
THE IMPACT OF BOARD GENDER DIVERSITY ON
FINANCIAL PERFORMANCE OF MALAYSIAN
PUBLIC LISTED COMPANIES

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Of Malaysian Public Listed Companies

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ABSTRACT

This study investigates the impact of board gender diversity on financial performance of Malaysian public listed companies. The main purpose of the study is to examine whether board gender diversity has any impact on financial performance as measured by Tobin's Q and ROA. The study examines 250 public companies listed at Main Board of Bursa Malaysia Securities Berhad. Data analysis is performed using Pearson Correlation Coefficients and Ordinary Least Square (OLS) regressions analysis. The results from Pearson Correlation Coefficients show that board gender diversity has no significant impact on financial performance. Sequentially, Hypothesis 1 did not find any support in the result, thus, the said hypothesis is rejected. Despite the insignificance between the independent and dependent variables for this sample, it was worth to investigate this relationship because board diversity is one of the most significant corporate governance mechanisms, as Malaysia has introduced a mandatory 30 per cent quotas for female directors since 2012.

CHAPTER 1

INTRODUCTION

1.1 Background

This research investigates the effect of board gender diversity on financial performance of Malaysian public companies listed at Main Board of Bursa Malaysia Securities Berhad.

The Malaysian Companies Act 2016 and Main Market Listing Requirements of Bursa Malaysia Securities Berhad affirmed the importance of audited financial statements and the timely disclosure of such information. Every director of a company is required to ensure all their financial statements are professionally audited at least once a year in order to safeguard the interest of the shareholders, as well as the other stakeholders such as employees, customers, suppliers, society and the communities in which the companies conduct their business. Thus, financial performance research is an important topic which should be observed at all time. Generally, there are many factors can directly or indirectly influence a company's financial performance, for example, corporate governance mechanism, board size, and board independence (Bozec, Dia, & Bozec, 2010; De Andres, Azofra, & Lopez, 2005; Kiel & Nicholson, 2003). This research focuses on board gender diversity, which is one of the corporate governance mechanisms.

A competence board of directors is a crucial corporate governance mechanism for many companies. Core, Holthausen and Larcker (1999) argued that when a company has a weak corporate governance mechanism, the company is likely to face greater agency problem. It is proven by the increasing cases of corporate scandal such as Enron Corp., WorldCom, American International Group (AIG) and Lehman Brothers are essentially failure by the board of directors to act on their competence. From the theoretical perspective, the shareholders' interest can

be protected from self-seeking directors and management are by way of effective monitoring structures such as the management is monitored by the board of directors and in turn, the directors are monitored by board committees e.g. audit committee, nomination committee and remuneration committee. Alternatively, let the money do the hard-work i.e. to align the directors' interest with that of shareholders by providing the directors with high incentive (Abdulrouf 2011; Fama & Jensen 1983; Jensen & Meckling 1976). However, which structure of the corporate governance mechanisms is best to enhance corporate performance and serve the interest of shareholders remained inconclusive (Combs, Ketchen, Perryman & Donahue 2007; Daily, McDougall, Covin & Dalton 2002).

Since last decade, the link between board diversity in terms of gender, race, age, education and independence of directors and financial performance has become a focal point of research around the globe. Many studies have been conducted to investigate the board composition especially in relation to board size, board diversity and board independence and its connection corporate performance (Carter, Simkins, & Simpson, 2003; De Andres et al., 2005; Erhardt, Werbel, & Shrader, 2003).

Some previous studies clearly prove that board diversity is positively associated with companies' financial performance (Carter et al., 2003; Erhardt et al., 2003; Kiel & Nicholson, 2003). Examining the economic performance of large US firms, Erhardt, Werbel, and Shrader (2003) and Carter et al. (2007) find that greater gender balance among corporate leaders is associated with higher stock values and greater profitability. Other research on US firms finds that mixed-gender boards outperform all-male boards (McKinsey 2012b) and that the Fortune 500 companies with the highest proportion of women on their boards performed significantly better than firms with the lowest proportion (Catalyst 2011).

On the contrary, the other studies show the opposite result: there is no significant correlation between board diversity and financial performance (Adams & Ferreira, 2009; Carter et al., 2010; De Andres et al., 2005; Rose, 2007). Despite there has been mixed evidence regarding the effect of board diversity on performance, diversity in board composition is still considered favorable based on these two

important reasons (Kang, Cheng, & Gray, 2007). According to Kang, Cheng, & Gray (2007), the diversity increases the board interaction. A more diverse board provides different insights and perspectives (due to different culture, working/ life experience and academic background) in facing problem and problem solving. As the board's decision making and execution getting better, eventually, this will improve the company's value and performance. In a study of German companies, Lindstädt, Wolff, and Fehre (2011) find no overall relationship between female board membership and stock performance. In their study of 2,000 firms, O'Reilly and Main (2008) find no evidence that adding women to boards enhances corporate performance and conclude that such appointments are generally undertaken for normative rather than profit-seeking motives.

A number of European countries have implemented quotas for the presence of female directors. In fact, Norway is the first country to introduce mandatory quota of at least 40 per cent for female to be appointed on state-owned boards, councils, and committees. Norway's Gender Equality Act of 1981 was extended to boards of publicly owned enterprises in 2004, to larger joint stock companies in 2006 and to public limited companies in 2008. But look behind their successful story, Norway government are strict about this law. Those companies that fail to meet the quota might give penalised severely or they could be shut down.

The Swedish government has enforced gender diversity as a legal requirement for companies to voluntarily reserve a minimum of 25 per cent of their board seats for female directors (Adams & Ferreira, 2008).

According to Campbell and Minguez-Vera's (2008) research, the average number of women in European boardrooms has increased from 5.0 per cent in 2001 to 8.4 per cent in 2007. In 2011, gender diversity has again been increased from 8.4 per cent in 2007 to 12 per cent in 2011 (Heidrick & Struggles, 2011).

In facing the regulation pressure to improve board gender diversity, European Committee has set up a legislation that the board of management in European companies are required to exist out of at least 30 per cent women in 2015 and 40

per cent quota that will become binding in 2020. Failing which, they are required to provide a written justification in their annual report.

Despite of the strict requirement of board gender diversity by corporate governance codes, the number of female directors has been found to be very less around the world. Jhunjhunwala (2012) reported that, in 2011, the global percentage of female directors was 9.8 per cent with only 58.3 per cent of companies having at least one female director on their board. This means that more than 40 per cent of the companies do not have even a single female member.

In 2016, women still only held around 20.2 per cent of board seats amongst Fortune 500 companies (2010 : 15.7 per cent) (2012 : 16.6 per cent). Although, the data showed slight incline across the years, but the inclination is rather low. Thus, women are continued to be underrepresented at the decision-making tables of these Fortune 500 companies. Meanwhile, the same census also considered the “recycle rate” at which the directors serve on multiple boards. Based on the census, the recycle rate for women is higher than for men. A female director was known to the board or another director, recruited by a search firm or known by the CEO, it is just like “recycling” a small pool of female directors over and over again. In short, the increase in number of female directors is not equivalent of an increase in bringing in new female candidates to the board.

Table 1.1
Fortune 500 Board Seats by Gender

	2010		2012		2016	
	#	%	#	%	#	%
Total men	4,607	84.3%	4,575	83.4%	4,340	79.8%
Total women	856	15.7%	913	16.6%	1,100	20.2%

Note. Adapted from Catalyst (2016). *Missing Pieces Report: The 2016 Board Diversity Census of Women and Minorities on Fortune 500 Boards*, p.10

As opposed to western countries, most countries in Asia do not have gender quota regulation. Malaysia, via its Code on Corporate Governance 2012 coupled with the Main Market Listing Requirements, has implemented 30 per cent quota for

women on the board of public listed companies by 2016. However, it is in the form of comply or explain basis. Pursuant to the provisions of Listing Requirements, every public listed companies are required to provide a narrative statement of its corporate governance practices with reference to the Code on Corporate Governance 2012, in its annual report which must also include the following information: (a) how the company has applied the Principles set out in the Code on Corporate Governance 2012 to its particular circumstance, having regard to the Recommendations stated under each Principle; and (b) any Recommendations which the company has not followed, together with the reasons for not following it and the alternatives adopted by the company. With the new set of Code on Corporate Governance 2017 takes effect on 26 April 2017, the board of large companies must consist of 30 per cent female directors. Only those companies on the FTSE Bursa Malaysia Top 100 Index or with market capitalisation of RM2 billion and above are categorised as large companies.

Nevertheless, addressing board diversity especially quota requirement for female directors is arguable. Bloomberg Businessweek (2011) indicates that quota system is effective (pro: Toegel, 2011). The evidence shows that Norway, after implementing quota, climbing up from 11th position in 2007 to 7th in 2010 for The World Competitiveness Yearbook ranking. However, the same article suggests: it is not that simple to reach quota objective (contra: Barsoux, 2011). The lack of female directors is a consequent of their underrepresentation on top executives from where boards are normally recruited. The practice gained these directors the nickname “golden skirts.” in the board room (Barsoux, 2011).

Henceforth, board gender diversity, will be the main focus in this research whereby their influence on company’s financial performance will be examined further.

1.2 Research Questions

When Norway and Italy put gender quotas in effect, they are able to achieve the target very soon. However, it has been more than four years since the introduction of 30 per cent female director quota in Malaysia. It is obvious that most of the public listed companies are being ignorant about this requirement. By taking advantage of the existing comply or explain basis, the board rather put in a few sentences in their annual report explaining they will consider board gender diversity as and when there is a suitable candidate. This is typical as the board members are mostly come from the same small circle of people. They do not feel the necessity to open up the door to another new director. Or they will just simply appoint one to fill the chair with no regard on the value and quality of the female director.

As a result, two important research questions that needed to address: (1) Does board gender diversity matter? (2) Does board gender diversity have an effect on financial performance of Malaysia public listed companies?

1.3 Objective of the research

The objective of this research is to investigate the financial performance of Malaysian public listed companies with and without women on board. Female directors will be the main variable analysed in this research through hypothesis testing.

1.4 Significant of the research

The proposed study has value for the directors, shareholders, regulators, banks, Bursa Malaysia, Securities Commission and Government in Malaysia by knowing the effect of board gender diversity and its relationship with the companies' financial performance.

For the directors, the outcome of this research will contribute as new evidence for their consideration before they rushed to meet the corporate governance requirements. It is meaningless if the companies will simply appoint a female to the board just to comply with the quota, rather than recruiting the best person for the job.

For the Malaysian Institute of Corporate Governance (MICG) and others interested parties, it should make them understand that they should also consider practical reality instead of relying only on research from other countries. It should act as another wake-up call to policy makers that they cannot blindly design the governance structure that best fit for United States and/or European companies.

Another important argument for the importance of this research is an increasing role of multinational companies as a sole contributor of foreign direct investment while they considered transparency/ corporate governance is an important factor in attracting foreign capital necessary for small countries to participate in international trade. From the works of Terjesen (2015) that female representation on boards showed high corporate transparency and high ethical grounds.

1.5 Presentation of the research

The arrangement of presenting a research report is very important. A systematic structure is necessary to be considered. This research report is divided into six chapters and will be presented as follows.

Chapter 1: Introduction

The first chapter briefly explains about background and rationale of the research; research questions; objective of the research; significance of the research; and presentation of the research.

Chapter 2: Theoretical Framework

In this chapter, theoretical framework based on literature review will be presented then followed by hypothesis formulation and research model.

Chapter 3: Research Methods

This chapter consists of research design, data collection, sample, and research method.

Chapter 4: Data Analysis and Results

Various tests conducted for data analysis will be explained in this chapter. Then, the results will be presented and examined.

Chapter 5: Findings and Discussions

The fifth chapter summarises research findings and discusses the implication of those findings.

Chapter 6: Conclusions

Finally, the last chapter consists of conclusions, limitations, and recommendation for future studies.

