THE IMPACT OF WOMEN DIRECTORSHIP ON FIRM PERFORMANCE IN MALAYSIAN ENERGY INDUSTRY

JANNATUL FERDOUS

ID: 20ABM00541

MASTER OF PHILOSOPHY

FACULTY OF BUSINESS AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

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By

JANNATUL FERDOUS

A dissertation submitted to the Faculty of Business and Finance, Universiti Tunku Abdul Rahman, in partial fulfillment of the requirements for the degree of Master of Philosophy

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Abstract

Boardroom diversity attains vast attention due to the corporate legislation, reforms, and financial crisis and scandals of the last few decades. In view of this, Malaysian government imposed 30% women quota on the Bursa Malaysia listed companies. The objective of this research is to study the impact of women directorship on firm performance in Malaysian energy industry. The energy industry was chosen because it is one of the most male-dominated industries in the world. Agency theory and resource dependency theory were used as the theoretical framework of this research. Return on assets, market capitalization and economic value added were chosen to measure the firm performance of this study as dependent variable. Meanwhile, quota attainment, quality of women directors, women directors in risk management committee were considered as independent variables. This study also examined the interaction of quota attainment and Shannon index to check for its moderating impact on firm performance. Thirty-one energy companies listed on Bursa Malaysia for a period of seven years spanning from 2013 to 2019 were taken as the sample of the study. The descriptive analysis indicated an upward trend of women directorship. Meanwhile, panel data regression revealed that quota attainment has negative significant whereas the interaction of quota attainment and Shannon index brings positive impact on both return on assets and market capitalization. As interaction of quota attainment and Shannon index (gender balanced board) bring positive impact on firm performance, board should ensure quota implication along with ensuring proper gender balanced board to bring fruitful impact on firm performance.

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BOD	Board of Director
MC	Market Capitalization
EVA	Economic Value Added
MCCG	Malaysian Code on Corporate Governance
ROA	Return of Asset
BS	Board Size
BI	Board Independence
FS	Firm Size
CG	Corporate Governance
BPLM	Breusch-Pagan Largrange Multiple Test
REM	Random Effect Model
FEM	Fixed Effect Model
POLS	Pooled Ordinary Least Square
GLS	Generalized Least Squares
VIF	Variance Inflation Factor
OLS	Ordinary Least Square

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The following chapter is comprised of research background, research objective,research question, the significance of the study, and scope of it. Overall, this chapter portrays the overall picture of women representation on the corporate level in Malaysia.

1.2 Research Background

1.2.1 Corporate Governance

Nowadays, corporate governance performs a vital role in the corporate world and has become one of the serious matters throughout the world (Hassan, Marimuthu & Kaur, 2016). Through the implementation of perfect measures of corporate governance, it can uphold the appearance and prestige of the firm to draw the attention of more shareholder's participation in the firm.

According to Bainbridge (2012), corporate governance comprises of the corporate framework, legitimate regulations, and proper guidelines. This corporate governance system will be authorized to take any kind of appropriate decision in time. Corporations can maximize the financial worth of their firm for a long period by generating awareness and

perceptions through ensuring effective corporate governance. (Gupta & Sharma, 2014). Corporate governance is significant in running any institution. The board of directors is playing a pivotal part in steering the strategic decision of any corporation's performance. Board of directors' act as an intermediary person between managers and shareholders. According to Hassan et al. (2016), principle-agent issues can be minimized by applying regulations of corporate governance in any organization. Besides, it can impede any kind of criminal activities within the corporation. Corporate directors utilize their experience, knowledge, expertise, decision making towards the governance of the firm. The firm is owned by the shareholders; maintained, and run by the management, supervised, and monitored by the BOD. It is the Board of directors who are accountable for all the actions and endeavors of the firm. Among the diversity related issues, boardroom gender diversity and implementation of quota policy have attained vast attention to ensure women participation in the corporation.

1.2.2 Board Gender Diversity

Diversity is the term that is related to the divergent mixture of gender, age, ethnicity, and qualification, expertise seen at a place (Sebatsin Point & Val Singh, 2003). The two attributes of diversity are taken into account: one is demographic that is easily detectable, attainable like race, age, gender, whereas another one is not detectable; cognitive one such as experience, knowledge, education, perception (Marimuthu & Kolandaisamy, 2009; Hassan, 2014). Those are profiles, knowledge, individual capacities, and

skills. Gender diversity attains vast attention due to the corporate legislation, reforms, and financial crisis and scandals of the last few decades. Boardroom diversity has come into the limelight by gathering concern of practitioners, regulators as there was paucity of women director's presence on board.

The discussion about the gender combination of the board is still prevailing and focused on the two aspects,mainly: economical and ethical (Campbell & Mínguez-Vera, 2008). Whenwomen remain under-represented on the board due to only the gender issues; ethical aspect is considered that time (Campbell & Mínguez-Vera,2008). Women should not be excluded from high-ranking positions only for gender issues (Campbell & Mínguez-Vera, 2008; Isidro & Sobral, 2014)). According to economic aspect, discrimination is regarded as sub-optimal rather being unethical (Brammer, Milington & Pavelin, 2007). Thecombination of corporate board is deemed to be well balanced if its boardmembers are from different backgrounds regardless of gender, age, experience, ethnicity, etc. Everybody should have an equal opportunity and chance to demonstrate their contribution and talent in their respectivesector. To perform in a better way and for good corporate governance, companies and firms need a more balanced male and female board of directors who have own the right aptitudes such as knowledge, skills andexperience, professionalism. The balanced board may help the corporation to contribute to board decision making and provide several points of viewfor corporation (Ahmad & Rugami, 2019). According to Vera Mao (2014), diversity is considered as "double-edged sword." It suggests different concepts, perceptions, and viewpoints. If this

diversity is managed correctly; it can ensure creativity and productivity. However, if diversity is not properly handled, it can bring conflicts as well as fruitless output. Diversified BODs have the power to take strategic decision making and attain strategic goals. Female directors are found to be more effective in communication with the external shareholder about strategic decision making, improving the firm value (Bernard, Claude & Real, 2015).

1.2.3 Quota Policy

Quotas for female membership on corporate boards have been gaining attention in the last decades. The quotas were designed to ratify board quotas to boost the women's participation on board (de Cabo et al., 2019). Furthermore, quotas have been recommended to stimulate gender quality along with increment of women's participation (Ferrari et al., 2018).

The quota implementations are encouraged to minimize the effect of male-dominated society and flourish the gender diversity at the workplace. This also intended for the rectification of the extreme gender disparity in the corporate sectors. The term women quota on board was first initiated by Norway in 2003 by implementing the mandatory 40% women quota on board of the public listed corporations within 2008 (De Cabo, Tersejen, Escot & Gimeno, 2019). Norway successfully attained its target with a successful implementation of a 40% quota on board in 2008 (Ahren & Dittmar, 2012). Apart from Norway; Iceland, Spain, France, Germany, Italy, etc. initiated women quota on board. But to implement this quota

successfully, Norway had to implement the “hard quota” policy like banning the firms from share market, go for compulsory liquidation. This law had been changed from voluntary obedience to mandatory in Norway (Ahren & Dittmar, 2012). This policy states that those companies who are unable to attain the 40% quota within stipulated time must refrain themselves from the stock market. However, “soft quota” deals with only the recommendations, rectifications, and warnings for the non-compliance of the gender- balanced board (De Cabo et al., 2019). Spain, Netherlands are the countries who still exercise soft quota lows (Conde-Ruiz et al., 2018; de Cabo et al., 2019).

Apart from Norway, France imposed women quota in two stages; one is 20%, and the other is 40% in 2014 and 2017 respectively to enhance the women's participation on board. German government imposed 30% women quota of their board size in 2015 (Deloitte, 2018). Italian government imposed 33% quota of women directorship quota on their firm using the “hard quota” concept. Those firms are unable to maintain it;they will have to pay a fine, chance of liquidation and non-payment of directors (Profeta, Aliberti, Casarico, D’Amico, & Puccio, 2014). Japan and Malaysia imposed 30% women quota on board respectively to be achieved within 2020 whereas Brazil passed the legislation of 30% quotaand to be achieved within 2022 (Deloitte, 2018). Globally, Norway, France, Belgium, New Zealand, Finland, Sweden are the leaders of the women representation on the board, having more than 30% representationon the board (Deloitte, 2018). In contrast, UAE, Saudi Arabia, Greece, Chili, Japan, South Korea, Qatar are still lagging to ensure women on

board (Egon Zehnder, 2020).

1.2.4 Malaysian Code on Corporate Governance

Malaysia is one of the emerging economies in the world. It is one of the rapidly growing countries of South Asia targeting to be the developed country in 2020 by achieving high- income status. In 1997, the financial crisis had affected the Malaysia economy severely. For this reason, many major corporations had collapsed. Malaysian economy faced hurdles and difficulties due to the sudden failure of the corporations. The Malaysian corporate governance has come under fire due to the collapse of corporate governance system in a small number of companies. Malaysia faced it when it had to go through economic downturn. These companies are Malaysia Airline Systems (MAS), 1MDB and Technology Resources Industries which has failure of economic downturn. According to Hassan and Marimuthu (2015), ineffective corporate governance practices are regarded as one of the factors of corporation sudden bankruptcy or failure. To comply with proper corporate governance practices, Malaysia initiated code of corporate governance to change the landscape of the corporate world. The Malaysian code on corporate governance (MCCG) was formed in 2000.

The principles of excellent corporate governance, advisory works, explanatory notes, and other best practices are included in MCCG 2000. There were no specific principles or standards stating gender diversity like any compulsory or voluntary participation of women on board. For the improvement of the responsibilities of board of director and audit

committee, MCCG was reviewed in 2007. There were three recommendations enlisted in MCCG 2007. There was a principle for corporate governance; subsection A directors, where there was stated that the company should have a balanced board only for executive and non-executive directors.

In March of 2012, the Malaysian Securities Commission updated the MCCG 2007 with the MCCG 2012.The new MCCG 2012 came into effect from 31 December 2012. The revised corporate governance code established several standards and suggestions to improve Malaysia's corporate governance procedures. MCCG 2012 gave focus on the role of directors, board effectiveness, strengthening the board's independence. The second principle of MCCG 2012 was enhancing composition. Under this principle, the recommendation 2.2 stated that the board should reveal policies regarding gender diversity on the annual reports and actions as well as procedures are taken to accomplish those targets.

MCCG 2012 was again reviewed by the Securities Commission. The new three principles are included in MCCG 2017. Under MCCG 2017, the "CARE" approach replaced the "comply or explain." CARE, an acronym for "Comprehend, Apply, and Report." Under MCCG 2017, Practice 4.6 states that large companies must have 30% of women directors on board. Gender diversity should not only be on the board position but also in the senior level position. In a nutshell, MCCG 2017 improves board structure by enhancing the requisite of board independence, gender diversity, and term of independent directors. After this amendment, Malaysia is following the rules and regulations of MCCG 2017 with the term related to

gender diversity or mandatory women quota on board. Furthermore, the implementation of 30% women quota on board is stated strictly on MCCG-2021 and Malaysia is following the rules and regulations stated by MCCG-2021. Malaysia ranked fourth place in terms of corporate governance accountability and transparency among the 12 Asia- Pacific region in the 2018 report published by the ACGA and CLSA (Bernama, 2018).

1.2.5 Quota Scenario in Malaysia

Malaysian women are still under-represented in the corporate sector, especially in the Board of directorship, despite different measures taken by the Malaysian government. To enhance women's participation in the Malaysian corporate area as BODs, the Malaysian government took steps to encourage women's mandatory participation by imposing binding women's quota in the corporate sector. In 2004 Malaysian government Prime Minister Abdullah Badawi have an announcement regarding women quota legislation. He announced 30% women's quota on top-level management just in the public sector to ensure equality among all (Abdullah & Ismail,2013). The first deadline to achieve this quota was within 2010 in public sector. This deadline was extended by prime minister Najib Razak stating that the duration for achieving this would be within 2016 (Abdullah & Ismail,2013). But it is not adequately maintained by all the firms or corporations strictly due to male dominance still prevails in Malaysia.

Furthermore, the attainment of 30% quota has been extended by 2020 (Victor, 2017). In MCCG-2021, it is clearly written that all boards must

have 30% women on board. Those boards who have still not achieved 30% women on board, they have to reveal the cause of it, possible action, and the estimated timeframe for achieving it. Some progress was made in this arena of women representation on board. In December 2016, the women board of director's percentage was only 16.6; then, it increased to 19.2 at the end of December 2017 on the 100 public listed companies (Securities Commission Malaysia, 2017). But at the end of 2017, the percentage of female BODs increased to 19.2 from 16.6% that was in 2016. Fifteen top Malaysian companies accomplished thegoal of about 30% of women's quota in 2017. Now top 100 public limited companies (PLC) achieved 25.8% women; while 255 PLC are still full manon board (Bernama, 2021).

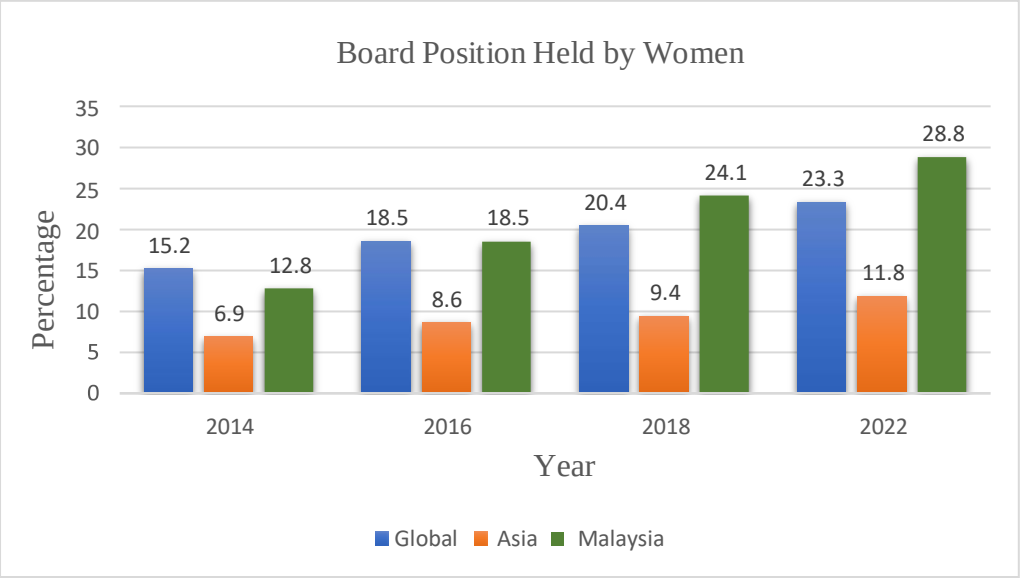

Figure 1.1: Board Position Held by Women

Source: Egon Zehnder; Global Board Diversity Tracker 2020

From Figure 1.1, there is a visible difference among the global, Asia, and

Malaysian women on board. From the data, it is quite evident that the participation rate of females on the board has increased gradually in global, Asia, and Malaysia. The rate of women percentage onboard was enhanced with a good number not only globally but also in Malaysia. Malaysian women on board percentages were 12.8, 18.5, and 24.1 in 2014, 2016, and 2018 respectively. In 2018, it increased to 24.1% on overall women on board though it is still not fulfilled the government requirement of 30% women quota policy within 2020. From the scenario of 2020's number, it is mirrored that the percentage of Malaysia's women on board jumped from 24.1% to 28.8%. It is also easily concluded that Malaysia is progressing, but the stipulated target is still not achieved.

From the Corporate Governance Monitor Malaysia (2019), the companies are doing quite well for the achievement of the target set by the Malaysian government within the stipulated time in 2020. Though the progress is slow to achieve the goal of 30% women quota in all sectors, the improvement is consistent so far until now.

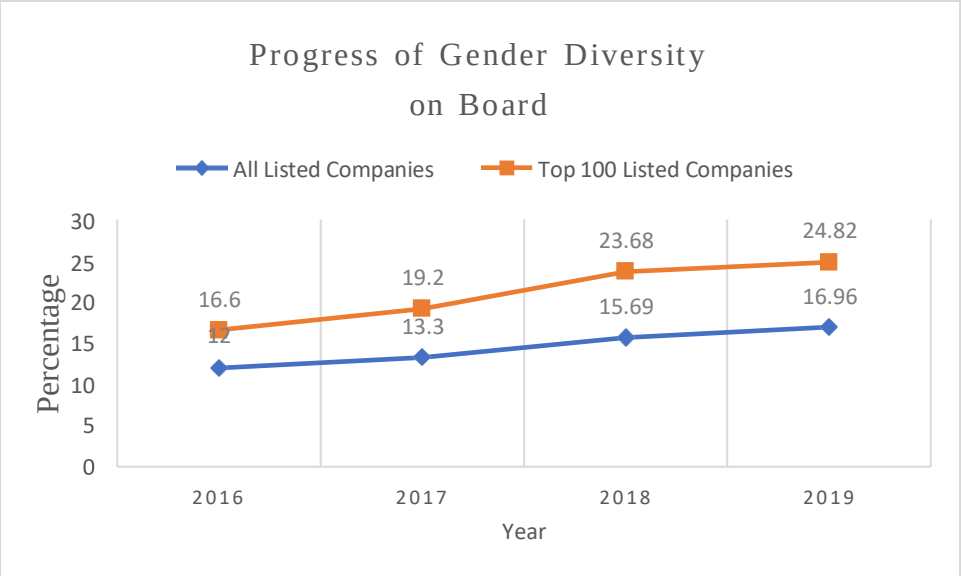

Figure 1.2: Progress of Gender Diversity on Board in Malaysia
Source: Corporate Governance Monitor, (Securities Commission Malaysia, 2019)

From the above Figure 1.2, there was an increment of 4.48% from 2017 to 2018 in the top 100 listed companies in Malaysia, whereas in the case of all listed ones, this increment is quite slow with the 2.39% from 2017 to 2018. Moreover, there are some reasons behind this slow trend of board gender diversity. The reasons for the absence of female representation on boards of directors may become a point of contention. One of the causes is cultural and social ideas about what jobs are appropriate for men and women. The capacity of women to lead an organization is questioned owing to the impression of their emotional, meticulous, and finicky tendencies. The glass ceiling is also claimed to be one of the reasons behind women's underrepresentation in decision-making positions.Furthermore, some have suggested that women may withdraw from promotion competition (Niederle & Vesterlund, 2007) or prefer to avoid the stress and work-life balance associated with executive positions. In 2019, the scenario is far better as progress of gender diversity is now 24.82% for top 100 listed companies. All listed companies have to improve the scenario of women on board as the presence is still 16.69%.

Apart from this Malaysia has achieved no male board on 100 listed companies. This signifies that 100 companies are free from tokenism and presence of female board members.

1.2.6 Quality of Women Directors

Unobservable characteristics of directors are considered as education, experience and knowledge. Board of directors who possess high qualifications can benefit the business through the proper mix of credibility, competencies and diverse thoughts in decision making. Directors' qualification are the underlying criteria to explain and utilize the information given by management (Abdurazak Harun, 2017). Personal profile having business education along with experience can create corporate image, accountability and credibility. Moreover, the knowledge of industry, its connection, opportunity, threat will able the directors to enable them to contribute for the betterment of firm.

These traits of women directors are considered as jewel as these qualities will make special room for putting opinion on board among male-centered board members. Though educational attainment increases the cognitive level of all directors, productive abilities will be differed from the perspective of values, experience and skilled (Kuo & Chang, 2016). High education level along with experience make women as assets in the business organization. Women having proper education along with industry experience will be eager to display their worth and capabilities. In terms of experience and knowledge, women directors can offer diverse range of perspective and deal the complex business issues clearly. This may lead to the effective board in business making decision (Nielsen & Huse, 2010). When women eager to exhibit their skills, this can lead to relation conflict, tension and animosity and bad board dynamic (Petrovic, 2008).

1.2.7 Scenario of Women Directors and Firm's Performance

The topic of women directorship and its effect on firm performance is becoming the growing concern of any research. Research area has fully focused on the women's underrepresentation and its overall impact on firm. Several studies are conducted by several authors and found negative impact on firm performance due to women's presentation. According to Yap et al. (2017), there will hardly be any impact on firm's financial growth if there is presence of only one-woman director. However, the firm's worth can be increased by ensuring a high number of women's presence on board. In Malaysia, some studies found positive relation between women's representation and firm performance, whereas others failed to establish any meaningful link on this matter.

