Environmental Quality Act 1975
2002	National Policy on the Environment
2006	Former Prime Minister of Malaysia, Datuk Seri Abdullah Ahmad Badawi mandated CSR reporting in annual reports of public listed companies
	Bursa Malaysia CSR Framework
	Silver Book launched by Khazanah Nasional Berhad, the Malaysian government strategic investment fund to guide government-linked companies with CSR
2009	National Policy on Climate Change
	Green Technology Policy
2011	Blueprint 2011 by Securities Commissions Malaysia highlights the role of corporate board of directors in maintaining sustainable growth in the society
2012	Revised MCCG 2012 highlights the importance of economic, social and governance in business operations

2.4 Development of Environmental Reporting in Malaysia

Although environmental reporting has been gaining prominence worldwide, according to prior studies (Ahmad and Haraf 2013; Said, Omar, and Abdullah 2013; Saleh, Zulkifli, and Muhamad 2010; Chapple and Moon 2005), the extent of environmental reporting is still low in Malaysia. The first CSR study in Malaysia was done in the 1980s (Teoh and Thong 1984). CSR practices and disclosures are mostly being practiced in multinational companies due to the heightened reporting requirements of parent companies operating in developed countries (Andrew et al. 1989; Foo and Tan 1988; Teoh and Thong 1984). Further, the themes of CSR frequently being disclosed in annual reports during that period were mainly on employees in the workplace and the product dimensions.

By 1990s, Malaysian companies were still slow to respond to worldwide demand for social reporting. Any CSR items disclosed in the annual reports were self- laudatory in order to give a positive image of the company to the public (Chapple and Moon 2005; Jamil, Alwi, and Mohamed 2002; Belal 2001; Williams and Ho 1999). After the 1997 Asian Financial Crisis, corporate management began to realize the need for environmental reporting to infuse investors' confidence in order to continue to be legitimate in the society (Hamid 2004; Thompson and Zakaria 2004; Jamil, Alwi, and Mohamed 2002). The level of CSR awareness began to increase when the then Prime Minister, Datuk Seri Abdullah Ahmad Badawi announced the mandatory disclosure of CSR information in annual reports (Badawi 2006). As Malaysia's vision is to be ranked among the high- income nations by year 2020, the issue of sustainability reporting should not be taken lightly. In order for Malaysian companies to gain access to the global market, companies are found to incorporate more environmental sustainable practices in their business operations (Amran and Haniffa 2011; Amran, Periasamy, and Zulkifli 2011; Nejati and Azlan 2009; Saleh 2009). The fall of large institutions and scandal of giant corporations worldwide during the global financial crisis in year 2008 was an eye- opener to corporations around the world of the importance of social responsibility reporting. One of the CSR facets that are gaining prominence, due to the worldwide sustainability call, is corporate environmental reporting. During this time, research on sustainable reporting in Malaysia have shown that firms integrated sustainability as part of their corporation's corporate governance agenda (Amran, Lee, and Devi 2013; Haji 2013; Rahman et al. 2011; Lu and Castka 2009).

Although Malaysian corporations have taken a serious approach towards sustainability reporting, the reporting of environmental practices is still found to be lacking (Amran et al. 2013b; Said, Omar, and Abdullah 2013; Rahman et al. 2011). The most commonly reported themes by Malaysian companies included marketplace, community and the workplace (Amran et al. 2013b; Rahman et al. 2011; Yussri, Zain, and Darus 2010; Nejati and Azlan 2009). These studies note that the environmental pillar of CSR is the least disclosed theme in the annual reports. It may be attributed to the perception that the business operations of the company do not give an impact on the natural environment.

According to Amran et al. (2013b), companies disclose their environmental initiatives in their annual reports if they are operating in environmentally sensitive industries. This research finding is consistent with a survey taken by ACCA to gauge the corporate environmental reporting in Malaysia. The findings of the survey showed that the extent of corporate environmental disclosure is largely conditioned by the industry the corporation is involved in (Accountants 2005).

Due to the call and pressures from various groups of stakeholders, the Malaysian authority has released the CG Blueprint 2011 and MCCG 2012 which highlights the significance of environmental sustainability for continued corporation's survival and overall business sustainability. The examination of the association between corporate board gender diversity and the extent of corporate environmental disclosure in Malaysian public listed companies provides new insights into the environmental reporting literature in Malaysia.

2.5 Summary

The level of CSR awareness has been increasing over the years ever since the inception of the CSR concept in Malaysia in the 1980s. Over the years, government's initiatives, global financial crisis, stakeholders' pressure and the need to obtain corporate legitimacy have resulted in corporate environmental reporting. The challenges for corporations in this era of globalization is to continue to be responsible to shareholders and at the same time be accountable for their operations in the society as it affects stakeholders who can legitimize a company's operations. The focus of this thesis is to examine the association between corporate board gender diversity and the extent of environmental reporting in Malaysian listed companies. The next chapter presents the theoretical framework adopted in this thesis and the literature review which leads to hypotheses development.

CHAPTER 3

THEORETICAL FRAMEWORK, LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1 Introduction

This chapter presents the review of literature on corporate environmental reporting in Malaysia and hypotheses are developed to test association between corporate board gender diversity and the extent of corporate environmental disclosure in Malaysian listed companies in year 2013. Section 3.2 explains legitimacy theory which is adopted as the main theoretical framework of the study. Section 3.3 provides the link between corporate board gender diversity and legitimacy theory. Section 3.4 presents the overall research proposition of the current study. Section 3.5 reviews relevant literature on corporate board gender diversity and the extent of corporate environmental disclosure as well as the hypotheses development. Conceptual schema on the testable hypotheses is provided in Section 3.6. Section 3.7 summarizes the whole chapter.

3.2 Legitimacy Theory

The social accounting literature explains corporate environmental disclosures on the basis of legitimacy theory (Ahmad and Haraf 2013; Haji 2013; Choi, Chatterjee, and Brown 2013; Bear, Rahman, and Post 2010; Monteiro and Aibar-Guzman 2010; Lindblom 1994). Legitimacy theoretical framework provides an ideal mechanism to assess firms' corporate environmental disclosure practices in annual reports. Prior studies on corporate environmental disclosure used legitimacy theory to explain the extent of such disclosures (Faisal, Tower, and Rusmin 2012; Jamil, Alwi, and Mohamed 2002; Lindblom 1994). Management's disclosure of corporate environmental practices in the annual reports can boost confidence of stakeholders to invest in the company and instill trust in the integrity of management in operating the firm's business (Kim, Kim, and Kim 2014; Frias-Aceituno, Rodriguez-Alza, and Garcia-Sanchez 2012; Babiak and Trendafilova 2011; Bear, Rahman, and Post 2010; Bohren and Strom 2010). Corporate environmental reporting is seen as an effort by management to attain and maintain legitimacy in order to continue operating in a society.

Legitimacy theory is based on the belief that there exists a social contract between a firm and the society it operates in. The firm must act within the boundaries of acceptable behavior as deemed by the society. Legitimacy theory assumes that management will adopt strategies to demonstrate to the society that the firm is trying its best to comply with community's expectations of business operations. A firm can continue to exist in a society if it satisfies the requirements and boundaries set by the society at large. Society's expectations changes according to events and happenings in the world, thus, a firm has to continuously show that it is attempting to be legitimate in order to gain acceptance from the society and continue its survival.

The concept of social contract explains the relationship between a firm and the society it operates in. Survival and growth of a company is based on the social contract whereby a firm makes contributions to the society in general and acts within socially accepted behavior (Suchman 1995; Dowling and Pfeffer 1975). Despite institutional power influences that a firm may have, it cannot operate forever if it breaches the social contract. When a social contract is breached, a firm's survival in the society will be threatened such as increased of taxes and fines from government agencies, act of boycott from customers and suppliers, lost investors' confidence and reduced financial capital to business operations. Therefore, a firm has to consistently comply with rules, regulations and expectations from the society to ensure continued business growth and survival.

3.3 Legitimacy Theory and Corporate Environmental Disclosures

Legitimacy theory explains the motivations of management to disclose corporate environmental information in the annual report as an attempt to legitimize a firm's operations amidst growing key sustainability issues around the globe. Also, according to this theory, a firm has no right to draw on natural resources and benefit the existence in a society, hence achieving legitimacy is vital as it enables a business to continue to operate and the ability to draw resources from the community to ensure business development.

Legitimacy is a generalized perception by stakeholders. A firm can still maintain its legitimacy even though it deviates from socially accepted behavior because such acts might be undetected by the community (Suchman 1995). Legitimacy is achieved when the behavior of the firm and expectations of majority stakeholders are congruent. Board of directors which controls the management can strategically manage disclosure of social and environmental information as legitimacy of a firm is dependent on communication between the firm and its stakeholders (Choi, Chatterjee, and Brown 2013; Faisal, Tower, and Rusmin 2012; Bear, Rahman, and Post 2010). Although a firm cannot satisfy all the stakeholders, legitimacy management by the board of directors can help to retain firm's legitimacy by disclosing information that will be perceived as appropriate behavior by majority stakeholders (Suchman 1995).

According to Dowling and Pfeffer (1975), legitimacy is an operational resource which firm has to attain in order to achieve the goal of the organization. Through this perspective, it is consistent with the resource dependence theory of a firm (Pfeffer and Salancik 1978). Resource dependence theory (RDT) posits that legitimacy is one of the important organizational resources that are crucial for the survival of a firm. Therefore, the board of directors and management of a firm have to be responsible and accountable to those who control vital resources for the operations of a business in which this case is the society as a whole.

Lindblom (1994) provides four strategies of communications which can be adopted by companies in order to be legitimate in a society:

1) communicate actual firm performance to the society;
2) change perceptions of stakeholders but without changing firm's original behavior;
3) manipulate stakeholders perceptions by deviating their attention to another different issue; and
4) change expectations of stakeholders on firm performance.

Also, according to both Dowling and Pfeffer (1975) and Lindblom (1994), these communication strategies can be implemented through the use of annual reports. The notion of legitimacy in a firm is about disclosure (Choi, Chatterjee, and Brown 2013; Haji 2013; Faisal, Tower, and Rusmin 2012). When management became aware that a certain environmental issue is important and significant in the point of view of stakeholders, the board of directors will then manage reporting and disclosure in such a way that the firm will voluntarily disclose such information in their annual reports.

A firm needs to maintain its legitimacy as the status of legitimacy of a firm is not permanent. Sudden and unanticipated events happens all the time to a firm which might led to adverse environmental impact to the society. This will in turn create a legitimacy gap in which firm's actions is no longer congruent with society's expectations. In order to restore legitimacy of a firm, the board of director of the firm must implement strategies to remedy the issue of concern and these actions and initiatives must be communicated and disclosed in the firm's annual report to bring awareness to stakeholders as legitimacy is about stakeholders' perceptions. It is important to note that information disclosed it needed to change a society's perceptions towards the firm. Hence, legitimacy theory highlights the importance of corporate disclosure instruments such as annual reports in order to attain, maintain and restore legitimacy to a firm (Ahmad and Haraf 2013; Haji 2013; Bear, Rahman, and Post 2010; Suchman 1995).

Due to the strategic role that disclosure has on legitimacy, the board of directors of a firm have the incentive to disclose information on environmental practices in the annual report to influence perceptions of stakeholders where the issues of environmental sustainability is currently dominating the business world. Thus, legitimacy theory is an ideal theoretical framework to examine the association between corporate board gender diversity and the extent of corporate environmental disclosures.

3.4 Research Proposition

Corporate environmental reporting is an emerging trend in Malaysia. However, environmental reporting practices is still at its infancy stage and the awareness of the importance of the environment amongst companies remains low (Ahmad and Haraf 2013; Amran et al. 2013b; Haji 2013; Said, Omar, and Abdullah 2013; Amran and Haniffa 2011;

Nejati and Azlan 2009). Previous studies on CSR in Malaysia had found that the main CSR theme being disclosed in annual reports of listed companies are workplace and community-related activities (Amran, Lee, and Devi 2013; Rahman et al. 2011; Said, Zainuddin, and Haron 2009; Saleh 2009; Chapple and Moon 2005; Thompson and Zakaria 2004; Eng and Mak 2003). As corporations continue to face changes in societal expectations, continued globalizations as well as the increasing problem of depletion of natural resources, the issue of environmental sustainability become an important and critical matter (Ihlen and Roper 2011; Monteiro and Aibar-Guzman 2010; IEA 2009; Clarkson et al. 2008).

The recent 2008 global financial crisis highlighted issues on business ethics and corporate governance (Rossouw 2012; Ryghaug 2011). In the wake of various corporate collapses such as Lehman Brothers and WorldCom, the public has started to question management's integrity in running their business operations. Referring to the legitimacy theory, there is an implied agreement or a social contract between a business and the society. In order to ensure the existence of the company in a society, the company has to be responsible for social and environmental impacts of its operations in the society it operates in. Hence, a company's board of directors is responsible to both shareholders and stakeholders alike.

According to MCCG 2012, companies should be accountable to various stakeholders by focusing on environmental, social and governance aspects of businesses to enhance both investors' perceptions and public trust. Any corporate scandals and corporate collapses threaten the legitimacy of corporations around the world if the public cast doubt on the management's ethics and morality. Therefore, the board of directors of a company play a major role in ensuring companies not only is profit-oriented, but also behaves ethically as well. It is reasonable to assume that Malaysian companies are likely to report their environmental initiatives and practices in their annual reports to demonstrate to the community that the company is exerting effort to comply with society's expectations. Hence, this research will analyze the following overarching research proposition:

RP: Corporate board gender diversity will influence the extent of environmental disclosure practices by Malaysian listed companies.

3.5 Board Gender Diversity and Corporate Environmental Disclosures

Over the past few years, the environmental pillar of CSR has gained significant importance because of the growing environment sustainability issues. Stakeholders demand businesses to be accountable for their actions that deplete the quality of the environment (Dutta, Lawson, and Marcinko 2012; Ihlen and Roper 2011; Sussman and Freed 2008). Prior studies in Malaysia focused on the impact of variables such as the size of the firm, industry and ownership on the level of CSR disclosures (Saleh, Zulkifli, and Muhamad 2010; Nejati and Azlan 2009; Said, Zainuddin, and Haron 2009; Saleh 2009). The themes of CSR researches in Malaysia are mostly concentrated on the community and employee pillar of CSR (Amran, Lee, and Devi 2013; Amran and Haniffa 2011; Amran, Periasamy, and Zulkifli 2011; Rahman et al. 2011; Lu and Castka 2009; Saleh 2009). The existing literature however has very limited research on the impact of gender diversity in the boardroom on the level of environmental disclosures, although few studies had been conducted on the contribution of female directors in overall CSR disclosure in Malaysia (Amran, Lee, and Devi 2013; Amran, Periasamy, and Zulkifli 2011).

The role of female directors in the boardroom has acquired global attention. Boards around the world are under increasing pressure to include female directors in their corporate boardroom (Amar, Chang, and McIllkenny 2015; Carrasco et al. 2014; Hafsi and Turgut 2013). Ever since year 2003, Norway became the first country to impose a gender quota that required listed firms to have at least 40% female directors to be seated on the board of directors or faced dissolution of the firm. This initiative was eventually followed by Belgium in year 2011, which required one-third of boardroom seats to be allocated to female directors whilst French companies require at least 40% representation of female directors on the corporate board. In Malaysia, the Securities Commission (SC) rolled out a Blueprint in year 2011 that recommended 30% female representation in the boardroom by year 2016. Several studies on female directors and level of CSR disclosure had documented significant association between the proportion of female directors on the board and the level of CSR disclosure (Liao, Luo, and Tang 2015; Boulouta 2013; Larkin, Benardi, and Bosco 2013; Bear, Rahman, and Post 2010). As such, it is significant to study the relationship between female directors and the extent of corporate environmental disclosures in Malaysia.