CHAPTER 2

LITERATURE REVIEW

This chapter presented the relevant theories which explained how things are related to each other and former studies conducted by various researchers with respect to the general topic of this research. Finally, the research hypothesis will be formulated based on the theory and followed by the research model.

2.1 Corporate Governance

Corporate governance is defined in the High Level Finance Committee Report (1999).

“Corporate governance is the process and structure used to direct and manage the business and affairs of the company towards promoting business prosperity and corporate accountability with the ultimate objective of realising long-term shareholder value while taking into account the interest of other stakeholders.”

Thomsen and Conyon (2012) define corporate governance as the control and direction of companies by ownership, board, company law, incentive, and other mechanisms. Further, corporate governance is important to ensure good management system which is essential for good economic performance.

Thomsen (2008) believed that a governance structure is important because it encourages the management to do their best to optimising returns to shareholders or investors and at the same time holds them accountable to shareholders or investors if they also using public funds in their business. As such, practice of good corporate governance should focus on board of directors to develop and

implement strategy to ensure corporate growth and value improvement as well as to assure other stakeholder's interest to be accommodated (Moffett et al., 2006).

Following major corporate collapses in several large scale companies in the last two decades such as Enron (United States), WorldCom (United States), Olympus (Japan), Satyam (India), they have finally undertaken efforts to strengthen the efficacy of governance structures by establishing the Corporate Governance Guidelines e.g. the Cadbury, Hampel and Higgs Reports in the United Kingdom, the Bosch Report in Australia and the Business Roundtable in the United States.

Similarly, it is believed that, to a certain extent, the 1997–1998 economic crisis that hit South East Asian stock markets, has prompted the respective governments to follow the western countries footsteps to establish or enhance their own version of governance structures. Soon after the economic crisis, most of the Asian countries have established a Code of Corporate Governance. It is because they are increasingly aware that a commitment to good corporate governance and transparency are the effective ways to boost the foreign investors' confidence of investors in their capital markets. By doing so, it is able to encourage the continuous of flow of funds into their capital markets. However, it is undeniably that the principles outlined in most of these countries code on corporate governance are largely derived from the recommendations of Cadbury, Hampel and Higgs Reports and may not necessarily suitable for these countries due to different corporate structures, social and economic priorities. In fact, what is desirable in one country may not be so in another. Likewise, every company has its own unique history, culture and business goals. One size does not fit all. Hence, these factors should be taken into consideration when the relevant authorities are trying to reform its corporate governance.

After a decade, the corporate governance systems in Asian countries have been improved a lot, for instance, (1) the increased of compliance rate by listed companies; (2) stronger regulations/ recommendations/ best practices; (3) better resourced regulators to review and reform the code regularly to meet new economic trends and business risks; and (4) an increasingly involved investors

base by commenting and responding to public consultation paper issued by the regulators.

Organization for Economic Cooperation and Development (OECD) principles of corporate governance is one of the most widely accepted practices of good corporate governance because their principles represent only common characteristics that are fundamental in corporate governance (Mallin, 2010). It was established in 1999 and revised in 2004. Among those principles of OECD, the most relevant to this research is the sixth principle: The Responsibilities of the Board.

As stated in OECD (2004), corporate governance framework should ensure companies' strategic guidance, effective monitoring of management by the board of director, and board's accountability to company, shareholders and stakeholders. The directors and management should work in the best interest of company and shareholders, be fully informed basis and timely disclosure, should treat all stakeholders' interest fairly and apply high ethical standards.

2.2 Agency theory

Agency theory concerns about the inherent conflict of interest between the principal (shareholder) and agents (management). Agency problem arises when the principal appoints another person to perform as their agents. For example, directors, acting as shareholders' representative in the company, manage the day-to-day business operations. It means that the shareholders are putting high level of trust in the directors to always act in the shareholders' best interests. However, principals have less reason to trust their agents as they are likely to be influenced by financial rewards or job securities or more risk averse than principals prefer.

There are various mechanisms that may be used to prevent the agency problem. Carter et al. (2003) highlight that a diverse board increases board independence which is better in monitoring management. It is supported by Nicholson & Kiel

(2007) as a greater proportion of independent directors are more capable to monitor company thus managers will have less opportunity to pursue self-interest.

2.3 Historical Development of Malaysia Corporate Governance

Asian financial crises in 1997-98 badly affected most of the Asian countries including Malaysia. Subsequently, Malaysia like other Asian countries, besides other initiatives, introduced Malaysian Code on Corporate Governance (MCCG) in 2000. Since then, it has been a significant tool for corporate governance reform, and has influenced corporate governance practices of companies positively.

In recognition of domestic and international market developments, MCCG 2000 was reviewed and superseded in 2007. The MCCG 2007 mainly addressed the board of directors and audit function of the companies. The code clarified the roles of directors along with their eligibility for appointment. The code recommended the establishment of an internal audit function and held its head responsible to report directly to audit committee for the sake of independence. Moreover, the code suggested the establishment of an audit committee, composed exclusively of non-executive directors. In addition, it was also advised that all members of the audit committee should be able to read, analyse and interpret financial statements for effective discharge of their responsibilities (MCCG 2007).

The Global Financial Crises in 2007-2008 badly affected Malaysian economy like other economies of the world as evidenced by 670 points fall in the index of Bursa Malaysia which was 45 % of its total value. It was the biggest decline after the Asian Financial Crisis 1997-1998 in the country (Angabini & Wasiuzzaman, 2011). Subsequently, the Asian Round Table on Corporate Governance advised to improve governance structure and overcome the weaknesses exposed by the crisis in Asian countries including Malaysia (OECD, 2011). Moreover, corporate scandals and poor performance of linear corporation (2008), Kenmark Industrial Co Ltd. (2010) and Sime Darby (2010) in post enactment period of MCCG 2007 further highlighted the need for revision of MCCG (Satkunasingam et al., 2012).

Accordingly, Securities Commission Malaysia issued CG Blue print document in July 2011 for improving governance structure which facilitated the introduction of new code MCGG 2012 in March 2012 (MCGG, 2012). The code, mainly addressed independence of the board among others, with anticipation to improve financial performance of the listed companies in Malaysia.

Recently, the Securities Commission has released the new MCCM 2017 to strengthen corporate culture anchored on accountability and transparency. It places a new approach i.e. Comprehend, Apply and Report (CARE) to promote greater internalisation of corporate governance culture including those SME, non-listed and state-owned companies. It is no longer comply or explain, as CARE is more like apply or explain an alternative. It is above and beyond the minimum required by statute, regulations or those prescribed by Bursa Malaysia. It also encourages listed companies to put more thoughts and considerations when adopting and reporting on their corporate governance practices. It has 36 practices to support three principles i.e. board leadership and effectiveness, effective audit, risk management and internal controls and corporate reporting and relationship with stakeholders.

2.4 Corporate Governance and Board of Directors in Malaysia

Board composition influences the ability of the board to fulfil its oversight responsibilities. An effective board should include the right group of people, with an appropriate mix of skills, knowledge, experience and independent elements that fit the company's objectives and strategic goals. The right board composition will ensure sufficient diversity and independence to avert 'groupthink' or 'blind spots' in the decision-making process. It also enables the board to be better equipped to respond to challenges that may arise and deliver value.

Ownership structure in Malaysia is typically concentrated. Approximately 10-12 family groups control a range of companies while several investment funds,

considered government-linked hold around 30% of market capitalisation (World Bank, 2013). Families hold around 44.7% of shares in Malaysian companies.

According to a survey of Corporate Management and Economic Policy conducted by the Research Institute of Economy, Trade and Industry (RIETI) and the Basic Survey of Japanese Business Structure and Activities for the fiscal year 2011, women are likely to be appointed as directors and/or CEO by those owner-managed companies than in the listed and long-established companies (Morikawa, M., 2016). This also happened in Malaysia as those appointed female directors are positively correlated with those family-owned or state-owned companies (Abdullah, Ismail and Nachum, 2015).

Codes of ethics can further improve board member performance by publicly detailing the minimum procedures and effort that make up an effective contribution to the board. These codes serve to educate both board members and the investing public. Many companies in Asia have a code of ethics. Companies in certain jurisdictions (e.g. Chinese Taipei, Indonesia, Pakistan, the Philippines, Korea and Thailand) are either required or allowed to draft their own codes. In others, such as in Malaysia, the Code of Ethics is issued by the Securities Commission to provide Malaysian companies a reference for developing better ethics standards. The implementation is in voluntary basis but have been mandated to comply under Listing Requirements by Bursa Malaysia.

The establishment of board committees can be particularly meaningful where the board is dominated by executive board members, where the chairman of the board is also the CEO, or where the number of board members is large. In Asia, committees are becoming common and are typically mandated for listed companies by law, regulation or listing rules. Requirements concerning the number of independent board members on audit committees differ between jurisdictions. In Hong Kong China, Indonesia, and Malaysia they have to consist of at least a majority of independent board members, while in Korea this is required for companies with assets over a certain threshold. In Chinese Taipei, if a company chooses to have an audit committee or remuneration committee, all members must be independent. In India, two-thirds of audit committees shall

consist of independent directors, including its Chairman. Some jurisdictions require or recommend that listed companies set up nomination and remuneration committees consisting of independent board members. In all cases where the board establishes committees, their responsibilities, authority and resources are set out under its terms of reference respectively. This is critical to ensure clear lines of accountability.

Boards should be of a size that permits effective deliberation and collaboration and have adequate resources to perform their work. Board members should devote sufficient time and energy to their duties. For example, in Malaysia, in fostering the commitment of the board of directors devote sufficient time to carry out their responsibilities, the directors are required to notify the company's Chairman before accepting any new directorships in other companies and such notification shall include an indication of time that will be spent on the new appointment. All directors should not hold more than five directorships in public listed companies.

In the case of Malaysia, the MCCG was largely derived from the recommendations of the Cadbury Report (1992) and the Hampel Report (1998) in the UK (FCCG, 2000). However, the Malaysian business environment is different from that of the United Kingdom in many respects such as:

- there is a high concentration of ownership in Malaysia;
- there has been no separation between dominant family owners/large shareholders and managers, which consequently increases the risk of expropriation from minority shareholders (Khan, 1999);
- cross-holdings of share ownership or pyramiding, is more common in Malaysia (Thillainathan, 1999);
- the relationship between firms, banks and the government is close

The above differences caused some of the recommendations from United Kingdom to become disputable.

Malaysia has one-tier board system. This country encourages its listed company to have an effective balanced board comprised of executive and non-executive directors. At least one-third of the board should be independent non-executive directors (Mallin, 2010). These are some of responsibilities of the board: ensuring proper management and strategic direction of the company; ensuring appropriate risk management system; reviewing internal control system of the company; etc. Then, board should meet regularly and should have access to a company secretary who should ensure the board provides appropriate information for corporate and statutory requirements (Malin, 2010). They could also get access to independent professional advisor if it is needed (Malin, 2010).

Increasingly, board diversity, i.e. nominating board members from other countries in which the company operates, with specialised expertise or better gender/cultural balance, is increasingly seen as an effective way to improve board performance.

2.5 Board size and Board independence

According to Kang et al. (2007), board of directors is one of a number of internal governance mechanisms which are intended to ensure that the interests of shareholders (principal) and managers (agents) are closely aligned. Whereas, Thomsen and Conyon (2012), support that board is a generic corporate governance mechanism that are elected by shareholder to monitor the company. As a control mechanism, boards play an important role in corporate governance. Board provides useful function as an intermediary between owner and management. When other corporate governance mechanisms are weak, board inefficiency could be costly to the company and even to the society as a whole (De Andres et al., 2005). In consonance with the principles made by OECD (2004), board of director should fulfil certain key functions as follows.