Past studies state that women on board are considered as "token" by the other board of directors if there is only one woman on the board. This phenomenon deals with the Tokenism problem, and the only one women's decision about the corporation is considered unimportant to implement (Elstad & Ladegar, 2012). Moreover, according to the critical mass theory *"one female is regarded as a token, two is considered as presence, and three make a voice."* To give an insightful corporate governance mechanism, there should be the presence of three females on board to support the critical mass theory (Torchia, Calabro & Huse, 2011). Some findings conclude that if the female board members are less than three, there is a chance of tokenism. Meanwhile, more than three on board means there is less chance of tokenism problem (Torchia et al., 2011).

Visibility is when females are extremely monitored by their male

counterparts that will limit or shrink their ability (Elstad & Ledegar, 2012). For these consequences, female directors' ability remains underestimated, and their opinions become trivial at the time of making decisions for the welfare of the organization. According to Poon, Yap and Heang (2013), directors having business related education and experience can enhance the firm's growth in long run. Appointing directors with education and industry experience like skills, internal control and procedures will help to justify the problems and make solutions for the firms during decision making process (Saat, Karbhari, Heravi & Nassir, 2011).

1.2.8 Energy Industry in Malaysia

Malaysia is an emerging countries with lot of opportunities of this world. For this, Malaysia's economy is circulating and boosting and generating income. Thefirst oil discovery in Sarawak in 1910 opened a new era for the history ofthe Malaysian economy for the energy sector. This energy sector is playinga crucial role in mapping new future growth in Malaysia. Malaysian energysector is the combination of natural gas, fuel, petroleum, coal, biodiesel, and electricity.

The contribution of Malaysia's energy sector to gross domestic product (GDP)) is roughly 20 percent. The oil and gas industry makes up nearly 76% of the entire energy sector. Even in the covid-19 situation, when other country is facing energy crisis, Malaysia's energy industry is still manageable. Today, Malaysia economy is booming with

the growth of Malaysia's gas industry with 135 billion dollars annually even in pandemic. Moreover, the employment of this gas industry is over 80,000 all over the country and ensures productivity along with employment. So, energy industry plays a pivotal role in the Malaysian economy. According to Oil and Gas Journal (OGJ), the oil and gas reserve in Malaysia is holding the fourth position among the Asia Pacific regions. The energy sector remains one of the least gender-diverse areas in the economy (Johnstone & Silva, 2020). Women's participation rate in the energy sector is pretty much low and poor not only in the entry, mid-level position but also in the senior leadership and board- level position in the world. Female participation in energy sector workforces is too weak, the lowest levels of any significant industry (Bernama, 2019). It is nearly the same case all over the world, where there are a relatively lower women participation on board in case of the energy industry compared to other sectors. According to Egon Zender (2020), thelowest participation in the industry is the energy industry around 19.6% in2020 globally whereas it was near 17.5% in 2018. Even Malaysia is not exception of it as women participation on the ground level still low. Energy industry is a very good setting for this research as this industry contributes to the Malaysian GDP to a great extent. According to this report, few companies have 50% women on board in this field energy industry.

1.3 Problem Statement

Women remain underrepresented in the position of board of directors globally ("Change in Mindset", 2021). Though the participation of women on board is quite praiseworthy nowadays, it is still a long way to go for the equal balance of men and women's participation ("Change in Mindset", 2021). Women are still under the dominant position by the male counterparts in the energy industry, causing the glass ceiling position that creates an invisible barrier for the women to be the senior position or the board of directors (Subramanium et al., 2016).

The problem of untapped women talent is the acute in the energy industry. Evenenergy industry's women in the entry level are least than any other sector.Furthermore, the technology, energy companies are more flexible for the male counterparts rather than women ("One Women Director", 2021). When the women get qualified for the desired position, it is thought that women got the position and promotion due to bribery rather than qualification ("One Women Director", 2021). For this reason, women face hurdles to climb the career ladder in the male dominant arena.

Countries started imposing mandatory women quota on board to eliminate gender inequality from the corporate sector. Norway, Italy, France, Germany, Iceland, and Spain are the pioneers of this quota system. Malaysia is also not an exception of this quota policy to make balance in the corporate sector. Malaysia also imposed 30% quota in 2004 on all top management positions of the companies.

When this quota system is established, two problems are arising for quota

policy: one is tokenism, and another one is visibility. Tokenism problem occurs when female directors assume themselves as token. They don't feel comfortable sharing their opinion related to any decision in the corporation. Besides, visibility problem has also come into consideration which explains that women directors are always being observed by their male counterparts. For this phenomenon, women cannot easily share their valuable opinions. By doing this, women are shrinking their thinking ability and hardly contribute to the firm's decision making. This indicates that there is a possibility of women are being appointed merely as the token for gender equality rather than benefiting the firm. This research focuses on the impact of women directorship on firm performance duringquota policy. However, there is a concern that firms might only focus on thequota or percentage imposed by Malaysian government rather than quality.Quality is equally important as well as quantity. The implementation of quota should not only be box ticking process but also proper qualified directors in the firms. If the firms only focus on quantity rather than quality, there is hardly any chance for the betterment of the firms in long run. This thesis willconsider the quota implication of women directors along with the quality of the directors on firm performance.

Past studies on gender diversity have been done towards other sectors like manufacturing, consumer, property etc. Chin and Tat (2014), Khan, Hassan and Marimuthu (2017), AuYong and Tan (2018) did the research on manufacturing, service industry of Malaysia. Amin and Nur (2019) carried their research on manufacturing, service, construction industry of Malaysia. However, according to researcher knowledge very few research (Baharuddin

& Marimuthu, 2019) work is done in the Malaysian energy sector. The energy sector is selected for its known male- dominated environment in this study. The energy sector is representing roughly only a fifth of female employees imposing a matter of concern. According to S&P Global Indices, if the growth of women's participation is continuing to this rate, the 50-50 gender-balanced board will only be achieved in 2058 (Cottle, 2019). The leading causes can be the lack of a highly qualified female team, lack of teamwork, lack of creativity, and inflexible working hours for females. Again, as there is a lack of females on the ground, entry, or mid-level, it is hard to ensure highly qualified women on the top position or board in the energy sector. For this, undoubtedly, there is always a scarcity prevailing of highly experienced women on board in this sector.

Moreover, male-centric culture is prevalent throughout the energy sector. For this, females are not encouraged to enter this industry spontaneously. Globally, men hold approximately three- quarters of energy sector jobs, even though women are representing as much as half of a country's qualified workforce. As there is very less women participation prevails in the workforce, there is a survey conducted by Ipsos online to investigate probable reasons of women under representation in the workforce. There are several reasons found that women are facing barriers to move forward in their corporate career. In the case of Malaysia, the fact is that employers are not flexible for women to balance their work, salary gap and family responsibilities, difficulties in getting promotion were considered as prime reason to stop women from achieving gender equality (Dawn Chan, 2020).

As there is difficulty of getting promotion at each level, the"broken rung" phenomenon prevails. As stated by Jess et al. (2019), this broken rung problem has caused many women to get stuck at the manager level and unable to further climb up the career ladder. The early phrase of inequality affects talent pipeline in the long term. Females have to face their biggest challenge at the time of getting promoted at the managerial level in the corporate world.

Gender Equality is one of the seventeen goals of Sustainable Development Goals to be achieved within 2030. But women are still lagging to attain the managerial position on the senior level. Female board of directors is still low on the corporate board, especially in the energy sector (Liyana Hasnan, 2019).

There are only a few previous quantitative research (Ahmad and Hamdan, 2019) done regarding the impact of women directorship on firm performance, in association with the implication of quota policy in Malaysia. Besides, according to researcher's knowledge, there are lack of study (Baharuddin and Marimuthu, 2019) done on the diversity along with women CEO's in the energy industry of Malaysia. There remains a research gap which could be covered in this thesis.

Risk management is a key element of corporate governance vital for the survival of a firm, and ignoring risk by the board is viewed as the most important reason for the recent financial crises (Hutchinson et al., 2015). In today's organizations, risk management is undoubtedly the most crucial role. Risk management has risen to the top of the priority list. The

profession has developed to strike a balance between efficiently managing risks and finding and capitalizing on emerging opportunities to gain a competitive edge. In the boardroom and on the executive team, leaders are looking through the lens of risk and leveraging risk management thinking (Shimin et al., 2016). A risk committee's responsibility should span the whole organization, with a systematic approach to risk categorization, monitoring, and guidance. It should assist management in concentrating on risk reduction procedures.

This study investigates a risk management scenario in which female directors might make greater use of their personality and leadership abilities. Through improved board effectiveness, female directors can help to improve risk management by acting as stronger monitors and advisors (Hutchinson et al., 2015). Some argue that, at least in terms of risk management, female directors are as competent as, if not more qualified than, their male counterparts in fulfilling their jobs as women are usually risk averse compare to men. Women are in a unique position to bring value to risk management by expanding the pool of skilled leaders who are already succeeding in the field. Female directors bring a variety of skill sets to the table, including a focus on long-term corporate strategy and experience in risk and compliance. Women's presence on board especially in risk management committee aid to risk management by making fewer extreme judgments (Chen et al., 2016). So when risk management committee is shaped, women's presence is expected to see in that risk management committee (RMC).

1.4 Research Objectives and Research Questions

This study emphasizes the impact of women directorship in the Malaysian energy industry. Specifically, this thesis will shed light on the trend of women directors along with their impact on the firm performance of Malaysia energy industry. The general objective of this study is the impact of women directorship on firm performance in Malaysian energy industry. The research objectives and research questions are given below.

RO1: To examine the trend of women directorship in the Malaysian energy industry during the pre- and post-government policy of 30%quota.

This objective leads to these research questions that are presented below:

RQ1a: What is the trend of the appointment of women directors on the boards of Malaysian energy companies during the pre- and post-government policy of 30% quota in Malaysia?

RQ1b: What is the trend of qualification of appointed women directors on the boards of Malaysian energy companies from the perspective of business education and industry experience during the pre- and post-government policy of 30% quota in Malaysia?

RQ1c: What is the trend of the gender-balanced board (Shannon Index) of Malaysian energy companies during the pre- and post-government policy of 30% quota in Malaysia?

RO2: To examine the impact of the women directorship on firm

performance in Malaysian energy industry

This objective leads to these research questions below

RQ2a: What is the impact of quota attainment on firm performance in Malaysian energy industry?

RQ2b: Does a gender-balanced board (Shannon Index) have a moderating impact on the relationship between quota attainment and the performance in Malaysian energy industry?

RQ2c: What is the impact of quality of women director's (business education and industry experience) on firm performance in Malaysian energy industry?

RQ2d: What is the impact of women director's participation in risk management committee on firm performance in Malaysian energy industry?

1.5 Significance of Study

This research will contribute to academia, government, society, and corporation from the following perspectives.

1.5.1 Government Policy

This thesis will enlighten the government with the change of women's empowerment on the board. The implication of quota will shed the light on the government policy that how this 30% quota on board will make

way for not only for women themselves but also the full economy. Moreover, after the implication of the mandatory gender quota on the board of "large companies", Malaysia's image is turning into a new leaf into the world economy. Malaysia is setting an example that the Malaysian government is very much interested to imply the 30% women's quota to ensure the women's representation of the economy. By implementing quota, it can pave the way to break the male- dominated culture in the Malaysian energy industry.

1.5.2 Breaking "Glass-Ceiling"

Women are still underrepresented among the company's top position. There is even a dominant phenomenon prevailing in the male-dominated society. The invisible hurdles that hinder women from achieving top management positions are known as the glass ceiling. Though Malaysia is heading towards the era of globalization, technological affiliation, it is still lagging to ensure female's participation all over the sector, mostly in labor and corporate sector. This sector is male dominated; women are reluctant to join this sector for both family issues and field activities. This study will signify that this sector needs women not only for the director's position but also for field and officer positions. If female doesn't join in this sector, then they cannot be part of the tomorrow by showcasing their capability, creative leadership, and experience.

1.5.3 Bridging Research Gap

Gender issue on the corporate board is one of the most discussed topics all

over the world, whether it is western or eastern parts of the world. There is very limited research regarding implication of women's quota on directorship and board gender diversity from implication of MCCG 2012 to MCCG 2017 in energy industry of Malaysia. This study will shed light on the energy industry in order to pave the path for a new scope of research that takes into account both quota implications and board gender diversity. This research will help to bridge the literature gap between the old and new literature in Malaysia's energy industry. Moreover, this study will discuss the quota implementation and its effect on the energy industry of Malaysia.

1.5.4 Linking With SDG-5

Among the 17 SDG goals, the number 5 goal is "Gender Equality''. This gender equality will be attained only when there is balanced cooperation and balanced teamwork that is not only in the private sector but also in public corporation. According to this SDG goal 5, there should be an assurance of equal, active participation of women in a leadership position in all political, economic, academic, and public life. This study signifies with this goal to attain a gender- balanced board in the energy sector that ensures women's participation broadly.

1.5.5 Quality of Women Directors

This research takes into consideration not only the implication of quota policy but also the quality of the women directors. The researchers should look into the numbers along with the quality of the women directors.

Malaysian energy companies should not appoint the women directors to only fill the box but to bring the best output from them. For this along with quota implication assessment of quality is equally important for any firm's actual growth. Business education along with industry experience can prove an important tool to flourish the women director's growth.

The main theme of the quota system is not to create conflict between male and female ones but to encourage female counterparts to take part in the corporate world. The quota will ensure the rectification of the women's under-representation in the corporate world by assuring themselves of their position on the managerial, academic, executive, and board levels.

1.6 Scope of Study

The research justifies the impact of women's participation on the board level on firm performance. This study covers the energy sector of Malaysia as the contribution of this sector is significant to the Malaysian economy. The study period is taken from 2013 to 2019 due to implication of quota policy. Thirty-one energy public limited companies are taken into consideration to conduct this study within this time period.

1.7 Structure of Thesis

This thesis is structured into five chapters. A brief outline of the chapters is detailed below:

Chapter one gives an overview of the research background, a brief

overview of selecting this research area. Research problem statement is presented here. Research objectives, along with research questions and research significance from the aspect government, society and corporation, academia is provided in detail.

Chapter two gives a presentation of existing works on the subject of corporate governance and gender diversity. There is a breakdown of different theories related to this thesis. This chapter illustrates the hypothesis formulation and conceptual framework.

Chapter three gives an indication related to methodology and hypothesis testing related to research questions and objectives. This addresses the methodological issues of this thesis. This part describes the research design, explanation of research design, and hypothesis formulation of research question according to the objectives. Research sample techniques have been discussed here. Model formulation, consideration of secondary data has been taken into account here.

Chapter four portrays the statistical analysis of the data. This chapter will shed light on the analysis of objectives and hypothesis. Furthermore, this chapter shows the trend analysis as well as regression analysis of the data set.

Chapter five gives the ultimate overview of findings of the study. This also portrays the implication, limitation, recommendation of the research study. Finally, this chapter gives the final remarks of the study by concluding the research.

1.8 Conclusion

This chapter gives a detailed overview of the research background of this study. This chapter has featured the research objectives, its problems, research questions, possible significance, and scope of this research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a detailed overview of theories related to this study, along with the breakdown of different works of literature associated with this study. Moreover, this chapter illustrates hypothesis development

along with the conceptual framework.

2.2 Theories on Board Gender Diversity

Corporate governance along with gender diversity issues are given new dimension through the theories associated with that. This thesis will shed light on the agency theory and resource dependency theory to support the development of research conceptual framework of this thesis.

2.2.1 Agency Theory

Agency theory was described by Ross (1973) and after that Jensen and Meckling (1976) provided a detailed theoretical framework of this theory. Agency theory describes the overall functions of monitoring and controlling of the board. This theory deals with the two parties (principal and agent) with different goals. It is based on a contract where the principal engages agent to perform the activities and duties properly. Shareholders act as an principal and employ agent to work on behalf of the shareholders. The agency theory plays a role in resolving the issues between agents and

principals of the company. Board of directors perform as a coordinator to advocate the interest of both managers and shareholders. Homogeneous board refers when the board members belong same gender, same qualification along with same experience. Homogeneous board have same kind of network connection with same group maintaining same alliance (Halder, Shah & Rao, 2015). Moreover, heterogeneous board consists of different background, mix of male and female, expertise. Heterogeneous board having different network connections provides more industry related information.

Heterogeneous board can play a better control mechanism to reduce all conflicts along with ensuring effective control and monitoring system. This theory is considered as a prime theory to demonstrate board gender diversity along with improving agency problems (Low et al., 2015). Agency conflict and cost associated with it can be reduced by ensuring proper gender-balanced board.

Moreover, this theory suggests that good corporate governance can be achieved through higher gender diversity on the board through enhancing board independence and monitoring system (Ingley & van der Walt, 2003). Agency theory's primary underlying approach deals with resolving agency issues within the firms. Furthermore, agency theory acts as the basic theme that by increasing diversity in the leadership position can easily enhance firm's performance (Reguera-Alvarado, Fuentes & Laffarga, 2015). This theory demonstrates both monitoring and supervision along with solving issues (Reguera-Alvarado et al., 2015). Moreover, there is a phenomenon "old boys club" and for these women are

considered outside of firm. According to this theory, females are considered as outsiders of the board of firm so that they can play better monitoring and supervision role than their male board of directors and they are not part of “old boys club” (Kirsch,2018). It is possible to talk of the existence of an "old boy's network" whose members share comparable social ideals and customs.

According to the (Ain et al., 2020), female directors on corporate boards contribute to lower agency costs, which are correlated with less conflicts of interest. Additionally, in state-owned enterprises (SOEs), where agency difficulties are more serious, gender-diverse boards are more effective. In more developed sectors, female directors also perform better monitoring tasks. Finally, compared to their nominal participation, corporate boards with a critical mass of female directors tend to minimize agency expenses (Ain et al., 2020).

Overall, all research results are in favor of agency theory's viability. Moreover, this (Ain et al., 2020) study adds to the body of research by demonstrating that gender diversity in the boardroom is important for maximizing shareholder wealth. It offers unique evidence that gender diversity has different effects depending on ownership structure and geography, and that having a critical mass of female directors is more effective in cutting agency costs than having just one female director (Ain et al., 2020). As a result, in order to be elected on the board, it may be a logical approachto influence the opinions of current members of the old boy's network by convincing them that women share the same norms as members of the network. Rely on network can create hurdle to rise

board diversity, because eligible "outsiders" or women are excluded from the search process for new board members. When quota-imposed tokenism problem arises and women are considered outside as there are not the part of “old boys club” (Kirsch, 2018).

Board independence can be enhanced and intact by ensuring gender diversified board (Reguera-Varado et al., 2017). The monitoring role can be applied properly when board of directors are combination of different expertise, educational qualification related to industry experience. Competent board members can help to reduce agency problem. When a company's board of directors possesses a diverse set of strategic management skills, it may be necessary to take fewer risks in order to achieve the same level of success (Khan & Vieito, 2013). As a result, having more female directors on a board may result in more access to alternative business options, more board scrutiny, and better-quality decision-making, with less risk-taking required to achieve the same successful and stable outcomes. Because they belong to a minority outgroup, female directors are more likely to share their concerns and try to urge other directors to take a more cautious approach (Perryman, Fernando, & Tripathy, 2016). As a result, alternative and less harsh corporate actions may be considered.

Moreover, gender diversity on board can enhance better monitoring system ensuring board independence. Board gender diversity can minimize the dominance of the decision making of the homogeneous board (Mohamad, Bakar, Razzak & Badaruddin, 2017). When there will be strict monitoring and supervision on the firm, there will be less

information bias, limit moral hazard and less adverse selection. For this, firm's accountability and transparency will be ensured, and agency problem will reduce eventually.

According to agency theory, one of the board of directors' primary responsibilities are to supervise (regulate) managers' opportunistic behavior on behalf of shareholders (Jensen & Meckling, 1976; Dionne, et al., 2013). According to this theory, the inspection and surveillance of directors becomes better as board diversity rises. The board's independence grows, and as a result, the board's performance improves. Women participation on board lead to effective monitoring along with supervision as they are treated as independent directors.