Recently, the issue of board diversity specifically on the female representation in the boardroom has become significant. The rise of propositions and initiatives from governments around the world requesting firms to gender diversify their corporate boards is seen as pressures to companies as this will threaten the legitimacy of non-complying firms. Thus, companies globally have included more female directors in decision making positions as well as in their corporate boardroom. Board gender diversity are seen to bring external critical resources to a firm as the involvement of female directors are evidenced to provide valuable insights, variety of perspectives and enhance companies' reputations (Landry, Benardi, and Bosco 2014; Larkin, Benardi, and Bosco 2012; Park, Choi, and Kim 2012; Post, Rahman, and Rubow 2011; Adams and Ferreira 2009). In order to manage business and environment challenges facing a corporation, an effective board is needed to provide these crucial resources and by involving female directors in the boardroom, it will help to increase the prestige of a board as well as providing and increases the legitimacy of the firm (Boulouta 2013; Seto-Pamies 2013; Fernandex-Feijoo, Romero, and Kuiz 2012; Benardi and Threadgill 2010; Adams and Ferreira 2009). Thus, it is expected that the presence of female directors on corporate boardrooms will increase the extent of environmental disclosures in the annual reports of Malaysian listed companies.

DiTomaso and Post (2007, p. 397) defined diversity as the state of having and including people who are different from traditional members as they have differing conceptions and operationalization. The purpose of diversity is to enable all members from different backgrounds such as gender, race or ethnicity to contribute their talents and add values to their companies (Johnson, Schnatterly, and Hill 2013; Prado-Lorenzo and Garcia-Sanchez 2010; Joshi and Roh 2009; DiTomaso and Post 2007, p. 397).

The representation of female directors in corporate boardroom is a central theme for corporate governance reformation worldwide. Increasing female representation in the boardroom may bring positive changes to a company such as improved decision making processes (Benardi, Bosco, and Colums 2009; Chen, Dyball, and Wright 2009; Peterson and Philpot 2007; Zelechowski and Bilimoria 2006; Daily and Dalton 2003). Female directors also tend to value the opinions of others and are more sensitive to the needs of a wide range of their companies' stakeholders (Landry, Benardi, and Bosco 2014; Benardi and Threadgill 2010; Adams and Ferreira 2009; Konrad and Kramer 2006). By having more female on the board of directors, it helps a company to enhance its reputation as female directors are more likely to have expertise outside of the business world and can help to bring different perspectives to the board (Ciorcilan and Peterson 2012; Larkin, Benardi, and Bosco 2012; Amran, Periasamy, and Zulkifli 2011). Also, studies have shown that female directors take into account issues on CSR and matters that are affecting the society at large (Landry, Benardi, and Bosco 2014; Huse, Nielsen, and Hagen 2009; Zelechowski and Bilimoria 2006). They document that there is a significant relationship between female directors in the boardroom and the level of CSR disclosure. Similarly, Benardi and Threadgill (2010) find that having female in the board of directors helps the board to better assess the needs of stakeholders.

3.5.1 **Female Directors on Corporate Boards**

The presence of female directors in the corporate boardroom contributes to businesses in various ways such as improving supervisory roles, problem solving processes as well as the financial performance of a company (Ciorcilan and Peterson 2012; Nielson and Huse 2010; Peterson and Philpot 2007; Daily and Dalton 2003).

The impact of boardroom gender diversity on environmental disclosures in a company should not be overlooked. Several studies have been done to gauge the relationship between these two variables and mixed results were obtained. Nielson and Huse (2010) found that female directors pay more attention and are constantly considering the needs of the stakeholders of their companies. Their study found that the presence of female directors on board contributes in terms of improving the ability of the company to deal with CSR issues in the community they are operating in. Zhang, Zhu, and Ding (2012) results supported the findings by Nielson and Huse (2010) by providing the reasons on why female directors are more sensitive to stakeholders needs. They found that due to the different psychological characteristics that female possesses, the presence of female directors on board has positive impact on CSR performance of a firm.

According to Park, Choi, and Kim (2012), female directors are more environmentally conscious than their male counterparts and have a positive attitude towards issues involving the environment. Also, they found that female directors are more aware of environment exploitation issues happening in the society. As documented by Ciorcilan and Peterson (2012), companies with female directors on board showed concern on environmental problems and climate change commitment.

In wider context, prior studies reveal that female directors encourage best practices for CSR in a company (Frias-Aceituno, Rodriguez-Alza, and Garcia-Sanchez 2012; Prado-Lorenzo and Garcia-Sanchez 2010; Barako and Brown 2008). Seto-Pamies (2013) and Huang (2012) document that there is a positive relationship between the presence of female directors on board and the level of corporate environmental disclosures in companies from the Global 100 database and U.S. respectively.

On the other hand, Galbreath (2010) found that there is no significant relationship between the presence of female on corporate board and the level of environmental disclosure in U.S firms. This finding is contrary to the prior studies and could be attributed to the small proportion of female directors in the sample collected.

In light of the above, to formally examine the association between the presence of female directors and the extent of corporate environmental disclosure in Malaysia, the following hypothesis is proposed:

H_1: There is a positive association between the presence of female directors in corporate board and the extent of environmental disclosure practices by Malaysian listed companies.

3.5.2 Female Directors with Multiple Directorships

When a member of a boardroom joins the board of director of another company, the director is said to be holding a multiple directorship role or board interlock. Multiple directorships are arguably preferable in boardrooms due to the benefits that they bring into the firms they are serving in (Ortiz-de-Mandojana and Aragon-Correa 2014; Ortiz-de-Mandojana et al. 2012; Shropshire 2010). One of the benefits of board interlock is that the operating cost is low yet it is strategic as it enables the sharing of timely and useful information across firms. According to the resource dependence theory, a firm needs to acquire resources in order to continue operation (Pfeffer and Salancik 1978). Multiple directorships is one way a firm can manage and gain its critical resources from their environment, diverse skills and expertise from board members who have experience serving in another firm as well as helping to provide legitimacy to the firm.

Previous studies provided ample evidence that interlocked firms practiced similar corporate strategies (Lambooy 2010; Michelon and Parbonetti 2010; Chen, Dyball, and Wright 2009). Directors' experiences gained from other corporate boards are crucial as they can bring different insights and provide details to implement good practices which will benefit the other firms the directors are serving in (Bear, Rahman, and Post 2010).

However, there are past studies that provide different views on the concept of board interlock. For instance, Westphal and Stern (2007) find that director interlocks do not matter to a U.S. firm's performance as board within a firm itself has their own ideas and influences over operational and strategic control of their firm.

Based on the above, board interlock may not be feasible in firms operating in different context. Hence, understanding the impact of female directors holding multiple directorships on firms' decision to communicate environmental information is of particular interest.

Thus, in order to test the association between female directors' multiple directorship and the extent of corporate environmental disclosures in Malaysian listed companies, the following hypothesis is tested:

H_2: There is a positive association between female directors' multiple directorships and the extent of environmental disclosure practices by Malaysian listed companies.

3.5.3 Female Directors as Independent Non-Executive Directors

The Bursa Malaysia Listing Requirements define independent directors as directors who are not employed in a company and is independent of management and do not have any business or any other relationship in relation to the company (Bursa Malaysia 2013). MCCG 2012 defines non-executive directors as a capable person who will provide independent judgment and objectivity in running the company's operation (MCCG 2000). Prior studies indicated that the existence of independent non-executive directors in a company served the purpose of check and balance to enhance monitoring and to ensure that decisions taken by managers are in fact for the interest of owners and stakeholders (Haji 2013; Kelton and Yang 2008; Daily, Dalton, and Cannella 2003). According to Renneboog, Horst, and Zhang (2011), superior corporate governance is achieved with a higher proportion of independent non-executive directors. The study showed that independent non-executive directors played a role in motivating management to engage in CSR and to intervene opportunistic behavior of manager. However, there are other studies that do not find any significant relationship between the proportion of independent non-executive director and the level of voluntary disclosure (Bowrin 2013; Said, Zainuddin, and Haron 2009; Eng and Mak 2003).

To formally examine the association between independent non-executive director and the extent of environmental disclosure, the following hypothesis is suggested:

H_3: There is a positive association between female directors as independent non-executive directors and the extent of environmental disclosure practices by Malaysian listed companies.

3.5.4 Female Directors as Board Audit Committee Members

Prior research gauged the involvement of female directors in boardroom by looking into the number and proportion of female directors serving in the board of director of a firm

(Amran, Lee, and Devi 2013; Hafsi and Turgut 2013; Post, Rahman, and Rubow 2011; Bear, Rahman, and Post 2010). But limited studies examined the role of female directors in board audit committees despite evidences shown that female directors are most likely to be members of board committees (Adams and Ferreira 2009; Pornsit, Manohar, and Chun 2009). According to Kesner (1988) and Bilimoria and Piderit (1994), most companies policies and procedures are derived from meetings from specific board committees which shows that most of board actions are done in the board committees themselves. Based on a study by Peterson and Philpot (2007), they found that female directors are normally members of the audit and public affairs committee as female directors are perhaps more sensitive towards to needs of the community around them (Hafsi and Turgut 2013; Brammer, Millington, and Pavelin 2009). Hence, another way to gauge the influence of female directors is to examine their involvement in board audit committees. Board audit committees are important as they provide oversight of financial reporting processes; hold the responsibility to provide recommendations and policy input as well as the structure for management to perform their duties to meet stakeholders' demands and needs. This committee will meet separately and due to this, perhaps they will have more time to analyze more areas of stakeholders' concerns than would be possible in a full-fledged board meeting.

To formally examine the association between female director board audit committee membership and the extent of environmental disclosure, the following hypothesis is proposed:

H_4: There is a positive association between female directors as board audit committee members and the extent of environmental disclosure practices by Malaysian listed companies.

3.6 Conceptual Schema

The testable hypotheses identified are captured in the conceptual schema in Figure 3.1. The hypotheses developed will be used to test the significance of association between corporate board gender diversity and the extent of corporate environmental disclosure of Malaysian listed companies in year 2013. In order to enhance the association between the independent variables and the dependent variables, this thesis includes control variables into the model namely firm size, industry, leverage, ownership concentration, profitability and audit quality.

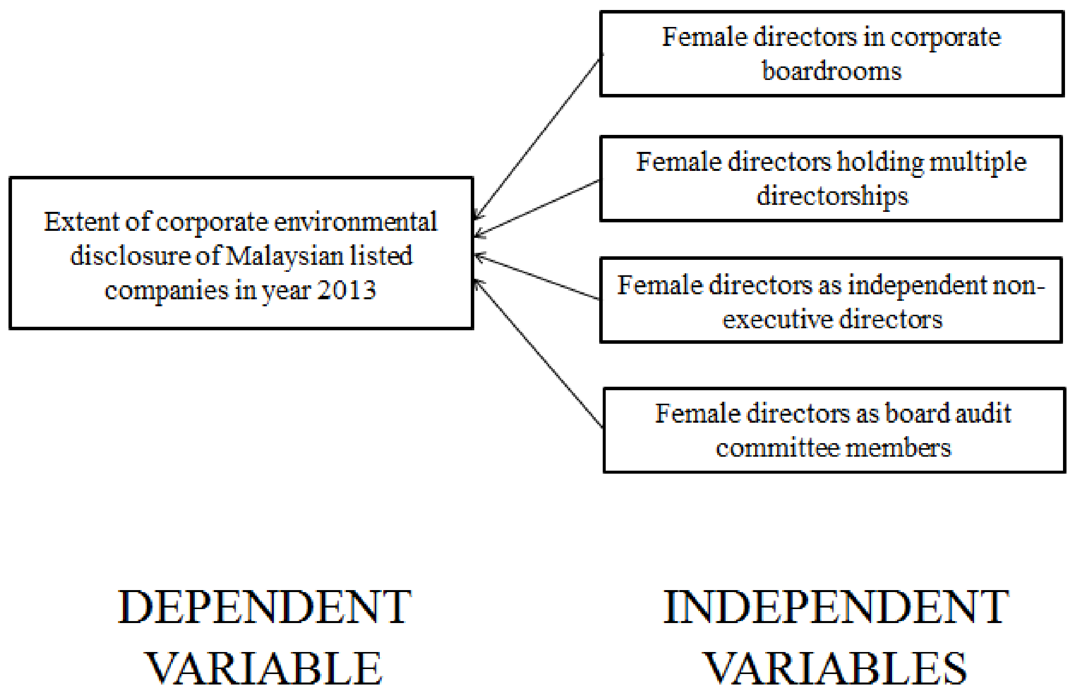

Figure 3.1: Conceptual schema

3.7 Summary

The chapter reviews the legitimacy theory as the theoretical framework adopted for this thesis and a review of prior literature on the area of board gender diversity. The relationship between a business entity and the society it operates in is discussed in the legitimacy theory framework. Based on prior studies, female directors are seen to have a positive impact on corporation's motivation to be environmentally responsible. The legitimacy theory is a good framework that can be utilized to evaluate the association between board gender diversity and corporate environmental disclosures. This is based on the notion that female directors are more aware of environmental issues which will then influence a business to be environmentally conscious; and thereby maintain a firm's legitimacy in the environment it operates in.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

This thesis utilizes the positivist empirical research method to explain the extent of corporate environmental disclosure (CED) in Malaysian listed companies and the factors influencing the extent of disclosure. The chapter describes the design of the research instrument used in this study to measure the extent of environmental disclosures by sample companies and the measures of independent and control variables.

4.2 Development of CED instrument

Although Bursa Malaysia has rolled out a CSR reporting framework to assist companies to disclose their CSR activities, companies in Malaysia still have the option to not follow the guidelines given as it is not compulsory to report CSR initiatives as per the Bursa Malaysia's framework recommendation. Hence, CED in Malaysia remains voluntary.

In order to measure the extent of corporate disclosure in annual reports, past studies adopted a mechanism to capture the extent of disclosure by constructing a disclosure index (Amran, Lee, and Devi 2013; Haji 2013; Amran and Haniffa 2011; Bear, Rahman, and Post 2010; Benardi, Bosco, and Colums 2009; Amran and Devi 2008). The concept of CED is wide and differ from country to country, hence it could not be measured directly (Bowrin 2013; Cuesta and Valor 2013). Thus, prior studies in the area of corporate social and environmental disclosure used disclosure index to gauge the extent of CSR disclosure in annual reports of companies.

Essentially, there are two ways of constructing a disclosure index. The first way is to adopt the instrument developed by other researchers while the second approach is to self-construct the disclosure index by reviewing relevant previous literatures and other authoritative documents. For a readily-developed disclosure index, it would be more objective as it had been used in previous studies. However, this approach raises the concern of construct validity as the practice of corporate environmental responsibility differs according to policies, economies and countries; among other variables. On the other hand, the self-construct disclosure index offers higher construct validity as the items included in the disclosure instrument are by reference to the review of relevant literature. Although there is subjectivity with disclosure index constructed, this approach has been widely used in previous studies (Muttakin and Khan 2014; Cuesta and Valor 2013; Khan, Muttakin, and Siddiqui 2013).

4.2.1 **Selection of corporate environmental disclosure items**

This study utilizes a researcher-constructed index to examine the extent of CED by Malaysian listed companies. The first step taken in constructing the index was by using the Global Reporting Initiatives (GRI) as the base guideline to develop the CED index in order to ensure content validity as it is the most authoritative source of CSR reporting in the world. There are a total of 12 items in the environmental facet of GRI and all of them are included in the CED index. Secondly, an extensive review of the annual report of Malaysian companies that won environmental awards such as ACCA Malaysia Sustainability Reporting Awards (MaSRA) and the National Corporate Report Awards (NaCRA) was conducted to identify any items that are most commonly disclosed by Malaysian companies. The most frequently appeared item in the review of annual reports is taken note of as it shows that the item is highly relevant in the CER context in Malaysia. This technique of selection had been practiced in prior studies (Dong, Burritt, and Qian 2014; Ane 2012; Post, Rahman, and Rubow 2011). The third step involved a review of prior studies in the area of corporate environmental reporting in Malaysia to further refine the list of environmental items. Ultimately, the disclosure instrument consists of a total of 18 items used to gauge the extent of CED of Malaysian listed companies. The disclosure index instrument is attached in Appendix A.