1. Board of director should guide and review corporate strategy, risk policy, major plan of action, annual budget and business plan; set performance

-
- objective; monitor implementation and corporate performance; and oversee major capital expenditure, acquisition and divestiture.
2. Board of director should monitor the effectiveness of company's governance practice and change if needed.
 3. Board of director should select, monitor and compensate, or if necessary, replace key executive and oversee succession planning.
 4. Board of director should align key executive and board remuneration with the longer-term interests of the company and its shareholders.
 5. Board of director should ensure a formal and transparent board nomination and election process.
 6. Board of director should manage and monitor potential conflict of interest of management, board member and shareholder, including misuse of corporate assets and abuse in related party transactions.
 7. Board of director should ensure the integrity of corporate accounting and financial reporting systems, including independent audit, and that appropriate control systems are in place, particularly, risk management system, operational and financial control system, and compliance with the law and relevant standard.
 8. Board of director should oversee the process of communication and disclosure.

In addition to board function, there are three basic roles of board of director according to Oxelheim et al. (2013): monitoring role, advisory role and resource provision role. Monitoring is the process of hiring, promoting and assessing management while advisory role is about directors' involvement in firms' strategy (Adams et al., 2010 in Oxelheim et al., 2013). Then, resource provision role refers to how directors can provide access to key resources for company (Pearce & Zahra, 1992; Pfeffer & Salancik, 1978 in Oxelheim et al., 2013).

Furthermore, board system is divided into one-tier (or unitary) board and two-tier (or dual) board system. One-tier board system is characterized by one single board in which consists of executive and non-executive directors. Directors in one-tier board are mostly elected by shareholders as their representative to oversee all aspects of company activities. Meanwhile, two-tier board system consists of executive or management board and supervisory board. Management board runs

the business whilst supervisory board oversees the direction of business and supervises management board. In this case, there is a clear separation of management and control: a member of one board cannot be member of another board. Supervisory board is elected by shareholder while management board is appointed by supervisory board (Kim, Nofsinger, & Mohr, 2010; Mallin, 2010). India, Singapore, and Malaysia are the examples of countries that have one-tier board system whilst China, Indonesia and Taiwan are the examples of countries that have two-tier board system.

When addressing about codes related to board of director, Cadbury Code of Best Practice is one that has great influence in corporate governance practice. It has a total of 19 recommendations which are in the nature guidelines relating to the board of directors, non-executive directors, executive directors and reporting and controls. The Cadbury Code of best practice helps to raise standards in corporate governance for example the board should meet regularly, the separation of Chairman and Chief Executive roles to ensure a balance of power and etc.

According to Denis and McConnell (2003), corporate governance as the set of mechanisms that can reduce the agency problem. It will influence the controlling parties of a company to maximise the value of the company for its shareholders. Singh and Davidson (2003) state that a company's performance can be influenced by its board size and board composition and their findings show that smaller boards has increased the company's performance, which are consistent with Hermalin and Weisbach (2003), Jensen (1993) and Lipton and Lorsch (1992).

Under normal circumstances, a SME often has relatively smaller board size compared with larger public companies which normally require a bigger board size and extra hands to monitor the business activities. The ability of the board to monitor can increase as more directors added. However, this benefit can be outweighed by the costs of poor communication and decision-making within larger group (Lipton and Lorsch, 1992; Jensen, 1993 in De Andres et al., 2005; Kiel and Nicholson, 2003).

Studies show an inverse relationship between company value and board size (Yermack, 1996; Eisenberg et al., 1998 in De Andres et al., 2005). Small board size is more effective due to decentralise in decision making process. In other words, oversized board of director might lead to worse performance. However, empirical evidence to board size and its influence now is getting ambiguous because some other studies found conflicting evidences (Dalton et al., 1998; Coles et al., 2008 in Thomsen & Conyon, 2012). Thus, it is difficult to draw the robust conclusion and still there is no consensus here. One reason of this inaccurate causal interpretation could be that board size is endogenous (Thomsen & Conyon, 2012).

Equally important as board size, a company should also focus on board independence. The board is usually composed of both employee of the company (executive or insider) and senior or influential non-employee (non-executive or outsider) (Moffett et al., 2006). At least one-third of the board should be non-executive director, a majority of whom should be independent (McGee, 2010).

A non-executive director does not automatically qualify to become as the independent director of the company. There is a list outlined the requirements related to independent director which all of them must be met at all times, for example, they were not compensated as an officer or employee of the company in the past years; they do not have pecuniary relationship with the company and so on. Thus, being non-executive only is not independent enough. Further, directors are elected by shareholder's vote and their appointment should be made by a nomination committee and recommended by the nomination committee if the candidate meets the requirements, in which independent director supposed to play a key role (OECD, 2004). The most important committees are nomination committee, audit committee and remuneration committee as the board delegated specific responsibilities to these committees in order to assist the board to efficiently discharge their responsibilities (Kim et al., 2010; Mallin, 2010). Normally in large companies, they should meet every quarter (McGee, 2010; Thomsen & Conyon, 2012). Discussing further about this matter, specific board committees are best served by independent director, for instance, audit committee should comprise by independent directors with accounting or related financial

management expertise or experience whilst Chief Executive/ Managing Director/ Executive Director should not participate in the discussion of their own remuneration. However, for committees making decision about financing and long term investment are best served by insiders (Kim et al., 2010). Overall, studies and expert reports on corporate governance suggest balance proportion of inside and outside directors on board since both skills and functions are essential (Kiel & Nicholson, 2003).

2.6 Financial Performance

Financial performance is able to reflect a company's ability to generate revenue and income by using its own assets through its day-to-day business activities. It is a general measure to determine its business results i.e. how well is the company performing during the financial year from accounting and financial statements. Basically, financial performance is divided into three general categories: investor returns, accounting returns and perceptual (Cochran & Wood, 1984; Orlitzky, Schmidt, & Rynes, 2003).

2.6.1 Investor Returns

Investor returns are measured based on shareholders' perspectives (Cochran & Wood, 1984). This is a market based measure of financial performance, for example, share prices. It is related with stock market process, which relies on stock return and risk, to determine stock price and also market value (Orlitzky et al., 2003). With whom comparison with other companies in the industry can be made.

2.6.2 Accounting Returns

Accounting returns are often being used to assess the company's short-term and long term financial position in terms of profitability, liquidity and solvency. Several examples are earning per share (EPS), price to earnings ratio, return on investment (ROI), return on asset (ROA) and any other traditional accounting ratios. These measures are related to managerial policies i.e. how the board of director/ management decide which projects to invest and funds allocation to each project. Therefore, they express internal managerial performance and decision making capability, rather than external market response (Orlitzky et al., 2003).

2.6.3 Perceptual

Perceptual measure of financial performance is related to survey which aims to obtain respondent estimation of company financial performance, for example, company 'wise use of assets', 'soundness of financial position', or 'financial achievement compared with competitors' (Conine and Madden 1987; Reimann 1975; Wartick 1988 in Orlitzky et al., 2003). However, compared to the two measures mentioned earlier, this measure seems to be the most subjective.

2.7 Prior empirical studies

Among the most significant corporate governance issues faced by modern corporations are those related to diversity, such as gender, age, nationality and independence of directors. Board diversity is defined as variety in the composition of the board (Kang et al., 2007). This is divided into observable diversity and less visible diversity (Milliken and Martins, 1996 in Kang et al., 2007). Observable diversity consists of detectable attributes such as gender, ethnic or nationality and age. Meanwhile, less visible diversity is about background of the directors, for instances, education or previous experience. According to Erhardt et al. (2003),

observable diversity is also called demographic diversity and less visible diversity is called non-observable or cognitive diversity.

Significant numbers of prior empirical study have been already conducted to examine the relationship between board diversity and financial performance. Some of them address board size or board independent such as De Andres et al. (2005); Kiel and Nicholson (2003); and Nicholson and Kiel (2007). Besides, other researches as well as this research focus on demographic aspect, particularly in nationality and gender diversity. Hillman et al. (2002), for instance, examine how female and racial minority directors in the United States differ from white male directors. Using samples of Fortune 1000 firms, they infer that female and African-American directors more likely come from non-business background. In addition, they are more likely to hold advanced educational degrees, and involved in multiple boards faster than white male directors.

Next, Ruigrok et al. (2007), using sample of 1678 directors in 210 Swiss publicly listed firms, find that foreign directors tend to be more independent while women directors are more likely to be affiliated to company by family ties. In addition, Erhardt et al. (2003) also investigate 127 large companies in the United States; addressing their board demographic diversity in gender and ethnicity. The result shows both gender and ethnic diversity is positively associated with company performance as measured with return on assets (ROA) and return on investment (ROI) as financial indicators.

A research on board diversity is also conducted by Benamar, Francoeur, Hafsi, and Labelle (2013). They study about board diversity configuration on merger and acquisition (M&A) performance in Canadian firms. The effect can be observed in the two following figures. The first figure indicates a negative effect at lower level and positive effect at higher level of board diversity on board strategic decision and eventually performance. Thus, it implies a threshold level beyond which demographic diversity gives positive effect on performance as presented in the second figure about the relationship between demographic diversity and performance.

Furthermore, Anderson, Reeb, Upadhyay, and Zhao (2011) study the potential cost and benefit of building diversity on board of director. They use Tobin's Q as a proxy of financial performance and measure board diversity with six dimensions included gender and nationality. The empirical result indicates that a heterogeneous pool of directors positively affects firm performance. This result implies that board diversity improves board efficiency and is considered by investors as protecting or benefiting their interests. Besides, board diversity is also related to operational complexity. When a company faces complex operations, a diverse board increases performance. Conversely, it exhibits a negative impact on performance in a company with less complex operating environments.

Additionally, Carter et al. (2003) examine board diversity-firm value relationship and demonstrate a significant positive relationship after controlling for size, industry and other corporate governance measures. Then, seven years later, Carter et al. (2010) claim another fact: no significant relationship between gender or ethnic diversity on board and firm financial performance. In the later research, Carter et al. also take into account important board committees. Both researches are conducted in American firms but use different sampling criteria: Fortune 1,000 firms and S&P 500 firms. Moreover, they suggest that the effect of board diversity in gender and ethnicity on firm financial performance appears to be endogenous.

Other researchers, Kim et al. (2010), emphasize that academics research in this field echoes these dual sentiments and they are almost equally divided into whether or not board quality and firm performance are positively related. In this regard, decisions concerning the appointment of women or foreign director should not be based solely on future financial performance. The demands tend to come from internal or external calls for diversity rather than performance-based objectives (Carter et al., 2010; Farrell & Hersch, 2005; Francoeur et al., 2008).

Furthermore, Benamar et al. (2013) suggest a balance board diversity to best serve firm's purpose. However, they argue that board diversity effect on firm performance is multi-factorial; it depends on contextual factors. Among those influential factors, there are corporate complexity and managerial control as stated in Anderson et al. (2011). In circumstances where complex business environment

exists, it might be beneficial to have varying capabilities and talents in board diversity. However, the effect can be different when it comes to lower level of operation complexity (Anderson et al., 2011; Ben-amar et al., 2013).

2.8 Hypothesis Formulation

This research proposes one hypothesis, in which financial performance is the dependent variable and board gender diversity is the independent variable.

As cited from Nielsen and Huse (2010), ratio of women directors is positively associated with board strategic control and board effectiveness. In addition, Adams and Ferreira (2009) find that female directors have better performance and attendance than male directors. Female directors are also more likely to join monitoring committees and gender-diverse boards allocate more effort in monitoring. Regarding to firm financial performance, as previously mentioned, Erhardt et al. (2003) found that the percentage of women in board of director is positively associated financial performance. Supporting this, Carter et al. (2003) also indicate a significant positive relationship between board gender diversity and Tobin's Q as the indicator of company value. They also state that the proportion of female director increases with company size and board size. However, this proportion decreases when the number of inside director increases. In addition, Smith et al. (2006) do a panel study on 2,500 largest Danish companies. This study investigates the role of women, both in top management and board of director, and its relationship with performance. The findings show that female members on board of directors, who are elected by the employee, have positive effects on financial performance.