Risk averse management (women) have different risk preferences, necessitating board oversight (Jensen & Meckling, 1976). According to this theory, women are more risk averse and cautious when it comes to risk (Hutchinson et al., 2015). As a result, they're more inclined to improve risk monitoring (Hutchinson et al., 2015). A high degree of risk management monitoring can help shareholders build their value by ensuring that managers do not participate in unscrupulous and extreme risk-taking behaviors, reducing the possibility of a company insolvency (Coles et al., 2001). Women directors have the risk averse mentality towards the company. Because of efficient monitoring by the risk management committee (RMC) may boost the efficiency of corporations utilizing risk-related instruments, enhancing risk management efficiency, the risk management committee (RMC) bears the core duty of risk management as a board sub-committee (Marsden & Prevost, 2005).

2.2.2 Resource Dependency Theory

Resource dependency theory explained by Pfeffer and Salancik in 1978. This theory illustrates that business has to depend on external environments to survive. This theory suggests that the board of directors connects their companies to the external mediums to address the environmental addictions. In order to gain competitive advances, board members should be selected according to their experiences, skills, knowledge, and different background. Women is believed to have insightful information regarding the market condition. Moreover, they can promote the company by coordinating customers and diversity issues (Campbell & Minguez- Vera, 2007).

Gender diversity helps not only to expand the channel, communication and tries to create linkage among the companies but also maintaining good relations among business associates (Reguera –Alvarado et al., 2017). According to Lie et al. (2013), women directors are appointed on board to have a better relationship and connections with external customers and shareholders. Through this theory, women directors have the ability to enhance resources and improve performance. Furthermore, women directors can improve firm's validity and acceptability by promoting gender equality on board (Isudro & Sobral, 2014). Women directors possess different perceptions, expertise, and skills to the board which is not thesame as male directors possess (Terjesen et al. 2009). Hodigere and Bilimoria (2015) indicate that there is an inclination that women lack specialized and professional network which reduce the possibility of being

selected as directors in the US. According to Tai (2015), when there is a large board size or more board of directors, the corporation can get benefitted by obtaining more different diversified knowledge along with skills. These skills and diversified knowledge can help the firm to enhance performance. According to Mohamad et al. (2017), the mixture of gender can provide different viewpoint and different way of thinking. This can promote proper governance along with enhancing firm value. According to this resource dependency theory (RDT), diversified board can build relation with different groups, maintain and build strategic alliances with them. Diversified board can bring competitive edge to the firm ensuring proper guidance, information (Halder, Shah, & Nageswara,2014).

Women board of directors have good communication skill along with better understanding of the market. It can help to maintain a liaise with the customers as well as business associates by enhancing good relationship with all associates of the firm. Females bring new perspectives and experiences to the "old boys club," providing crucial advise to senior executives (Anderson et al., 2011). This frequently leads to a more open and careful evaluation of opposing viewpoints, as well as more thorough data processing, which may lead to a broader and deeper consideration of strategic options (Upadhyay & Zeng, 2014).

When a company's board of directors has a diverse set of strategic management skills, it may be necessary to take less risks in order to achieve the same level of optimal performance (Khan & Vieito, 2013). Thus, adding female directors to a board of directors may result in more access to alternative business options, increased board scrutiny, and higher-quality

decision-making, with less risk-taking required to achieve the same successful and stable outcomes.

Board size is positively linked with corporate performance by ensuring diversified board with skills, education level, business knowledge, industry experience (Yasser, Abdullah & Michael, 2017). By ensuring proper diversified board, directors can improve the quality of strategic decision along with fostering the growth of the corporation.

According to resource dependency theory, as variety grows, important resources become more accessible. Through collaboration with other groups, women directors can ensure their presence on board by taking access due to quota implication and highlighting their capabilities.

The important role of the board of directors, that of advisors, is highlighted by resource dependence theory. The idea emphasizes the importance of directors' characteristics (such as gender diversity) in giving strength and critical resources to a business's risk management, including guidance and knowledge to the top management team on how to deal with firm hazards and discover prospective risk opportunities (Hillman & Dalziel, 2003). Moreover, according to this theory, having a diverse board of directors may give a corporation with a variety of benefits, such as greater monitoring and strong ties to community networks (Post & Byron, 2015). These vital and valuable resources may assist organizations in reducing uncertainty, so protecting them from business failure.

2.3 Dependent Variables: Firm Performance

Financial performance is regarded as the most effective way to use of firm's resources to undertake firm's objective by increasing share price, profit with sales and earnings (Ibrahim, 2015). In this study, the financial performance can be examined in terms of accounting based, market based and economic based return.

By analyzing financial performance, it can be concluded that in what way the firm is operating throughout the year. Financial performance is measured over a period or at a given point of time. Accounting based return gives a company to value the backward ratio, whereas market- based return illustrates a forward-looking measure of the performance of the company (Shan & McIver 2011). Economic value added is the measurement of economic profit of the firm.

2.3.1 Accounting-Based Return

The company's long term and short-term financial condition can be evaluated by the accounting return. This financial performance can be examined in terms of profitability, economic perspective and market perspective. Profitability performance is the ability of a business to earn a profit. Return on equity (ROE), return on assets (ROA) and return on capital (ROC) are the profitability measurements. According to European Central bank (2010)'s report it is not short term oriented and not forward looking. It generates the incorrect incentives and opens the door to manipulation (Mohanram et al., 2017). Furthermore, it ignores the cost of

equity in calculation (Fraker, 2006). In case of ROC, it does not bring good result when evaluating firms of different industries. ROC might depict the model's excessively optimistic performance (Barrer & Flach, 2012).

Return on Asset

ROA can be defined as the percentage of net profit after tax divided by the total capital. A rising ROA depicts that a company can generate more profit by utilizing its assets and investments. The high the ROA, the better the company performs by utilizing less resources. Bennouri, Chtioui, and Nagati (2018) supported in their findings that women directorship increased company's ROA in French companies.

ROA is one of the most important measures of financial performance. This ratio is chosen for the proxy of accounting-based return. This ratio can be used to make comparison among the industry. ROA is also treated as management effectiveness to what extent the management is utilizing company's assets and investments for firm's earnings generation (Obarah & Nangih, 2017). It is compared within the industry level, so company's position can be easily traced out. Moreover, high equity multiplier cannot influence ROA. It adequately reflects the impact of both equity and debt financing on asset acquisitions and profitability. As a result, firms with various capital structures may be compared without having to make any adjustments. For this analysis, company can be one step forward and easy to do planning and revise strategic measures (Halim & Supomo, 2009).

2.3.2 Market Based Return

Market-based return is characterized as long-term profit on the firm. It also reflects shareholder's expectations relating to the firm's future performance. Market value added (MVA), market to book value (MBV), Tobin's Q, and Market capitalization are the most measurements of market-based return.

Market Capitalization

Market capitalization refers to the total value of all stock. To assess the proper risk assessment, return potential assessment of market capitalization is much needed. This assesses to what extent the firm is worth to open market along with the market's attitude in relation to its future growth. In view of this, Hassan and Marimuthu (2014) examined that more female directors increase the firm's worth by market capitalization**.**

2.3.3 Economic Based Return

Economic Value Added

Economic value added (EVA) is treated as the economic profit of the firm of a given time period. It serves as an indicator of profitability and economic return of the firm. In a nutshell, it is the return that is generated from the funds employed for the business. If the EVA turns into negative, it implies that management fails to proper distribution of fund or destroying the fund. Positive EVA implies that management make the best

use of fund to maximize the shareholder's wealth. EVA gives better insight about the trend of profit.

EVA is a financial measure of a company's residual profit after accounting for the cost of capital. It takes into consideration of all the aspects of business cycle along with cost of capital that is not included in the accounting profit. According to Mohamad et al. (2017) gender diversity is positively related with firm performance of Malaysia's corporate sector measured by EVA.

2.4 Independent and Moderating Variable

2.4.1 Board Gender Diversity

The Malaysian government has been continuously boosting the board gender diversity by implementing several guidelines for both private and public zones. Past research had shed light on the significance of having women directors. Women directors engage themselves sincerely in the supervisory committee. For this, they can carry out all responsibilities related to supervision and monitoring (Adams & Ferreira 2009). There is hardly any impact on firm's financial worth due to the presence of women on board (Faizal et al., 2018). According to Luckerath-Rovers (2013), women directors can perform as an intermediate to create a connection between the external entities and firm' stakeholders to uphold the prestige of the firms. According to Devi, Hassan and Hamza (2015) studied percentage of women, number of women as the variables for gender diversity and found women are able to increase the firm's growth. According to Nguyen, Locke and Reddy (2015), board gender diversity has

positive association with firm's financial condition. Unlike their male colleagues, female directors persist in finding answers to challenges and are ethical in their decision-making (Hilman,2015). However, there is an inverse relationship found with women's presence and company performance (Mogbogu, 2016). Christiansen (2016) concluded that women in a senior position improve firm performance. Galbreath (2018) studied the data of Australia and found that feminization board ensures high firm's performance.

According to Conyon and He (2017), it is stated that in the case of highly valued firms women board of directors can leave measurable impact on firm profitability. Again, companies that have a high base of female customers can able perform well when the female directors give their different opinion regarding the products of the female customers. Yap et al., (2017) examined the variables the percentage of women, women's presence on board, Shannon index, and concluded that high number of women can enhance firm's financial position. This thesis will enlighten the board gender diversity by quota attainment and gender balanced board (Shannon Index).

H1: The women representation (quota attainment) has a significant impact on firm performance.

2.4.2 Moderation of Shannon Index

Lim et al. (2019) and Yap et al. (2017) proved that Shannon index could bring positive or negative impact on firm's performance on different period. Even in case of quota establishment to encourage women participation on board level, mandatory quota sometimes enhances or

alleviate firm's worth. For this reason, Shannon index will be used as moderating variable to test the relation with firm performance. Quota implies that some exact proportion or percentage is reserved for any area. Here, 30% quota is reserved for the women board of directors whereas Shannon index refers to the representation of gender balanced board. In one case quota means reserving some portion while Shannon goes with equal representation of male and female directors. To become a mediator, quota must have influence on Shannon and Shannon on firm performance, and quota on firm performance. Here, quota has no impact on Shannon index as both indicate different characters and perspectives. So, Shannon cannot be a mediator here and used as moderator variable for further study. The women directorship quota is the one of the concerns of this study on firm's performance. However, quota was introduced as moderator on Schmidt's study in 2017 and found no influence on board gender diversity with firm's performance. Furthermore, Kimanzi et al. (2020) employed Shannon index as moderator variable to discover firm's operating efficiency with financial structure of firms.. It will notify that whether quota attainment is only necessary to bring good performance or quota along with balanced board is necessary for firm performance.

H2: Shannon Index moderate the relationship between quota attainment and firm performance.

2.4.3 Quality of Women Directors

Academic Qualification (Business Education)

Board member's educational qualification, business management

knowledge is considered here as independent variable in this study. Directors should have proper business knowledge regarding accounting, business, management, portfolio, finance, audit, banking, marketing and more business background discipline.

There is positive association found with women's educational qualification that is related to business management discipline and firm's performance (Poon et al., 2013). Bonsa Mitiku (2015) studied and found that business management knowledge has positive impact on the firm's performance of Ethiopia. According to Eyob Melkamu (2016), the association between business management skills with firm's performance is inconclusive. There is positive association found with business management along with experience with Firm performance (Wondemalem Fekadu, 2018). Ibrahim and Abdullahi (2019) found insignificant link between business management knowledge with firm's performance.

Industry Experience

Industry related experience gives better understanding to the corporate related issues like strength, weakness, opportunities and threat of the firm of that industry. Industry experienced board members can help to enhance firm's performance by utilizing their knowledge and skills related to industry. Presence of more experience women director can think of the scenario of the whole industry considering more alternatives, opportunities and take thoughtful and fruitful decision. There is positive impact found with industry related experience with firm performance (Baraka Pascal

Samuel, 2014). Bonsa Mitiku studied and found the same positive impact on firm's performance in 2015. According to Firehiwot Kebede (2016), there is positive linkage found with industry experienced directors with firm's performance.

H3: Quality of women director has significant impact on firm performance.

2.4.4 Women Directors in Risk Management

It is widely documented that women are generally risk averse than men (Elabed & Charter, 2015). Women do not take more risk and challenging and daunting tasks as males do. Female act like more prudent and up to date while facing risky situation and conditions (Huang & Kisgen, 2013). According to Loukil and Yousfi (2016), women who have risk perception attitude are more likely to avoid taking risk**.** It is reported that Swedish female directors are more risk lover along with risk takers **(**Adams & Funk, 2012**).** According to Hutchinson et al. (2015) the feminization of boards can have a fruitful moderating effect on extreme risk-taking. Chen et al. (2016) underline that female directors can enhance board effectiveness in risk management. Loukil and Yousfi (2016) studied and found that women directors have positive impact on firm's investment sector. Shimin, Xu and Jamie (2016) underscore that women directors can improve firm's performance along with board effectiveness in risk management. Perryman (2016) studied and found that having great female representation in top management can lead to low risk and bring better performance.

H4: Women director's participation in risk management committee has

significant impact on firm performance.

2.5 Control Variable

2.5.1 Board Size

The total number of members in the board is used as a measure of board size (Coles et al., 2013). Board size contradicts the agency theory as a good number of board directors may increase the expenses of the company. Furthermore, large board size creates conflict of interest within the member of the board and shareholders. Large board size can be able to govern the operational acts and financial resources more efficiently. A board is considered the right size as long as they are able to achieve their duties efficiently and effectively. The worth of the firm reduces as the board size increases. Past studies give a mixed conclusion about board size and overall impact on firm's financial condition. Joel and Dondjio (2012) justified that the size of a company's board correlates with its financial performance. There is opposite and negative impact found on firm's worth of board size (Pathan & Faff 2013). According to Ong and Gan (2013), the company's financial worth can be decreased when there is an increment of board members. Sahu and Manna (2013) studied, and their findings give conclusion that's board size is positively linked up with firm's worth (EVA). Firm's financial growth has both positive and significant association with the board size studied by the sample of South Africa (Tariq & Naveed, 2016). However, Kaur and Vij (2017) espoused with this finding.

2.5.2 Board Independence

According to NYSE, “Independent director” is who the board “affirmatively determines” has no “materiality relationship” with the company “either shareholder, partner or officer of an organization that has the relation with that company.” It is required to include outside directors in corporate board who can perform as the role of moderator while there are differences or dissimilarities found between the internal managers and stakeholders. Board independence increases effectiveness. Sanda, Garba and Mikailu (2011) found that board independence increases the firm’s value and economic growth. Yusoff and Alhaji (2012) studied and agreed that there is an increment of firm’s growth due to the involvement of outside directors. While conducting study in Pakistan, there is negative association found between independent board members and firm’s financial condition (Awan & Khan, 2012). Bhagat and Black (2012) conducted a study and supported Awan and Khan (2012) about the findings. Sahu and Manna (2013) studied, and their findings give conclusion that’s board independence is negatively linked up with firms worth (EVA). According to Edem and Noor (2014), board independence has negative and significant association with firm’s financial condition. According to Rodríguez-Fernández (2014), firm performance is adversely affected due to the increment of independent directors. There is no linkup found between independent directors of the board and firm’s financial condition (Ibrahim & Abdullahi, 2019).

2.5.3 Firm Size

Firm size is considered as an essential firm characteristic. Firm sizes can be large one, medium one, and small one. There are several factors are considered to measure firm size as firm's assets, production, capital, equities, and others. Several studies are conducted to support the relationship between firm's size and its financial condition.

Big firms that have more customers and high bargain power are always in a profitable and favorable position, whereas small firms can hardly avail these opportunities. According to Dogan (2013), there is positive relation found between firm size and financial performance. It shows an excellent association with the effectiveness of the firm. Ahmed Sheikh, Wang and Khan, (2013) supported Dogan (2013) and confirmed that firm's financial worth is affected and increased due to firm size. According to Kalantari and Abbasi (2012), the firm's financial condition can be worsened due to firm size and both are negatively correlated. Moreover, no affiliation is noticed concerning firm size and its worth (Alzharani et al., 2012). According to Ehi-Oshio, Adeyemiand Enofe (2013), firm size has positive impact on the firm's growth in Australian firm.

2.5.4 Leverage

Leverage reflects the level of debt a firm has incurred. High level of debt can increase risk level, cost of interest of a firm. Leverage is considered as a control variable in this research. Hashim and Devi (2008) found

insignificant relation between leverage and firm's performance. Chagdhari (2011) opined with Hashim and Devi (2008) about the findingsin his study. Ibrahim and Samad (2011) study had showed a positive association between leverage and firm performance. According to Hussinand Othman (2012), there a positive and significant link found debt level and firm performance. According to Ahmed Sheikh, Wang and Khan (2013), there is negative association with leverage and firm's condition, andhigh leverage level can decline firm's worth.

2.6 Previous Empirical Studies

There are some studies which were conducted to evaluate the impact of gender diversity of board on firm performance in the past (Mohsni & Shata, 2021; Simionescu et al., 2021). Some authors such as Flabbi, Piras, and Abrahams (2017) and Reguera- Alvarado et al. (2015) reported a positive and significant impact, whereas Dankwano and Hassan (2018) showed negative relationship between female participation with firm financial condition. Furthermore, apart from these, researchers also found an insignificant impact on firm's financial condition.

Research in this part had gained so much attention due to women's under-representation in corporate sectors in most countries. Though this phenomenon has been changed in some developed countries, it is still the same in developing countries. A significant amount of attention had been paid to bring a conclusive result on this issue in developed and developing countries. But nothing concrete and definitive evidence is found on this

matter. The results are always different at a different time. These dissimilarities are found as there are no similar sample sizes, different countries, different periods, and different board systems. Moreover, this result can be different for diverse cultural, social, economic conditions in which the companies are under operation.

2.6.1 Positive Impacts of Women Directorship on Financial Performance

Several studies are examining the impact of the gender-diverse board on the firm's financial performance that results in a positive effect. A noticeable feature of these studies that these articles cover different periods, different countries, different methods of analysis, different performance measurements according to the studies.

Fryer and Levitt (2010) found that firm performance is positively associated with diversitythat increases firm's value with monitoring using the Ordinary Least Square method. Board effectiveness can be enhanced through the increment of the ratio of female directors (Nielsen & Huse, 2010).

According to Anderson, Reeb, Upadhay and Zhao (2011), heterogenetic group of board of directors enhance firm value. Hanuman (2012) conducted a study in Mauritius and concluded that company's financial position is improved by the gender-balanced board rather than no female on board. In Bangladesh, female directors have a meaningful relation with firm's condition (Mutakkin, Khan & Subramaniam, 2012). Fan et al. (2012) found that there is an increment of firm value when there is an appointment of female directors.

There is a positive linage between presence of women on board with firm's growth using Ordinary Least Square method studied by (Julizaerma & Sori, 2012). According to Lukerath- Rovers, (2013), those firms have more females on boards are performing better rather than fewer females on board in Netherlands. Meanwhile, according to Ahmad Zaluki (2012), high number of females on board generate lower growth relative to those which firms have fewer women.

Parrotta (2013) researched the firm's performance and women's percentage in the Danish firms and found positive. More female directors can enhance the firm's performance (Tarjesen et al., 2013). Joecks et al., (2013) found that firms having more than three women would bring a positive impact on firms in German listed firms. Schwartz-Ziv (2013) studied and found that feminization board can bring more higher earnings in the firm.

Gender diversity has a positive association with firm's financial condition is studied by Ugedo and Minquez-Vera, (2014). Furthermore, positive and significant relation is found with the research done in Vietnam by Tao Thi (2014).

Liu, Wei, and Xie (2014) also reported that female directors put so much effort into monitoring and refining the operations, and for this firm's worth can be boosted up. According to Garba, and Abubakar (2014), women's quota has a positive linkup with the firm's financial position in Nigeria. Hassan and Marimuthu (2014) studied that female presence has positive link with firm value. Sabatier (2015) also found the same findings about gender diversity. According to Tu, Loi and Yen, (2015), when there is high number of female present on board, the firm's high growth is noticeably

justified by the study done on gender diversity. Horak and Cui (2017) also espoused with Loi and Yen (2015) that firm's performance grow better having women on board rather than without women on board. This is further supported by Devi et al., (2015), who reported that the high number of females can enhance firm's financial position. Devi et al., (2015) examined and reported that both women's number and percentage have positive relation with firm's performance. The financial worth of firm is increased due to women's presentation on board findings supported by (Reguera- Alvarado et al., 2015).