4.2.2 **Weighing and scoring of CED items**

Similar to the construction of disclosure index, there are two methods to weigh the score of disclosure items namely the weighted approach and unweighted approach. The unweighted approach presents a better method to score disclosure of items compared to the weighted approach of scoring. The weighted approach allocates different weight to each disclosure item based on the researcher's self-perceived importance. Due to this reason, the weighted approach involves subjectivity as the weight being assigned to each item in the disclosure index is based on a subjective importance rating and different researcher might assign different weight to the same item based on their own self preferences. Individual judgment on the importance of the disclosed item has a high level of subjectivity which will thus lead to the biasness of scoring.

On the other hand, the unweighted approach to scoring disclosure items uses a dichotomous scoring procedure in that a score of 0 is recorded for an item not disclosed and a score of 1 is awarded if the item is disclosed. The unweighted approach assumes that all items are similarly important to all users of the annual reports in order to aid them in their decision making process (Haji 2013; Abdullah, Mohamad, and Mokhtar 2011; Khan 2010). This study is focused on the stakeholders who are affected by the companies' business operations. Hence, the unweighted approach is adopted in this thesis to score the CED items disclosed in the annual reports in view of this approach being less subjective and bias. Prior studies that employed the unweighted approach in scoring disclosure items include Ahmad and Haraf (2013); Haji (2013); Esa and Ghazali (2012); Amran and Haniffa (2011); and Hamid and Atan (2011).

4.3 Selection of companies

This thesis focused on firms listed on the main market of Bursa Malaysia stock exchange. Table 4.1 shows the breakdown of companies, by industry sectors, listed in Bursa Malaysia in year 2013. The classification of the industry sector is by reference to the list of companies in the main market of Bursa Malaysia.

Table 4.1: Number of listed firms by industry

Sectors	**Number of listed firms**
Constructions	44
Consumer Products	126
Finance	33
Industrial Products	233
Plantations	42
Properties	89
Technology	29
Trading and Services	182
Total	778

In order for a company to be selected for the current study, it must satisfy two criteria. First, the company must not be in the financial sector as it is being subjected to stricter rules and different sets of requirements imposed by Bank Negara Malaysia. Secondly, the company's annual report for year 2013 must be available. Out of the 778 companies listed, a total of 33 firms in the financial sector are excluded from the study and the final population available for sampling is 745. Stratified random sampling is used to draw sample companies as the population of companies in Bursa Malaysia is dissimilar. A simple random sample of companies from each sector is taken in proportion to the sector's size when compared to the population available for sampling. In order to select the sample size for this study, the researcher refers to the calculation by Welch and Comer (1988) to calculate the sample size needed. The formula to calculate the sample size n, based on a 95% confidence level with 5% sampling error of a total population p is as follows:

$$n = 385 \div \left[1 + \frac{385}{p}\right]$$

Since the population available for sampling is 745 companies, by using the formula shown, the number of sample size needed is approximately 253 companies. The researcher collected data for 260 companies which represent 34.90% of the available population for sampling. Table 4.2 depicts the population and sample firm size. A list of firms selected for the sample is included in Appendix B.

Table 4.2: Derivation of final sample

Description of firms	Number of listed firms
Firms listed on Bursa Malaysia's main board in year 2013	778
Less: Firms listed in the financial sector	(33)
Population of firms for sampling	745
Final sample	260
Percentage of sample firms from population	**34.90%**

4.4 Annual report as the source of information

Annual report is the primary outcome of a firm's reporting system. Amran et al. (2013a) report that annual report is important because it is the main tool used by companies to communicate to the public of their activities. Annual reports are commonly used by various stakeholders to facilitate their decisions making (Iatridis 2013; de Villiers and Staden 2011; Burritt and Schaltegger 2010). It is a suitable proxy to assess the level of CED by companies. Prior literature utilize annual reports as a way to gauge the extent of a company's information disclosure (Liao, Luo, and Tang 2015; Iatridis 2013; Esa and Ghazali 2012; Mahadeo, Hanuman, and Soobaroyen 2011). Further, Ahmad and Haraf (2013); Haji (2013); and Yusoff, Mohamad, and Darus (2013) develop CED indices by scoring against annual reports. In view of its general purpose reporting nature, this study uses annual report as the basis to develop CED indices for each sample firms.

4.5 Scoring the CED

In order to ensure the consistency in scoring CED, the annual report for each company is read twice with a time interval of two weeks in between each reading. Also, to further enhance the scoring consistency, the rating sheet is done by only one researcher during the two readings. This method of scoring has been practiced widely in previous disclosure studies (Muttakin and Khan 2014; Haji 2013; Khan, Muttakin, and Siddiqui 2013).

A checklist for CED is prepared and all items are being assigned a score of 1 if disclosed in the annual report or 0 if the item is not disclosed. Once all of the items are given a score, the scores are then totalled up to determine the extent of CED of each sample firm. This total score is then divided by the total maximum CED score in order to derive a percentage of extent CED. The formula to calculate the CED is as follows:

$$\text{CED} = \frac{\text{Number of items disclosed in annual report of a firm}}{\text{Total number of items in the disclosure checklist}} \times 100\%$$

4.6 Measurement of independent variables

Prior studies have indicated certain factors that affect the extent of CED of a firm (Choi, Chatterjee, and Brown 2013; Ane 2012; Walls, Berrone, and Phan 2012; Abdullah, Mohamad, and Mokhtar 2011; Amran and Haniffa 2011). Amran, Periasamy, and Zulkifli (2011) find that the existence of women on boardroom leads to increased disclosure of CED items in the annual reports of companies in the Asia Pacific region. The independent variables being selected for the current study are based on theoretical reasoning and prior research, and are relevant in the Malaysian context. The measurement of independent variables and control variables is explained in the following subsections.

4.6.1 Female directors on corporate boardroom

Kabongo, Chang, and Ying (2013) define diversity as the state of having and including people who are different from traditional members. Boardroom gender diversity has been found to impact significantly on a firm’s extent of disclosure in annual reports (Glass, Cook, and Ingersoll 2015; Larkin, Benardi, and Bosco 2013; Gul, Srinidhi, and Ng 2011). According to MCCG 2012, a board of director should be responsible towards both the shareholders and stakeholders of the company. Hence, the practice of having gender diversity in a corporate boardroom shows that the company can protect the interest of their shareholders and stakeholders alike (Carrasco et al. 2014; Dobbin and Jung 2011; Rhode and Packel 2010).

Hafsi and Turgut (2013) document that companies having gender diverse boards have higher level of corporate disclosure due to the role that female directors play in the corporate boardroom such as enhancing board effectiveness in terms of decision making and initiating a cultural change within the company. However, some studies document that having female directors in the corporate boardroom brings disadvantages to a company as they will be more likely to disagree on a same issue and will lead to conflicts between the directors of the company (Adams and Ferreira 2009).

The Securities Commission 2011 Blueprint requires 30% female representation in the corporate boardroom by 2016. The presence of female directors on corporate boardroom is measured as the ratio of the number of female directors in the board of directors to the size of the corporate board. This measurement is consistent with prior studies (Glass, Cook, and Ingersoll 2015; Carrasco et al. 2014; Nekhili and Gatfaoui 2013).

4.6.2 Female directors holding multiple directorships

A director serving on more than one board is said to have a multiple directorship role (Shropshire 2010; Mizruchi 1996). A board interlock between firms is created when a director of a company serves in the board of director of another company. The debate on the advantages and disadvantages of directors holding multiple directorships continues till today. The proponents for board interlock argue that by having multiple directorships, a director can enhance his knowledge and experience, providing ease to managing uncertainties and providing legitimacy to both firms (Fracassi and Geoffrey 2012; Frias-Aceituno, Rodriguez-Alza, and Garcia-Sanchez 2012; Walls, Berrone, and Phan 2012).

There are some studies which are against the idea of having board interlock. According to Dardour (2015); Lechner, Frankberger, and Floyd (2010); and Stuart and Yim (2010), directors holding multiple directorships are too busy and hence could not focus on his responsibilities. This in turn affects the corporate performance of the interlocking companies. However, there might be no significance between directors holding multiple directorships and CED in annual reports as the firm itself may already have their own ideas on which strategies to be adopted in order to ensure the continuous growth of the company.

In this thesis, female directors holding multiple directorships is measured as the ratio of the number of female directors sitting on more than one board to the size of the corporate board. This method of measurement has been adopted in much prior studies (Glass, Cook, and Ingersoll 2015; Carrasco et al. 2014; Matsa and Miller 2013; Benardi and Threadgill 2010; Adams and Ferreira 2009).

4.6.3 Female directors as independent non-executive directors

The Bursa Malaysia listing requirements has required that at least 1/3 of corporate board of directors to be made up of independent non- executive directors. The role of an independent non- executive director in the boardroom is to provide a check and balance mechanism to the management of the company to ensure that its operations and decisions taken are for the interests of the stakeholders of the company.

Results on the impact of independent non- executive directors on corporate disclosure are somewhat mixed. A study by Haji (2013) found that independent non- executive directors is one of the determinants that will affect the extent of corporate disclosure. A contrary result was documented by Bowrin (2013), who investigated the influence of having more independent non- executive directors and the level of corporate information disclosure. He found no association between the number of independent non- executive directors of a firm and the level of corporate disclosure in annual reports.

This variable will be measured as the ratio of the number of female as independent non-executive directors to the size of the corporate board. This measurement has been adopted by most previous literature in the area of corporate governance (Bowrin 2013; Renneboog, Horst, and Zhang 2011; Chau and Gray 2010).

4.6.4 Female directors as board audit committee members

The board of directors of a firm has a responsibility towards the stakeholders of a company. In order to ensure and enhance the effectiveness of a corporate board, sub- committees are often set up within the board itself. One of the sub committees of a corporate board is the audit committee. According to MCCG 2012, every board of directors must establish an audit committee to enhance the standards of corporate governance in a company.

Based on several studies, audit committee of a firm has an effect on the corporate governance of the firm. This is because most companies' accounting policies are derived from audit committee meetings and the committee has a say on the firms approach to corporate reporting (Nekhili and Gatfaoui 2013; Ittonen, Miettinen, and Vahamaa 2010; Brammer, Millington, and Pavelin 2009).

Consistent with prior studies, the female directors as board audit committee members is measured as the number of female director sitting on the board audit committee to the size of the corporate board (Hafsi and Turgut 2013; Ittonen, Miettinen, and Vahamaa 2010; Said, Zainuddin, and Haron 2009).

4.7 Measurement of control variables

Control variables are included into the study as these variables are found to be determinants of CED in past literature. The control variables included are firm size, profitability, leverage, ownership concentration, auditor's quality and industry membership. The operational measures for each control variable are explained in the following paragraphs.

Prior literature has found that the size of a firm may affect the level of corporate disclosure of a firm. Large firms are found to be a significant predictor of the extent of corporate disclosure. Large companies are motivated to disclose more environmental information and initiatives taken by the company as they are more visible in the society which leads to more pressure to be responsible to the environment from various stakeholders. Also, the public and relevant authorities will have a closer monitoring on actions taken by large firms to ensure that their business operations and practices are in accordance to the law and regulations and agreed social contract (Lu and Indra 2014; Bowrin 2013; Ghazali 2007). The firm size in this thesis is measured by taking logarithm on the company's total asset which is consistent with the measurement by previous studies (Nekhili and Gatfaoui 2013; de Villiers and Staden 2011; Chau and Gray 2010).

The extent of corporate disclosure is also affected by the profitability of a company. A company which has higher earnings will tend to be motivated to be responsible to the society. This is to ensure that they will gain continued support from their stakeholders in order to continue operations as well as maintaining the level of their company's profitability. There are evidences that suggest positive relationship between profitability and the level of corporate environmental disclosures (Lu and Indra 2014; Yusoff, Mohamad, and Darus 2013). Profitability is measured based on the return of assets (RoA) of a company. In this study, RoA is measured by the ratio of net income to total assets (Yusoff, Mohamad, and Darus 2013; de Villiers and Staden 2011; Amran and Devi 2008).

Firms that are highly leverage will increase the level of corporate information disclosure in order to lower the cost of debt financing for the said firms (de Villiers and Staden 2011; Huang and Kung 2010). A firm with more contributions to the society in terms of CSE can help to reduce the claim of wealth from shareholders to bondholders. According to Jensen and Meckling (1976),bondholders will establish protective covenants in order to prevent the wealth expropriation issue by shareholders. Hence, to mitigate the conflict between both the bondholder and stakeholders as well as to protect the firm's economic interests, a highly leverage firm will disclose more environmental information in their annual reports. For this study, leverage is calculated by dividing the total liabilities with total assets which is consistent with prior studies (Nekhili and Gatfaoui 2013; de Villiers and Staden 2011; Huang and Kung 2010).

The concentration of ownership in a company affects the level corporate information disclosure as they have the authority to dictate management and monitor practices of the management. Firms with higher ownership concentration may provide more information disclosure to satisfy major shareholder requirements on CSR reporting (Abdullah, Mohamad, and Mokhtar 2011; Chau and Gray 2010; Said, Zainuddin, and Haron 2009).

However, there are studies that found a negative relationship between the level of ownership concentration and the extent of corporate information disclosure (Lu and Indra 2014; Darus, Hamzah, and Yusoff 2013). The study by Darus, Hamzah, and Yusoff (2013) found that the lesser concentration of ownership in a company, the more demands from various shareholders can be placed on the company. Hence, the management will disclose more information in their annual reports in order to satisfy the demands from all their shareholders. In this thesis, ownership concentration is calculated by the proportion of shares held by the ten largest shareholders of the company which is consistent with previous studies (Darus, Hamzah, and Yusoff 2013; Abdullah, Mohamad, and Mokhtar 2011; Saleh, Zulkifli, and Muhamad 2010).

The quality of auditors auditing a company will influence the level of corporate information disclosure of a firm. Large audit firms such as the Big 4 provide the expertise needed to companies to disclose more additional information. A firm that is audited by a Big 4 auditor may have better reporting due to the demand and pressure from Big 4 firms to disclose quality information to maintain the Big 4 reputation and to avoid litigation costs. Due to the reputation that Big 4 auditors have, a company audited by them will have better and higher amount of disclosure (Pflugrath, Roebuck, and Simnett 2011; Kolk and Perego 2010). Hence, this study controls for the effect of auditor's quality on the extent of corporate environmental disclosure. A dichotomous scoring method is utilized to differentiate whether a firm is either audited by a Big 4 auditor or otherwise. A score of 1 is given to firms that are audited by Big 4 auditors and a score of 0 is given to firms that are not audited by Big 4 auditors (Pflugrath, Roebuck, and Simnett 2011; Chau and Gray 2010; Kolk and Perego 2010).