Hence, the hypothesis is formulated as follows:

Hypothesis 1 (H₁): Board gender diversity has a positive effect on the companies' financial performance

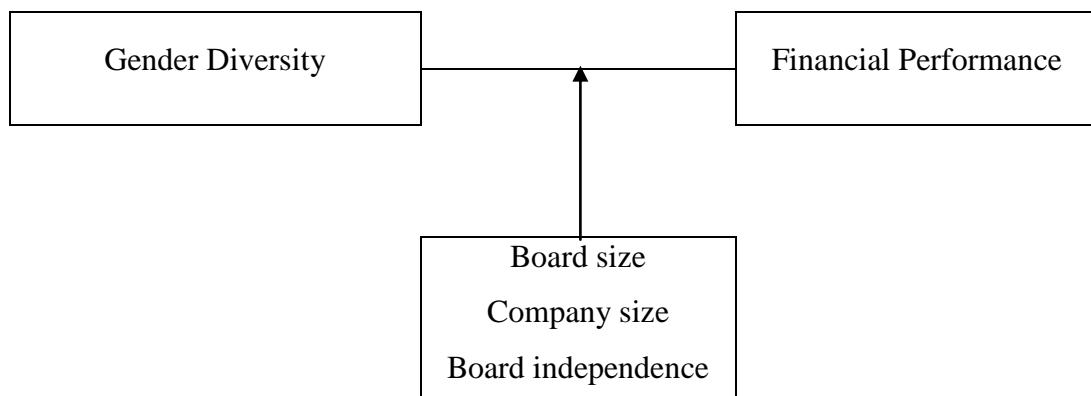
Additionally, prior researches identify several control variables that might also affect the relationship of board diversity and firm financial performance (Carter et al., 2003; Erhardt et al., 2003; Oxelheim & Randøy, 2003). There are three control variables used in this study, namely: board size, board independent and company size. As for Erhardt et al. (2003), they added company size as a control variable when examining board gender diversity and firm performance. Large established companies are more likely to have international activities and complexity that calls for diversity (Oxelheim et al., 2013). Then, board size is included as larger boards are inherently more diverse (Anderson et al., 2011).

2.9 Research Model

Addressing all variables involved, the research model of this study can be presented as in this following figure.

Figure 2.1

Research Model



CHAPTER 3

METHODOLOGY

This chapter discusses the methodology which is used to test the hypotheses and to answer the research question. The research tests the hypotheses regarding the effect of female director on financial firm performance of 250 Malaysian public listed companies, using correlation and regression analysis.

3.1 Data collection and sample selection

In this research, secondary data is employed. According to Hair, Money, Samouel, and Page (2007), secondary data is data that was not gathered directly and purposefully for the research project. In other words, the data are gathered from sources that already exist (Sekaran & Bougie, 2010). The following are several advantages of using secondary data (Hair et al., 2007):

- resource efficiency;
- evaluation capacity;
- potential for comparative analysis;
- avoid respondent fatigue;
- potential for triangulation; and
- potential for new insight

Meanwhile, some potential disadvantages of secondary data are: misalignment of purpose; access complication; quality concern; and age of data. The data in question are collected from Bursa Malaysia's website and listed companies' annual reports.

As at 11 April 2017, a total of 806 companies were listed on the Main Market. Companies listed on the ACE Market were not being considered because they have different paid-up capital and have different listing requirements. Thereafter, all financial, insurance, investment and unit trust companies are being excluded from the sample due to their specific accounting policies, which cause difficulties for the calculation of Tobin's Q. This is in line with prior studies (e.g. Marinova et al., 2010). A total 54 companies are being excluded from the sample. Subsequently, a sample of 255 companies from all sectors comprising on trading/ services, consumer products, industrial products, plantation, property, construction, technology, hotel, and mining are selected randomly. The latest annual reports with financial year 2016 of these 255 companies were downloaded from Bursa Malaysia's website. The review of annual reports was completed by 11 April 2017 and any annual reports issued thereafter would not have been taken into account. Since the research requires the financial data and information regarding the board of directors, one company which was newly listed (i.e. incomplete data) together with 4 Practice Note 17 companies are excluded from the initial sample. These leave with a final sample of 250 companies.

3.2 Variables

For testing the relationship between board diversity and financial performance in Malaysia public listed firms, three types of variables are determined i.e. independent variables, dependent variables, and control variables.

3.2.1 Independent variable

In this study, board gender diversity is measured in one variable i.e. gender diversity.

The first variable is gender diversity and is determined through the percentage of female directors on the board of each company. It is dividing the total number of

female directors in the company by the total number of directors in the company (e.g. Carter et al., 2003; Erhardt et al., 2003; Marinova et al., 2010; Rose, 2007). For female director information, the data are obtained from the annual reports from each company. Reassure that, annual reports provide sufficient information related to gender. It can be identified using photographs and biographical information of board of directors in the annual report for each company.

For the data analysis, it is imperative the variables are normally distributed. The reason for controlling the normality of variables is due to the presumption of a regression analysis that every variable has to be normally distributed (Huizingh, 2006, p. 283). The independent variable gender does not look normal, with a skewness of 0.838 (skewness graphs are displayed in the appendix). But according to Mallows et al (1991) a distribution is still normal if the distance between the mean and median is within a range of one standard deviation. With a standard deviation of 11.86302 for g8ender diversity, the distance between the mean (11.57) and median (12.5) is less than one standard deviation and therefore normally distributed.

Meanwhile, independent variable refers to variable that is expected to influence the dependent variable (Zikmund et al., 2013). Independent variable, which is also known as predictor variable, influences the dependent variable in some way, either positive or negative (Sekaran, 2003). In relation to dependent variable, any changes in independent variable will affect the dependent variable.

In order to control for robustness of the results a dummy of women existence for this research. This method is in line with prior studies (e.g. Rose, 2007; Dezsó & Ross, 2012; Marinova et al., 2010; Campbell & Minguez-Vera, 2007). I use a dummy variable with the following scores; a value of 0 entails that there are no women on the board, 1 stand for at least one woman on board. Controlling for normality, the dummy of women existence has a lower skewness (-0.377). Similar to GD, the standard deviation of DWE is 0.492, and have a smaller distance between the mean (47) and median (1.00), DWE is normally distributed.

3.2.2 Dependent variables

In previous studies, researchers use different estimation methods to measure organizational performance. Erhardt et al (2003) use return on investment (ROI) and return on assets (ROA, net income divided by total assets) as performance measures in a five-year interval for control purposes. By randomly selecting some firms from the sample and checked for the company's ROI, it turned out that ROI does not apply as a consistent performance measure due to the differences in investments in capital. Some companies made capital investments, while other companies did not perform any investment at all.

By far the most used performance measures are ROA (Randoy et al., 2006; Kim, 2005; Payne et al., 2009) and Tobin's Q (e.g. Dezso & Ross, 2012; Rose, 2007; Marinova et al., 2010; Campbell & Minguez-Vera, 2008). To control and perform robustness checks, many researchers use both ROA and Tobin's Q in combination (e.g. Carter et al., 2010; Jackling & Johl, 2009; Adams & Ferreira, 2004; Ararat et al., 2010; Cheng, 2008). I chose to use the latter two performance measures for this research to aid comparison of the results with prior studies.

Tobin's Q (Q-Ratio) and return on assets (ROA), are considered in this research as proxies for market return and accounting return respectively. The reason for employing the two performance measurements is because there is no consensus concerning the choice of dependent variable for measuring firm performances and each has its own advantages and shortcomings (Cochran and Wood, 1984). Using alternate measures will help check the robustness of the results. The higher the value of Q, the more effective the governance mechanisms, and the better the market's perception of the company's performance (Weir et al., 2002). Similarly, a higher ROA indicates effective use of companies' assets in serving shareholders' economic interests. These performance indicators have also been used in previous studies on firm performance (Daily and Dalton, 1998; Rhoades et al., 2001; and McConnell and Servaes, 1990). The yearly performance data for all companies are computed on a 12-month reporting cycle. If the reported data do not conform to the 12-month cycle (e.g. due to change of financial year-end date), a pro-rata adjustment is made to streamline the reporting period.

Return on Assets (ROA)

ROA indicates a company's ability to produce revenues in excess of actual expenses from a given portfolio of assets measured as historical amortized costs (Carter et al., 2010). In alignment with prior studies which investigated the relationship between board diversity and financial performance, ROA is estimated through annual net income divided by the book value of total assets at the end of the year (e.g. Carter et al., 2007 and 2010; Campbell & Minguez-Vera, 2007; Erhardt et al., 2003; Jackling & Johl, 2009). ROA can also be calculated by net operating income divided by total assets, but this method is less pronounced in prior research on the relationship between board diversity and financial firm performance. According to Megginson et al (2007), profitability ratios are among the most closely watched and widely quoted financial ratios. They argue that return on assets (ROA) measures management's overall effectiveness through using companies' assets to generate returns for their shareholders. While controlling for normality, it seems that the dependent variable ROA is skewed to the left (-0.143), and therefore not normally distributed. As a second check of normality, the distance between the mean (0.329) and median (0.300) is less than one standard deviation (0.11389) and therefore normally distributed.

Tobin's Q

In financial and economic literature the general idea is that better firms create more economic value from a given portfolio of assets. Tobin's Q is, according to Chung & Pruitt (1994), a forward-looking measure that captures the value of a firm as a whole and implicitly includes the expected value of a firm's future cash flows, which are capitalized in the market value of a firm's assets. Tobin's Q is calculated through the sum of market value of equity plus book value of total debt divided by the book value of the assets (Chung & Pruitt, 1994, p.71). Prior studies also use the Chung & Pruitt estimation (e.g. Marinova et al., 2010; Campbell & Minguez-Vera, 2007; Rose, 2007; Dezso & Ross, 2012; Jackling & Johl, 2009). The interpretation of this measure is, if Tobin's Q is greater than one, the company is expected by investors to be able to create more value by using

available resources effectively. Contrary, companies with a Tobin's Q ratio of less than one are associated with poor utilization of available resources (Campbell & Minguez-Vera, 2007). Ratio between market value and assets for a company, defined according to Carter et al. (2007)'s specifications. Observations in the sample data of Tobin's Q have extreme values and cause a major skewness of 2.841. In order to control for skewness, I used the natural logarithm. In alignment with prior studies (e.g. Dezsó & Ross, 2012) I will use the natural logarithm of Tobin's Q for the data analysis. As a second check of normality, the distance between the mean (0.9529) and median (0.5700) is less than one standard deviation (1.12484) and therefore normally distributed.

3.2.3 Control variables

In testing the relationship between board gender diversity and financial performance, some other idiosyncratic factors may influence the independent or dependent variables and indirectly the relationship. To control for biases and to implement robustness of results, it is imperative to include control variables to see if the relation still holds. Prior studies have used different control variables like director's tenure (Ruigrok et al., 2007) and independency of directors (e.g. Marinova et al., 2010; Carter et al., 2010). Also some studies use industry types as control variables (e.g. Erhardt et al., 2003; Marinova et al., 2010; Kang et al., 2007). According to the study of Luckerath-Rover (2010) the main industry type the Dutch listed firms operating in, are '1000 industrials', with 31% of all companies. Followed by industry types '8000 Financials' and '9000 Technology', with 13% and 16% respectively. Due to the limited sample of only 250 public listed companies (vs a total of 10 industry segments) I chose to disregard industry type as a control variable.

Company size (LnTA)

The control variable which is most commonly used in prior research on the relationship between board diversity and financial performance is company size, measured in book value of the year-end total assets (e.g. Carter et al., 2007 and

2010; Waelchli & Zeller, 2012; Campbell & Minguez-Vera, 2007; Erhardt et al., 2003; Dezso & Ross, 2012). Firstly, larger firms are more in the public eye and in some cases have to act as role models. In addition, these companies are under more societal pressure for board diversity (e.g. Marinova et al., 2010; Adams and Ferreira, 2004). Secondly, company size is expected to affect labor productivity through a larger scale of operations and organizational settings (Koch and McGrath, 1996). Therefore, company size is expected to have a positive effect on financial firm performance and board gender diversity. In alignment with prior studies (e.g. Hitt et al., 1997; Baysinger and Hoskisson, 1989), company size measured in book value of year-end total assets as control variable is used in this study. For controlling the normality of the control variable size, it seems that variable size is extremely skewed to the right (5.827), and therefore not normally distributed. As a second check of normality, the distance between the mean (2,416.4060) and median (416.92) is less than one standard deviation (7949.155) and therefore not normally distributed.