Solakoglu and Demir (2016) researched gender-diverse board characteristics on the performance of firm in Turkey and reported weak relationship. Kilic and Kuzey (2016) also researched Turkey and justified that gender balance board can increase firm's worth in long run. When the firm's size value is lower than some "critical value," there is found positive linkage with firm's growth (Haishan & Peng, 2016)

Abdullah et al. (2016) find that women directors generate the firm's value in Malaysia. Sanan (2016) found that women independent directors can enhance firm's value. Obarah and Nangih (2017) found that accounting practices are linked positively with firm financial indicators in the oil and gas industry of Nigeria. Ruth and Corolo (2018) reported the same findings as Obarah and Nangih and found positive linkup of gender- balanced board with firm's worth. Trianatan and Asri (2017) showed that women directors can generate and add more value to firm measured in Indonesia.

Syamsudin et al. (2017) also concluded that firm's financial position can be improved through women's presence on board. Flabbi et al., (2017)

conducted the study and reported that when there is 30% or more than female present on board, then firm's financial position is increased in Latin America and Caribbean. According to AuYong & Tan, (2018) there was a positive impact of gender-balanced board firm's growth in both consumer and property sectors of Malaysia in ROA. Dankwano and Hassan (2018) found in their study that firm's performance is increased when there is woman on board. Pasaribu, Masripah and Mindosa (2019) examined that if there are more than two women on board that will increase the firm value studying the sample sizes of Indonesian firms. Agyemang-Mintah and Schadewitz (2019) examined and found that female director's presence can leave positive impact on firm's value.

2.6.2 Negative Impacts of Women Directorship on Financial Performance

Lückerath-Rovers (2010) found that higher women bring lower firm performance. Carter et al. (2010) also failed to show any kind of positive association of the women's performance with firm's growth. Darmadi (2011) reported that women's presence does not have positive link up with firm's financial indicators in Indonesia. Earning management of a firm is declined when female numbers are regulated and defined by market forces (Gul et al., 2011). Amran et al. (2014) finds that female-led companies bring lower financial returns as compared to male-led companies. A related outcome was reported by Abdullah et al. (2012) that firms whose boards are represented by women perform low than those without women. Shukeri et al. (2012) showed that thereis no association found between gender diversity with firm performance.

When women lead board, there is no positive linkage found with firm's worth in case of Malaysia and Pakistan (Al-Mamun et al., 2017). Al-Mamun et al., (2013) agreed with Yasser on this matter as conducted study in Pakistani firms. Ahern and Dittmar (2012) and Bertrand et al. (2014) showed in their study that quota reduces firm performance of Norwegian public limited companies (PLCs).

According to Tu et al., (2015), Hassan et al., (2015), female directors are negatively related with firm's financial growth. According to Dankwano and Hassan (2018), the proportion of females on board is inversely related with firm condition. Qian et al., (2019) indicated that female director and board independence are negatively correlated with firm worth using GMM and 2SLS method in Malaysian public listed companies.

2.6.3 Insignificant Impacts on Financial Performance

Sweden, et al. (2006) failed to show that there is any noteworthy linkup between gender diversity and firm performance. Female presentation failed to establish any significant link with firm's worth for the listed Danish firm (Rose, 2007). Kusumastuti (2007) failed to find any kind of significant relation of board gender, independence with firm's financial indicators in Indonesian sample size. Marimuthu and Kolandaisamy (2009) are filed to give justification of any relationship with the gender-diverse board and firm's condition.

According to Carter et al, (2010), Kompa et al, (2016) that economic performance is not related with gender diversity and no linkage found. Yap

et al. (2010) concluded no meaningful relationship is established with women and firm growth. Shukeri et al. (2012) studied and reported no meaningful affiliation between gender-diverse board and firm's financial position. Darmadi (2013) studied in Indonesian firms and failed to explain any significant relation with board gender diversity with firm's performance. There is no relation found with women on board by quota and firm's performance (Ferrari et al., 2018). There is no significant linkage between women's participation and the financial indicators of firms according to Kompa and Witkowska (2018) in Poland.

From the past studies it showed that board gender diversity brings positive impact when critical mass has been achieved. It refers that two or more women director's presence on the board (Pasaribu et al., 2009). Moreover, when women directors are skillful along with experienced, they can have more meaningful impact on firm's performance. However, in some past studies women show negative impact on firm's performance. From the justification of previous studies mentioned above, it is showed that when women cannot ensure their proper place due to tokenism problem, their voices are not heard. If they are appointed due to political reference, family connection, it's very hard to give meaningful impact on firm performance.

2.7 Conceptual Framework

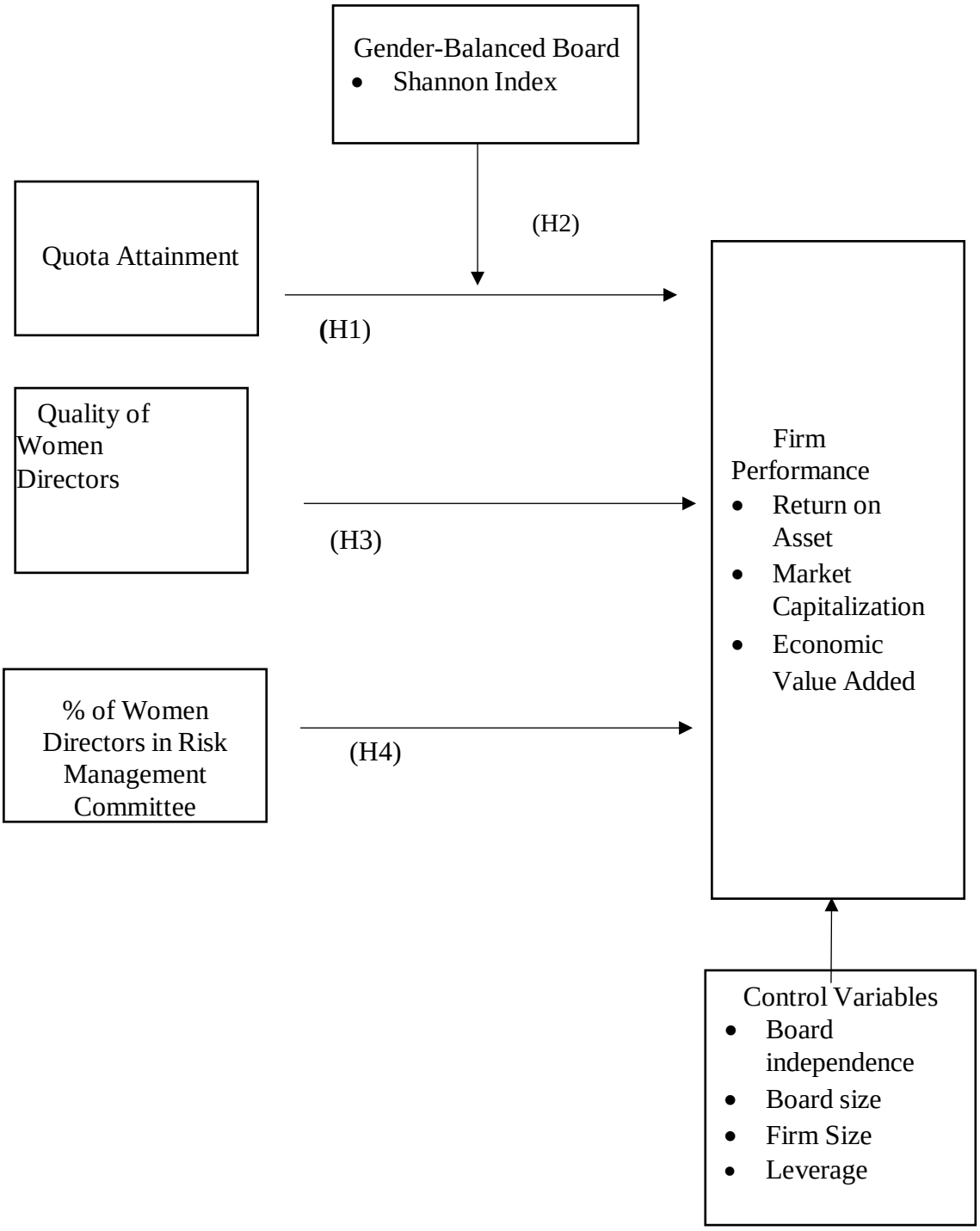

Figure 2.1: Conceptual framework of the study
Source: Developed for research study

2.8 Summary of Research Objectives, Researh Questions and Research Hypothesis (Table 2.1)

Research Objective	Research Question	Research Hypothesis
RO1: To examine the trend of women directorship in the Malaysian energy industry during the pre- and post-government policy of 30% quota.	RQ1(a)**:** What is the trend of appointment of women directors on the board of Malaysian energy sector companies during the pre- and post- government policy of 30% quota in Malaysia?	Not applicable
	RQ1(b): What is the trend of appointment of women directors from the perspective of business education and industry experience on the board of Malaysian energy sector companies during the pre- and post- government policy of 30% quota in Malaysia?	Not applicable
	RQ1(c): What is the trend of gender-balanced board (Shannon Index) board of Malaysian energy sector companies during the pre- and post- government policy of 30% quota in Malaysia?	Not applicable

Summary of Research Objectives, Research Questions and Research hypothesis (Table 2.1 continued)

Research Objective	**Research Question**	**Research Hypothesis**
RO2: To examine the impact of the women directorshipon the firm performance in Malaysian energy industry	RQ2(a)**:** What is the impact of women representation (quota attainment) on firm performance in Malaysian energy industry?	H1a: The women re-presentation (quota attainment) has a significant impact on the firm ROA H1b: The women re-presentation (quota attainment) has a significant impact on the market capitalization. H1c: The women re-presentation (quota attainment) has a significant impact on the firm's EVA.

Research Objective	**Research Question**	**Research Hypothesis**
RO2: To examine the impact of the women directorship on firm performance in Malaysian energy	RQ2(b): Does a gender balanced board (Shannon Index) has moderating impact on the relationship between quota attainment and firm performance in Malaysian energy industry?	H2a: Shannon Index moderate the relationship between quota attainment and ROA. H2b: Shannon Index moderate the relationship between quota attainment and market capitalization H2c: Shannon Index moderate the

		relationship between quota attainment and EVA.
	RQ2(c): What is the impact of quality of women director's on firm performance in Malaysian energy industry?	H3a: The quality of women director has a significant impact on the firm ROA. H3b: The quality of women director has a significant impact on the firm market capitalization. H3c: The quality of women director has a significant impact on the firm EVA.
	RQ2(d): What is the impact of women director's participation in risk management committee on firm performance in Malaysian energy industry?	H4a: The participation of women director in risk management committee has a significant impact on the firm ROA. H4b: The participation of women director in risk management committee has a significant impact on the firm market capitalization. H4c: The participation of women director in risk management committee has a significant impact on the firm EVA.

2.9 Conclusion

This chapter reviewed all detailed overview of previous studies done by several authors in a nutshell. Moreover, different theoretical models and conceptual frameworks are also discussed in this chapter, according to the study. The next chapter will go through the proposed econometric model to conduct the analysis.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter will explain the procedures that will be conducted during the research study. Moreover, research design, data collection method, sampling design, data processing, and data analysis will be discussed here.

3.2 Research Design

Research design is a detailed outline for how scholars will respond to study question (Saunders et al., 2009). The period is taken into consideration is from 2013 to 2019. Moreover, the period is selected based on MCCG2012 and 2017 to capture the impact of board gender diversity and quota policy on the firm performance. For the descriptive study, the pre quota period will be 2013-2017 and post-quota period will be 2018-2019.The independent variables selected are the quota attainment, quality of women director's (academic qualification: business education and industry experience) and percentage of women directors in risk management committee and the moderating variable is Shannon index.

According to Saunders et al., (2009), data collection and methods can be categorized into either qualitative or quantitative. When the data analysis part deals with the numerical data rather than qualitative ones, then quantitative research method is taken into consideration. The quantitative

technique is adapted to measure the impact of women's board of directors on the firm's performance of energy companies of Malaysian PLCs. Panel regression analysis will be taken into consideration in this study. According to Saunders et al. (2009), the multiple regression analysis could indicate the *"degree of impact of the independent variable has on the dependent variable."*

3.3 Data Collection Method

This study looks at the influence of female directors on company performance, which focuses on energy sector of the company. This research adopts secondary data collected from Bursa Malaysia's annual reports and Bloomberg. On the other hand, secondary data provides more precise estimation, which leads to good research outcomes and it is less time-consuming compare to primary data (Boslaugh, 2007). As variables are adopted from secondary data sources, so the source of adoption is presented along with the author's name in the next measurement section.

3.4 Measurement of Variables

Table 3.1: Measurement of variables

Name	Acronym	Measurement	Reference
Dependent Variables			
Return on Asset	ROA	Net income / total Assets	AuYong and Tan (2018)
Market Capitalization	MC	Total number of shares*per share price	Mohamad et al., (2017)
Economic Value Added	EVA	EVA= NOPAT-WACC*Capital invested	Okoth and Coskun 2016
Independent Variables			
Quota Attainment	QA	0= No fulfilment of 30% quota 1= fulfilment of 30% quota	Abdullah et al., 2012
Women director's qualification index (business and industry experience)	WQI	0= No business education or industry experience knowledge 1= either one 2=Both business and industry experience knowledge	Okoth and Coskun 2016
Percentage of women directors in risk management committee	PWDRM	Women director in risk management committee/Total members in risk management Committee	Jing Jia (2019)
Moderating Variable			
Shannon Index	SI	$-\sum_{i=0}^{n}$=Pilog(Pi)	Yap, Chan and Zainuddin (2017)

Control variables			
Firm Size	FS	Natural log of firm total asset	Hassan and Marimuthu (2016)
Board Size	BS	Number of total board members	Latif, Kamardin, Mohd & Adam, (2013)
Board Independence	BI	Number of independent directors/total number of directors	Gehan and Abdelmoshen (2012)
Leverage	LEV	Total liabilities/Total assets	Campbell and Minguez-Vera (2008)

3.5 Sampling Design

3.5.1 Sampling Size

Sampling size can be defined as the number of observations in a population used to conduct research. There are 31 companies in the energy sector listed in Bursa Malaysia Main Market. The time for this study is chosen from 2013 to 2019, consisting of seven years. As a whole, the panel data is encompassed by companies with the time period from 2013 to 2019. The first population was considered (31*7= 217). Among these sample sizes, some companies' financial year have been excluded due to unavailability of financial reports along with change of financial year. The final observation is 194 and will be conducted to determine the relationship between the dependent variable and independent variables.The outliers of the data have been corrected by using the natural logarithm.

3.5.2 Target Population

This denotes the overall set of units in which the data will be used to make decisions (Lavrakas, 2008). The target population of this study is the Malaysian Energy companies. Currently, 31 energy companies are operating in Malaysia. The participants in this study will be companies that are listed on the Malaysian stock exchange, Bursa Malaysia. The energy company lists can be accessed via the website of Bursa Malaysia. Energy has become essential for socio-economic activities. The Malaysian energy sector is contributing roughly 20% to its GDP in Malaysia (Energy commission, 2018).

In addition, there is the "glass ceiling" phenomenon dominating in this arena.

The female participation rate in this energy sector is very low. There are one in five workers who are female (Bernama, 2019). As our study is based on women representation, this sector is one of the most male-centric ones (Bernama, 2019). As far as the author knows,again there is a minimal study conducted on this area, especially on women representation in energy industries.

3.5.3 Research Instrument

The data for this study is gathered from the annual reports of the different publicly traded energy firms. Financial data along with annual reports are obtained via the Bloomberg as well as websites of the energy listed companies which are listed in bursa Malaysia. The data of independent variables (fulfilling quota or not, measurement of Shannon index, qualification of women directors in terms of business and experience, percentage of women in risk management committee) are taken from annual reports of the energy listed companies. Apart from that, the data of control variable (board size and board independence are also taken from annual reports of the companies. In the matter of dependent variables (ROA, EVA and market capitalization), data are obtained through from Bloomberg. STATA software has been used to conductthe OLS (Ordinary Least Square) regression analysis to get the further result.

3.6. Description of Variables

3.6.1 Dependent Variables

Accounting Based Return

Return on Assets

Return on Asset is a dependent variable of this study, reflecting the accountingmeasure of the firm performance. ROA can be defined as the percentage of netprofit after tax divided by the total assets. A rising ROA depicts that company can easily make profit from employing its assets. The return on assets for publicfirms can vary significantly and is largely reliant on the specific sector (Obarah& Nangih, 2017). AuYong and Tan implied this formula on their board genderdiversity and firm performance paper in 2018.

ROA= Net Income/Total Assets

Market Based Return

Market Capitalization

Market capitalization is chosen as another dependent variable of this study to measure firm performance. Market capitalization reflects the market measurement of the firm performance. Market capitalization can be calculatedby using the total market share of firm with its per price of share. Market capitalization can predict the future financial performance of the company. Market capitalization does not deal with the past financial performance indicators of the company. Market capitalization reflects what market investorsare intended to pay for the company's stock.

Market Capitalization= Total number of shares*per share price

Economic Based Return

Economic Value Added

EVA is the measurement of economic profit of the organization. It is used as animportant tool to measure the economic value of the firm. EVA gives good result as it also considers cost of capital that is not considered in accounting profit. EVA is a more detailed estimation of operational success in terms of financial and managerial efficiency, as well as a reflection of the company's overall performance (Okoth & Coskun, 2016). EVA is preferred because it includes all capital expenses, including debt and equity (Akbas, 2011). This effectively addresses the shortcomings of other approaches that emphasis merely on operational or net profits at the expense of the company's capital structure.

EVA= NOPAT- WACC* Capital invested

3.6.1 Independent Variables

Quota Attainment

Quota attainment (0, 1) is an independent variable which will be used to conductthe study with multiple regression model. The binary numbers 0 and 1 are considered estimate this variable. If the firm is maintaining 30% women quotaon board, this will be coded as 1, and if it is not fulfilling 30%, then 0 will be coded.

Fulfilling 30% women quotarequirement = 1

Quality of Women Directors

Academic Qualification (Business Education)

This study will consider women director's academic qualification and industryexperience. This academic qualification is justified by the business education obtained by women directors. This academic qualification is determined from the basis of business education from the perspective of finance, accounting, management, human resource management, marketing, marketing, supply chain management, international business, entrepreneurship. Furthermore, women directors from any of above subjects are selected for this study regardlessof the degree. If the women directors have this business education knowledge,they are coded as 1, otherwise 0.

Industry Experience

Industry related experience should be another factor to be considered by the firm to ensure proper management. It is necessary to have industry related experience and skilled among the women board members. The more the industryrelated experience and skill the women possess, the more they can give their proper guidance, opinion related to firm's decision. When women have the industry related experience, they know the strength, weakness, opportunities and possible threats related to that industry.

When women directors are found working in the energy industry regardless of country, then they are coded as 1. Even if women directors who were on the board of other energy industries, are also coded as 1. When there is no women directors found from this energy industry considered as no industry experience as coded with 0. When this data is extracted, then one index is created using

business education and industry experience. This women quality index is determined if women directors have neither knowledge on business education nor industry experience then coded as 0, women directors having either business education or industry experience is 1, and women directors who have both business education and industry experience are coded as 2.

No business education or industry experience= 0 Either business education or industry experience =1 Both business education and industry experience =2

Percentage of Women Director in Risk Management

Women are considered as more risk averse as well as conservative than men in the corporate decision making. According to Nelson (2012), this is just philosophical proclamation that is not justified and disproven also. Risk management committee plays an important role in dealing with risk issues within the firm. When there is presence of women directors on risk management committee, this can help risk monitoring along with minimize excessive risk taking (Jing Jia, 2019). Moreover, women on RMC can bring new ideas, perspectives and cautiously find out the risk opportunities, deal with financial instruments and help to minimize the uncertainty.

Women directors in risk management/ Total members in risk management committee

3.6.3. ModeratingVariable

Shannon Index

The Shannon diversity index (*H*) is an index that is usually used to distinguishspecies diversity in a community. This index is calculated as $-\sum^{n}_{i=0} P_i \log(P_i)$. Here, P_i and n the percentage of board members and the total number of board members.