The level of corporate environmental disclosure varies according to the industry a firm operates in (Monteiro and Aibar-Guzman 2010; Brammer and Pavelin 2008; Clarkson et al 2008). Prior studies divide industries into two categories: environmentally sensitive and less environmentally sensitive industries (Mokhtar and Sulaiman 2012; Alrazi, Sulaiman and Ahmad 2009; Jaafar 2006). This thesis follows the prior studies in the categorization of industries. The environmentally sensitive industries include construction, industrial products, mining, plantations, properties, and trading and services sectors. A dichotomous scoring is used where firms in the environmentally sensitive industry is given a score of 1 and firms belonging in the non-environmentally sensitive industry is given a score of 0 which is consistent with prior researchers (Bowrin 2013; Hafsi and Turgut 2013; Eltayeb, Zailani, and Ramayah 2011). Table 4.3 summarizes the operationalization of independent and control variables as follows:

Table 4.3: Operationalization of Independent and Control Variables

Independent Variables	**Measurement**
Female directors in corporate boardroom	Ratio of the number of female directors in the board of directors to the size of the corporate board
Female directors holding multiple directorships	Ratio of the number of female directors holding multiple directorships in the board of directors to the size of the corporate board
Female directors as independent non-executive directors	Ratio of the number of female as independent non-executive directors in the board of directors to the size of the corporate board
Female directors in board audit committee	Ratio of the number of female directors sitting on the board audit committee to the size of the corporate board
Control Variables	**Measurement**
Firm size	Logarithm on company's total assets
Profitability	$\text{Return on Assets (RoA)} = \frac{\text{Net Income}}{\text{Total Assets}}$
Leverage	Ratio of total liabilities to total assets
Ownership concentration	Proportion of shares held by the ten largest shareholders of a company
Quality of auditor	1 = Audited by Big 4 auditors 0 = Not audited by Big 4 auditors
Industry membership	1 = Companies operating in environmentally sensitive industries 0 = Companies not operating in environmentally sensitive industries

4.8 Statistical Analysis

Different types of statistical techniques are being utilized in this thesis to test the overarching research proposition and hypotheses developed. Descriptive statistics is used to provide information on the mean, standard deviation and range of variables included in the study. Also, the Pearson Correlation matrix is employed to gauge information on the association between dependent variable, independent variables and control variables as well as to determine if there are concerns on multicollinearity issues.

In order to examine the statistical significance of the association between dependent variable and independent variables included in the study, the Ordinary Least Squares (OLS) regression is utilized. Control variables are included to control for any confounding effects they may have on the dependent variable.

4.9 Summary

This chapter summarizes the research methodology employed in this thesis. This is a cross-sectional study on Malaysian listed firms in year 2013 utilizing quantitative techniques of statistical analysis to test the developed hypotheses. The data used in this study is obtained from 260 samples of Malaysian firms which are listed on the Main Board of Bursa Malaysia. Annual report is used as the main source of data to assess the extent of CED of Malaysian listed firms in this thesis.

The CED score of a company is measured by the actual environmental disclosure by each company divided by the total corporate environmental disclosure items available in the index. This study includes several aspects of female leadership as independent variables namely presence of female directors in corporate boardroom, female directors as independent non-executive directors, female directors holding multiple directorships and female directors sitting on the audit committee of the board. Other than the dependent and independent variables, this study also includes control variables that were previously found to have significant effects on the extent of corporate environmental disclosure specifically firm size, profitability, leverage, ownership concentration, auditor’s quality and industry membership.

Chapter 5 provides the results on descriptive statistics and multiple regressions to evaluate the developed hypotheses.

CHAPTER 5

RESULTS AND DISCUSSIONS

5.1 Introduction

This chapter provides the descriptive statistics and multiple regression results for the variables incorporated in the study. The statistics obtained provide insights for the overall CED score in Section 5.2; the statistics for independent variables in Section 5.3; the correlation among the variables used in the study by using Pearson Correlation in Section 5.4; and the multiple regression model in Section 5.5. The assessment of the validity of the multivariate model is done in Section 5.6 and the multiple regression result is presented in Section 5.7. This thesis uses the ordinary least squares regression (OLS) model to determine the association between dependent variable and independent variables. Control variables are also included into this model to control for the confounding effect these variables may have on the dependent variable. Section 5.8 covers the sensitivity test done in the study to ensure the robustness of the results obtained and Section 5.9 provides the summary of this chapter.

5.2 Overall Corporate Environmental Disclosure (CED) Scores

This section provides the descriptive and univariate statistics on the extent of CED practices of Malaysian listed firms. The extent of CED of Malaysian listed firms is measured by using a disclosure index which comprises of a total of 18 items relating to environmental information. The distribution of Malaysian listed firms' extent of CED is presented in Figure 5.1. Figure shows that the CED scores skewed to the left indicating low extent of CED which ranges from 0% to 30% of corporate environmental information disclosed in annual reports. This is consistent with the results reported by prior studies in Malaysia (Ahmad and Haraf 2013; Mokhtar and Sulaiman 2012; Alrazi, Sulaiman, and Nik 2010). The majority of Malaysian companies disclosed in the range of 20% to 29% of corporate environmental initiatives and information in their annual reports; while less than 5% of companies in Malaysia disclosed more than 80% of corporate environmental information. Such extent of CED does not augur well to the vast effort by the Malaysian government in increasing the awareness of the importance of environment to companies as well as to the public. The level of communication of environmental information remains low in Malaysian listed firms.

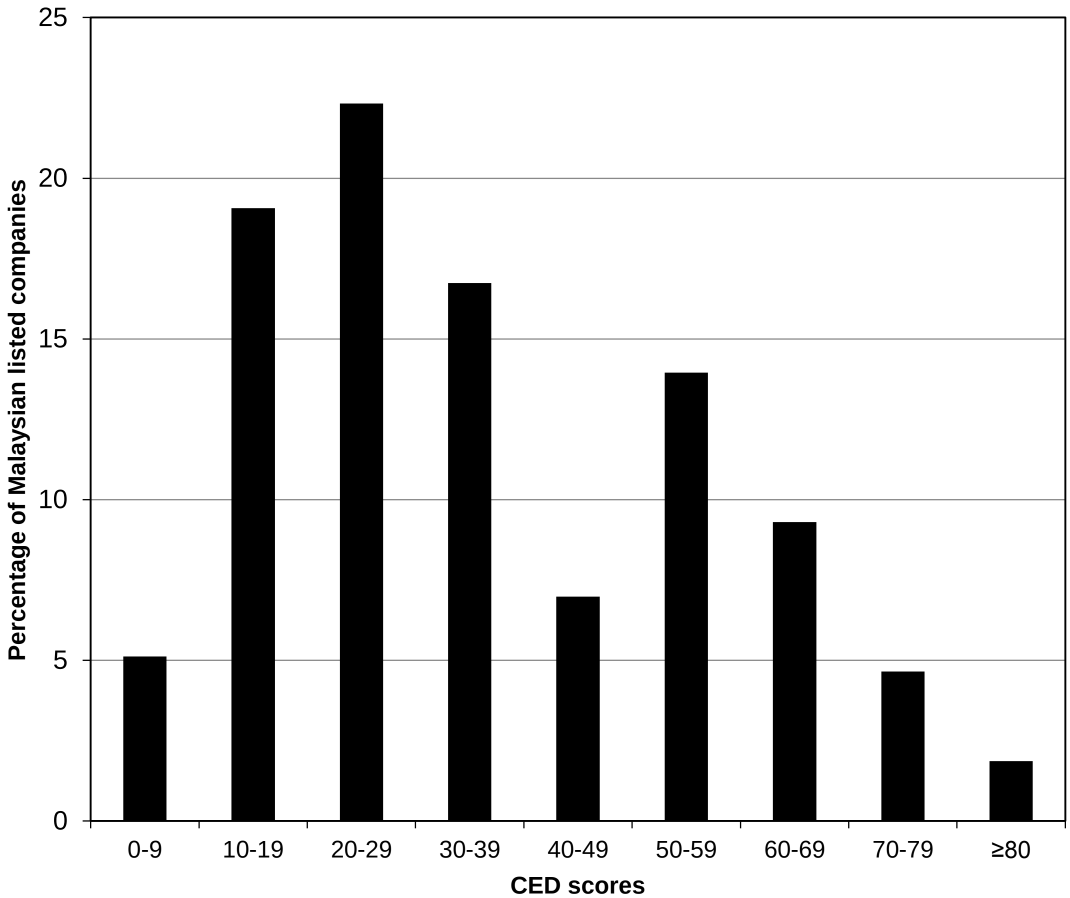

Figure 5.1: CED Scores of Malaysian Listed Companies

Table 5.1 displays the percentage of Malaysian companies in each band of CED score. A large proportion of companies (about 22.33%) fall within the range of 20-29% of environmental disclosure in the annual reports. A total of about 29.76% of companies disclosed at least 50% of environmental items contained in the CED index while about 63.26% of the sample companies disclosed minimal environmental practices in the range of 0% to 40% of CED scores. The result suggests that the extent of CED of Malaysian listed companies is generally low despite efforts and calls from the Malaysian government to be socially and environmentally responsible.

Table 5.1: Malaysian Listed Companies' Extent of CED

Voluntary CED score	Malaysian listed companies (%)
0 - 9	5.12
10 - 19	19.07
20 - 29	22.33
30 - 39	16.74
40 - 49	6.98
50 -59	13.95
60 - 69	9.30
70 - 79	4.65
≥80	1.86
Total	100

Figure 5.2 presents the mean CED scores of Malaysian companies according to their sectors. The plantations sector records the highest mean of CED scores closely followed by the trading and services sectors. This may be due to the nature of the business operations of these sectors where rules and regulations governing the environment are stringent especially in the plantation sector. Although being in the industries that are environmentally sensitive, both the construction and industrial products sector record the lowest mean CED scores. This shows that environmental disclosures vary across industry sectors within the environmentally sensitive industry despite the known impact of their business operations on the environment.

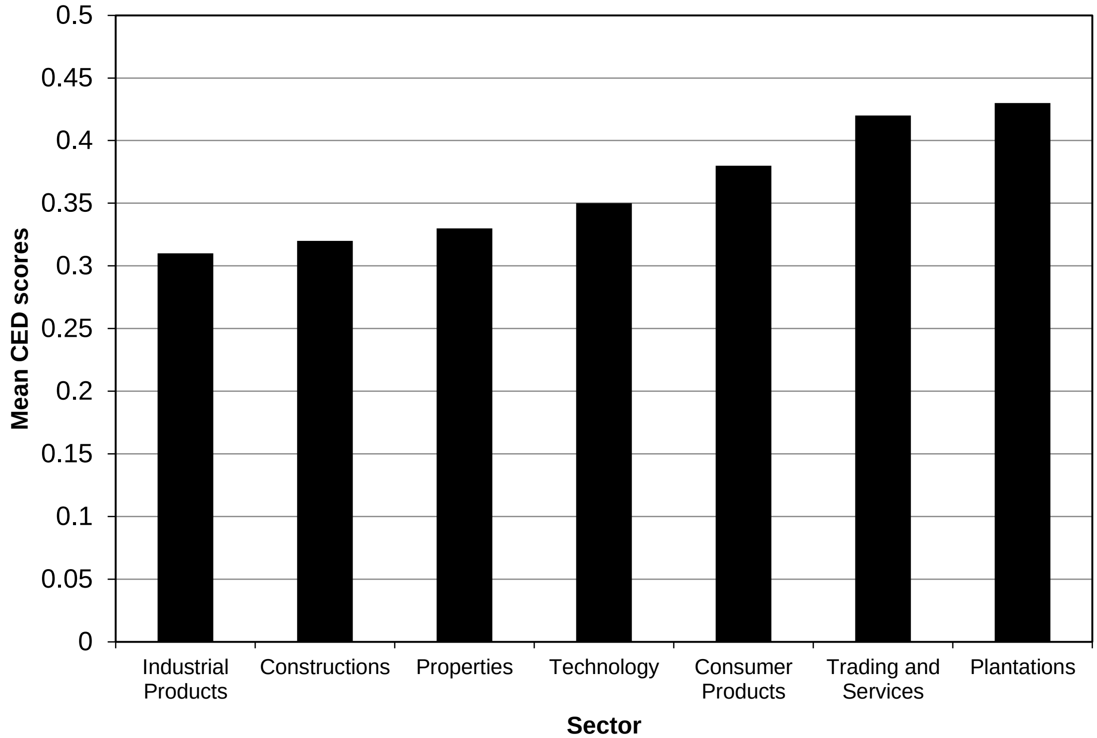

Figure 5.2: Mean Corporate Environmental Disclosure Scores according to Sectors

The environmental items and the number of companies reporting each of the items in their corporate annual reports is demonstrated in Figure 5.3. The most commonly disclosed environmental item by Malaysian listed companies are *statement on corporate environmental responsibility* (CER) with 222 companies disclosing their responsibility statement. This is followed by plans to manage the *impact on the environment* which is reported by 154 companies and *compliance to environmental regulations* with 137 Malaysian companies reporting their compliance in the annual reports. Meanwhile, environmental information on environment *grievance mechanism*, supplier *environmental assessment* and *environmental expenditure* are the least disclosed environmental items by Malaysian listed companies with 12, 15 and 21 companies respectively reporting such information in their companies' annual reports.

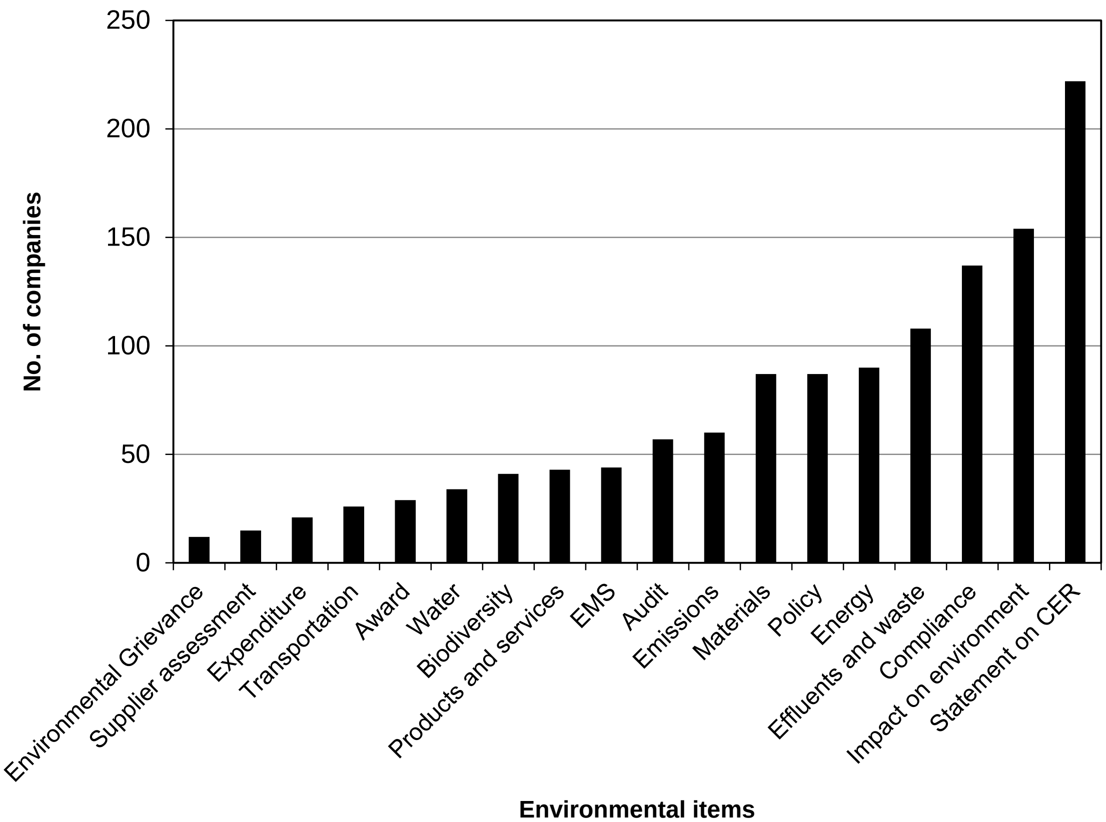

Figure 5.3: Environmental items disclosed by companies

Table 5.2 documents the descriptive statistics of companies' CED scores. The mean CED recorded is 30.98% suggesting that an average of 31% of environmental information is disclosed in annual reports. The mean CED is comparable with the mean environmental disclosure reported by prior studies in Malaysia (Ahmad and Haraf 2013; Mokhtar and Sulaiman 2012; Alrazi, Sulaiman, and Nik 2010). The minimum amount of CED is 0% while the maximum amount of CED is 83%. The standard deviation of the CED score is 22.64 and the skewness obtained from the data is 0.431 which indicates that CED scores of Malaysian listed companies are clustered to the left of the lower values which is consistent with the recorded mean value. As a developing country and with the government's effort in motivating companies to be socially and environmentally responsible, environmental reporting in Malaysia has ample room for improvement since the extent of environmental disclosure is still low among the public listed companies.