Board size (LnBS)

According to Van den Berghe & Levrau (2004), expanding the number of directors is directly related to an increased pool of expertise and skills, therefore larger boards suppose to have more knowledge, experiences, and in alignment with the resource dependence theory possess valuable resources. Following prior research (e.g. Jackling & Johl, 2009; Marinova et al., 2010; Carter et al., 2010; Jackling & Johl, 2009) board size has been included as a control variable. In testing the normality, board size is almost normally distributed (skewness: 0.670). As a second check of normality, the distance between the mean (7.22) and median (7.00) is less than one standard deviation (1.847) and therefore normally distributed.

Board independence

Further, greater director independence from management potentially improves monitoring and controlling roles of the board and independent directors might be

more heterogeneous (Anderson et al., 2011). Therefore, board independence is also added as control variable.

3.3 Hypothesis test

According to Sekaran and Bougie (2010), there are several steps in testing hypothesis.

1. Determine the null and alternate hypotheses
2. Select the appropriate statistical test
3. Determine the level of significance desired
4. See the result whether the level of significance is met

The null hypothesis is defined as hypothesis with samples taken from populations with equal means for dependent variable (Hair, Black, Babin, & Anderson, 2010). Then, this hypothesis can be rejected or accepted based on statistical test results. Null hypothesis is set up to be rejected in order to support the alternate hypothesis (Sekaran & Bougie, 2010). Alternate hypothesis is a statement that express a relationship between two variables or differences between two groups (Sekaran & Bougie, 2010).

If the null hypothesis is rejected, this implies that board gender diversity influences financial performance. Then, the relationship direction could be either positive (implying that board gender diversity enhances financial performance) or negative (suggesting that board gender diversity decreases financial performance). On the other hand, failure to reject the null hypothesis suggests that gender diversity in board of director does not add value. The null hypothesis in this research is as the following while the alternate hypothesis is H_1 indicating a positive relationship as aforementioned.

$$H_0: \rho = 0$$

$$H_1: \rho > 0$$

The statistical method used in hypothesis testing is multiple regression analysis that will be further discussed in the next section. The level of significance (p-value or alpha level) of 0.05 (5%) is determined. Significance level is a critical probability related to a statistical hypothesis test. That indicates how likely an inference supports a difference between an observed value and some statistical expectation is true (Zikmund et al., 2013).

3.3.1 Methods used in prior research

Prior research on the relationship between board gender diversity and financial performance were found to have some similarities and differences in use of research methods. In general, most of the articles studied, use Pearson Correlation Coefficients in order to reveal any correlation between the variables board diversity and financial firm performance.

The main differences in research methods can be assigned to what form of linear relation best predicts the dependent variable from the values of the independent variable. For example, Erhardt et al (2003), used a hierarchical regression analysis. This type of regression analysis examines to what extent regression coefficients vary across different subpopulations. The hierarchical regression method is not applicable for this study due to the lack of data from another context. This study is restricted to Dutch listed firms in the specific year 2010 and for this reason not comparable with different subpopulations through, for example geographic regions or other years of observation.

Other researchers use panel data regression (Rose, 2007). This type of method is particularly used for data samples to test effects within a time period, for example the relationship between board diversity and financial performance in the period of 2005 to 2010. Due to the restriction of data for only one year of observations, 2010, the cross-sectional regression analysis does not satisfy.

Ordinary Least Square (OLS) regression analyses is another frequently used analysis (e.g. Dezso and Ross, 2012; Adams and Ferreira, 2004; Waelchli and

Zeller, 2012; Ararat et al., 2010; Tyge Payne et al., 2009). Through the use of an equation, the researchers try to explain the effects of the independent variable(s) on the dependent variable(s). The main target of a regression analysis is to determine the values of the parameters that minimize the sum of the squared residuals for the observations. Known as a ‘least squares’ regression fit (Chumney & Simpson, 2006). Some other researchers doubt the usefulness of OLS, through possible correlation between the error terms of the dependent and independent variables (e.g. Marinova et al., 2010; Carter et al., 2003). In the first stage, an instrument variable is created to replace the problematic variable. The second stage use the predicted values from stage one, to compute an OLS for the response of interest (Angrist & Imbens, 1995).

3.3.2 Method

The regression method I use for this study, in line with prior research (e.g. Dezsó and Ross, 2012; Adams and Ferreira, 2004; Waelchli and Zeller, 2012; Ararat et al., 2010; Tyge Payne et al., 2009), is Ordinary Least Squares regression analyses. After controlling for the autocorrelation of the error terms between the dependent and independent variables, using Durbin-Watson test, it turned out that the error terms are not correlating with each other. The Durbin-Watson statistic have range values from zero to 4. Values near 2 indicate that there is no autocorrelation; values towards zero indicate positive autocorrelation; values towards 4 indicate negative autocorrelation (Montgomery et al., 2001). In controlling the Durbin-Watson statistic, it turned out that the statistics are around the value 2. For this reason I use OLS instead of 2SLS for the data analysis.

3.3.3 Model

In answering the question if board diversity influence financial firm performance, I examine the strength of the linear relation between the independent and dependent variables by calculating the Pearson Correlation Coefficient Matrix, which is, as mentioned before, consistent with prior research. In order to

determine the nature of the relation between board diversity and financial performance I use OLS in the following regression model:

$$\text{Performance}_{2016} = \beta_0 + \beta_1 \text{GenderDiversity}_{2016} + \sum \beta_X_{2016} + \varepsilon_i$$

3.3.4 Robustness check of results

In order to check the robustness of results, this study repeats the regression analysis using a dummy of women existence to see if at least the presence of a woman in the boardroom is influential on financial firm performance in comparison to female representation in percentage. It is possible to test if the results show any significant differences in the relationship between board diversity and financial firm performance. For this reason, the regression analysis exists of two parts. The first regression analysis uses the independent variables gender diversity. The second regression analysis uses dummy of women existence.

3.3.5 Results interpretation

To interpret the results from the data analysis, the board gender diversity hypotheses will be accepted if the results show significant positive coefficients, stating that board diversity positively influences financial performance. As long as the results of the analysis show a negative coefficient or no relation between board diversity and financial performance, the hypotheses have to be rejected.

3.3.6 Research sample

Data is crucial for this study to investigate the relationship between board gender diversity and financial performance public listed companies. In order to ensure that the sample is representative for the population, and data biases had less change to occur, firms for the sample had to meet the following criteria: All (active) listed companies in 2017 with known values of total assets measured in

the year-end book value, return on assets and Tobin's Q in the year-end book value for 2016, board size measured in quantity of board members, gender composition of the boards measured in quantity of male and female board members, quantity of shares outstanding, and the share's market prices following the financial year end.

3.3.7 Outliers

The data collection provides a lot of information. According to the sample of 250 Malaysian public listed companies, the data is checked on 'outliers' with extreme values which could lead to biased outcomes. The detection of outliers is performed through the use of scatter plots and the explore function in SPSS.

CHAPTER 4

RESEARCH RESULTS & INTERPRETATION OF RESULTS

This chapter entails the descriptive statistics and the hypotheses test. Through performing a Pearson Correlation Coefficient Matrix, the variables were tested to reveal any relationship. In order to test the hypotheses, a regression analysis is performed. Robustness checks are implemented in the analyses to be certain that the relations will hold.

4.1 Descriptive Statistics

Table 4.1

Industry Composition

Description	Observations	% of Sample
Construction	23	9.2%
Consumer products	46	18.4%
Hotel	1	0.4%
Industrial products	69	27.6%
IPC	3	1.2%
Mining	1	0.4%
Plantation	8	3.2%
Property	23	9.2%
Technology	12	4.8%
Trading/ Services	64	25.6%

The sample of 250 companies consists of 10 sectors i.e. construction, consumer products, hotel, industrial products, IPC, mining, plantation, property, technology and trading/ services. Table 4.1 displays the number of observations and

respective weigh of each industry in the sample. Basically, the majority of the sample companies are related to industrial products (27.6 per cent) and trading/ services (25.6 per cent). Contrariwise, hotel and mining industries only contribute with one company each, representing 0.4 per cent of the sample.

Table 4.2:

Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum	St. Deviation
Board Size	7.22	7.00	3	14	1.847
Gender Diversity	11.57	12.5	0	50	11.86302
DWE	0.59	1.00	0	1	0.492
Independence	47.8604	50	28.6	80	11.92825
Company Size	2416.406	416.92	3.96	66987.74	7949.15553
Tobin Q	0.9529	0.57	0.01	7.39	1.12484
ROA	0.0329	0.03	-0.52	0.60	0.11389

Table 4.2 provides the descriptive statistics for all the variables which are used in this research. Board size is the natural logarithm of the total number of directors on the board. From the 250 public listed companies, there are a total of 1,806 directors in the sample. On average, Malaysian public listed companies' board size reaches approximately 7 directors which is in alignment with the results of Marinova et al. (2010), their average number of board of director is 7.4. The smallest boards in Malaysia are composed of 3 directors, while larger boards do not exceed 14 directors. The average proportion of female directors in the board is way lower than the 30 per cent quota. It is about 12 per cent. In addition, it is true that 59 per cent of the sample companies have at least one female director on the board (i.e. Dummy of Women Existence). However, it is also a fact that 102 of the sample companies have no female representative on their board. The performance measure ROA has a relatively low average of 0.0329, with a standard deviation of 0.11389. Company size, in million Ringgit, there is no observations with a value of total assets below RM3.96 million. It means that the average sample companies are not performing well in FY2016 because the sample includes mostly small

companies. The second performance measure Tobin's Q reveals a low average of 0.9529 which shows a difference with the data of Marinova et al. (2010) of Dutch listed companies in 2007 (2.139). This suggests the companies are slightly undervalued. Generally, it can be concluded that the outcomes are in alignment with prior research on Dutch listed companies (e.g. Marinova et al., 2010; Lückcrath-Rovers, 2010).

4.2 Correlation analysis

Table 4.3

Pearson Correlation Coefficients

Variables	Gender Diversity	DWE	ROA	Company size	Board size	Independence	Tobin's Q
Gender Diversity	1						
DWE	0.811**	1					
ROA	0.120	0.133*	1				
Company size	0.111	0.150*	0.015	1			
Board size	0.002	0.136*	0.162*	0.404**	1		
Independence	-0.073	-0.092	-0.186**	-0.171**	-0.408**	1	
Tobin's Q	0.151*	0.119	0.522**	-0.046	0.113	-0.111	1

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

Table 4.3 shows the correlations between the gender diversity and dummy of women existence is positively correlated with Tobin's Q and ROA. It also provides evidence that company size and board size are correlated with gender diversity and dummy of women existence, which is in line with prior research (e.g. Jackling & Johl, 2009; Dezsó & Ross, 2012). This correlation could be explained due to the idea that, on average, larger companies have more employees and therefore the need of more directors in order to ensure the company's continuity and stability. This may be explained by the idea of Hoffman & Maier (1961) that diverse groups have a larger scale of views, knowledge and experiences. It is not surprising that ROA and Tobin's Q correlation is positive and significant, which could be explained that more profitable companies are more likely to have a

higher company value. One of the remarkable results is the negative correlation between independence with the rest of variables. Based on the information in the correlation matrix, the coefficients provide evidence that there is no significant positive relationship at the 0.01 and 0.05 levels (1-tailed) between board gender diversity and the two performance measures i.e. ROA and Tobin's Q. This entails that, in alignment with previous European studies like Marinova et al (2010) and Randoy et al (2006), board gender diversity does not have much effect on the companies' financial performance significantly. Therefore, the hypothesis suggesting that board gender diversity have an effect on the companies' financial performance, does not find any support in this sample through the use of Pearson Correlation Coefficients.