"The values of Shannon index range from 0 to 0.69. The maximum value is 0.69, which represents that there is an equal number of male and female directors present on the board" (Yap et al., 207, p50). Yap, Chan, and Zainuddin (2017, p50) denotes that this index is "more sensitive to the small alterations in the gender composition of the boards given that; it is a logarithmof total assets." Shannon Index is used as a moderator variable with quota attainment on firm performance. This moderation of Shannon Index with quota attainment can lead whether quota attainment brings positive impact on firm's performance or not. Ensuring proper gender balanced board along with attaining quota can be a path to improve firm performance. Moderating Shannon index can give proper impact of the independent variable on dependent ones.

Shannon Diversity Index = $-\sum^{\square}_{i=0} P_i \log(P_i)$
Quota Attainment* Shannon Index

3.6.4 Control Variables

Firm Size

Firm size is taken as a control variable for this study. Firm size can help or hinder tasks including decision-making, group information processing, and business innovation (Zattoni & Minicilli, 2013). Overall, when a company grows larger, the gender diversity of the board also grows in long run (Hillman et al. 2007). This study uses natural logarithm of total assets as a proxy for firm size (Hassan & Marimuthu, 2016).

Firm Size= Natural logarithm of total assets

Board Size

Board size is applied to measure the number of total board members present on the firm. Positive and negative impacts of board size of the company on the firm performance are evaluated by the authors. The large board can bring a positive effect on firm performance, whereas small board can give a better firm performance. Hassan and Marimuthu (2016) used board size as the control variable in their study related to firm performance.

Board Size= Total board members

Board Independence

Board independence defined as the outside director who is not the current stakeholder of that particular company. The total number of independent directors divided by the total number of directors on the board can be used to determine board independence. (Shamsul & Ku Ismail, 2013). The

independent non-executive directors should account half of the board members for the large firms to give conformity to the effectiveness of the company.

Board Independence= Total independent directors/Total board of directors

Leverage

Leverage is the ratio used to measure the level of debt a firm has incurred. It is used as a control variable of this study to measure its impact on firm performance. The most well-known leverage ratio is the debt-to-equity ratio. A high debt/equity ratio generally indicates that a company has been aggressive in financing its growth with debt. Hassan and Marimuthu (2016) used leverage to examine the effect of control variables on firm performance.

Total Leverage= Total debt/Total equity

3.7 Data Analysis

The goal of this study is to see how women directors affect company financialworth using quota attainment (0,1), moderation of Shannon Index, women director's qualification index: (business and non-business-related discipline: business and non-business background (1, 0), women director's relevantindustry experience: energy sector and non-energy sector (1,0)) and percentage of women director's in risk management committee. The dependent variables are Return on Equity and Market Capitalization, Economic Value Added.

Board size, firm size, leverage and board independence are taken as control variables. This study will be conducted using STATA 14 software to conduct the calculated panel regression model. This will also be into

consideration for checking econometric issues as an analytical tool. The regression models used in this study are listed below.

$$\mathbf{ROA} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6}it + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \mu_{it}$$

$$\mathbf{MC} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \mu_{it}$$

$$\mathbf{EVA} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \mu_{it}$$

β_0	Intercept for regression model
X_1	Quota attainment (0,1)
X_2	Shannon index
X_3	Quota attainment* Shannon Index
X_4	Women director's qualification index
X_5	Percentage of women director in risk managementcommittee
X_6	Firm size
X_7	Board size
X_8	Board independence
X_9	Leverage

3.8 Econometric Model

3.8.1 Panel Data

Panel data is regarded as a type of longitudinal data that observe a certain sample of an item through time (Hurlin, 2009). Time-series data pooled cross-sections, and panel data are the three basic categories of longitudinal data (McManus, 2011). Since panel data involve individuals, companies, states and countries over time, there are bound to be heterogeneity in these units (Hsiao, 2014). By permitting subject-specific variables, panel data estimation can takethe heterogeneity explicitly into account (Hsiao, 2014). According to Hsiao (2014), the panel data ensure variability in the study. The panel data is used for the study as it provides more informative output. Moreover, this panel data always get preference to researchers for less collinearity issues among independent variables. Besides, panel data confirms more efficiency.

At the time of research, panel data is often preferred by researchers consideringits sample size of study requires more than two periods (small T) on numerousobservations (large N). In return, as a result, collinearity among the independent variables is reduced, and degrees of freedom are increased. There are two typesof panel data, namely balanced panel and an unbalanced panel. Gujarati and Porter (2009) state that balanced panel data is the panel data comprise of each subject, which equal to each other in the number of observations. Unbalancedpanel data set is that where one panel data is not observed every time period. Extracting balanced panel one out of unbalanced panel create loss to data alongwith inefficiency of data set

(Balgati, 2009). Balancing dataset can lead to biasin data generation, which is a violation of one of the Gauss Markov Assumptions. It is, nevertheless, perfectly acceptable to utilize an imbalanceddata sample to generalize findings.

3.8.2 Pooled Ordinary Least Square Method (POLS)

POLS is a model that ignores the panel data structure and instead assumes thatthe coefficients are uniformly as well as independently distributed and uncorrelated with the other variables (Noman, 2015).

Apart from that, Pooled OLS regression model also assumes that the interceptsand slopes are constant across the observations as well as time-invariant or notime effect happens on the observations of the model (Baltagi, 2008). Thus, Pooled OLS regression model is simple and easy to apply when the nature of homogeneity occurs on the observations (Hsiao, 2014).

However, the Pooled OLS regression model has a disadvantage as it will contortthe true picture of the observations if the nature of heterogeneity exists. As a result, Pooled OLS regression model is unable to analysis the model preciselysince the estimated coefficients will become biased and inconsistent (Gujarati & Porter, 2009). Two tests are suitable to be performed to test the correctnessof the OLS regression analysis. These tests are namely the Poolability F-test

and the Breusch-Pagan test. The Poolability F-test is used to determine if the POLS model or the Fixed Effect Model (FEM) will be taken from this test. The BPLM test, on the other hand, is used to compare the POLS model

and the Random Effect Model (REM).

3.8.3 Random Effect Model (REM)

Another type of panel data regression is random effect model. According to REM, all the unobserved regressors are assumed to be independent statistically. Furthermore, REM assumes that unobserved regressors are also uncorrelated with all of the observed variables (Allison, 2002). REM is frequently used to investigate the factors that influence a company's performance since it can produce a more exact conclusion by estimating a large data set with significantvariability. The purpose of the REM is to forecast the mean distribution effect (Borenstein et al., 2009). But REM is unable to calculate one true effect (Borenstein et al., 2009). REM is taken into consideration when intercept can be related to the independent variables (Gujarati and Porter, 2009) In terms ofresearch, FEM and REM are very distinct. Individual effects are allowed in FEM if they remain correlated with the explanatory factors, whereas these are not allowed in REM (Allison et al., 2002). Hausman test is employed in our study tocompare FEM and REM and to decide whether the REM or FEM is more justified to be used in our empirical study.

3.8.4 Fixed Effect Model (FEM)

Another type of regression model is fixed effect model. FEM is a type of statistical model in which the unobserved variables are assumed to have any relationship with observed variables. This model is useful when there is heterogeneity amongdifferent subjects through the different intercept values

or slope coefficient across each entity as each individual or cross-sectional may have their own special characteristics. It has gained popularity since FEM can manage all of an individual's stable traits, including those that cannot be viewed or quantified. They used FEM in their research and discovered that it provided impartial results and constant coefficient assessments (Sufian & Habibullah, 2009). FEM model can be used to test with POLS and REM model by using the Poolability F-test and Hausman test, respectively.

3.9 Hypothesis Testing for Model Selection

3.9.1 Poolability Hypothesis Test

Data covering higher number of observations with lesser time periods can be examined by using poolability test (Baltagi, 2013). Therefore, poolability test is carried out to determine which model is the best for the collected panel data and this test is conducted to determine whether FEM or Pooled OLS model is applicable.

H_0	There is a common intercept found in all the companies
H_1	There is no common intercept found in all the companies

The decision will be justified by the following statistic:

Significance level: 10%		
H_0	Reject	If *P* statistics probability > 10%
H_1	Accepted	If *P* statistics probability < 10%

The null hypothesis indicates that Pooled OLS model is better to apply. However, FEM model is considered better than Pooled OLS model when the

null hypothesis is rejected. Thus, FEM should be applied.

3.9.2 Breusch and Pagan Lagrange Multiple Test (BPLM)

The BPLM Test is used to determine whether a random effect model exists inthe regression analysis (Park, 2011). If null hypothesis is rejected in test, it is decided that the research should be conducted using REM. Therefore, BPLM test is used to evaluate which model is best for the panel data that has been gathered, and between REM or POLS which one the model is appropriate.

H_0	There is a common intercept found in all the companies
H_1	There is no common intercept found in all the companies

The decision will be justified by the following statistic:

Significance level: 10%		
H_0	Reject	If *P* statistics probability >10%
H_1	Accepted	If *P* statistics probability < 10%

The null hypothesis concludes that Pooled OLS model is better to apply. However, REM model is better than Pooled OLS model when the null hypothesis is rejected. Thus, REM should be applied.

3.9.3 Hausman Test:

Hausman test is the test that helps to make a decision to choose the most appropriate model among the two different regressions models for random effect model (REM) and fixed effect model (FEM) to get a reliable result.

H_0	REM is suitable for test
H_1	REM is not suitable for test

The decision rule is considered below by following hypothesis

Significance level : 10%		
H_0	Reject	If *P* statistics probability > 10%
H_1	Accepted	If *P* statistics probability < 10%

According to Gujarati and Porter (2009), when Hausman test refutes null hypothesis, it is assumed that REM is not the appropriate one to conduct the regression analysis. There maybe linkage and correlation between REM and other explanatory variables (Gujarati & Porter,2009). After rejecting the null hypothesis, it is considered that REM is not consistent with this study. However, fixed effect model should be taken into consideration to conduct this study. Besides, if the null hypothesis not rejected, then REM should be chosen for this study for this consistency and efficiency. Hausman test have been performed by using Hausman fe re formula on STATA to analyze whether fixed effect or random effect is suitable.

3.10 Diagnostic Testing

3.10. 1 Normality Test

This test is conducted to determine whether the data set is well - modeled by normal distribution or not. Normality test should be conducted before doing a parametric test. When a variable fails normality test, it is assumed that there is the presence of any outliers or small set of outliers. For this, non-normality is caused. It is assumed that large sample size is usually a prerequisite to detect any departures from normality. When there is less than fifty sample size, extreme non- normality can be traced otherwise not. There are different types of normality tests in different statistical packages. Kolmogorov-Smirnov, Shapiro-Wilk test, Jarque-Bera test are the most popular test for normality.

Jarque-Bera test is becoming popular as it considers large sample sizes on the OLS residuals. In this test, sample data have skewness and kurtosis that matched with the normal distribution. A rule of thumb is that a variable is considered normal if its skewness and kurtosis values are ranged between -1.0 to +1.0. JB test considers that if the test statistic finds far from zero, there is found no normal distribution for this data set. In STATA, through JB (Jarque Bera) test, if the result of normality test *P* value is less than α value 10%, then null hypothesis will be rejected. It means that we will reject that data is normally distributed and accept the alternative hypothesis that is data is not normally distributed. This shows that there is prevalence of data non-normality. It assumes that within the data set, there is presence of outliers. Moreover, if the P value is greater that α value 10%, H_0 cannot be rejected and indicates that data is normally distributed.

H_0	Chi-Square $\chi\sim$ (.)
H_1	Chi-Square $\neq$ (.)

The decision rule is given for the normality hypothesis test:

Significance level: 5%		
H_0	Reject	If *P* statistics probability > 10%
H_1	Accepted	If *P* statistics probability < 10%

3.10.2 Multicollinearity

Multicollinearity is the state when there is found a relationship or inter correlations among the independent variables of the multiple regression analysis. It can give misleading information when researchers are trying to find the effect of independent variables on the dependent ones in their study.

Insufficient data, use of incorrect dummy variables, almost identical variables in the regression model can cause to multicollinearity. If there is high r^2 found in the regression model with significant F statistics but an insignificant t ratio, it is assumed that the model is not fit and suffering from multicollinearity. According to Gujarati and Porter, (2009), there is decision rule prevails for detecting multicollinearity.

From the rule of Pearson correlation matrix, no linear relationship is found whenthe correlation coefficient value is 0. It is said perfect correlation matrix whenthe value of coefficient is +1 or -1 whether perfect positive correlation or perfect negative one between the variables.

Moreover, if the values of coefficient vary from +/-1 to +/- 0.29 that signifies the weak relationship whereas, +/- 0.30 to +/- 0.49 justifies medium relationship prevails between the variables according to Gujarati (2004). Besides, if the value is less than 0.80, then there is no multicollinearity issue but if any value is more than 0.80 then serious multicollinearity prevails.

If r> 0.80	Multicollinearity prevails in the variables
If r< 0.80	No serious multicollinearity exists in the variables

Moreover, any two independent variables are uncorrelated when *r* equal to zero. At the same time, it will determine whether it is a positive correlation ornegative correlation by showing the positive *r* or negative *r*.

The VIF quantifies that to what extent the existence of correlation prevails between the independent variables in the regression model. Moreover, it can identify whether the model has a serious multicollinearity problem or not.

There are several decision rules for VIF, according to Gujarati & Porter, (2009):

VIF > 10 or close to 10	Serious multicollinearity exists
VIF = 10	No multicollinearity exists

Therefore, there are some ways to solve the problem of multicollinearity by enlarging sample size or dropping of variables, the combination of time series and cross-sectional data, the transformation of the variables, or redesign the econometrics model.

3.10.3 Autocorrelation

Autocorrelation is the kind of phenomenon that states the degree of correlationbetween the same variables across different observations in the data. Autocorrelation can undermine the variances of OLS method as there is the existence of high values of t statistics and F statistics. Generally, autocorrelation prevails in the time series data, not cross-sectional data. It occurs in time series data as observations occurs at different point of times. This autocorrelation can prevail in the study if the observations are dependenton different aspects and incorrect models. This can cause a problem in OLS

regression as it assumes that observations are independent.

Breusch-Godfrey test is used to measure autocorrelation problem in STATA. The Breusch– Godfrey test is a tool for measuring autocorrelation in a regression model.

So, the hypothesis testing of Breusch–Godfrey test as below:

H_0: $\rho_1 = \rho_2 = \ldots \rho_p = 0$

no autocorrelation

H_1: at least one of

ρ's is not zero

There can be two cases that may be appeared in this test.

When ρ is known
When ρ is unknown

During Breusch–Godfrey test if the *P* value is less than α value 10%, then nullhypothesis will be rejected. This signify that there is auto correlation among the data set. Whereas, if the *P* value is greater than α value 10%, that means that H_0 cannot be rejected. This refers that there is no serial auto-correlation among the data set.

3.10.4 Heteroscedasticity

Heteroscedasticity occurs when the size of the error term differs across the values of an independent variable. Usually, the existence of heteroscedasticityis found in cross- sectional data, not in time series data. Variances and standarderror of the OLS method can be undervalued due to the heteroscedasticity in the data set.

Conversion of error data, miss specified model, different scales of measurement, and data outliners are the several causes for heteroscedasticity in the model. Moreover, the heteroscedasticity problem can be minimized ifthe sample size is large enough to conduct research (Nedorezov, 2014).

Various tests help detect heteroscedasticities such as Breusch Pagan test and White test. In STATA Breusch Pegan test is applied for testing heteroscedasticity.

H_0	$\sigma_{1\wedge1} = \sigma_2\wedge2 = \ldots\ldots = \sigma\wedge2$
H_1	$\sigma_{1\wedge1} \neq \sigma_2\wedge2 \neq \ldots.. \neq \sigma\wedge2$

During Breusch–Pegan test if the *P* value is less than α value 10%, then null hypothesis will be rejected. This means that heteroskedasticity exists. Therefore, if *P* value is greater than α value 10%, null hypothesis cannot be rejected. This means that homoscedasticity exists within the data set. To eradicate the heteroscedasticity issues, robustness test can be implied.

3.11 Conclusion

This chapter has described the methodology of study in detail. This also shows outline of econometric models, data collection, sample size, variables measurement, hypothesis testing for model, and diagnostic test.

CHAPTER FOUR

ANALYSIS

4.1 Introduction

This chapter will shed light on the research question and objective of this thesis. In order to present the data into meaningful information, this study divided into three parts. First, this study will present the trend of women boardof directors of energy industry of Malaysia during pre- quota year (2013-2017)and post-quota period (2018-2019). Second part goes with the descriptive analysis of the study and last part will shed light on diagnostic testing and themultiple regression analysis followed by all this study.

4.2 Trend of Women Directorship on Malaysian Energy Industry

The following sections present the findings of this paper with regards to the trend of women directorship in the Malaysian energy industry during the pre- and post-quota period. Figure 4.1 shows the percentage of women directors from 2013 to 2019. It indicates that there is an upward trend during the examined period.

4.2.1 Percentage of Women Directorship

It is noted that the percentage of women directors has steadily increased from2013 to 2019. The upward trend started even during the pre-quota policy, that is moving from 11% to 16% from 2013 to 2017. This is conjectured to be the implication of MCCG 2012, which highlighted the need for gender diversity

on corporate boards, albeit no quota being stipulated. Subsequently, the Malaysian Code on Corporate Governance 2017 (MCCG 2017) indicated thatthere must be 30% women's presence on the board of directors for the public listed companies in Bursa Malaysia. To comply with this obligation, companies started to hire women directors to fill up the quota. As observed, although the percentage of women directors in 2018 was the same as in 2017,i.e., 16%, the case has changed in 2019. In 2019, there was a dramatic changewhich has seen the percentage of women directors to increase to 20%.

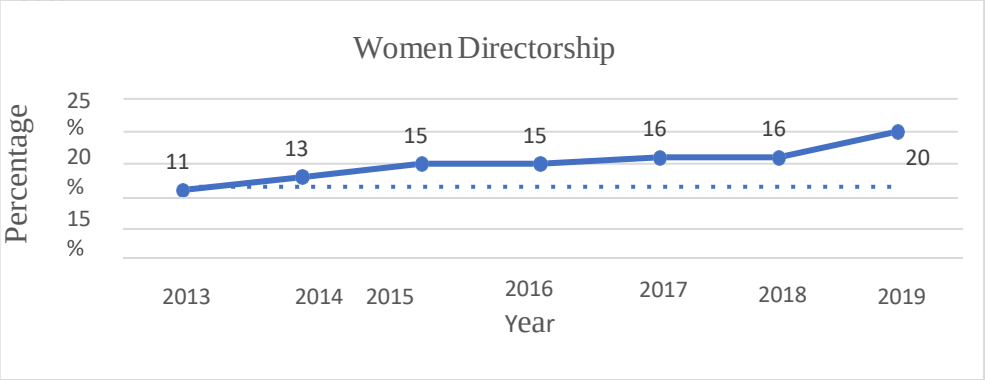

Figure 4.1: Percentage of Women Directors in Energy Industry of Malaysia

4.2.2 Meeting Quota Requirement

Based on Figure 4.1, it is seen that energy industry has not complied with MCCG rules and regulations with regards to the 30% quota. Although there isan increasing percentage of women directors on board, it is still far away fromachieving the target of 30% quota requirement. Nevertheless, in the case of single entity, some companies have achieved the imposed 30% quota, as presented in Table 4.1.

From the Table 4.1, there are only a handful companies achieved 30% quota attainment policy among the 31 energy companies. However, the rest

companies failed to attain the 30% women directors and could not meet up with the MCCG-2017 within 2020 (Scomi, Perdana, Handal, Sino Hua, Alam maritime). MCCG is not maintaining the "hard quota concept" to maintain the 30% women on the board level. For this reason, all energy companies have not achieved the 30% women on board level.

Table 4.1: List of Companies Which have Achieved the 30% Quota Post-MCCG2017

Year	**Company Name**	**% of women directors**
2018	Dialog Berhad KNM Group Malaysia Marine & Heavy Holdings Petron Refining Malaysia Velesto Energy Berhad (UMW oil and gas)	33% 40% 33% 37% 30%
2019	Bumi Amarda Berhad Dayang Enterprise Holdings Berhad Dialog Berhad	33% 33% 33%
	KNM Group Icon Offshore Berhad Sapura Energy Berhad Scomi Energy Services Berhad Petron Refining Malaysia Velesto Energy Berhad (UMW oil and gas)	40% 33% 30% 30% 37% 40%

4.2.3 Gender Balanced Board (Shannon Index)

Shannon diversity index was used as the variable for women representation in this study, considering the number of gender classification along with distribution of board members.