Table 5.2: Descriptive Statistics of CED Scores

Statistics	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
CED Scores	.00	.83	.3098	.2264	.4310	-.5797

5.3 Descriptive Statistics for Independent Variables

Table 5.3 details the statistics relating to the participation of female directors in the corporate boardroom. Although about 52.69% of firms having female directors in their corporate boards, the proportion of female directors holding multiple directorships, female directors being independent non-executive directors and being in the board audit committee are relatively low recording at 34.15%, 24.03% and 28.46% respectively. On the back of the Securities Commission Malaysia advocating 30% of corporate boardroom seats to be allocated to female directors, only an average of 10% female directors are in boardrooms (See Table 5.5) in year 2013. So, the percentage of female directors' participation in Malaysian listed companies is very low.

Table 5.3: Percentage of Companies with At Least One Female Director on Board

Independent variables	Companies (%)
FemDir	52.69
FemMD	34.15
FemINED	24.03
FemBAC	28.46

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee.

Table 5.4 provides a descriptive comparison on the mean CED of companies with at least one female director on corporate boardroom and companies without any representation of female directors. Companies with at least one female representation in their corporate board recorded a mean CED of 38.99 which is higher than companies without any female representation with a mean CED of 22.13%. This result shows that the presence of female directors on the corporate boards increases the extent of corporate environmental reporting of Malaysian companies.

Table 5.4: CED Comparisons of Companies With and Without Female Directors

	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
CEDScore_ NoFemDir	.00	.72	.2213	.1605	.6797	.4034
CEDScore_ FemDir	.00	.83	.3899	.2464	-.0826	-.8698

Legend: CEDScore_NoFemDir = CED scores for companies without female directors on corporate boardroom; and CEDScore_FemDir = CED scores for companies with at least one female director on corporate boardroom

Table 5.5 depicts the descriptive statistics for independent variables incorporated into this thesis. Female directors sitting on corporate board range from 0% to 60%. On average, the proportion of female directors on corporate boardrooms is about 10.17% which is in line with the observation done by Amran, Lee, and Devi (2013) and Amran, Periasamy, and Zulkifli (2011). The Securities Commission requires at least 30% of corporate boardroom seats to be allocated to female directors by year 2016 hence, most Malaysian listed companies have to consider the inclusion of more female into the board of directors. The statistics for the other three independent variables, namely female directors holding multiple directorships, female directors as independent non-executive directors and female directors sitting on board audit committee recorded the same results with a minimum of 0% of female directors holding those positions and a maximum of 40% for each respective position. The mean statistics for proportion of female directors holding multiple directorships, proportion of female directors being independent non-executive directors and proportion of female directors sitting in the board audit committee each recorded at 4.77%, 3.73% and 2.34% respectively. These proportions reflect low representation of female leadership in Malaysian listed companies. Malaysian corporate board of directors are still not highly gender diversified. There are definitely rooms for improvements for companies to further elevate females into decision making positions. A gender diversified board can bring benefits and resources to a corporation as previous studies have found that a non-traditional group of member brings a wide range of knowledge, expertise and a variety of skills (Liao, Luo, and Tang 2015; Larkin, Benardi, and Bosco 2013, 2012).

Table 5.5: Descriptive Statistics for Independent Variables

Variables	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
FemDir	.00	.60	.1017	.1160	.9754	.5578
FemMD	.00	.40	.0477	.0881	1.840	2.719
FemINED	.00	.40	.0373	.0721	2.051	4.215
FemBAC	.00	.40	.0234	.0573	2.536	6.312

Legend: FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee.

5.4 Pearson Correlations

This section details the results of Pearson Correlations for the continuous independent variables and dependent variables included in the study. Pearson Correlation is used in this study to have a preliminary idea on the strength and direction of the relationships of variables incorporated for this research. As the dependent variable is a continuous data and the independent and control variables are continuous and dichotomous, the Pearson product-moment correlation coefficient is used. The table for Pearson Correlation is shown in Table 5.6.

The correlation between leverage and profitability as is calculated by RoA shows a coefficient of 0.708. Although it is the highest correlation coefficient, this does not posit a multicollinearity concern because according to Gujarati (2003), multicollinearity became an issue when the correlation coefficients between two variables is above 0.80. This is also supported by Hair et al. (2006) and Pallant (2010).

Table 5.6: Pearson Correlations

	Fem DIR	Fem MD	Fem INED	Fem BAC	OwnCon	RoA	Lev	LgTA	CED Score
FemDIR	1								
FemMD	.636**	1							
FemINED	.626**	.589**	1						
FemBAC	.334**	.432**	.693**	1					
OwnCon	.168**	.156*	.143*	.107	1				
RoA	-.119	-.036	-.022	-.049	.036	1			
Lev	.070	.071	.013	-.057	-.114	-.708	1		
LgTA	.212**	.341**	.239**	.281**	.102	.190**	.011	1	
CEDScore	.348**	.420**	.319**	.256**	.151*	-.021	.099	.440**	1

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee. The control variables are OwnCon=ownership concentration; RoA=return on assets; Lev=leverage; LgTA=log of total assets. The dependent variable is CEDScore. Associations of *, ** and *** represents p-values of 0.1, 0.05 and 0.01 respectively.

As can be seen from Table 5.6, there is a positive and statistically significant ($p < 0.05$) correlation between female directors on corporate boards and the extent of CED of Malaysian listed firms. The correlation coefficient between these two variables is 0.348. The directionality of these correlations is consistent with the hypotheses developed in Chapter 3. Similarly, there is a positive and statistically significant ($p < 0.05$) correlation between female directors holding multiple directorships and the extent of CED by Malaysian companies with a coefficient of close to 0.5, suggesting that there is quite a strong correlation between female directors with multiple directorships and the extent of CED of Malaysian companies. The directionality of these correlations is also consistent with the hypotheses developed earlier.

The variable, female directors as independent non-executive directors is also positively and significantly ($p < 0.05$) correlated to the extent of corporate environmental information disclosed in annual reports by Malaysian firms. However, the correlation coefficient between these two variables is small at only 0.319. The directionality of these correlations is also consistent with that hypothesized previously. The final independent variable included in the current study is female directors sitting on board audit committee. This variable is positively and significantly ($p < 0.05$) correlated with the extent of CED. The strength of the correlation between both these variables is also small at 0.256. The directionality of this correlation is consistent with the hypothesis that was previously developed.

For the control variables included in this thesis, ownership concentration is found to be positively and statistically significant ($p < 0.1$) correlated with the extent of CED. However, the strength of the correlation is small at only 0.151. There is also a positive and statistically significant ($p < 0.05$) correlation between firm size which is proxied by log of total assets and the extent of CED by Malaysian listed firms. The strength of the relationship is also strong at 0.440. The correlations for the other control variables included in this study namely profitability as measured by calculating RoA and leverage are low and not statistically significantly associated with the extent of CED in this study.

5.5 Multiple Regression

Multiple regressions is performed in this study to explore the association between the dependent variable namely the extent of CED in annual reports by Malaysian listed firms and the independent variables namely, female directors on corporate boards, female directors holding multiple directorships, female directors as independent non-executive directors and female directors sitting on board audit committee. In order to assess the effect of each variable on the extent of environmental disclosure, a normal ordinary least squares regression is conducted.

The multiple regression model is used to test the cross sectional association between the dependent variable and independent variables, and is estimated as follows:

$$CED_x = \beta_0 + \beta_1 FemDir + \beta_2 FemMD + \beta_3 FemINED + \beta_4 FemBAC + \beta_5 OwnerConc + \beta_6 Big4 + \beta_7 RoA + \beta_8 Lev + \beta_9 Ind + \beta_{10} Size + \varepsilon_x$$

where:

x	Denotes the firm
CED_x	Corporate environmental disclosures scores of the firm
β	Estimated coefficient for each item
$FemDir_x$	Proportion of female directors for firm x
$FemMD_x$	Proportion of female directors holding multiple directorships for firm x
$FemINED_x$	Proportion of female directors as independent non-executive directors for firm x
$FemBAC_x$	Proportion of female directors in board audit committee for firm x
$OwnerConc_x$	Ownership concentration for firm x
$Big\ 4_x$	Auditor's quality for firm x
RoA_x	Profitability for firm x
Lev_x	Leverage for firm x
Ind_x	Industry type for firm x
$Size_x$	Firm size for firm x
ε_x	Error term

This model is designed to test the hypotheses developed in Chapter 3.

5.6 Validity of the multiple regression model

The validity of the regression model is ensured by checking a number of assumptions on the data collected. In the case of multivariate analysis, a potential statistical issue that has to be looked into is multicollinearity which refers to the relationship between the independent variables included in the study. When the independent variables are highly correlated with one another (*r*=0.8 or above), a multicollinearity problem exists and will affect the explanatory power of each independent variable as it becomes difficult to identify the correct variable (Pallant 2010; Hair et al. 2006). Multicollinearity between independent variables can be detected through the Pearson Correlation (Hair et al. 2006; Gujarati 2003). Section 5.4 explains the correlation results. None of the coefficients exceed 0.80, thus multicollinearity is not a concern in this study.

Another method used for detecting multicollinearity issue among the independent variables is by computing tolerance and variance inflation factors (VIF) for the data set obtained

(Pallant 2010). Tolerances and VIF is calculated to overcome the shortcoming of only using the Pearson Correlation matrix. The Pearson correlation is only able to show the relationship between two variables whilst the relationship among more than 2 variables is not known. The result for tolerances and VIF is shown in Table 5.7.

Table 5.7: Tolerances and VIF statistics

Variables	Collinearity Statistics	
	Tolerance	VIF
FemDir	.893	1.120
FemMD	.849	1.178
FemINED	.910	1.098
FemBAC	.890	1.124

Tolerances value of more than 0.10 indicates that there is no multicollinearity concern (Adhikari et al. 2015; Haji 2013; Alrazi, Sulaiman, and Nik 2010). The value for the tolerances for the predictor variables in this study are all more than 0.10, indicating that the multiple correlation among variables are low, hence there is no possibility of multicollinearity problem. Further, VIF values of above 10 (Michelon, Pilonato, and Ricceri 2015; Haji 2013; Hafsi and Turgut 2013) indicate that there is a possibility for multicollinearity concern. Table 5.7 reports the maximum value of VIF of 1.178 which is well below the cut-off point of 10. Hence, there is no violation of the multicollinearity assumption in this thesis.

In order to ensure that the research satisfies the assumption of homoscedasticity, the graph of the residuals of CED is examined. Figure 5.4 displays that the error term is normally distributed as the data points lay along the line. The points lie on a straight diagonal line from the bottom left to the top right. This proves that there is no serious deviation from normality. Also, a visual inspection on the scatterplots of the standardized residuals from Figure 5.5 shows that most of the residuals of the dependent variables are roughly rectangular distributed and most of the scores are concentrated in the center; along the 0 point and in between -2 and +2. Hence, it can be concluded that the errors are normally distributed. This section details the methods used to investigate statistical assumptions underlying multiple regression analysis. From the result of the tests carried out, the model used in this thesis is valid and reliable as the assumptions to undertake multiple regression analysis is deemed as satisfied.

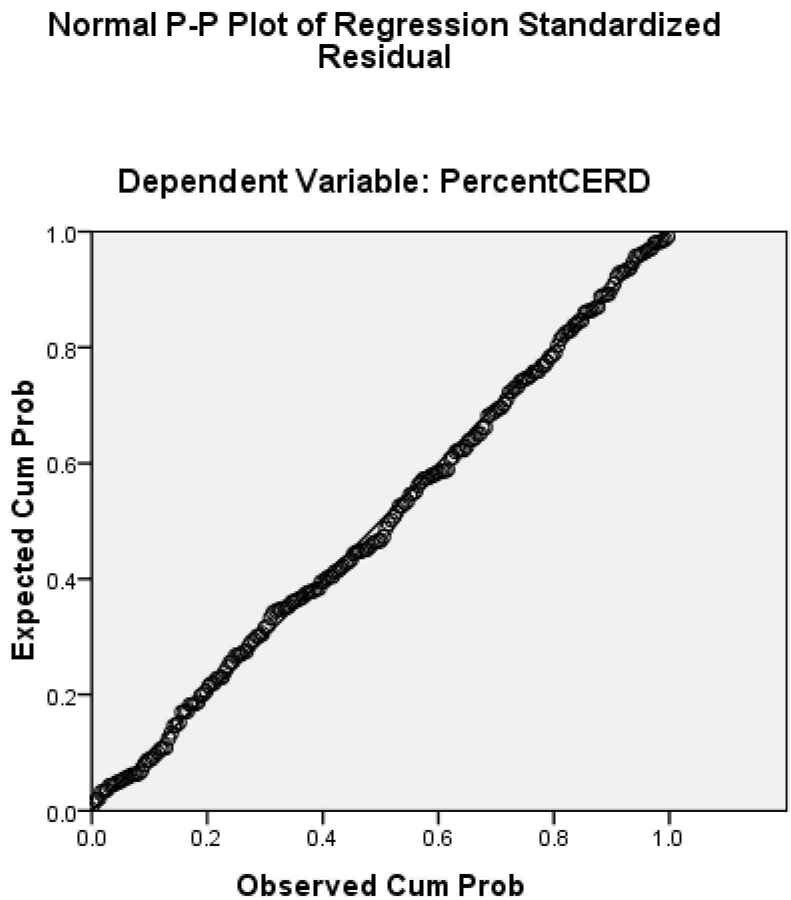

Figure 5.4: Graph of residuals of CED

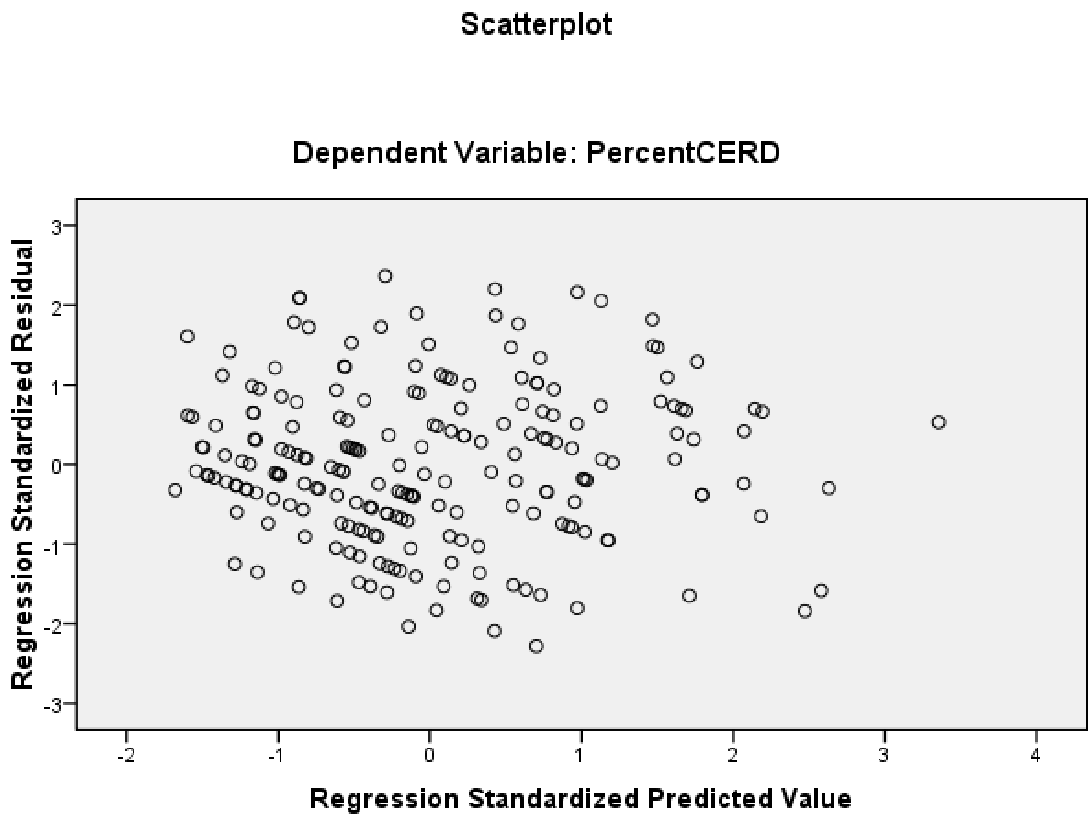

Figure 5.5: Scatterplot of standardized residuals

5.7 Multiple Regression Analysis Results

Table 5.8 summarizes the multiple regression results based on the equation developed in section 5.5. The hierarchical multiple regression technique is used in this study in order to control for the confounding effects by control variables identified in the study (Pallant 2010). When only control variables used in the study is entered, the explanatory power of the model as indicated by the value of adjusted R-square is 21.6%. The model is highly significant ($p<0.01$). The second multiple regression is run with both independent and control variables entered, the explanatory power of the model has improved with the adjusted R-square of 28.80%. The model is highly significant ($p<0.01$) suggesting that the model explains a substantial percentage of the variation in the level of environmental disclosure. The value of the R-square change is 0.081. The R-square change in Table 5.8