4.3 Multicollinearity

Multicollinearity is defined as the extent to which variables in multiple regression analysis are related each other (Zikmund et al., 2013). High multicollinearity makes individual parameter estimation difficult or impossible (Zikmund et al., 2013). According to Grewal et al (2004), multicollinearity is tested using the VIF (Variance Inflation Factor). VIF actually measure to what extent the variance of the estimated coefficient is increased. If there is no correlation between the independent variables, all the VIF's will be equal to 1. If any of the VIF values exceeds 5 or 10, it implies that the associated regression coefficients are poorly estimated because of multicollinearity (Montgomery, 2001).

Table 4.4

Multicollinearity

Variables	Collinearity	
	Tolerance	VIF
Gender Diversity	0.979	1.021
Independence	0.828	1.207
Company Size	0.825	1.213
Board Size	0.715	1.399

For this study, the multicollinearity effect was verified that the VIF for all the independent variable and control variables were between 1.0 to 1.4.

4.4 Regression analysis

Table 4.5

OLS Regression Analysis- Gender Diversity Analysis

Descriptions	ROA	Tobin's Q
n	250	250
R Square	0.060	0.053
Adjusted R Square	0.045	0.038
F (significance)	3.937 (0.004)	3.445 (0.009)
Gender Diversity		
Standardized beta	0.118	0.161
t (significance)	1.889 (0.060)	2.562 (0.011)
Independence		
Standardized beta	-0.134	-0.065
t (significance)	-1.975 (0.049)	-0.948 (0.344)
Company size		
Standardized beta	-0.077	-0.131
t (significance)	-1.129 (0.260)	-1.911 (0.057)
Board size		
Standardized beta	0.138	0.139
t (significance)	1.884 (0.061)	1.891 (0.060)

In order to test the hypotheses, an ordinary least squares (OLS) regression analysis is performed. The regression analysis is divided into two separate analyses. The first analysis comprises ROA and Tobin's Q, respectively, tested with data of the Gender Diversity. The second analysis comprises ROA and Tobin's Q,

respectively, tested with data of the Dummy of Women Existence. In the first step the control variables are put into the analysis, with the dependent variable ROA. Secondly the diversity variable Gender Diversity is added to the analysis. Hypothesis 1 predicts that gender diversity influences the companies' financial performance (ROA) positively. In this sample of 250 public listed companies, board gender diversity has no effect on both ROA and Tobin's Q significantly, and therefore hypothesis 1 does not find any support based on the financial performance measures.

4.5 Robustness check of results

Table 4.6

OLS Regression Analysis- Dummy of Women Existence Analysis

Descriptions	ROA	Tobin's Q
n	250	250
R Square	0.060	0.041
Adjusted R Square	0.044	0.025
F (significance)	3.879 (0.004)	2.594 (0.037)
Gender Diversity		
Standardized beta	0.115	0.115
t (significance)	1.829 (0.069)	1.804 (0.072)
Independence		
Standardized beta	-0.140	-0.074
t (significance)	-2.055 (0.041)	-1.074 (0.284)
Company size		
Standardized beta	-0.075	-0.123
t (significance)	-1.095 (0.274)	-1.785 (0.075)
Board size		
Standardized beta	0.120	0.117
t (significance)	1.633 (0.069)	1.581 (0.115)

In line with prior research (Dezso & Ross, 2012) the results are being tested to see whether the regression analyses are consistent, robust and provide reliable outcomes. In the main regression analyses gender diversity is used as a percentage of female directors present on the board. Due the fact that some companies in the data sample have more than one female director, a dummy of women existence variable has been used to check the robustness of results. Through the use of the Dummy of Women Existence, the same OLS regression analysis has been performed again.

Table 4.7

Excerpt of the OLS regression analysis to reveal the difference between Gender Diversity and Dummy of Women Existence

	Gender Diversity	Dummy of Women Existence
ROA	0.118	0.115
Tobin's Q	0.161	0.115

The result from GD on ROA (0.118) is consistent and robust, due to the almost similar results of DWE (0.115). In using Tobin's Q as the dependent variable, DWE (0.115) appears to be, slight different with GD (0.161). Even so, taking into account the insignificant relation of both variables, the results are believed to be consistent and robust.

4.6 Conclusion

One of the remarkable results is the insignificance of the company's size and its board independence against the companies' financial performance. Looking at board size, this control variable is positively related to companies' financial performance. This result suggests that, the Tobin's Q can be increased if the board size has been expanded. It is in line with the theory of Van den Berghe & Levrau (2004), who argues that bigger board size provides an increased pool of expertise, and eventually company's performance.

As a conclusion, the OLS regression analysis provides evidence that, for this sample of 250 public listed companies, board gender diversity is insignificantly related to the performance measures ROA and Tobin's Q. This implies that the hypothesis 1, stating that board gender diversity has a positive effect on the financial performance of Malaysian public listed companies, is not supported in this sample.

CHAPTER 5

RECOMMENDATION & CONCLUSIONS

5.1 Conclusion

Despite there have been extensive studies on board of directors (Adams & Ferreira, 2009; Carter et al., 2010; Carter et al., 2003; Erhardt et al., 2003), the effect of board gender diversity on financial performance still presents contradictory evidences. This research aims to study the effect of board gender diversity on financial performance of Malaysian public listed companies which was measured by Tobin's Q and ROA, while controlling for factors such as company's size, board size and board independence, which may influence the (in)dependent variables.

It was tested with data for financial year 2016 of 250 public listed companies of Malaysia because year 2016 was the final year for the implementation of MCCG 2012 especially on board gender diversity and thus, it is sensible to study whether the board gender diversity aided the betterment of the public listed companies' financial performance. Furthermore, the "early signal" can be prevented. In answering the question whether the board gender diversity has any effect on the companies' financial performance, the strength of the linear relation between the independent and dependent variables have been examined by calculating the Pearson Correlation Coefficient Matrix, which is, as mentioned before, consistent with prior research. In interpreting the results from the data analysis, the board gender diversity hypotheses would have been accepted if the results show a significant positive coefficient, confirming the board diversity positively influences financial performance.

Through the use of OLS regression analyses, it is able to determine where there is a relationship between both variables, and whether it is positive or negative. The

result of OLS regression clearly provide evidence that, the board gender diversity has no significant effect on the financial performance of the public listed companies. After controlling for robustness of the results in the OLS regression analysis, it turned out that the results of gender diversity are robust and consistent with dummy of women existence. Due to the insignificant relations between the variables of board diversity and financial performance a portfolio analysis has been conducted and gives additional insight. These results are disappointing. Based on the data analyses, it can be stated that, in accordance with prior European evidence (e.g. Smith et al., 2006; Rose, 2007; Marinova et al., 2010; Randoy et al., 2006), this study does not find any support for the hypotheses. This suggests that the female directors' quota may not have been as productive as it should have been. The fact that these variables are not significant was also due to reason that the mere idea of gender diversity was originally adopted from other country (i.e. Norway). Thus, the Securities Commission may need to reconsider the appropriateness or applicability of this quota to all the public listed companies.

Furthermore, the first research finding suggests that board gender diversity has a positive effect on companies' financial performance. This evidence is consistent with the notion that having female directors on the board can increase financial performance as highlighted by Erhardt et al. (2003). They argue that assigning women director explores beyond traditional talent pool; reflects diversity in company's customer and employee based better; and thereby enhances company performance. Similarly, Campbell and Mínguez-Vera (2008) also indicate a positive relationship of female director and financial performance. In addition, their result suggests that spurious correlation or structural reverse causality is not significant.

In conclusion, companies are recommended to enhance diversity in board of directors since a diverse board is likely to cross-pollination of ideas which is beneficial for better decision making and board effectiveness. However, establishing board gender diversity by assigning female directors should not be based only on economic reason, but also other reasons related to public policy, such as equality or board representativeness. Diversity in board of director will better represent company's stakeholders, such as customers, employees, and

shareholders. With the breadth of perspectives, a diverse board also enables to bring various skills and deeper insight to the board room. Hence, it will improve the board process both in decision making and problem solving.

5.2 Limitations

There are some limitations or potential weaknesses in this study must be addressed.

To ensure the sample is analysed without any bias, a set of Public Listed Companies has been selected by random sampling technique. However, among the samples, there are only 59% of the companies that have at least one female director and the average proportion of female directors in the board is about 12 per cent. These results showed that there is no support for the presence of female directors on board by most of the public listed companies. Henceforth, this would cause the sample not to properly represent the relationship between the female directors and financial performance of the public listed companies.

Furthermore, the economic value of the presence of female directors in Malaysian public listed companies was discounted by the market. According to the Bank Negara Malaysia, the gross domestic product (GDP) for year 2016 grew at a slower pace of 4.2% compared with the 5% in 2015 and 6% in 2014 (Department of Statistics, 2017). The slow economic growth perhaps accentuates the financial performance of the sample and difficult for the female directors to leave their mark on the companies' performance financially.

The main theoretical model tested in this study represents that whether the board gender diversity has any effect on the companies' financial performance. Some prior studies (e.g. Carter et al., 2010; Jackling & Johl, 2009; Marinova et al., 2010) argue that the direction of causality may be conversely, suggesting that profit making companies will attract more diverse board members. This may suggest that the variables of board diversity and financial performance are jointly

endogenous (Hermalin & Weisbach, 2003). This study has not taken endogeneity into account. On top of that, this research only uses Malaysian public listed companies. This implies that the results should be interpreted with caution due to the small sample (N: 250).

Besides that, only structural diversity – not diversity of behaviour has been addressed. One would expect that structural diversity of boards, such as of gender and nationality, would be related to board behavior, but this is an assumption that is not tested within this research.

5.3 Recommendations for future research

Future studies are suggested to accommodate more measures of diversity, for instance, diversity in education, age, tenure and any other demographic measures of diversity. The sample should be expanded and more variables should be included. In addition, determinants of diversity in board of director should also be examined further such as corporate complexity or dominant ownership structure since they are related to board diversity. Future research also can try to link board diversity and performance by using moderator variables, such as board effectiveness; or context-specific assessment such as board performance in crisis situation.

Despite the insignificance between the independent and dependent variables for this sample, it is still worthy to further investigate this relationship. Following Finkelstein & Hambrick (1996) opined that board structure is unlikely to have an universal effect on financial performance, in involves many intervening processes. Sequentially, the effect of board structure on financial performance may not be a one-to-one relation. In order to represent the population, it is important to enhance diversity. But more importantly, the boards should retain a high level of skill and expertise. Therefore, companies should set a target for board diversity whatever is realistic in view of their (strategic) requirements. In other words, the companies should focus on the balance between women and men, rather than the simple fact

of the presence of women. This also applies to dispersion of age; experiences, knowledge and skills also have to be determined before appointing a young director. As pronounced by Wan & Ong (2005), while it is important to have diversity of skills, talent and experiences; it is more important to actually apply them.

Diversity is no longer only to be viewed through gender, age and ethnic but has been widened to encompass a range of skills, experiences, and perspectives that could help safeguard a company against new and emerging threats. It is also important for boards to be comprised of individuals that offer different perspectives in order to understand and better serve the diverse customer base that exists today. The fact that many companies are facing a growing number of competitive, regulatory, and technological issues is driving this broader view of diversity. It will be important for corporate boards to consider the benefits and skillsets that gender, racial, and ethnic diversity could bring to boardroom discussions.