The value of Shannon index lies from 0 to 0.69 where 0.69 denotes the presence of equal number of male and female on the corporate board. The larger the

Shannon index value, the more diverse the corporate board is in terms of gender. From Figure 4.2, the Shannon diversity index value increased from 0.28 in 2013 to 0.39 in 2017. This is in compliance with MCCG 2012 during pre-quota period whereas the value of the diversity index increased from 0.39 in 2017 to 0.44 in 2019 during post-quota period from Figure 4.2. Although the value of Shannon index did not match with the optimum value of 0.69, equal participation of female and male on the corporate board did show a noticeable change from 0.28 to 0.44 during pre- and post-quota period.

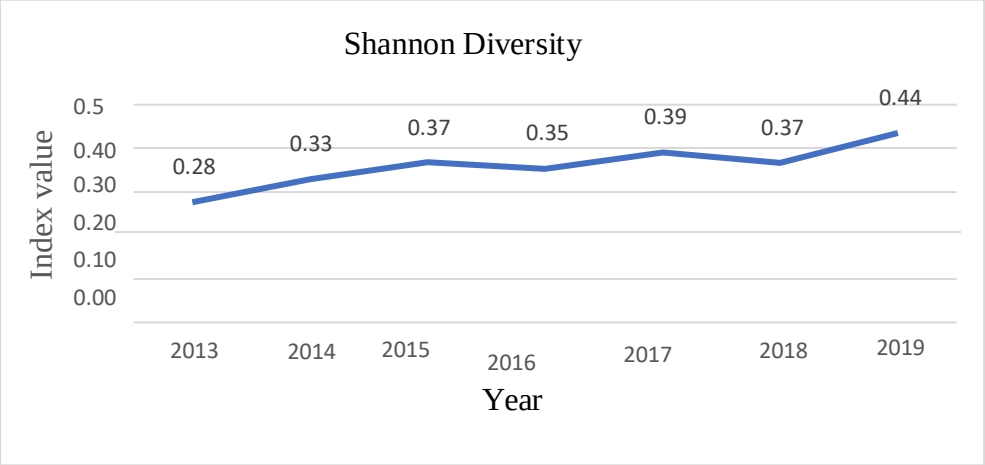

Figure 4. 2: Trend of Shannon Diversity Index of Energy Industry in Malaysia

4.2.4 Women Director's Qualification (business education)

Business education background increases an individual's financial literacy of senior position. Women directors with business education and industry experience distinguish themselves among other board members and have better understanding about business operations and management. These unique attributes beget not only strict monitoring of financial statements but also strategic decision making of company.

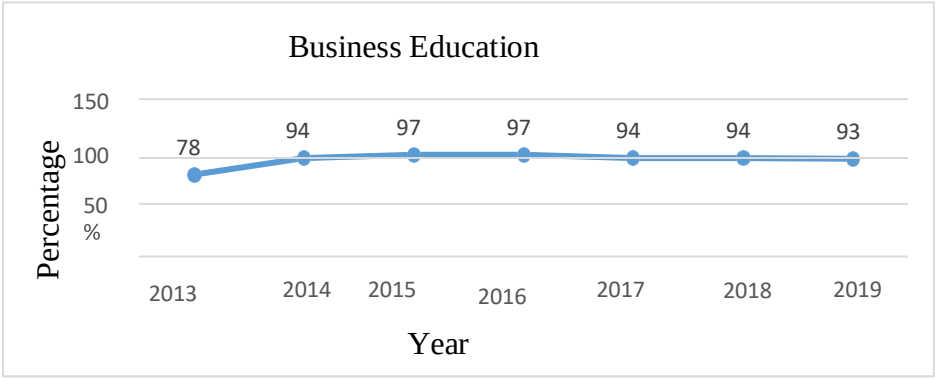

Figure 4.3: Percentage of Women Directors with Business Education Background

Figure 4.3 illustrates almost 78% women directors have business education background such as finance, accounting, economics, management and marketing, contributing to good financial literacy in 2013. In complying with MCCG 2012, firms began to appoint female directors with the majority of them possess knowledge in business. Nevertheless, the scenario of women directors with knowledge in business was different during post-quota period (MCCG 2017). Overall, there was an upward trend in terms of financial literacy among female directors. It can be concluded that women in general are more inclined to take business-related qualifications and women with business education are more likely to be appointed as directors. Knowledge in business makes women stricter in monitoring any issues related to financial statements and makes them strategic decision makers.

Energy companies are more likely to appoint women directors with solid business knowledge. This is important in ensuring the women directors are able to contribute more significantly to the firm's growth.

4.2.5 Women Director's Qualification (Industry Experience)

Industry experience is one of most important factors to appoint the board of directors. If the appointed women directors have outstanding industry experience, they can dodge the tokenism problem. Women having industry experience keep themselves distinct from others, thus deserving the priority to be on the corporate board. From Figure 4.4, it is shown that only 28.57% of women directors have industry experience in 2013 and in 2017, the percentage increased to 29.73% with a bit of fluctuations in between those two years. During 2019, the percentage fell into 24.44%.

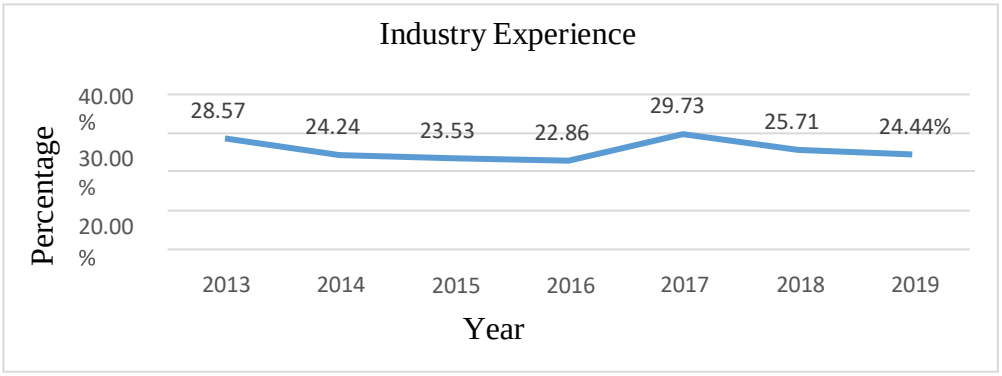

Figure 4.4: Percentage of Women Directors with Industry-related Experience

Figure 4.4 depicts that the Malaysian energy industry is still facing shortage of women directors with industry experience. It is also shown that the industry appoints more women with knowledge in business rather than industry experience. One plausible reason for this less industry experience women director can be lack of women in the entry and mid-level in the energy industry (Gillett & Hoff, 2020). As there is shortage of women's presence in the entry and mid-level, the proper, skill full and experienced women can't be supplied as the director's position from time to time. Apart from this, the industry has

an outstanding number of women directors with financial literacy because of their business education background.

4.3 Descriptive Analysis

Table 4.2: Descriptive Analysis of the Variables

Variables	Mean	Standard Deviation	Minimum	Maximum
ROA	-0.0149	0.1324	-0.9108	0.2763
MC	2.8168	0.6108	1.3069	4.4200
EVA	0.7964	0.1139	0	1.000
Shannon index (SI)	0.3589	0.2288	0	0.6829
Quota Attainment (QA)	0.1421	0.3500	0	1
Women Quality Index (WQI)	0.8680	0.6010	0	2
Women in Risk Management WRMC)	0.1335	.01687	0	0.6700
Board Independence (BI)	0.5162	0.1123	0.1400	1
Leverage (LEV)	28.4550	19.0800	0	82.4000
Firm Size (FS)	7.3020	1.1564	3.1527	10.5300
Board Size	7.6760	1.6499	4	13

In ROA and QA, there is seen that SD is larger than mean values. it can be happened due to integration of positive and negative values. For this, SD is far from the mean of the values.

Firm Performance

From the formula of ROA, it indicates that how efficient energy companies are in generating net income after deducting tax. The company's management are seemed to be more effective and efficient in utilizing its assets as long as company's return on assets are increasing. The mean value of ROA is -1.49%

of the sample firms of the energy industry with the minimum of -91% and maximum of 27%. As ROA is negative in this study, it suggests that the energy industry is incurring loss.

Market capitalization refers to the firm's worth according to the industry market. It is effective for access the risk and tell the firm what the market thinks about the firm's performance. From the table 4.2, it is easily interpreted that the mean value of market capitalization is 2.8168 whereas the minimum and maximum is 1.3069 and 4.4200 respectively. This study's value can be compared with the value 5.74 reported by Hassan and Marimuthu (2014) researched on the Malaysian firms.

In this study, EVA is considered as how sample firms are efficient in managerial and financial way. EVA reflects the true economic profit of the firms. The higher the EVA of the company, the higher the value of the company in the market. The mean value of EVA is 0.7964. This positive value denotes that energy companies generate value from its invested funds. This value shows that companies make profit to cover its cost of capital. The minimum and maximum value 0 and 1 respectively.

Shannon Index (SI)

The mean value of the Shannon diversity index is 0.35 with the minimum of 0 and maximum of 0.68 of sample firms. This value can be contrasted with the value of 0.23 that is reported by Yap et al., (2017) on Malaysian firms. This can be easily justified that Malaysian energy companies have more gender balanced board compared to the total of Malaysian firms. Although Malaysian energy companies outperform the total sectors of Malaysia in terms of

Shannon diversity index, it must go a long way to achieve the proper gender balanced board. The attainment of perfect gender balanced board of the energy companies of Malaysia is still far away as the gender diversity score of Shannon index is 0.69 while the energy company's one is 0.35 only. There is no female on board of the energy companies are TH, Pardana, Dayang, Serba Dynamic, T7 are one of the male led board.

Quota Attainment

The mean value of meeting quota is 0.14 with minimum of 0 and maximum of 1 that justifies that 14% of the firms meet the desired 30%-woman quota imposed by MCCG. The maximum value 1 signifies that some companies achieve the 30%-woman quota. The minimum value 0 denotes that some energy companies failed to achieve 30% women quota on board level. According to MCCG-2017.Delium, Velesto, Carimin, Sino hua , Coastal energy companies are failed to achieve 30% women quota.

Women Quality Index

Women director's quality index is the measurement of their business-related knowledge (academic qualifications) and industry related experience. The minimum value for this variable is 0 whereas the maximum value is 2. Minimum value 0 denotes that some women directors possess neither of business degree nor industry experience. The maximum value 2 implies that some women directors possess business knowledge and industry experience in energy industry. In this index, the value 1 is considered as whether women directors have either business knowledge or industry experience. The mean

value is 0.8680 indicating that the women directors have at least industry experience or business knowledge in energy industry.

Women in Risk Management

The average value of women in risk management is 13% with the minimum and maximum of 0% and 67% respectively. This signifies that on average, women directors make up only 13% of the RMC in the energy companies. This low percentage women's participation contradicts with the research done by Cartel et al. (2015) suggested that women are relatively risk averse rather than men. When women are more risk averse, their participation on the risk management will be more to identify risk and mitigate risk tools by reducing firm distress (Jing Jao, 2019). However, it contradicts the findings reported by Adam and Funk (2012) researched in the Sweden companies where women are found more risk seekers than male counterparts.

Board Independence

The minimum and maximum value of board independence of energy companies is 14% and 100% whereas the average value of board independence is 51%. This denotes that energy companies comprise 51% independent board of directors including female on average. According to MCCG 2017, independent directors must make up half of the board.. It matches with analysis that more than half (51%) board ensure proper board independence. This study aligns with the study of Yang and Zhao (2014), there is found that 64%of board of directors are independent, studied in USA firms.

Leverage

The mean value of leverage is 28% whereas the minimum and maximum value is 0% and 82% respectively. This statistics on leverage assume that Malaysian energy companies finance 28% of the total assets with debts on an average. This value can be compared to the value of 44%, leverage reported by Yap et al., (2017) in the Malaysia and with 38% reported by Campbell and Minguez-Vera (2018) in Spain. This denotes that Malaysia's energy companies leverage value is comparatively lower than those. Sometimes highly leveraged firms are considered risky as it can lead to bankruptcy. From the different perspective, increasing leverage can help to decrease agency cost along with rising the firm's value by persuading managers to act in the favor of shareholders.

Board Size

The average board size is 7 members whereas minimum and maximum board members of the sample firms is 4 and 13 respectively. The mean value of the board size can be compared to the value of 6 reported by Hamid et al., (2016) in Iraq and with the value of 7 members (7.84) reported by Zubaidah et al., (2009) in Malaysia. There is no specific detail written about board size. However, the average member of board size in this study is higher in comparison to the study of Alam and Ali Shah (2013). They disclose that the average member of board size is 2 after conducting the research on 80 listed companies in Pakistan.

Firm Size

Firm size denotes the natural logarithm of total assets. Firm size has a lowest and highest value of 3.15 and 10.53, respectively. Furthermore, this study reveals that the mean value is 7.30 of our sample firms. The average value of this study reveals difference with average value of 1.73 from the finding of Vithessonthi and Tongurai (2015) of Thailand. Moreover, the company size shows an average value of 7.3 which is relatively close to mean value of 7.58 studied in U.S. (Bushman, Dai & Wang, 2010).

4.4 Scale Measurement

Based on Table 4.3, for ROA the result of poolability and BPLM test (2.36 and 4.25) come significant, so fixed effect model and random effect model are selected respectively. Then, the result of Hausman test for ROA is 14.23 which is insignificant at 10%. It justifies that null hypothesis is rejected whereas alternative one is accepted. It can be clearly testified that random effect model will be appropriate for model for further analysis. For MC, fixed effect and random effect model are selected as result (7.30, 73.92) come significant at 1%. Finally, fixed effect model is selected as the result of (34.66) Hausman test is significant at 1%. For EVA, the result of poolability and BPLM test are significant (3.64, 34.65) and fixed and random effect model are selected. Finally, the Hausman test (8.36) is insignificant at 10% level and random effect model is selected for further analysis.

Table 4.3: Scale Measurement for ROA, Market Capitalization, EVA

Variables	Poolability test	BPLM test	Hausman test	Result
ROA	2.36***	4.25**	14.23	Random effect model (REM)
MC	7.30***	73.92***	34.66***	Fixed effect model (FEM)
EVA	3.64***	34.45***	8.36	Random effect model (REM)

Note: 1% significance level ***, 5% significance level **, 10% significance level *

4.5 Dislogistic Testing

4.5.1 Normality Test

Assumption of normality can be followed irrespective of any sample sizes chosen for study According to central limit theorem, violation of normality cannot be important issue where the observation is more than 100 (Ghasemi & Zahediasl, 2012).

Table 4.4: Normality table

Variables	Observations	Probability (Skewness)	Probabilitty (Kurtosis)	Adj Chi2	Pro>Chi
My residuals	194	0.0000	0.0000	65.28	0.000

From the Table 4.4, it is shown that the *P* value are less than 10% significance level. That rejects the null hypothesis and accept the alternative one hypothesis. It declares that data is not normally distribute. As observation are near about 194 and it is more than 100 , normality issues can be omitted according to Gujarati and Porter (2012).

4.5.2 Multicollinearity

This thesis examines collinearity issues by the Pearson correlation matrix and Variance Inflation Factor (VIF) to test the extent of collinearity issues among the prospective variables. Correlation analysis plays an important tool to justify the strength and weakness among the variables of the study. Here, Pearson correlation matrix is used to explain the linear relationship among the variables of the study as presented in table.

Table 4.5: Correlation of the variables

	SI	**QA**	**WQI**	**WRM**	**BI**	**LEV**	**FS**	**BS**
SI	1.000							
QA	0.503	1.000						
WQI	0.791	0.265	1.000					
WRM	0.626	0.453	0.421	1.000				
BI	-.076	-.034	-.064	-.017	1.000			
LEV	0.106	0.003	0.144	-.041	0.034	1.000		
FS	0.287	0.281	0.313	0.181	-.157	0.295	1.000	
BS	0.209	0.607	0.237	-.031	-.198	0.214	0.357	1.000

From the Table 4.5, it is shown that there is no value that exceed 0.80 that means there is no multicollinearity issues with the variables. Among the independent and control variables, SI, possesses positive strong relation with WQI and most weak relation with BI. In case of QA, it has positive strong relation with BS and most week relation with BI. In case of WQI, it has positive strong relation with WRM and most week relation with BI. women in risk management share

negative relationship with leverage and positive relation with FS. The highest value is 0.79 that is between Shannon index and women quality index whereas the lowest value is - 0.196 that is between BI and FS.

Apart from this, VIF is conducted to test the collinearity issues among all the variables. VIF is more suitable than pair wise correlation. VIF is used for identifying the correlation of one independent variable with others variables. VIF is better to get more understanding well. Multicollinearity issues will be omitted if all the VIF values are less than 10. In summary (table 4.8), it can be denoted that all the variables are free from serious multicollinearity issues. All VIF values for ROA, Market capitalization, EVA are also less than 10 stating that data set is free from multicollinearity.

Table 4.6: VIF of Dependent Variables

Variable	**ROA**	**ROA**	**MC**	**MC**	**EVA**	**EVA**
	VIF	Tolerance Factor 1/VIF	VIF	Tolerance Factor 1/VIF	VIF	Tolerance Factor 1/VIF
SI	4.40	0.2275	4.58	0.2182	4.47	0.2236
QA	1.55	0.6445	1.55	0.6467	1.54	0.6477
WQI	3.01	0.3320	3.15	0.3178	3.09	0.3239
WRM	1.84	0.5440	1.83	0.5452	1.83	0.5461
BI	1.06	0.9391	1.06	0.9422	1.06	0.9440
LEV	1.15	0.8685	1.15	0.8717	1.16	0.8594
FS	1.39	0.7168	1.39	0.7171	1.42	0.7048
BS	1.27	0.7877	1.26	0.7913	1.30	0.7711
Mean	1.98		2.00		2.26	

4.5.3 Heteroscedasticity

According to Breusch-Pegan test, it is examined that null hypothesis suggests homoskedasticity prevails on data whereas alternative hypothesis suggests heteroskedasticity prevails on data. From the Table 4.7, it is suggested that the chi square value is significant at 1% significance level for ROA and EVA data

set. So null hypothesis (homoskedasticity) is rejected and alternative heteroscedasticity is accepted. Only the market capitalization is an exception in this case as value is insignificant at 10% significance level. There is no heteroscedasticity in case of market capitalization

Table 4.7: Heteroscedasticity Test of the Dependent Variables

	ROA		**MC**		**EVA**	
	Chi Square	P-value	Chi Square	P-value	Chi Square	P-value
Result	86.71	0.000	0.38	0.5387	273.52	0.000

4.5.4 Autocorrelation

From the test Table 4.8, it is suggested that the values which are significant at 10% significance level, there is existence of serial correlation. This leads to the ROA and market capitalization has values less than 10% significant level so there is existence of auto correlation issue. However, the values which are insignificant at 10% significance level, suggesting no serial correlation problem. This shows the EVA is free fromserial correlation problem. To rectify this problem, cluster check has been used as econometric tool.

Table 4.8: Serial correlation of dependent variables

	ROA		**MC**		**EVA**	
	F value	Prob>F	F value	Prob>F	F value	Prob>F
Result	5.968	0.0214	10.178	0.0034	0.789	0.3817

4.6 Inferential Analysis

The panel data is made up of 31 energy firms that are listed on the Malaysian stock exchange, Bursa Malaysia. For this investigation, a total of 194

observations were collected. The data set is proved to be panel unbalanced data for this study. The panel data is run to investigate the impact of independent variables over the three dependent variables. Here, heteroskedasticity and autocorrelation problems are also corrected through robustness and cluster check. In case of ROA and EVA random effect model is proven appropriate to run the regression analysis whereas fixed effect model is chosen for regression analysis in case of MC after all diagnostic checking. The result of ROA, MC and EVA's regression analyses are presented in appendix (Appendix A, B, C) respectively.

Table 4.9 Summary of coefficients and Standard error of all Independent and Control Variables.