is used to determine how much the overall variance is explained by the independent variables once the effects of control variables are removed. The result of 0.081 means that the independent variables incorporated in the study explain an additional 8.1% of the variance in the extent of CED after the effects of the control variables are statistically controlled for. Table 5.8 shows that the model has statistically significant contribution as the Sig. F change value for the Model is 0.000 ($p<0.01$). This result is similar to other studies done in developing countries (Ahmad and Haraf 2013; Bowrin 2013; Choi, Chatterjee, and Brown 2013). In a corporate social and environmental study by Khan, Muttakin, and Siddiqui (2013) in Bangladesh, they reported an adjusted R-square of 38%. Esa and Ghazali (2012) in their study of Malaysian listed companies reported an adjusted R-square of 25.5%. Also in the context of Malaysian companies, Haji (2013) has a result of 33.7%. The adjusted R-square of 28.8% reported in this study falls within the acceptable range.

Table 5.8: Summary of multiple regression result

Model	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
			R Square Change	F Change	df1	df2	Sig. F Change
Control variables only	.216	.20024	.234	12.884	6	253	.000
Independent and control variables	.288	.19084	.081	7.390	4	249	.000

Hypothesis 1 proposes a positive association between female directors in corporate boardroom and the extent of environmental disclosure practices by Malaysian listed companies. Table 5.9 reveals a positive and statistically significant association between CED and female directors on corporate boardroom ($p<0.10$). The result is consistent with the hypothesis developed in Chapter 3. Thus, Hypothesis 1 is supported.

Table 5.9: Multiple Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.691	.183		-3.777	.000***
FemDir	.236	.152	.121	1.554	.060*
FemMD	.498	.191	.194	2.602	.005***
FemINED	.118	.285	.038	.415	.339
FemBAC	-.025	.301	-.006	-.084	.467
OwnCon	.090	.075	.066	1.212	.113
RoA	.004	.063	.006	.066	.474
Leverage	.059	.057	.099	1.034	.151
Industry	.012	.032	.021	.385	.350
Big4	.062	.026	.136	2.364	.009***
LgTotalAsset	.042	.010	.278	4.283	.000***

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee. The control variables are OwnCon=ownership concentration; RoA=return on assets; Lev=leverage; Industry= industry membership; Big4= auditor's quality; LgTotalAsset=log of total assets. Associations *, ** and *** are statistically significant at the 1%, 5% and 10% levels respectively.

Hypothesis 2 proposes a positive association between female directors holding multiple directorships and the extent of environmental disclosure practices by Malaysian listed companies. Hypothesis 2 is supported by the results shown in Table 5.9 as there is a positive and statistically significant association between a firm's CED and female director holding multiple directorships ($p<0.01$). This result is also consistent with the earlier predictions of a positive association between CED and female directors with board interlock of all sample firms. Thus, Hypothesis 2 is supported.

Although the association between the extent of CED and female directors as independent non-executive directors in corporate boardroom is positive, this association does not reach statistical significance (p-value of 0.339). Hence, hypothesis 3 is rejected. This may be due to the lack of experience and knowledge of independent non-executive directors on CSR and environmental issues. The influence of independent directors on environmental reporting may be limited as they are not directly involved with the daily operations of the organizations (Amran, Lee, and Devi 2013). Also, this can be due to the mindset of independent directors who perhaps thinks that their priority is towards maximising shareholders value and devoting time for environmental initiatives might be a waste of time.

Hypothesis 4 proposes a positive association between female directors as board audit committee members and the extent of environmental disclosure practices by Malaysian listed companies. Hypothesis 4 is, however, not supported by the results in Table 5.9 as there is no statistical significance (*p*-value of 0.467). This could be attributed to the fact that more focus is being directed to the financial risk of a firm, rather than environmental issues facing the firm. Traditional financial metrics have always used financial reporting as a measure to assess firms' performance. Hence, sustainability reporting might not be a priority in the yearly agenda of board audit committee. Also, this could be due to the role of audit committee being unclear with different opinions available on whether non-financial information of companies should be audited. This thesis found that proportion of female directors sitting on board audit committee does not contribute to the extent of environmental information disclosed in annual reports of Malaysian listed firms. Hence, hypothesis 4 is rejected.

The thesis also includes control variables to control for any confounding effects they may have on the results of the study. The control variables that are included in the study are firm size, profitability, leverage, ownership concentration, auditor's quality and industry membership. Of the six control variables incorporated, two of the variables are found to have positive and statistically significant impact on CED at $p<0.01$ level.

Firm size is positively and statistically significant with the extent of CED by Malaysian firms because larger companies are more visible than their smaller counterparts in a society. Due to various political pressures by the governments, non-governmental organizations (NGOs) and the public at large, managers might have the incentive to disclose more CED information so as to manage the companies' political costs. This is consistent with studies done by Kabongo, Chang, and Ying (2013), Bowrin (2013) and Lu and Indra (2014).

Auditor’s quality as measured by companies being audited by one of the Big 4 auditors are also positively and significantly related to the extent of CED. This may due to Big 4 auditors have greater experiences and expertise to advise as well as to influence management to provide non-financial information in their annual reports. Due to the reputation that Big 4 auditors has in the society, these auditors may demand firms to disclose information in order to maintain their reputation and to avoid cost litigations (Pflugrath, Roebuck, and Simnett 2011; Kolk and Perego 2010).

The control variable ownership concentration is not significantly related to the extent of CED, suggesting that shareholder power does not lead to more accountability by management. Highly concentrated ownership in Malaysian companies causes minority shareholders to have less power to voice their demand from the management. The result from this finding is consistent with Lu and Indra (2014) and Darus, Hamzah, and Yusoff (2013).

The profitability variable, as calculated by RoA lacks statistical significance as well. The absence of association between profitability and extent of CED suggests that the financial performance of a company does not influence management to undertake environmental programs and initiatives. The result is consistent with the findings of Bowrin (2013) and Mahadeo, Soobaroyen, and Hanuman (2012).

There is also no significant association between leverage and the extent of CED of Malaysian companies, suggesting that a company’s level of debt and financial risk is not related to corporate environmental disclosure practices. This result is consistent with Lu and Indra (2014) and Huang and Kung (2010).

Industry type of a company as proxied by environmentally sensitive industry and non-environmentally sensitive industry lacks statistical significance in this study. This may be due to the reluctance of companies to disclose environmental information because the proprietary costs of disclosing the environmental information is far greater than the benefits that the company can gain. Mahadeo, Soobaroyen, and Hanuman (2012) reported that companies belonging in the environmentally sensitive industries have no association with the level of corporate environmental information disclosed in Mauritius. This result is also similar to the findings of Mokhtar and Sulaiman (2012).

As a conclusion, the independent variables namely, female directors on corporate boardroom and female directors holding multiple directorships are significant predictors of the extent of CED in Malaysian listed companies in year 2013. The presence of female directors in corporate boardrooms is important to bring legitimacy to a company by influencing management to disclose more environmental information and initiatives to the public. The result is consistent with the overarching research proposition developed in Chapter 3. In terms of the control variables, out of the six variables incorporated, only firm size and auditor's quality are positively and significantly associated with the extent of CED.

5.8 Additional Analysis

5.8.1 Sensitivity Analysis

Sensitivity analysis is carried out in order to complement the multiple regression analysis in Section 5.7. According to Cooke (1998), different methods to analyse data should be carried out to ensure the robustness of results across methods. Hence, in this study, the rank transform approach is utilized as it (i) produces a distribution-free data; (ii) provides results similar to the ordinal transformation approach; and (iii) alleviates the impact of measurement error, outliers and residual heterocedasticity on the regression results (Wallace, Naser, and Mora 1994). The result from the rank transformation approach is tabulated in Table 5.10.

Table 5.10: Rank transformation analysis results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.144	20.752		.007	.994
FemDir	.147	.077	.140	1.907	.020**
FemMD	.322	.096	.252	3.350	.000***
FemINED	.005	.127	.004	.040	.484
FemBAC	.022	.129	.014	.168	.433
OwnCon	.051	.056	.052	.925	.178
RoA	.000	.058	.000	.000	.488
Leverage	.051	.059	.051	.873	.192
Industry	.066	.082	.044	.803	.212
Big4	.151	.069	.131	2.184	.014**
LgTotalAsset	.183	.065	.183	2.818	.002***

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee. The control variables are OwnCon=ownership concentration; RoA=return on assets; Lev=leverage; Industry= industry membership; Big4= auditor's quality; LgTotalAsset=log of total assets. Associations *, ** and *** are statistically significant at the 1%, 5% and 10% levels respectively.

From Table 5.10, the independent variables namely, female directors on corporate boardrooms and female directors holding multiple directorships are found to be positively and statistically significant with the extent of environmental disclosures of Malaysian companies. This validates the results from the earlier multiple regression analysis and shows that the results obtained are robust across different statistical methods.

5.8.2 Multiple Regression Results between Industry

In order to determine the independent variable that is statistically significant on the extent of CED once the sample companies are divided into two different groups i.e. (i) environmentally sensitive industry; and (ii) non-environmentally sensitive industry, a multiple regression analysis is carried out in order to derive the results.

Table 5.11 provides the regression results for companies classified under the non-environmentally sensitive industry. Based on the result in Table 5.11, only the presence of female directors in corporate boardroom is positively and statistically significant with the extent of CED of Malaysian non-environmentally sensitive companies. This result suggests that although a company does not operate in an environmentally sensitive industry, female directors will still encourage and enhance the disclosure of environmental information in company's annual reports.

Table 5.11: Multiple regression results for non-environmentally sensitive companies

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.152	.131		1.163	.252
FemDir	.933	.421	.478	2.217	.020**
FemMD	.635	.568	.235	1.119	.135
FemINED	-1.093	.837	-.364	-1.306	.102
FemBAC	.548	.785	.129	.698	.245
OwnCon	-.184	.197	-.128	-.933	.178
RoA	.322	.264	.163	1.220	.116
Lev	.225	.154	.197	1.461	.101
Big4	.062	.067	.126	.921	.182
LgTotalAsset	.056	.027	.327	2.089	.022**

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee. The control variables are OwnCon=ownership concentration; RoA=return on assets; Lev=leverage; Industry= industry membership; Big4= auditor's quality; LgTotalAsset=log of total assets. Associations *, ** and *** are statistically significant at the 1%, 5% and 10% levels respectively.

Table 5.12 presents the multiple regressions results for companies classified under the environmentally sensitive industry. Based on the table, female director holding multiple directorships is positively and statistically significant with the extent of CED of environmentally sensitive companies. This suggests that in an environment where the nature of the business operations has been identified to have a high risk and impact on the environment, female directors holding multiple directorships will use their experience gained from other boards to provide counsel to the companies on the best practices to be done in preserving the sustainability of the environment. On the contrary, although the presence of female directors is positively associated with the extent of CED in environmentally sensitive companies, this does not however reach statistical significance.

Table 5.12: Multiple regression results for environmentally sensitive companies

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.659	.201		-3.284	.001***
FemDir	.131	.164	.067	.800	.213
FemMD	.489	.207	.193	2.356	.009***
FemINED	.289	.311	.092	.930	.177
FemBAC	-.051	.333	-.013	-.154	.439
OwnCon	.150	.082	.110	1.837	.104
RoA	-.042	.069	-.073	-.616	.270
Lev	.018	.063	.034	.292	.385
Big4	.067	.028	.151	2.401	.009***
LgTotalAsset	.040	.011	.272	3.796	.000***

Legend: The independent variables are FemDir= female directors; FemMD= female directors with multiple directorships; FemINED= female directors as independent non-executive directors; and FemBAC= female directors in board audit committee. The control variables are OwnCon=ownership concentration; RoA=return on assets; Lev=leverage; Industry= industry membership; Big4= auditor’s quality; LgTotalAsset=log of total assets. Associations *, ** and *** are statistically significant at the 1%, 5% and 10% levels respectively.

5.9 Summary

This chapter provides statistics on the extent of CED practices and corporate board gender diversity variables of Malaysian listed companies. The extent of CED is low with an average of 30% disclosed in companies' annual reports. A company's extent of corporate environmental information disclosed is positively and significantly associated with female directors in corporate boardrooms. Female directors holding multiple directorships in a boardroom is also positively associated with the extent of CED by Malaysian listed companies. This study found female directors as independent non-executive directors and female directors sitting on board audit committees are not significant predictors of the extent of CED. Amongst the control variables, only firm size and auditor's quality is positively associated with the extent of CED of Malaysian companies.

CHAPTER 6

CONCLUSIONS

6.1 Introduction

This chapter provides the conclusions of the study and summarizes the thesis. Section 6.2 presents the thesis objectives and research questions of the study. Also included in this section is the summary of results obtained from this research. Section 6.3 highlights the implications of this research. The assumptions employed and limitations of this research are presented in Section 6.4. Section 6.5 presents the contribution of the thesis and future research ideas are provided in Section 6.6. Section 6.7 concludes the thesis.

6.2 Summary of the Thesis

6.2.1 Thesis Objectives

The aim of the thesis is to examine the impact of corporate board gender diversity on the extent of corporate environmental reporting practices of listed companies in Malaysia. This study extends previous research by incorporating corporate board gender diversity variables in determining the extent of CED by Malaysian companies. This research has two research objectives:

1) to determine the extent of CED by Malaysian listed companies.
2) to investigate the association between corporate board gender diversity and the extent of corporate environmental disclosure of Malaysian listed companies in year 2013.

The year 2013 is chosen for analysis because companies are expected to be more receptive and responsive to government's policies, initiatives and investment in CSR reporting. One of such policies is the mandated disclosure requirement of CSR initiatives in annual reports in year 2006 by Bursa Malaysia. Also, the release of Corporate Governance Blueprint by Securities Commission Malaysia and the updated Malaysian Code on Corporate Governance (MCCG) 2012 might motivate companies to be more proactive in communicating their corporate social and environmental activities. These authoritative documents emphasize on the importance of environment, social and governance as well as the role played by board of directors of a company in ensuring social responsibility and environmental sustainability.