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APPENDIX A

LIST OF SAMPLE COMPANIES

1. A-RANK BERHAD
2. ADVENTA BERHAD
3. AHMAD ZAKI RESOURCES BERHAD
4. AIRASIA X BERHAD
5. AJINOMOTO (MALAYSIA) BERHAD
6. ALAM MARITIM RESOURCES BERHAD
7. AMTEL HOLDINGS BERHAD
8. AMWAY (MALAYSIA) HOLDINGS BERHAD
9. ANZO HOLDINGS BERHAD
10. APB RESOURCES BERHAD
11. APFT BERHAD
12. APOLLO FOOD HOLDINGS BERHAD
13. ASIA FILE CORPORATION BHD
14. ASTRO MALAYSIA HOLDINGS BERHAD
15. ATURMAJU RESOURCES BERHAD
16. B.I.G. INDUSTRIES BERHAD
17. BENALEC HOLDINGS BERHAD
18. BERJAYA ASSETS BERHAD
19. BERJAYA MEDIA BERHAD
20. BERJAYA SPORTS TOTO BERHAD
21. BINA DARULAMAN BERHAD
22. BINA PURI HOLDINGS BHD
23. BINTULU PORT HOLDINGS BERHAD
24. BOILERMECH HOLDINGS BERHAD
25. BOON KOON GROUP BERHAD
26. BP PLASTICS HOLDING BHD
27. BRAHIM'S HOLDINGS BERHAD
28. BREM HOLDING BERHAD
29. BRITISH AMERICAN TOBACCO (MALAYSIA) BERHAD
30. CAB CAKARAN CORPORATION BERHAD
31. CARIMIN PETROLEUM BERHAD
32. CARING PHARMACY GROUP BERHAD
33. CARLSBERG BREWERY MALAYSIA BERHAD
34. CCM DUOPHARMA BIOTECH BERHAD
35. CENTRAL INDUSTRIAL CORPORATION BERHAD
36. CEPATWAWASAN GROUP BERHAD
37. CHEE WAH CORPORATION BERHAD
38. CHEETAH HOLDINGS BERHAD
39. CHEMICAL COMPANY OF MALAYSIA BERHAD
40. CHIN WELL HOLDINGS BERHAD
41. CHINA AUTOMOBILE PARTS HOLDINGS LIMITED
42. COMFORT GLOVES BERHAD

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43. COMPUGATES HOLDINGS BERHAD
 44. CYPARK RESOURCES BERHAD
 45. DAIBOCHI PLASTIC AND PACKAGING INDUSTRY BERHAD
 46. DAIMAN DEVELOPMENT BHD
 47. DANCOMECH HOLDINGS BERHAD
 48. DATAPREP HOLDINGS BHD
 49. DATASONIC GROUP BERHAD
 50. DELEUM BERHAD
 51. DIGI.COM BERHAD
 52. DKLS INDUSTRIES BHD
 53. D'NONCE TECHNOLOGY BHD
 54. DOLOMITE CORPORATION BERHAD
 55. EASTLAND EQUITY BHD
 56. ECO WORLD INTERNATIONAL BERHAD (*Excluded- newly listed*)
 57. ECS ICT BERHAD
 58. EDARAN BERHAD
 59. EG INDUSTRIES BERHAD
 60. EITA RESOURCES BERHAD
 61. EKOWOOD INTERNATIONAL BERHAD
 62. EKSONS CORPORATION BERHAD
 63. ELSOFT RESEARCH BERHAD
 64. EMICO HOLDINGS BERHAD
 65. ENG KAH CORPORATION BERHAD
 66. EP MANUFACTURING BHD
 67. EUPE CORPORATION BERHAD
 68. EURO HOLDINGS BERHAD
 69. EWEIN BERHAD
 70. FARLIM GROUP (MALAYSIA) BHD
 71. FIMA CORPORATION BERHAD
 72. FITTERS DIVERSIFIED BERHAD
 73. FOCUS LUMBER BERHAD
 74. FRASER & NEAVE HOLDINGS BHD
 75. FREIGHT MANAGEMENT HOLDINGS BERHAD
 76. FSBM HOLDINGS BERHAD
 77. GABUNGAN AQRS BERHAD
 78. GADANG HOLDINGS BHD
 79. GAMUDA BERHAD
 80. GEORGE KENT (MALAYSIA) BERHAD
 81. GLOBALTEC FORMATION BERHAD
 82. GLOBETRONICS TECHNOLOGY BERHAD
 83. GOH BAN HUAT BERHAD
 84. GOLDEN PHAROS BERHAD
 85. GOLDIS BERHAD
 86. GOPENG BERHAD
 87. GPA HOLDINGS BERHAD
 88. GRAND-FLO BERHAD
 89. GUAN CHONG BERHAD
 90. GUOCOLAND (MALAYSIA) BERHAD
 91. HALEX HOLDINGS BERHAD
 92. HARBOUR-LINK GROUP BERHAD

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93. HB GLOBAL LIMITED (*Excluded- PN17*)
 94. HEINEKEN MALAYSIA BERHAD
 95. HIAP TECK VENTURE BERHAD
 96. HIBISCUS PETROLEUM BERHAD
 97. HO WAH GENTING BERHAD
 98. HOCK SENG LEE BERHAD
 99. HUME INDUSTRIES BERHAD
 100. HUP SENG INDUSTRIES BERHAD
 101. HWA TAI INDUSTRIES BERHAD
 102. IDEAL UNITED BINTANG BERHAD
 103. IGB CORPORATION BERHAD
 104. IJM CORPORATION BERHAD
 105. IKHMAS JAYA GROUP BERHAD
 106. IOI CORPORATION BERHAD
 107. IREKA CORPORATION BERHAD
 108. JAKS RESOURCES BERHAD
 109. JAYA TIASA HOLDINGS BHD
 110. JAYCORP BERHAD
 111. JMR CONGLOMERATION BERHAD
 112. K-STAR SPORTS LIMITED
 113. KARAMBUNAI CORP BHD
 114. KARYON INDUSTRIES BERHAD
 115. KAWAN FOOD BERHAD
 116. KBES BERHAD
 117. KECK SENG (MALAYSIA) BERHAD
 118. KELINGTON GROUP BERHAD
 119. KESM INDUSTRIES BERHAD
 120. KEY ASIC BERHAD
 121. KIM HIN INDUSTRY BERHAD
 122. KKB ENGINEERING BERHAD
 123. KNUSFORD BERHAD
 124. KONSORTIUM TRANSNASIONAL BERHAD
 125. KOSSAN RUBBER INDUSTRIES BERHAD
 126. KSL HOLDINGS BERHAD
 127. KUB MALAYSIA BERHAD
 128. KUCHAI DEVELOPMENT BERHAD
 129. KUMPULAN H & L HIGH-TECH BERHAD
 130. KUMPULAN JETSON BERHAD
 131. KUMPULAN PERANGSANG SELANGOR BERHAD
 132. KYM HOLDINGS BERHAD
 133. LAFARGE MALAYSIA BERHAD
 134. LATITUDE TREE HOLDINGS BERHAD
 135. LB ALUMINIUM BERHAD
 136. LBS BINA GROUP BERHAD
 137. LEADER STEEL HOLDINGS BERHAD
 138. LEBTECH BERHAD
 139. LEWEKO RESOURCES BERHAD
 140. LIEN HOE CORPORATION BERHAD
 141. LION DIVERSIFIED HOLDINGS BERHAD (*Excluded- PN17*)
 142. LONDON BISCUITS BERHAD

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143. LTKM BERHAD
 144. M-MODE BERHAD
 145. MAGNUM BERHAD
 146. MAJUPERAK HOLDINGS BERHAD
 147. MARCO HOLDINGS BERHAD
 148. MAXIS BERHAD
 149. MAXWELL INTERNATIONAL HOLDINGS BERHAD (*Excluded-PN17*)
 150. MEGA FIRST CORPORATION BERHAD
 151. MERGE ENERGY BHD
 152. METROD HOLDINGS BERHAD
 153. METRONIC GLOBAL BERHAD
 154. MHC PLANTATIONS BHD
 155. MIECO CHIPBOARD BERHAD
 156. MINETECH RESOURCES BERHAD
 157. MITRAJAYA HOLDINGS BERHAD
 158. MWE HOLDINGS BERHAD
 159. OCB BERHAD
 160. OMESTI BERHAD
 161. ONLY WORLD GROUP HOLDINGS BERHAD
 162. ORIENTAL HOLDINGS BERHAD
 163. P.A. RESOURCES BERHAD
 164. PADINI HOLDINGS BERHAD
 165. PAN MALAYSIA HOLDINGS BERHAD
 166. PANPAGES BERHAD
 167. PAOS HOLDINGS BERHAD
 168. PARAGON UNION BERHAD
 169. PARKSON HOLDINGS BERHAD
 170. PCCS GROUP BERHAD
 171. PELANGI PUBLISHING GROUP BHD
 172. PELIKAN INTERNATIONAL CORPORATION BERHAD
 173. PENSONIC HOLDINGS BERHAD
 174. PENTAMASTER CORPORATION BERHAD
 175. PERAK CORPORATION BERHAD
 176. PERDANA PETROLEUM BERHAD
 177. PERISAI PETROLEUM TEKNOLOGI BHD (*Excluded- PN17*)
 178. PETALING TIN BERHAD
 179. PETRONAS GAS BERHAD
 180. PINEHILL PACIFIC BERHAD
 181. PINTARAS JAYA BHD
 182. PMB TECHNOLOGY BERHAD
 183. PNE PCB BERHAD
 184. POH HUAT RESOURCES HOLDINGS BERHAD
 185. PPB GROUP BERHAD
 186. PRG HOLDINGS BERHAD
 187. PRINSIPTEK CORPORATION BERHAD
 188. PROLEXUS BERHAD
 189. PWF CONSOLIDATED BERHAD
 190. RALCO CORPORATION BERHAD
 191. REACH ENERGY BERHAD