Variables	**ROA**	**MC**	**EVA**
SI	-0.0057	-0.4514	-0.0385
	(*0.0961*)	(*0.3115)*	*(0.0638)*
QA	-0.5020*	-1.5322*	-0.8314
	(0.3009)	(*0.7773)*	*(0.6993)*
QA*SI	0.8683*	2.4737**	1.3485
	(*0.4591)*	*(1.1976)*	*(1.0451)*
WQI	-0.0088	0.0220	0.0000
	(0.2732)	(*0.1074)*	*(0.0257)*
WRM	-.1379	-0.1363	-0.0623
	(*0.1281)*	(*0.2165)*	*(0.1085)*
BI	0.1192	-0.0715	0.0113
	(*0.7744)*	*(0.3500)*	*(0.0544)*
LEV	-0.0023***	0.0104***	-.0013**
	(*0.0008)*	(*0.0019)*	(*0.0005)*
FS	0.0396**	0.2957***	-0.0237**
	(0.1588)	*(0.0712)*	*(0.0129)*
BS	0.0134**	0.0897***	0.0003
	(0.0057)	(*0.0284)*	(*0.0028)*
R-square	21%	40%	30%
Adjusted R-square	20%	38%	28%
POLS	2.36***	7.30***	3.64***
BPLM	4.25**	73.92***	34.45***
Hausman	14.23	34.66***	8.36
Heteroscedasticity	86.71***	0.38	273.52***
Autocorrelation	5.96**	10.17***	0.789

Note: ROA (return on asset), market capitalization (MC), EVA (economic value added), SI (Shannon index), WQI (women quality index), WDRM (women director in risk management committee), QA (quota attainment), BIND (board independence), Lev (leverage), FSIZE (firm size), BSIZE (board size).1% significance level ***, 5% significance level **, 10% significance level *. Standard errors are in parenthesis.

Shannon Index

From the Table 4.9, Shannon index is seemed to have an insignificant impact at 10% level on firm performance as measured by ROA, market capitalization, EVA. It's result contradicts with the result Lim et al. (2019), where Shannon index lowers the market performance. However, this finding contradicts with the finding of Yap et al. (2017) along with Gordini and Rancati (2017) stating that Shannon index and great gender balanced board have positive influence on firm's performance.

Quota Attainment

As in observed in table 4.9, quota attainment is negative significant at 10% significance level on firm's performance ROA and MC. However, quota attainment is insignificant at 10% significance level in case of EVA. This justifies that quota attainment alleviates the firm's performance in the Malaysian energy industry. This finding contradicts the findings of Luckerath-Rovers, (2013) where it shows imposing quota can bring positive significant performance on firm's ROA. This study also aligns with the result of Julizaerma and Sori (2012). However, this research result supported the findings of Lakhal et al. (2015), Kompa and Witkowska (2018), Ahmad Zaluki (2012) that brings negative performance on firm for quota establishment.

Moderating Effect of Shannon Index on Quota Attainment

Shannon index is used for moderation here to observe whether this moderation brings positive output on the firm or not. This moderation brings positive significant impact at 10% and 5% significance level on firm's ROA and market capitalization respectively. However, this moderation is proved insignificant on EVA. This finding contradicts the findings of Igna Merit Schimidt (2019) where the interaction of quota and board gender diversity could not bring any significant positive result on firm performance. This justifies that Shannon index can enhance the relation between quota attainment and firm performance via moderation effect. This result can justify that by ensuring proper gender balanced board (SI), quota attainment can bring significant impact on firm performance.

Women Quality Index (WQI)

From Table 4.9, WQI shows insignificant impact at 10% level on ROA, MC, and EVA. This WQI's coefficient denotes that this has no influence on the firm's value. This finding supported the findings of Mohammad and Buhari (2019) and Eyob Melkamu (2016); where there is no impact found on firm's growth by women's quality like business knowledge and industry experience. This result also refutes the result of Bonsa Mitiku (2015) and Poon et al. (2013) that showed positive association between women's quality and firm's performance. When women quotas are introduced to fill up the board positions, this can create temporary scarcity for competent women directors to fill up the positions in proper time and lead to decrease or no impact on firm's earnings (Lakhal et al., 2015).

Women in Risk Management

As is presented from Table 4.9, it implies that women in risk management committee have insignificant influence on firm's performance ROA, MC and EVA at 10% significance level. This denotes that woman in risk management committee brings no impact on firm's earnings. This finding espoused the study of Loukil and Yousfi (2016) that women on board have no significant relation with financial risk of firms. However, according to Perryman (2016)'s study women in risk management can lead firm's performance.

Board Independence

Board independence (table 4.9) shows an insignificant relation with ROA, market capitalization and EVA at 10% significance level. This result aligns inthe findings of Marn and Romuald (2012), Zabri et al. (2016) where shows anysignificant linkup between independent directors and firm performance. This finding contradicts with the result of Awan and Khan, (2012), Rashid (2018),Kweh et al. (2019) showing negative significant relation with board independent directors with firm performance. Moreover, this study's finding refutes the result of Martin and Herrero (2018) where board independence seemed to have significant impact on firm performance.

Leverage

From the Table 4.9, it is shown that leverage has negative significant impact at 1%,1%, and 5% significance level with ROA, MC and EVA respectively. This denotes that leverage lowers the firm's earnings. This finding espoused the result of Ahmad Sheikh et al. (2013), Loukil and Yousfi (2016), Triana and

Asri (2017) stating that leverage can reduce the firm's performance. This denotes that if energy companies want to increase ROA, MC and EVA, it will have to decrease leverage of the firm. This result validates the output found by the study of Razak et al. (2014).

Firm Size

This study shows that firm size is positively correlated with ROA, MC at 5% significance level whereas firm size shows negative significant relation with EVA at 5% significant level (table 4.9). These findings are espoused with Salim Darmadi's (2011) result stating positive significant with ROA in Indonesia. However, this study's finding contradicts with the result of Haldar et al. (2014) where firm size has positive impact on firm performance in case of EVA.

Board size

As is presented on the Table 4.9, it is said that board size is significantly positively related to firm's performance ROA and MC at 5% and 1% significance level respectively. This finding aligns with the findings of Tarik and Naved (2016) along with Trang Thi Kieu Pham (2016) that board size has positive significant impact on ROA. Moreover, board size having positive impact signifying in favor of resource dependency theory as large boards are mixed up from different diverse backgrounds (Haldar et al., 2015). Kaur and Madhu (2017)'s result validates findings on board size. Furthermore, this research study shows that board size has an insignificant relation with EVA that contradicts the result of Haldar et al. (2014) where board size has positive

impact on EVA.

R- Square

The coefficient of determination R is perhaps the most often used "goodness-of-fit" statistic, especially for evaluating regression model performance. A high R value is usually connected with a model that is efficient. Here, the R-square is 20%, 40% and 30% in ROA, MC and EVA respectively. It also shows that there is measure of explanatory power. Even if the value of R-square is small in case of ROA, it is significantly differs from 0. That means it doesn't signify that there is no relation among variables. For an effective model, R might be low. On the other hand, a poor model fit might result in a high R (Onyutha ,2020). In some fields, it's completely normal to have low R-squared values. R-squared values of less than 50% are normal in any science that seeks to predict knowledge (Minitab, 2013). In case of panel data modeling, R square below than 50% is normal. Furthermore, even if R-squared is low but predictors are statistically significant, there may be still make crucial inferences about how changes in the predictor values affect changes in the response value. The significant coefficients show the mean change in the response for one unit of change in the predictor while maintaining other predictors in the model constant, regardless of the R-squared (Minitab, 2013).

4.7 Conclusion

This chapter sheds light on the trend of women, fulfillment of quota and multiple regression analysis of three dependent variables. Besides, poolability test, BPLM and Hausman tests are performed to justify which model is perfect for analysis. Even, all diagnostic checking has been corrected through different econometric measures. In case of ROA and EVA random effect model, and in case of MC fixed effect model is chosen for regression analysis respectively. The chapter five will be presented all hypothesis alongwith the reasonable logic and perspectives from our research.

CHAPTER FIVE

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Introduction

This chapter will provide in-depth discussion of the hypothesis and statistical analysis of the study. Furthermore, recommendation and limitations of this study will be viewed through this chapter. In a nutshell, this chapter will bear the concluding remarks of this research study along with further recommendation and limitations of the study.

5.2 Major Discussion on Findings

5.2.1 Trend Analysis

This thesis first objective deals with the trend of women directors during the pre and post quota policy period. This objective reveals that whether the companies are complying with the 30% women quota implication or not by analyzing their trend. Furthermore, by observing the trend Malaysian government can see how this goes along with further extension of period.

From the chapter Four**,** it shows that the percentage of women directors, women director's qualification (business education knowledge), Shannon index ratio increased at considerable rate whereas industry experience percentage decreased.

To be very specific, women percentage has increased due to implication of

quota and MCCG 2021 states that if there is failure of fulfillment 30% quota, companies have to answer for it. Moreover, though there is still not hard quota concept prevailing in Malaysia, so there are still some companies who failed to fulfill the 30% quota till now. Shannon Index has increased considerably to 0.44 where 0.69 is the highest optimum value for ensuring gender balanced board. That means energy sector is ensuring gender balanced board at a pace as 0.69 is not achieved.

The percentage of women's director's qualification (business knowledge) is shoot up to 93%. To recapitulate, Women are more likely to pursue business-related degrees in general, and women with business education are more likely to be selected as directors. Women with business knowledge are more vigilant in monitoring any difficulties relating to financial accounts, and they are more strategic decision makers. Nevertheless, the percentage of women industry experience is not up to the mark as compared to business education. One possible cause for the paucity of women in the energy business at the entry and mid-level is a shortage of female directors with industry expertise.

5.2.2 Impact of Women Directorship on The Firm Performance on Malaysian Energy Industry

Table 5.1: Summary of hypothesis testing of inferential analysis

	Results		
Hypothesis	**ROA(a)**	**MC(b)**	**EVA (c)**
H1: Women representation (quota attainment) has significant impact on firm performance	**Accepted (-)**	**Accepted (-)**	Rejected
H2: Shannon Index moderate the relationship between quota attainment and firm performance	**Accepted (+)**	**Accepted (+)**	Rejected

H3: Women director's qualification index has significant impact on firm performance.	Rejected	Rejected	Rejected
H4: Women directors in risk management committee has significant impact on firm performance	Rejected	Rejected	Rejected

Quota Attainment and Firm's Performance

From the Table 5.1, quota attainment shows negative significant impact on ROA and market capitalization. This result refutes the result of Jubille et al. (2018), Haldar et al. (2015) as their findings shows that quota has positive impact on firm's performance. However, this cannot leave significant impact on economic performance (EVA). This study's result espoused with the findings of Al Mamun (2013) where suggested that women quota has no impact on firm's EVA. When there is mandatory quota implemented, it can hardly enhance the firm performance.

This study can be justified from the perspective that firms are more concerned to fill up the 30% quota regardless of women's education, experience, network. These qualities of women can bring the justice on behalf of them to the firms. Moreover, there can be plausible explanation that women are appointed due to tokenism and glass ceiling fact rather than the practical activities (Krammer et al., 2008; Carter et al., 2010). For these women remain underrepresented from the important decision making for the betterment of the firms and also create conflict (Carter et al., 2010). One plausible reason can be the favor appointment of own family members or acquaintances or through networking especially in male dominated industry. When there is presence of more than one family members on board, there is possibility to appoint them from the influence of

family rather than experience or merit (Abdullah, 2014). As energy industry is male dominated industry, there is less women representation in every phase of industry. Women directors usually to be appointed when any women director leave the board (Tinsley et al., 2016). Furthermore, women tend not to replace male, but they are appointed when board grows in size (Dewally et al., 2017). In a male dominated or "beta" industry, females are more likely to change their behavior and attitudes like man (Doesburg,2012). Females tend do this to lessen the outsides status in the male dominated industry.

Eventually females tend to lessen their own character, attitudes and preferences and become less risk averse. For this reason, positive performance of this industry is started diminished and negative performance persists as morefemale is included (Doesburg,2012). Another plausible reason may be womenon board can minimize the firm's revenue; if they were already reached the optimum level by maximizing profit (Gopalan and Watson, 2015). This can lead to a harmful point for the firm (Sila et al., 2016). However, Miller (2011)stated that women's underrepresentation may not be due to inequity but due towomen's preferences of family and fertility. For this reason, they can hardly perform their best on the firm's future growth as they are new to this environment and hardly know anything about market current status.

Gender Balanced Board (Shannon Index) and Firm Performance

As presented in Table 5.1, Shannon index has no direct influence on ROA, market capitalization and EVA. This result refutes the findings of Lim et al. (2019), Yap et al. (2017) where it showed that Shannon index has significant negative influence on firm performance. Moreover, the trend of gender balanced board (SI) (figure 4.2) also shows that the value is 0.44 that is far from

0.69. This can justify that as energy industry's board still not at the optimum level of gender-balanced board, Shannon index failed to influence on firm's earnings.

Moderation of Shannon Index Between Quota Attainment and Firm Performance

Moderation of Shannon index and quota attainment brings positive and significant influence on ROA and market capitalization. In case of EVA, there shows no significant influence of this moderation and performance. Quota attainment is found to have a negative impact on firm performance (ROA and Market Capitalization). However, when Shannon Index is introduced as a moderator, the negative impact of quota attainment on firm performance is reduced. To put it another way, having a gender-balanced board could reinforce positive impact of quota on firm performance. Imposing women directors only to meet up the 30% without having proper resources is not the right way for firm's growth. Even though women's presence on boards has risen for mandatory or voluntary quota, tokenism prevents them from making critical decisions or serving on strategic commissions (Yildiz et al., 2019). Therefore, having more gender balanced board could reduce the adverse impact of this tokenism fact. If the company only focus on quota rather than balanced board, it cannot bring effective results. Board should be designed in such a way where male and female directors are equipped with proper knowledge, resources. When proper mixture of male and female directors blended into a good diverse board, it identifies optimum needs and interests of the stakeholders that create ultimate market value (Harjoto et al., 2015).

Quality of Women Director's and Firm Performance

In this study, women director's qualification is measured by a quality index of business education and industry experience. As presented on Table 5.1, the qualification of women directors does not have significant impact on ROA, MC, and EVA. From Figure 4.3 and 4.4 (chapter 4), it is clearly shown that women directors of energy industry have lack of experience in the relevant industry though they have business knowledge. Energy industry is facing shortage of female in the entry and mid-level along with high level. When they are called for appointment for directors, companies cannot get the best candidate out of it. This may be a plausible reason for not to impact on firm performance. Women are appointed to fill up only 30% figure rather than justifying their competence, resource, academic qualification and industry experience. When women having no or less quality are appointed just to meet up the quota, their perfunctory knowledge cannot bring fruitful result on the firm's output in long run. Furthermore, women's expertise in this field are limited and lead to limit the chance to move up the ladder to the director position. Gender salary gap, difficulty of promotion occurs more when there is lack of qualified women, business related personnel along with energyexperience women in the workforce. In conclusion, the resource dependency theory, which claims that women directors may link and supply considerable resources for the benefit of businesses, is not supported by this study (Dang et al., 2013).

Women in Risk Management and Firm Performance

From Table 5.1, women directors in risk management committee has

insignificant impact on ROA, market capitalization and EVA of the firm. Though board is generally gender diverse, male and female counterparts differ from some basic core values. Women have risk averse nature rather than male. Women are keener to monitor and supervise the firm where male directors involve in financial risk-taking decisions proved by the findings of Pierpaolo Parrotta, (2013) and Dohmen et al. (2011). When women directors are typically risk averse, they can hardly take fruitful strategic decision at right moment to enhance firm's performance. Moreover, women directors have less risk management skills along with less experience in the energy sector. For this reason, they become risk averse. Furthermore, women in risk management committee may go through with the tokenism issue (Malik et al., 2021). When compared to RMC members with merely general financial and accounting backgrounds, RMC members with particular risk management skills can encourage effective risk monitoring, therefore increasing the value of businesses (Malik et al., 2021). Women directors should have more confidence, better communication skills and leadership quality to make their position strong as well as balance up their voice on the board of male members.

Discussion of Control Variables

Independent directors are non-executive directors who are not directly involved in management and do not have the same level of knowledge and experience as executive directors when it comes to evaluating the various transactions that the business engages in. As they have limited knowledge about the firms, they might have no influence on firm's performance (Chia,2015). Firm's earnings along with firm's proper governance hardly improve simply by having independent directors with no independence of thinking (Beecher-Monas,

2007). This can happen when firm's appoint independent directors while family ownership still prevails most. When the outsider directors are appointed as independent one, they barely have solid influence on the CEO to take action for the betterment of company on behalf of them and if the board is not properly balanced and diversified (Terjesen et al., 2016).

Independent directors have no influence on the firm's performance can be reason of not appointment of properknowledgeable directors or appoint women as independent directors serving both filling quota issues and achieve independence (Terjesen et al., 2016).

Appointment of independent directors should be designed in a way the appointment and nomination committee should be free from any political or personal bias. High leverage can lower the company's performance and lead to the high risky project and bankruptcy. Those firms whose are more dependent on leverage may lose potential profit from the profitable investments as they are not able to invest further (Taisuke Tsuruta, 2014).

Moreover, leverage is related to the firm's size as negative leverage is prominent in case of small size firms. Negative impact on leverage is going to weaken as firm is bigger (Obhagui & Olokoyo, 2018). The bigger the firm size, the more competitive and bargain power it avails. Smaller firms have more profit due to less competition. The larger the firm size, the more female directors appoint on the board level. Women directors monitor firms excessively by reducing decision making speed and lower firm's performance. Small board size is proved more efficient at controlling management whereas large board is from various background, decrease discretion and management power (Kilic & Kuliz, 2016). Board size aligns with the resource dependency

theory suggesting that large board having more diverse people can think out of box and take more strategic decision (Haldar et al.,2015). The more the firm size and board size, the more women directors are appointed on the board level (Haldar et al., 2014). Moreover, board size can bring competitive advantage to the firm' success.

5.4 Implication of The Study

5.4.1 Government

Though there is no significant impact of quota policy period on energy industry performance, the government has look into the quota policy along with proper gender balanced board. This study shed into light that only women quota cannot bring any change without proper skillful, experienced board. Malaysian government can enhance the estimated year and government should extend the quota policy period to three years or more than that to unlock the potential of full board. Moreover, Malaysian government should encourage women directors by giving attractive remuneration, work life balance benefits, tax exemptions and most importantly empower them by giving decision making power on board.

Malaysian government may consider implementing industry wise quota rather than full country wise. As real estate, energy industry, IT sector are male dominated whereas consumer, manufacturing, financial services, tourism sector are less male dominated. When quota is employed on every sector, less male dominated sectors will be very quick to achieve women on board rather than most male dominated ones. For this reasons, industry wise quota may be

executed so every sector can be levelled up. To facilitate women's empowerment, Malaysian government should ensure proper mentoring system, training program for the directors.

5.4.2 Academic

This study bridges the gap between the present and past literatures. The impact of quota is stated in this research studies distinctly. This review of quota policy will create a new leaf to the existing literature of the academic sector especially in Malaysian energy industry. This study looks into the quality of women directors from the academic qualification (business education) and industry experience of the women. This study signifies that whether the women quota and women's qualification can create a new path or not on energy industry which is male dominated one. This study demonstrates that, owing to tokenism, quotas may have a negative influence on company performance, but that this impact may be maximized when a gender- balanced board is in place. Moreover, this study signifies not only the quantity one but also the quality of the women directors of the energy industry.

From the theoretical perspective, this study looks into agency theory and resource dependency theory. According to agency theory presence of women directors show different behaviors from male ones and possess good monitoring and supervising (Ismail et al., 2013). This will lead to higher firm performance. Furthermore, women on board bring some fresh ideas, good at strategy formulation, possess unique information along with better communication through greater access of resources, prestige and expertise (Singh et al., 2010). This will lead firm's performance and align with agency

and resource dependency theory.

As quota attainment doesn't bring positive impact on firm performance, agency theory is not supported fully here. However, when quota attainmentis supplemented with gender balanced board (Shannon index), it brings fruitful impact and that only supports agency theory.

These findings aligns with agency theory's theoretical implications partially that female directors are more likely to perform a better monitoring function than male when there is assurance of gender balanced board. In case of RMC, agency theory deviates this also as agency theory ensures monitoring and supervision and women are risk averse. It is not aligned with this study. In case of resource dependency theory, this study is not affiliated as women quality (academic qualification and industry experience) is not significant here as women's education, experience is not bringing profitable output for firms. According to RDT theory, education, knowledge, experience, and leadership abilities are required for women to advance to the boardroom. Women who take the position of director are motivated by their desire to contribute to and share their skills with the organization. In this study, due to less industry experience along with business education, women directors are less competitive in regard of showcasing their capabilities and lead to no impact on firm's financial performance.