This study is significant because it contributes to the literature by providing important insights into the level of corporate communication regarding environment practices of the company. The study contributes to the literature of the participation of female directors in relation to corporate environmental disclosures.

6.2.2 Research Findings

The average corporate environmental disclosure recorded by Malaysian listed companies in year 2013 is 30%. The extent of CED is comparable with prior studies. This suggests that the overall extent of CED remains low despite government's effort in promoting and emphasizing the importance of sustainability for businesses. The descriptive findings also show that about 50% of sample companies included female directors in their corporate board. However, the proportion of female directors on corporate board is about 10.17%. This statistic is far below the 30% threshold set by the Securities Commission of Malaysia.

The multiple regression results indicate that female directors in a boardroom and female directors holding multiple directorships are positively and significantly associated to the extent of CED of Malaysian companies. The overarching research proposition developed is supported by the findings as female directors do influence environmental disclosure practices of Malaysian listed companies.

Overall, the results reveal that Malaysian firms are not disclosing a lot of environmental information even after the call from the government to increase awareness of social and environmental sustainability. The results of this study is similar to Haji (2013), Ahmad and Haraf (2013) and Amran et al. (2013b). The relatively low extent of CED could be attributed to non-mandatory requirement from the government and regulators for companies to disclose environmental information. For example, Bursa Malaysia only requires the disclosure of CSR information in annual reports. There are four dimensions in

CSR which are (i) the environment; (ii) community; (iii) marketplace; and (iv) workplace. Malaysian companies tend to disclose the community and workplace dimensions of CSR in their annual reports.

Based on the regression results obtained in Chapter 5, the independent variables namely female directors in corporate boardroom and female directors holding multiple directorships are significant predictors of the extent of CED by Malaysian listed companies. There is a positive and statistically significant association between the presence of female directors in corporate boardroom and the extent of environmental disclosure practices by Malaysian listed companies in year 2013 (at the 5% level). Female directors play a role in influencing the corporate board to communicate environmental practices of the companies through annual reports. Landry, Benardi and Bosco (2014) and Ciorcilan and Peterson (2012) affirm that the presence of female directors in the boardroom contributes to businesses and society in improving decision making processes as they are sensitive to the needs of various stakeholders and bringing different perspectives to the board. The result from this thesis can be attributed to the call from the regulatory body such as Securities Commission of Malaysia to include female directors into corporate boards. Complement to the inclusion is the MCCG 2012 which emphasizes on the importance of environment, social and governance for publicly listed companies in Malaysia. Hence, companies must be accountable to both shareholders and stakeholders alike in order to ensure sustainability of businesses and to maintain their license to operate. The results of this thesis provide evidences to support the role of female directors on corporate board to enhance corporate environmental reporting practices by Malaysian companies.

In addition, there is also a positive and statistically significant association between female directors holding multiple directorships and the extent of environmental disclosure practices by Malaysian listed companies in year 2013 (at the 1% level). This thesis lends support to the role played by female directors holding more than one directorships as they can bring various benefits to the companies they are serving in such as enabling the sharing of timely and useful information, gaining diverse skills and expertise to implement good communication strategy.

There is no significant association between female directors as independent non-executive directors and the extent of CED of Malaysian listed companies in year 2013. This result shows that female directors role as independent non-executive directors does not contribute to corporate environmental reporting. This perhaps is due to the common belief and mindset that independent directors should only discharge their responsibilities solely to their shareholders. Also, in Malaysia, the lack of knowledge and awareness on environmental issues may contribute to the low level of involvement of independent non-executive directors in environmental reporting initiatives in companies.

Female directors in the board audit committee have no significant association with the extent of CED of Malaysian listed companies in year 2013. This result could be attributed to the small presence of female directors on board audit committee; hence, their demands might not be taken seriously by the board committee. Also, it could be due to the traditional role of audit committee to only focus on internal control and financial matters of a company hence, sustainability reporting is not on their priority list and is neglected.

This thesis controls for variables that are previously found to influence the extent of CED, namely firm size, profitability, leverage, ownership concentration, auditor's quality and industry membership. Firm size is a significant predictor (at the 5% level) of CED. This result is not surprising as most previous studies documented the same result (Lu and Indra 2014; Bowrin 2013). Larger firms are more visible and are subjected to more political pressures by various stakeholders. Also, they have more budget and financial resources to be allocated to the protection of environment.

Auditor's quality is also a significant predictor (at the 1% level) of CED. The reputation of Big 4 audit firms may contribute to more environmental disclosure quantity of Malaysian firms.

Ownership concentration lacks statistical significance with the extent of CED. This result shows that the highly concentrated ownership in Malaysian companies does not lead to more environmental disclosures. It causes minority shareholders of firms to have less power to place demands to the management.

Profitability lacks statistical significance with the extent of CED as well. This finding may be attributed to environmental disclosures by firms is more related to public pressure rather than economic pressure. The absence of association between profitability of a firm and the extent of CED provides evidence that financial stability of a company does not result in more disclosure of environmental information in annual reports. This result is consistent with (Bowrin 2013; Mahadeo, Soobaroyen, and Hanuman 2012).

Leverage also lacks statistical significance with the extent of CED. This result shows that the level of financial leverage does not translate into more environmental information disclosure. This is consistent with the result of (Lu and Indra 2014; Huang and Kung 2010).

Industry membership of a firm does not associate with the extent of CED by Malaysian companies. This may be due to the benefits of disclosing environmental information does not outweigh the costs that are incurred by the company to practice environmental sustainability. This finding is consistent with the study of (Mahadeo, Soobaroyen, and Hanuman 2012; Mokhtar and Sulaiman 2012).

Table 6.1 summarizes the findings of each hypotheses developed. Both female directors on corporate boardrooms and female directors holding multiple directorships are significant and positive predictors of the extent of CED. Thus, hypothesis 1 and hypothesis 2 are accepted. However, there is no statistical evidence to support the role played by female directors as independent non-executive directors and female directors sitting on the corporate board audit committee on the extent of CED by Malaysian companies, hence, hypothesis 3 and hypothesis 4 are rejected.

Table 6.1 Hypotheses Results

Independent Variables	Result	Hypotheses
H1: There is a positive association between the presence of female directors in corporate board and the extent of environmental disclosure practices by Malaysian listed companies.	Statistically Significant	Hypotheses 1 accepted
H2: There is a positive association between female directors holding multiple directorships and the extent of environmental disclosure practices by Malaysian listed companies.	Statistically Significant	Hypotheses 2 accepted
H3: There is a positive association between female directors as independent non-executive directors and the extent of environmental disclosure practices by Malaysian listed companies.	Not Significant	Hypotheses 3 rejected
H4: There is a positive association between female directors as board audit committee members and the extent of environmental disclosure practices by Malaysian listed companies.	Not Significant	Hypotheses 4 rejected
Control Variables	**Result**	
Firm size	Statistically Significant	
Profitability	Not Significant	
Leverage	Not Significant	
Ownership concentration	Not Significant	
Auditor's quality	Statistically Significant	
Industry membership	Not Significant	

6.3 Implications

The results derived from this thesis demonstrate the impact of corporate board gender diversity on the extent of CED of Malaysian listed companies. Specifically, this thesis contributes to the CED disclosure literature and provides both theoretical and practical implications for policy making processes.

Firstly, the findings of this study are consistent with legitimacy theory which predicts that corporate board gender diversity can influence the extent of CED by Malaysian companies.

The participation of female directors in a corporate board brings a different and unique outlook and perspective into the boardroom (Landry, Benardi, and Bosco 2014; Park, Choi, and Kim 2012). The results confirm that female directors play a role in bringing fresh ideas and different ways of working with company's disclosure practices by being able to motivate management to embark on sustainability practices and disclose these environmental initiatives to the public. Hence, by having the voice of female directors in corporate boards, gender diversity can help a company to gain legitimacy from the society it is operating in as they show evidence of incorporating minorities in their decision making processes as well as caring for the welfare of the environment as a whole.

Secondly, the presence of female directors holding multiple directorships is shown to influence the extent of CED by Malaysian companies. By having a female director that serves on another corporate board, a company can gain critical resources such as information on best practices to be implemented in their company as well as knowledge that can be shared across companies the director is serving in. This practice can help to provide legitimacy to a company as a business requires critical resources in order to continue their operations in a society. The findings of this study is important because it provides evidence that female directors sitting on multiple corporate boards plays a significant role in management's decision to disclose environmental information in their annual reports.

The conclusions of this thesis also have several practical implications. The findings are relevant to both policy makers and regulatory bodies in Malaysia such as Bursa Malaysia and Securities Commission Malaysia. The conclusion drawn from this thesis supports the Bursa Malaysia's revision of Listing Requirements in year 2011 where the Securities Commission emphasized for the need to include at least one-third of female directors in corporate boardrooms by year 2016. The results lend credence to the role of female directors in enhancing corporate environmental sustainability practices.

SC Malaysia can encourage more participations of female in decision making positions by having trainings, courses and seminars be organized in companies. These efforts can help to ensure environment sustainability as well as assist companies to maintain their organization's legitimacy to continue their license to operate in the country.

The findings of this study also support any initiatives the government may have to heighten environmental disclosure practices of Malaysian companies. This suggests that a full-fledged framework for environmental reporting should be developed by policy makers and regulators for implementation by Malaysian companies. Also, in order for companies to recognize the importance of environmental sustainability for the continuation of business operations, it is suggested that Malaysian regulators implement environmental reporting to be mandatory in corporate annual reports.

The findings of this thesis are very relevant to businesses, non-governmental organizations such as environmental groups as well as stakeholders. The issue of global warming, flash floods and news of environmental disasters around the world put pressure on companies as there are gaining interests from the media and public to observe the actions of businesses and corporations in response to these environmental issues. These stakeholders demand and expect businesses to be accountable for the impact of their business operations on the environment and for them to act responsibly towards the environment to ensure sustainability for the future generations. In Malaysia, the latest MCCG 2012 has highlighted the importance of economic, social and governance as well as stakeholders' engagement in the operation of business. Hence, to demonstrate to the public that companies care about the society, companies can prove their social and environmental responsibility and initiatives by providing disclosures in their corporate annual reports.

The extent of CED in Malaysia is still low on an average of 30% as reported in Chapter 5. The result demonstrates that Malaysian companies are yet to commit the disclosure of environmental information to their stakeholders. This may imply that there is still ample room for improvement in enhancing the transparency of environmental information disclosed. Currently in place is the Bursa Malaysia framework to guide CSR disclosure of listed companies. It is a very general framework stating all the CSR dimensions to be incorporated in annual report; however, it does not specify the need for environmental items such as those from GRI to be included in annual reports. Recently, Bursa Malaysia has rolled out a sustainability guideline in year 2015 which provides a detailed guidance for corporate environmental reporting. Thus, policy makers can enforce a rule where all listed companies have to report on their environmental initiatives and practices based on the recent 2015 sustainability guideline. Both regulatory bodies and policy makers can make reporting of environmental information and initiatives to be mandatory in annual reports of listed companies.

The results also have implication to socially responsible investors. Companies can articulate clearly to investors for advancing women into leadership position in corporate boardrooms and pursuing environmentally sustainable practices. Malaysian companies can use these results to understand the roles played by female and to include more female directors into their corporate boardrooms in order to gain and maintain legitimacy as well as to encourage and enhance more environmental initiatives and disclosure to the general public. These results also contribute to the academic literature on gender diversity in corporate boardrooms and corporate environmental disclosure.

6.4 Assumptions and Limitations

There are several assumptions and limitations that are identified in this thesis. Section 6.4.1 presents the assumptions employed and Section 6.4.2 provides the limitations of this research study.

6.4.1 Assumptions

Firstly, this study only utilizes the annual reports of listed companies to derive corporate environmental information. Annual report is used as the only source of environmental information disclosure because this report is widely used by investors and the public to make their investment decisions. Also, annual report is utilized because information that is released in annual reports is reliable as they have been audited; hence there is a certain degree of assurance that the disclosed information is credible. According to Lang and Lundholm (1993), the extent of corporate disclosure in annual reports is already reflected in other disclosure mediums as well such as company websites and the media.

Secondly, the study assumes that the items included in the CED item checklist are able to capture the whole environmental initiative of Malaysian listed companies. Also, this research assumes that the 18 items of CED are applicable to all listed companies in the sample collected.

Third, this study focused only on the year 2013. The year 2013 is chosen as the study assumes that Malaysian companies are ready to disclose more environmental information and comply with changes implemented by Bursa Malaysia and SC Malaysia in terms of CED disclosure and female directorships. The study assumed that by selecting year 2013, it will be appropriate to capture any improvement made by examining the association between board gender diversity and CED in Malaysian listed companies after government's initiatives and policies to promote the sustainability.

6.4.2 Limitations

This thesis acknowledged several limitations to the study. Firstly, this study only takes a year in conducting the research which is year 2013. This may limit the insight of environmental disclosure practices of listed companies prior to the implementations of Bursa Malaysia CSR guideline and the participations of female directors in companies' corporate boards.

Secondly, the study only uses annual report as the sole source of environmental information. Only items that are disclosed in annual reports are taken into account for the disclosure item checklist. The study does not account for any other environmental information that may be disclosed in other reporting medium such as the press, company website and media releases. However, as previously stated, annual report is still the most reliable source of information as the public and potential investors rely on the information to make their investment decisions.

Thirdly, in order to score a company's extent of CED, the study utilizes the unweighted dichotomous approach method to scoring. This is a limitation because the study assumes that all the environmental items included in the disclosure checklist are equally important to all firms. This method is employed because there is no subjectivity with scoring where an item is scored either with a score of 1 if disclosed and 0 if otherwise. It helps to omit biasness in scoring the disclosure items and this method has been widely used in previous disclosure studies (Ahmad and Haraf 2013; Haji 2013; Esa and Ghazali 2012).

Also, this thesis only takes into account the environmental disclosure practices of the Malaysian context. Hence, the findings may not be generalizable across the other developing Asian countries as policies and cultures differ from one country to another country.

6.4.3 Conclusion

Although assumptions are employed and there are limitations to the study, they do not however affect the quality of the research findings. The results of this study provides valuable knowledge and fresh insights into the role that female directors play in the corporate boardroom and the environmental disclosure practices of Malaysian listed companies in year 2013. This thesis also contributes to the academic literature and provides various avenues for future research to be conducted.

6.5 Thesis Contributions

This thesis contributes to the academic literature in several ways. Firstly, it examines environmental disclosure practices and the participation of female directors in corporate boards of Malaysian listed firms after the government has implemented various initiatives and invested much effort to promote the importance of sustainability and the female's voice in decision making. The findings of this thesis provide valuable insights on how far Malaysian companies have achieved in terms of environment sustainability disclosure as well as the participation of female in corporate boardrooms. This study utilizes a comprehensive list of 18 environmental items that is adopted from an authoritative source, the GRI to measure the extent of CED by Malaysian companies.

Secondly, the results of this research confirm that female directors can indeed bring legitimacy to a company by enhancing the extent of environment information disclosed. Also, a female's voice in corporate boardroom demonstrates to the public that the company cares for the well-being of minorities as well. This result provides support to SC Malaysia on its new policy on advocating female directors in corporate boardrooms. Also it has been shown that female directors sitting on multiple corporate boards can help to enhance the extent of environmental disclosure practices of companies. These findings are important to businesses as it illustrates that female directors have a crucial role to play in ensuring the legitimacy of a company.

Finally, the thesis findings highlight the need to implement a serious measure to ensure companies report on sustainability practices in their corporate annual reports. There is also a need for Malaysian companies to realise the importance of having gender diversity in a group of decision makers. Hence, policy makers can use the results of this thesis to enforce environmental reporting as per the standards set by Bursa Malaysia in 2015 and to mandate the requirement for disclosing environmental information in order to enhance the transparency of companies' activities that affect the environment.