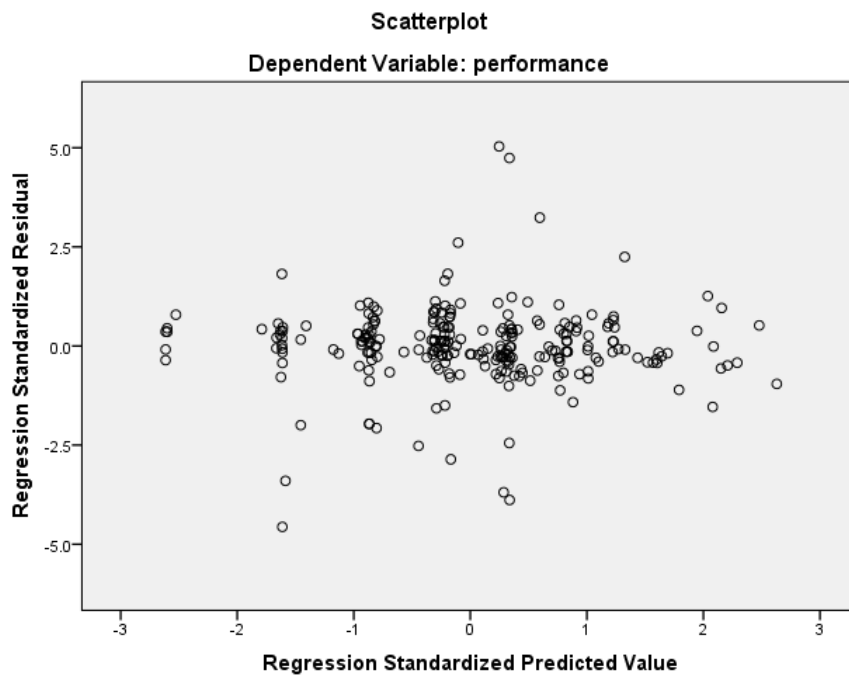
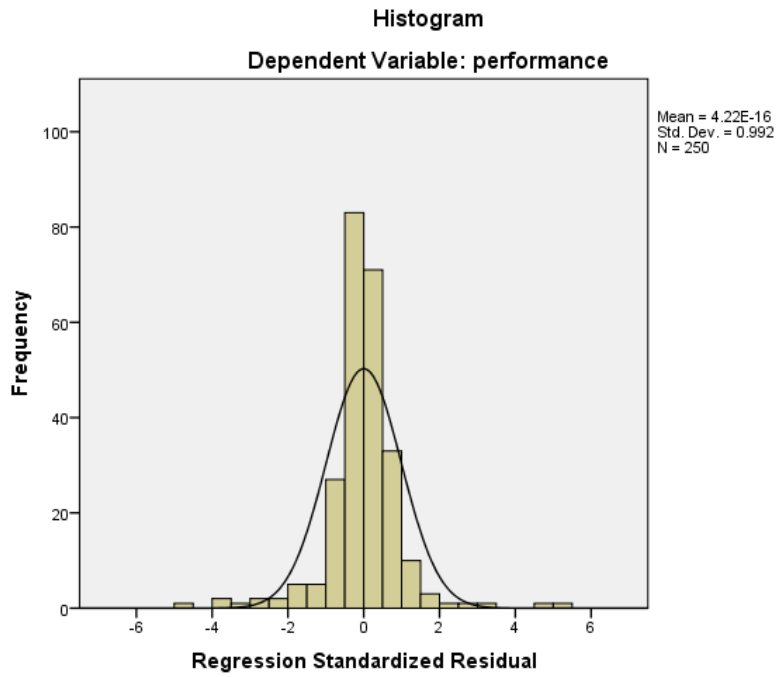
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192. RELIANCE PACIFIC BERHAD
 193. RIMBUNAN SAWIT BERHAD
 194. ROHAS TECNIC BERHAD
 195. SALCON BERHAD
 196. SAM ENGINEERING & EQUIPMENT (M) BERHAD
 197. SAMCHEM HOLDINGS BERHAD
 198. SAPURA ENERGY BERHAD
 199. SAPURA RESOURCES BERHAD
 200. SARAWAK PLANTATION BERHAD
 201. SCOMI ENGINEERING BHD
 202. SCOMI GROUP BERHAD
 203. SEREMBAN ENGINEERING BERHAD
 204. SERN KOU RESOURCES BERHAD
 205. SHH RESOURCES HOLDINGS BERHAD
 206. SHIN YANG SHIPPING CORPORATION BERHAD
 207. SHL CONSOLIDATED BHD
 208. SIME DARBY BERHAD
 209. SINO HUA-AN INTERNATIONAL BERHAD
 210. SINOTOP HOLDINGS BERHAD
 211. SKB SHUTTERS CORPORATION BERHAD
 212. SOUTH MALAYSIA INDUSTRIES BERHAD
 213. SUBUR TIASA HOLDINGS BERHAD
 214. SUMATEC RESOURCES BERHAD
 215. SUNSURIA BERHAD
 216. SUNWAY BERHAD
 217. SYF RESOURCES BERHAD
 218. T7 GLOBAL BERHAD
 219. TA ANN HOLDINGS BERHAD
 220. TAHPS GROUP BERHAD
 221. TASEK CORPORATION BERHAD
 222. TELEKOM MALAYSIA BERHAD
 223. TEO GUAN LEE CORPORATION BERHAD
 224. TEXCHEM RESOURCES BERHAD
 225. TH HEAVY ENGINEERING BERHAD
 226. THREE-A RESOURCES BERHAD
 227. THRIVEN GLOBAL BERHAD
 228. TIME DOTCOM BERHAD
 229. TOMYPAK HOLDINGS BERHAD
 230. TPC PLUS BERHAD
 231. TRANSOCEAN HOLDINGS BHD
 232. TRC SYNERGY BERHAD
 233. TRIPLC BERHAD
 234. TURBO-MECH BERHAD
 235. UCHI TECHNOLOGIES BERHAD
 236. UEM EDGENTA BERHAD
 237. UMW OIL & GAS CORPORATION BERHAD
 238. UNITED MALACCA BERHAD
 239. UPA CORPORATION BHD
 240. UZMA BERHAD
 241. VITROX CORPORATION BERHAD

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- 242. VOIR HOLDINGS BERHAD
 - 243. WAH SEONG CORPORATION BERHAD
 - 244. WARISAN TC HOLDINGS BERHAD
 - 245. WCE HOLDINGS BERHAD
 - 246. WEIDA (M) BHD
 - 247. WELLCALL HOLDINGS BERHAD
 - 248. WESTPORTS HOLDINGS BERHAD
 - 249. WIDETECH (MALAYSIA) BERHAD
 - 250. Y&G CORPORATION BHD
 - 251. Y.S.P.SOUTHEAST ASIA HOLDING BERHAD
 - 252. YEN GLOBAL BERHAD
 - 253. YTL CORPORATION BERHAD
 - 254. YTL POWER INTERNATIONAL BHD
 - 255. ZECON BERHAD

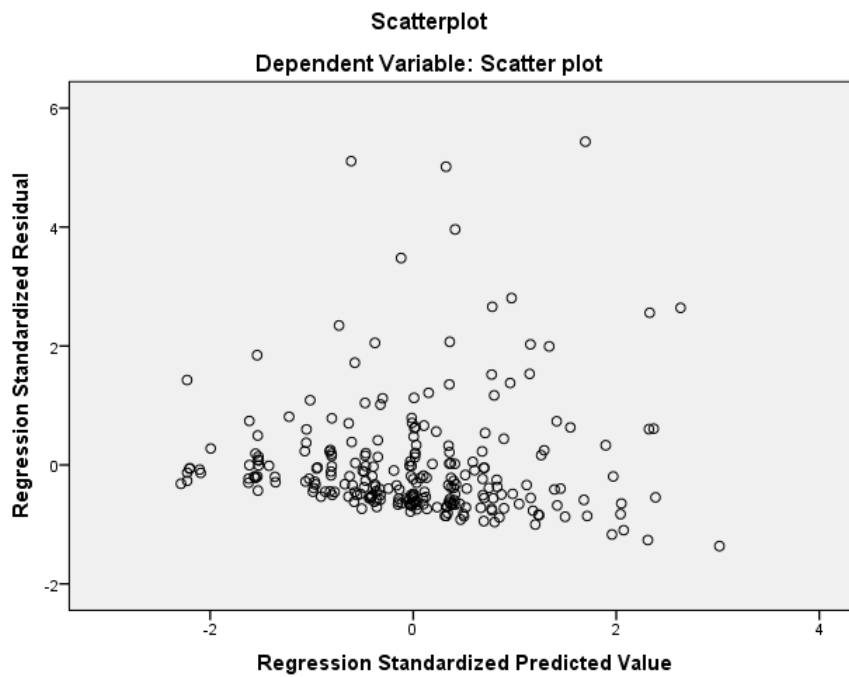
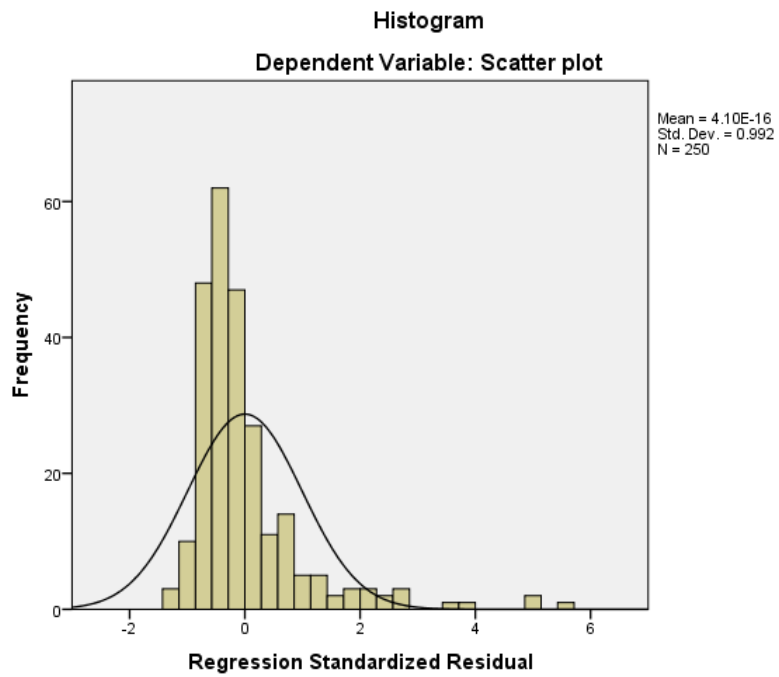
APPENDIX B

VARIABLES CHECK FOR NORMAL DISTRIBUTION

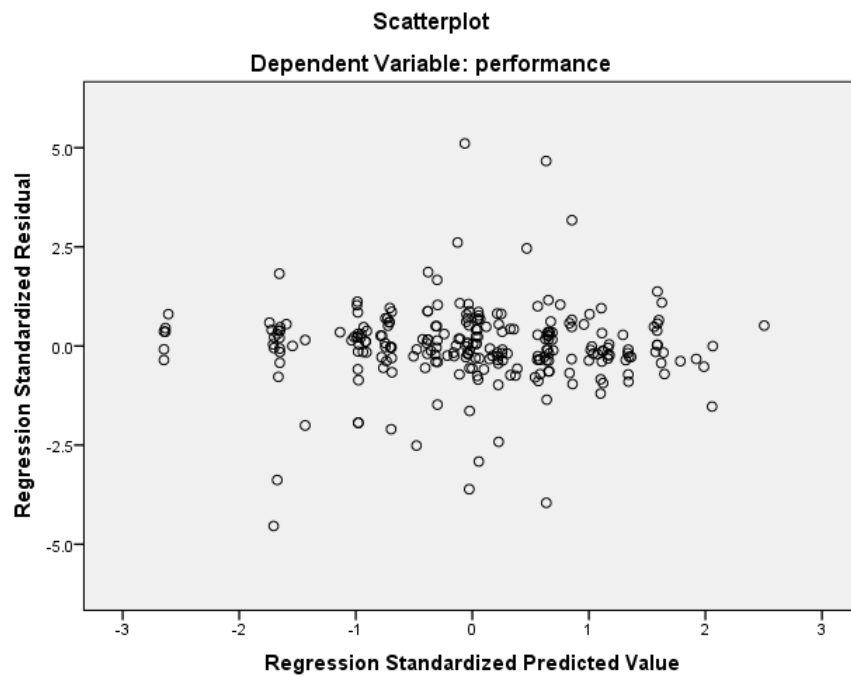
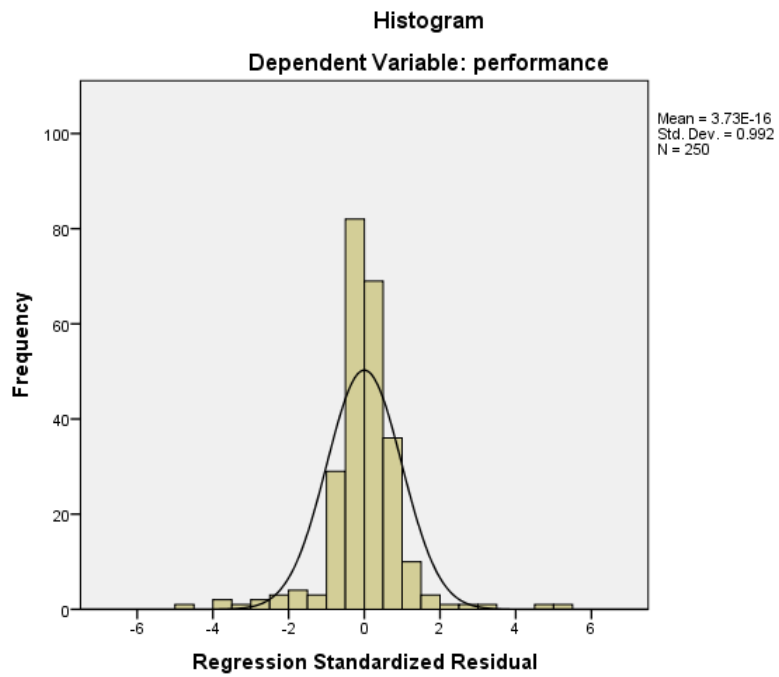
Gender Diversity & ROA



Gender Diversity & Tobin's Q



Dummy of Women Existence & ROA



Dummy of Women Existence & Tobin's Q