6.6 Future Research Ideas

In view of the increasing attention given to the participation of female directors in corporate boardrooms, future research can consider to examine the impact of the presence of female directors on the overall CSR dimensions, namely, environment, community, marketplace and workplace. This may help policy makers, regulatory bodies and companies to further understand other roles played by female directors in a company.

Since this thesis reports the findings of a cross sectional study, future research may extend the time period of the study in order to observe the trend of CED and female participations in Malaysian companies prior to the announcement by SC Malaysia advocating gender diversity in corporate boards and efforts by government in promoting sustainability as well as after the implementation of new policy on sustainability.

Further, future research may consider taking into account information disclosed on other medium of reporting such as press releases, media and company's website to have a thorough picture of a company's disclosure practices.

In order to overcome the issues with the generalizability of the research findings, future research can study the environmental disclosure practices of other ASEAN countries to obtain more insights into the different disclosure practices as different countries are ruled by different policies as well as having different culture in managing corporate voluntary disclosure.

Future research can also consider primary data collection by distributing surveys or interviewing stakeholders to gauge how they perceived the importance of non-financial information when making investment decisions.

6.7 Thesis Conclusion

This thesis offers insights and understanding of the environmental disclosure practices of Malaysian companies after government's efforts and initiatives in promoting the importance of sustainability. Although the research found that Malaysian companies' extent of disclosure is still low, this can be further improved by having policy makers and regulatory bodies to implement more measures such as mandating environmental reporting and providing detailed guidelines to assist companies with their corporate reporting. Also, this thesis provides knowledge on the extent of the presence of female directors on corporate board in Malaysian listed companies in year 2013, which is a year after the announcement of SC Malaysia to include female participation in decision making positions.

This study which is based on a disclosure index adapted from the GRI can help investors and stakeholders to make a well-informed investment decision. The results also provide evidences that female director does play a part in enhancing corporate environmental disclosure. This study also depicts the need for further research to examine other roles played by female directors in a company as well as the extent of CSR disclosure of Malaysian companies which encompasses the four pillars of CSR by Bursa Malaysia.

The importance of environmental sustainability and gender diversity to a company cannot be further emphasized. Without a good environment for business to operate in, the sustainability of a business will be affected such as breaching the social contract which leads to the retraction of the legitimacy of a company. Hence, disclosure of environmental information in a publicly available document helps to demonstrate that companies do care about the society and the environment that they operate in. Also, with globalisation, it is crucial to include non-traditional members into the decision making process so as to acquire critical resources and fresh ideas in order to maintain the license to operate of a company.

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APPENDIX A: CORPORATE ENVIRONMENTAL DISCLOSURE INDEX CHECKLIST

This corporate environmental disclosure checklist of 18 environmental items is adapted from the authoritative document on CSR in the world which is the GRI G4 as well as prior environmental disclosure studies.

	Corporate Environmental Information	Sources
1	Materials	GRI: G4-EN1, G4-EN2; SSA, BOW, REK, MIC, QIU
2	Energy	GRI: G4-EN3 to G4-EN7; SSA, SBA, CV, MIC, QIU
3	Water	GRI: G4-EN8 to G4-EN7; SZM, SSA, SBA, CV, BOW, FUZ
4	Biodiversity	GRI: G4-EN11 to G4-EN14; SZM, SSA, CV, QIU
5	Emissions	GRI: G4-EN15 to G4-EN21; SBA, CV, QIU, REK, MIC, LLT
6	Effluents and waste	GRI: G4-EN22 to G4-EN26; SSA, SBA, CV, FUZ, QIU, MIC
7	Products and Services	GRI: G4-EN27 to G4-EN28; SSA, SBA, REK, QIU, MIC
8	Compliance	GRI: G4-EN29; SSA, CV, BOW, MENG, REK, MIC
9	Transportation	GRI: G4-EN30
10	Environmental expenditure	GRI: G4-EN31; SBA, CV, BOW, MENG, QIU
11	Supplier environmental assessment	GRI: G4-EN32 to G4-EN33
12	Environmental grievance mechanism	GRI: G4-EN34
13	Environmental audit	SSA, SBA, BOW, ROSA, MENG
14	Environmental award	HA, SZM, SSA, MENG, QIU
15	Corporate environmental policy	HA, SBA, BOW, MENG, QIU
16	Plan to manage impact on environment	SSA, SBA, CV, REK, MIC
17	Statement of corporate environmental responsibilities	HA, SBA, BOW, MENG
18	Certification- Environmental Management System ISO 14001: 2004	SSA, MENG, REK

SZM=Saleh, Zulkifli, and Muhamad (2011); SSA=Said, Sulaiman, and Ahmad (2013); SBA=Sambasivan, Bah, and Ann (2013); CV=Cuesta and Valor (2013); BOW=Bowrin (2013); FUZ=Fuzi et al. (2012); QIU=Qiu, Shaukat, and Tharyan (2014); REK=Rekker, Benson, and Faff (2014); MIC=Michelon, Pilonato, and Ricceri (2015); MENG=Meng et al. (2014); HA=Hamid and Atan (2011); LLT= Liao, Luo, and Tang (2015); ROSA=Rosa et al. (2015); YD=Yusoff and Darus (2014); GRI:G4-EN1=Materials; GRI:G4-EN3=Energy; GRI:G4-EN11=Biodiversity; GRI-G4-EN15=Emissions; GRI:G4-EN22=Effluents and Waste; GRI:G4-EN27=Products and Services; GRI:G4-EN29=Compliance; GRI:G4-EN30=Transportation; GRI:G4-EN31=Environmental expenditure; GRI:G4-EN32=Supplier environmental assessment; GRI:G4-EN34=Environmental grievance mechanism

APPENDIX B: LIST OF SAMPLE COMPANIES

This is the list of the 260 sample companies that are listed on Bursa Malaysia. These companies are selected if they satisfied the criteria mentioned in Chapter 4. This final sample of 260 companies represents 34.90% of the total population of companies listed in year 2013 which is representative of the total population.

	Sector: Constructions
1	Kumpulan Europlus Berhad
2	Ekovest Berhad
3	Fajar Baru Builder Berhad
4	Lebtech Berhad
5	Ireka Corporation Berhad
6	Zelan Berhad
7	Triplc Berhad
8	PLB Engineering Berhad
9	Crest Builder Holdings Berhad
10	DKLS Industries Berhad
11	Hock Seng Lee Berhad
12	Pintaras Jaya Berhad
13	Brem Holding Berhad
14	Fututech Berhad
15	Jaks Resources Berhad

	Sector: Plantations
16	Inch Kenneth Kajang Rubber Public Ltd
17	Malpac Holdings Berhad
18	Felda Global Ventures Holdings (M) Berhad
19	Sarawak Plantation Berhad
20	United Plantations Berhad
21	United Malacca Berhad
22	Golden Land Berhad
23	Kluang Rubber Company (Malaya) Berhad
24	PLS Plantations Berhad
25	Unico Holdings Berhad
26	Kulim (Malaysia) Berhad
27	MHC Plantations Berhad
28	Batu Kawan Berhad
29	Astral Asia Berhad

	Sector: Technology
30	GHL Systems Berhad
31	Theta Edge Berhad
32	CBSA Berhad
33	KESM Industries Berhad
34	Pentamaster Corporation Berhad
35	Willowglen MSC Berhad
36	Inari Amertron Berhad
37	Notion Vtec Berhad
38	Formis Resources Berhad
39	Key Asic Berhad

	Sector: Consumer Products
40	Asia File Corporation Berhad
41	Bonia Corporation Berhad
42	Caely Holdings Berhad
43	Eurospan Holdings Berhad
44	Fraser and Neave Holdings Berhad
45	Guan Chong Berhad
46	Hong Leong Industries Berhad
47	JT International Berhad
48	Khee San Berhad
49	K-Star Sports Berhad
50	Lii Hen Industries Berhad
51	LTKM Berhad
52	Mintye Industries Berhad
53	MWE Holdings Berhad
54	New Hoong Fatt Holdings Berhad
55	NTPM Holdings Berhad
56	PCLS Group Berhad
57	Poh Huat Resources Berhad
58	QL Resources Berhad
59	Sin Heng Chan (Malaya) Berhad
60	SYF Resources Berhad
61	UMW Holdings Berhad
62	Xingquan International Sports Holdings Limited
63	Y.S.P Southeast Asia Holding Berhad
64	Yee Lee Corporation Berhad
65	Tomei Consolidated Berhad
66	O&C Resources Berhad
67	Sinotop Holdings Berhad
68	Sern Kou Resources Berhad
69	Prolexus Berhad

70	Pelikan International Corporation Berhad
71	Paragon Union Berhad
72	Oriental Holdings Berhad
73	Narra Industries Berhad
74	MSM Malaysia Holdings Berhad
75	Malayan Flour Mills Berhad
76	Amtek Holdings Berhad
77	CCK Consolidated Holdings Berhad
78	China Ouhua Winery Holdings Limited
79	Cycle & Carriage Bintang Berhad
80	DPS Resources Berhad
81	Hytex Integrated Berhad
82	Pan Malaysia Corporation Berhad
83	Teo Guan Lee Corporation Berhad
84	Wang-Zheng Berhad
85	Niche Capital Emas Holdings Berhad

Sector: Properties	
86	Asian Pac Holdings Berhad
87	Bertam Alliance Berhad
88	Eastern & Oriental Berhad
89	Farlim Group (Malaysia) Berhad
90	Malaysia Pacific Corporation Berhad
91	Sapura Resources Berhad
92	Majuperak Holdings Berhad
93	MKH Berhad
94	Naim Holdings Berhad
95	Paramount Corporation Berhad
96	Enra Group Berhad
97	Selangor Dredging Berhad
98	SP Setia Berhad
99	Tambun Indah Land Berhad
100	Tropicana Corporation Berhad
101	Trinity Corporation Berhad
102	Sunway Berhad
103	Oriental Interest Berhad
104	Matrix Concepts Holdings Berhad
105	KSL Holdings Berhad
106	Hua Yang Berhad
107	UOA Development Berhad
108	Wing Tai Malaysia Berhad
109	SHL Consolidated Berhad
110	Berjaya Assets Berhad
111	Gromutual Berhad

112	Ibraco Berhad
113	JKG Land Berhad
114	LBI Capital Berhad

Sector: Trading and Services	
115	Amway (Malaysia) Holdings Berhad
116	Malaysia Airports Holdings Berhad
117	Bumi Armada Berhad
118	Compugates Holdings Berhad
119	George Kent (Malaysia) Berhad
120	Astro Malaysia Holdings Berhad
121	AYS Ventures Berhad
122	BHS Industries Berhad
123	Bintulu Port Holdings Berhad
124	Century Logistics Holdings Berhad
125	Complete Logistic Services Berhad
126	MBM Resources Berhad
127	Dayang Enterprise Holdings Berhad
128	Dialog Group Berhad
129	Sime Darby Berhad
130	Eita Resources Berhad
131	Fitters Diversified Berhad
132	Alam Maritim Resources Berhad
133	GD Express Carrier Berhad
134	Handal Resources Berhad
135	AHB Holdings Berhad
136	Integrated Logistics Berhad
137	Kamdar Group (M) Berhad
138	KPJ Healthcare Berhad
139	Luxchem Corporation Berhad
140	Malaysian Bulk Carriers Berhad
141	Media Chinese International Limited
142	Telekom Malaysia Berhad
143	MMC Corporation Berhad
144	NCB Holdings Berhad
145	Oldtown Berhad
146	Parkson Holdings Berhad
147	Senijaya Corporation Berhad
148	PJ Bumi Berhad
149	Progressive Impact Corporation Berhad
150	Scicom (MSC) Berhad
151	Scomi Group Berhad
152	STAR Media Group Berhad
153	Symphony House Berhad

154	MISC Berhad
155	Tenaga Nasional Berhad
156	TH Heavy Engineering Berhad
157	Utusan Melayu (Malaysia) Berhad
158	Westsports Holdings Berhad
159	Yong Tai Berhad
160	Gas Malaysia Berhad
161	YFG Berhad
162	UMS Holdings Berhad
163	Air Asia X Berhad
164	Berjaya Sports Toto Berhad
165	Ecofirst Consolidated Berhad
166	Esthetics International Group Berhad
167	Hubline Berhad
168	Kumpulan Fima Berhad
169	Cheetah Holdings Berhad
170	MY E.G. Services Berhad
171	YTL Corporation Berhad
172	Perak Corporation Berhad
173	Turbo-Mech Berhad
174	Voir Holdings Berhad
175	TMC Life Sciences Berhad

Sector: Industrial Products	
176	Thong Guan Industries Berhad
177	Goodway Integrated Industries Berhad
178	Muda Holdings Berhad
179	Cymao Holdings Berhad
180	Ablegroup Berhad
181	Ajiya Berhad
182	Ancom Berhad
183	APM Automobile Holdings Berhad
184	Atlan Holdings Berhad
185	B.I.G. Industries Berhad
186	Box-Pak (Malaysia) Berhad
187	Central Industrial Corporation Berhad
188	Chin Well Holdings Berhad
189	Coastal Contracts Berhad
190	CSC Steel Holdings Berhad
191	Denko Industrial Corporation Berhad
192	Dominant Enterprise Berhad
193	Dufu Technology Corporation Berhad
194	EP Manufacturing Berhad
195	Favelle Favco Berhad

196	PRG Holdings Berhad
197	Golsta Synergy Berhad
198	GSB Group Berhad
199	Anzo Holdings Berhad
200	Hibiscus Petroleum Berhad
201	Hock Heng Stone Industries Berhad
202	Ire-Tex Corporation Berhad
203	Jasa Kita Berhad
204	Keck-Seng (Malaysia) Berhad
205	Kian Joo Can Factory Berhad
206	KNM Group Berhad
202	Kossan Rubber Industries Berhad
207	Delloyd Ventures Berhad
208	Leweko Resources Berhad
209	Malaysia Smelting Corporation Berhad
210	Maxtral Industry Berhad
211	Mercury Industries Berhad
212	Mieco Chipboard Berhad
213	Minho (M) Berhad
214	Multi-Code Electronics Industries (M) Berhad
215	NWP Holdings Berhad
216	OKA Corporation Berhad
217	Petron Malaysia Refining and Marketing Berhad
218	PNE PCB Berhad
219	Prestar Resources Berhad
220	Quality Concrete Holdings Berhad
221	Rubberex Corporation (M) Berhad
222	Sapura Industrial Berhad
223	Sarawak Consolidated Industries Berhad
224	Scientex Berhad
225	SKB Shutters Corporation Berhad
226	Atta Global Group Berhad
227	Subur Tiasa Holdings Berhad
228	Superlon Holdings Berhad
229	Ta Ann Holdings Berhad
230	Tecnic Group Berhad
231	Tien Wah Press Holdings Berhad
232	Tomypak Holdings Berhad
233	Ideal United Bintang Berhad
234	VTI Vintage Berhad
235	Weida (M) Berhad
236	White Horse Berhad
237	YLI Holdings Berhad

238	Yokohama Industries Berhad
239	Computer Forms (Malaysia) Berhad
240	Mentiga Corporation Berhad
241	Muar Ban Lee Group Berhad
242	Octagon Consolidated Berhad
243	Seal Incorporated Berhad
244	Lysaght Galvanized Steel Berhad
245	A.E. Multi Holdings Berhad
246	BTM Resources Berhad
247	Kumpulan H&L High-Tech Berhad
248	JMR Conglomeration Berhad
249	Luster Industries Berhad
250	Pelangi Publishing Group Berhad
251	P.I.E Industrial Berhad
252	Seacera Group Berhad
253	Pensonic Holdings Berhad
254	Sealink International Berhad
255	TAS Offshore Berhad
256	Toyo Ink Group Berhad
257	WZ Satu Berhad
258	Evergreen Fibreboard Berhad
259	Johore Tin Berhad
260	LB Aluminium Berhad