5.4.3 Society

This research will show how the quota policy has increased the number of women directors in the Malaysian energy industry. Women with sufficient competence and quality should be present at the entry and mid-level levels in

order to take over as directors when called. For this, more women will be appointed to the industry and unemployment will be reduced. This study shows that implementation of quota cannot bring fruitful impact due to tokenism problem. This problem arises due to glass-ceiling, visibility, and broken rung within the society. When visibility occurs, women are observed by their male counterparts and for this they are not easy going with their performance. In broken rung, women cannot move forward to managerial level. Due to these issues, women cannot climb the corporate ladder and wander away from the corporate level. Women face invisible barrier for climbing up the ladder and lead to glass-ceiling for the women. As from the first objective, it is stated that though female directors are rising due to women quota so lead to cracking of glass ceiling. However, their impact on the firm's performance are not up to mark due to less qualified women on board. The women directors fail to move forward for managerial level of the corporation for broken rung phenomenon.

Before ensuring the board directors position, women have to go through the managerialposition to achieve more efficiency along with experience on field. As women failto achieve managerial position due to some factors, they drop out from the jobsand can hardly avail the board of directors position in long run.

Society should move forward to eradicate this tokenism problem by keeping the proper mindset about the women that women can perform their duties as well as men in any sector. Society should be more supportive to women when it comes to doing jobs by maintaining family. This study is also related with SDG-5 goal "gender equality" and create a clean image not only to the countrybut also internationally.

5.4.4 Industry

The energy companies may give their hand by arranging on campus selection for women after their graduation for the very entry-level. This will help to reduce unemployment for women along with assurance of women's presence at entry level in Malaysia. This will justify that if there is a pool of talented women at every stage of the corporation, it will be easy for women to become the board of director. While appointing directors, energy industry should appoint more merit and skillful females at the primary level. For this, more knowledgeable women can prove their worth into this energy industry. Industry will get more women who are already properly trained, got mentoring session arranged from government. Industry should be less strict to women and should possess welcoming mentality to encourage them. Industry should appoint women those have strong characteristics so they can challenge male members in industry and ensure their presence. The nomination committee of the board should be free from biasness of appointing women directors. The appointment should be free from networking, lobbing and bribery. This will also help the industry to overcome the tokenism problem and may have fruitful impact on future.

5.5 Limitations of Study

While conducting this research study, several limitations has been taken into consideration. The first limitation is the inclusion of public listed companies of Malaysian energy industry. Only energy industry or 31 listed companies in Bursa Malaysia has been chosen for this study. The other industries along with private companies have been kept out of this study.

Secondly, there is only selection of single country and did not consider the comparison of other neighboring countries where cultural, economic and governance related issues are similar like Vietnam, Japan, Indonesia.

Third, only secondary data has been chosen for this study. This study could look into primary data like interview or the women directors of energy industry to reinforce the impact. Moreover, for this reason this study can be a mixture of quantitative as well as qualitative research one.

Finally, there are several other financial measures that are not taken into consideration in this study like ROE, market to book value ratio, stock liquidity, ROIC, EPS, enterprise value and so on. Usage of secondary data and one research method are used here. Moreover, further studies can look into the non-economic aspects (tax rate, inflation and exchange rate) along with operational performance of the firm aligning with women quota.

5.6 Recommendations of Study

One path to the recommendation of this study to separate the pre-quota and post-quota period like pre quota year 2012 to 2017 and post quota year on 2017 to 2019

. Future researchers may consider both the MCCG 2012 and MCCG- 2017 and justify the impact on firm performance and differentiate their firm performance. Furthermore, the post policy period should be longer enough to capture the differences between pre and post policy effectively.

Apart from this energy industry's listed companies, IT sector, real estate sector are the favorable options to carry the research as these sectors are also male dominated sector. One plausible study can be done to compare the impact of

women quota among the male dominated industry to justify which male dominated industry is performing well by complying MCCG- 2017.

One noteworthy road of the further research can be the mixture of qualitative and qualitative research of the study. This study only uses secondary data. Further study can take the interviews of the women directors to reflect the overview of the scenario along with the strengthen the study.

A comparative research can be performed among the countries of South-east Asia like Philippines, Singapore, Vietnam, Thailand, Indonesia to see the impact of women director on firm's performance. It can easily trace and compare the qualities and credibility women director possess to structure the organization for future.

Another suggestion is to investigate the influence of women on the audit committee, foreign directors, and the senior management team on the firm's performance. Interlocking board, impact of family-owned business on firm's performance are the other recommendations for the study.

5.7 Final Remarks

This chapters highlights the summary of the finding of this study along with the limitations of the study. The implications have been shown to design the strategies for the policy makers, government, industry of the Malaysian government.

In a nutshell, quota is not creating clash between male and female counterparts or create burden for the industry. It is the ultimate weapon to ensure women's presence on this male dominated sector. The study's original value and contribution is that it shows that women are being nominated to boards before

they are ready, just to meet mandatory or voluntary female member quotas. Tokenism is cited as an impediment to women's job advancement in this circumstance This quota cannot bring fruitful impact due to tokenism or symbolism issues. However, gender- balanced board have proven fruitful impact on the firm performance. Nevertheless, quota’s impact will visible truly when women are truly occupied with proper knowledge, merit and skill. Male counterparts will have to change their mindset and have to consider women as directors not as “token” or “women directors”. The nomination committee of the company should be more cautious while appointing the directors whether its men or women.

REFERENCE

Abd Rahman, I. M., & Ismail, K. N. I. K. (2018). The moderating effect of culture on the relationship between women directors and CSR disclosure in Malaysia. *Asian Journal of Accounting and Governance*, *9*, 133-142.

Abdullah, S. N., Ismail, K., & Izah, K. N. (2017). Gender, ethnic and age diversity of the boards of large Malaysian firms and performance.

Abdullah, S. T., Chugh, L. C., & Talukdar, M. B. (2014). Do female CEOs add value for stockholders? A case study of Yahoo!. *Journal of Finance and Accountancy*, *16*, 1.

Abdullah, S., Ku Ismail, K., & Nachum, L. (2012). Women on Boards of Malaysian Firms: Impact on Market and Accounting Performance. *SSRN Electronic Journal*. doi: 10.2139/ssrn.2145007

Abdullah, SN, & Ismail, KNIK (2013). Gender, Ethnic and Age Diversity of the Boards of Large Malaysian Firms and Performance. Journal Pengurusan, 38, 27-40.

Abosede, S. A., Fashagba, P. F., & Dandago, K. I. Corporate Governance As a Predictor of Financial Performance in Downstream Nigerian Quoted Oil and Gas Companies.

Abubakar, B. A., Garba, T., Sokoto, A. A., & Maishanu, M. M. (2014). Corporate board gender diversity and performance: Evidence from Nigerian stock exchange. *An Unpublished PhD Thesis, Department of Economics, Usmanu Danfodiyo University, Sokoto*.

Adams, R. B. (2016). Women on boards: The superheroes of tomorrow? *The Leadership Quarterly*, *27*(3), 371-386.

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics*, *94*(2), 291-309.

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter?. *Management science*, *58*(2), 219-235.

Agyemang-Mintah, P., & Schadewitz, H. (2019). Gender diversity and firm value: evidence from UK financial institutions. *International Journal of Accounting & Information Management*.

Ahern, K. R., & Dittmar, A. K. (2010). The changing of the boards: The value effect of a massive exogenous shock. *Unpublished manuscript. University of Michigan*.

Ahmad, A. (2017). Gender Inclusive Leadership In Malaysia: Board Composition And Corporate Financial Performance.

Ahmad-Zaluki, N. A. (2012). The pre-and post-IPOs gender composition of board of directors in Malaysia. *Gender in Management: An International Journal*.

Ain, Q. U., Yuan, X., Javaid, H. M., Usman, M., & Haris, M. (2020). Female directors and agency costs: Evidence from Chinese listed firms. International Journal of Emerging Markets, 16(8), 1604–1633. https://doi.org/10.1108/ijoem-10-2019-0818

Akpan, E. O., & Amran, N. A. (2014). Board characteristics and company performance: Evidence from Nigeria. *Journal of Finance and Accounting* Performance: An Empirical Study on the Oil & Gas Sector of Pakistan *2*(3), 81-89..

Alam, A., & Ali Shah, S. Z. (2013). Corporate governance and its impact on firm risk. *International Journal of Management, Economics and Social Sciences*, *2*(2), 76-98.

Allison, P. D., & Waterman, R. P. (2002). Fixed–effects negative binomial regression models. *Sociological methodology*, *32*(1), 247-265.

Al-Mamun, A., Yasser, Q. R., Entebang, H., Nathan, T. M., & Rahman, M. A. (2013). Gender diversity and economic performance of firms: Evidences from emerging market. *Journal of Economic Development, Management, IT, Finance, and Marketing*, *5*(2), 100.

Alzharani, A. M., Che-Ahmad, A., & Aljaaidi, K. S. (2012). Factors associated with performance: Empirical evidence from the Kingdom of Saudi Arabia. Accounting and Taxation, 4(2), 49-56.

Amin, S. I. M., & Nor, S. M. (2019). Board diversity and firm performance in the construction, manufacturing, and trading/services industries. *Asian Journal of Accounting and Governance*, *12*.

Amran, N. A., Ismail, K., Izah, K. N., Aripin, N., Hassan, N., Manaf, A., ... & Abdullah, S. N. (2014). Women directors involvement in Malaysia.

Anderson, R. C., Reeb, D. M., Upadhyay, A., & Zhao, W. (2011). The economics of director heterogeneity. *Financial Management*, *40*(1), 5-38.

Ann Surin, J., & Lay Chin, K. (2018). The problem with a 30% women quota. *THE EDGE MARKETS*. Retrieved 15 March 2020, from https://www.theedgemarkets.com/article/problem- 30-women-quota.

Are women really more risk-averse than men? NEW STRAITS TIMES. (2019).

Shattering the 'glass ceiling' in oil and gas companies. Retrieved 11 March 2020, from https://www.nst.com.my/opinion/columnists/2019/10/527896/shattering-glass-ceiling- oil- and-gas-companies.

Arslan, M., Zaman, R., Malik, R. K., & Mehmood, A. (2014). Impact of CEO duality and audit committee on firm performance: A study of oil & gas listed firms of Pakistan. *Research Journal of Finance and Accounting*, *5*(17), 2222-2847.

Asri, M. (2017). The Impact of Female Directors on Firm Performance: Evidence from Indonesia. *Journal of Indonesian Economy and Business*, *32*(1), 19-32.

Aun Lee, H. (2017). The lessons of Malaysia's push for gender equality. *NIKKEI ASIAN REVIEW*. Retrieved 11 March 2020

AuYong, H. N., & Tan, B. S. S. (2018) The Role Of Women Directors On Corporate Boards And Firm Financial Performance In Malaysia.

Azmi, I. A. G., & Barrett, M. A. (2014). Women on boards and firm performance in malaysia: Preparing to open the black box. *International Proceedings of Economics Development and Research*, *76*, 51.

Baharudin, D. M., & Marimuthu, M. (2019). Comparison of MCCG 2012 and MCCG 2017: Board Tenure and Board Independence across the Malaysian Oil and Gas PLCs. *Business Management and Strategy*, *10*(2), 82-96.

Bainbridge, S. M. (2012). *Corporate governance after the financial crisis*. Oxford University Press.

Baltagi, B. H., Egger, P., & Pfaffermayr, M. (2013). A generalized spatial panel data Bainbridge, spatial panel data model with random effects. *Econometric reviews*, *32*(5-6), 650-685

Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: What really matters?. *Journal of Banking & Finance*, *88*, 267-291.

Berrar, D., & Flach, P. (2012). Caveats and pitfalls of ROC analysis in clinical microarray research (and how to avoid them). *Briefings in bioinformatics*, *13*(1), 83-97.

Bilal, N. (2018). The Effect Of Corporate Governance On The ROA Of Insurance Companies In Ethiopia.

Black, B., & Kim, W. (2012). The effect of board structure on firm value: A multiple identification strategies approach using Korean data. *Journal of financial economics*, *104*(1), 203-226.

Borenstein, M., Hedges, L. V, & Rothstein, H. R. (2009). Introductionto Meta-Analysis (Issue January). John Wiley & Sons.

BORNEO POST. (2018). MGA champions gender equality in energy sector. Retrieved 15 March 2020, from https://www.theborneopost.com/2018/12/11/mga- champions-gender-equality-in- energy-sector/.

Boslaugh, S. (2007). *Secondary data sources for public health: A practical guide*. Cambridge University Press.

Brammer, S., Millington, A. and Pavelin, S. (2007), "Gender and ethnic diversity among UK corporate boards", Corporate Governance: An International Review, Vol. 15 No. 2, 393- 403.

BROWN, V. (2017). Push for women on boards. *The Star*. Retrieved 15 March 2020, from https://www.thestar.com.my/news/nation/2017/11/23/push-for-women-on-boards-the- governments-seriousness-for-30-women-in-boardrooms-has-stakeholders- opt.

Bushman, R., Dai, Z., & Wang, X. (2010). Risk and CEO turnover. *Journal of Financial Economics*, *96*(3), 381-398

Campbell, K. and A. Mínguez-Vera. (2008). Gender diversity in he boardroom and firm financial performance". Journal of Business Ethics, 83: 435–451.

Carlsson-Kanyama, A., Juliá, I. R., & Röhr, U. (2010). Unequal representation of women and men in energy company boards and management groups: Are there implications for mitigation?. *Energy Policy*, *38*(8), 4737-4740.

Carter, D.A., D'Souza, F., Simkins, B.J. and Simpson, W.G. (2010).The gender and ethnic diversity of US boards and board committees and firm financial performance", Corporate Governance: An International Review, Vol. 18 No. 5, pp. 396-414.

Chen, S., Ni, X., & Tong, J. Y. (2016). Gender diversity in the boardroom and risk management: A case of R&D investment. *Journal of Business Ethics*, *136*(3), 599-621.

Choobineh, N. (2016). Gender quotas for corporate boards: A holistic analysis.

Christiansen, L. E., Lin, H., Pereira, M. J., Topalova, P., & Turk, R. (2016). *Gender diversity in senior positions and firm performance: Evidence from Europe*. International Monetary Fund.

Christiansen, L., Lin, H., Pereira, J., Topalova, P. B., & Turk-Ariss, R. (2016). Gender diversity in senior positions and firm performance: Evidence from Europe.

Coles, J. W., McWilliams, V. B., & Sen, N. (2001). An examination of the relationship of governance mechanisms to performance. *Journal of management*, *27*(1), 23-50.

Conyon, M. J., & He, L. (2017). Firm performance and boardroom gender diversity: A quantile regression approach. *Journal of Business Research*, *79*, 198-211.

Cormier, D., & Magnan, M. (2002). Performance reporting by oil and gas firms: contractual and value implications. *Journal of International Accounting, Auditing and Taxation, 11*(2), 131- 153.

Dale-Olsen, H., Schøne, P., & Verner, M. (2013). Diversity among Norwegian boards of directors: Does a quota for women improve firm performance?. *Feminist Economics*, *19*(4), 110-135.

Dang, R., Bender, A. F., & Scotto, M. J. (2014). Women on French corporate board of directors: How do they differ from their male counterparts?. *Journal of Applied Business Research (JABR)*, *30*(2), 489-508.

Darmadi, S. (2013). Board members' education and firm performance: evidence from a developing economy. *International Journal of Commerce and Management*.

Darmadi, S. (2013). Do women in top management affect firm performance? Evidence from Indonesia. *Corporate Governance: The international journal of business in society*.

Dayanandan, A., & Donker, H. (2011). Oil prices and accounting profits of oil and gas companies. *International Review of Financial Analysis*, *20*(5), 252-257.

de Cabo, R. M., Terjesen, S., Escot, L., & Gimeno, R. (2019). Do 'soft law'board gender quotas work? Evidence from a natural experiment. *European Management Journal*, *37*(5), 611-624

Devi, S., Hassan, Z., & Hamza, S. M. (2015). Impact women on board (WOB) on firm s financial performance: A study of Malaysia‟ s public listed companies. *International Journal of Accounting & Business Management*, *3*(2), 121-132. isk/cyber-strategic- risk/articles/women-in-the-boardroom-global-perspective.html.

Dewally, M., Flaherty, S. M., & Tomasi, S. (2017). The impact of social norms on female corporate board membership inclusion. *Managerial Finance*.

Dionne, G. (2013). Risk management: History, definition, and critique. *Risk management and insurance review*, *16*(2), 147-166.

Doğan, M. (2013). Does firm size affect the firm profitability? Evidence from Turkey. *Research Journal of Finance and Accounting*, *4*(4), 53-59

Doğan, M., & Yildiz, F. (2013). The impact of the board of directors' size on the bank's performance: Evidence from Turkey. *European Journal of Business and Management*, *5*(6), 130-140.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. (2011).

Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the european economic association*, *9*(3), 522-550.

Doldor, E., Vinnicombe, S., Hodigere, R., & Bilimoria, D. (2015). Human capital and professional network effects on women's odds of corporate board directorships. *Gender in Management: An International Journal*.

Egon Zehnder. 2020. *Who'S Really On Board? 2020 Global Board Diversity Tracker*. [online] Available at: <https://www.egonzehnder.com/global-board-diversity-tracker> [Accessed 11 March 2020].

Ehi-Oshio, O. U., Adeyemi, A., & Enofe, A. O. (2013). Determinants of corporate profitability in developing economies. *European Journal of Business and Management*, *5*(16), 42-50.

Elabed, G., & Carter, M. R. (2015). Compound-risk aversion, ambiguity and the willingness to pay for microinsurance. *Journal of Economic Behavior & Organization*, *118*, 150-166

Fan, Y., Jiang, Y., Zhang, X., & Zhou, Y. (2019). Women on boards and bank earnings management: From zero to Hero. *Journal Of Banking & Finance*, *107*, 105607.

FEKADU, W. (2018). *The Impact Of Corporate Governance On Financial Performance: Selected Microfinance Institutions In Ethiopia* (Doctoral dissertation, St. Mary's University).

Female power in the O&G industry. Talentmatters.com.my. (2017). Retrieved 15 March 2020 from http://www.talentmatters.com.my/stories/professionals/female- power-in-the-og-industry

Ferrari, G., Ferraro, V., Profeta, P., & Pronzato, C. (2018). Do board gender quotas matter? Selection, performance and stock market effects.

Flabbi, L., Macis, M., Moro, A., & Schivardi, F. (2019). Do female executives make a difference? The impact of female leadership on gender gaps and firm performance. *The Economic Journal*, *129*(622), 2390-2423.

Foo, V., Jamal, A. A. A., Karim, M. R. A., & Ulum, Z. K. A. B. (2015). Capital structure and corporate performance: Panel evidence from oil and gas companies in Malaysia. *International Journal of Business Management and Economic*

Ford, D., & Rohini, P. (2011). Gender quotas and female leadership: A review. Background paper for the world development report on gender.

Fortin, N. M., Bell, B., & Böhm, M. (2017). Top earnings inequality and the gender pay gap: Canada, Sweden, and the United Kingdom. *Labour Economics*, *47*, 107-123.

Fryer Jr, R. G., & Levitt, S. D. (2010). An empirical analysis of the gender gap in mathematics. *American Economic Journal: Applied Economics*, *2*(2), 210-40.

Galbreath, J. (2016). Is board gender diversity linked to financial performance. *Bus Soc, The mediating mechanism of CSR. https://doi. org/10.1177/0007650316647967*.

Galbreath, J. (2018). Is board gender diversity linked to financial performance? The mediating mechanism of CSR. *Business & Society*, *57*(5), 863-889.

Garanina, T., & Muravyev, A. (2019). The Gender Composition of Corporate Boards and Firm Performance: Evidence from Russia.

García Martín, C. J., & Herrero, B. (2018). Boards of directors: composition and effects on the performance of the firm. *Economic research-Ekonomska istraživanja*, *31*(1), 1015-1041

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: a guide for non- statisticians. *International journal of endocrinology and metabolism*, *10*(2), 486.

Gillett, R., & Hoff, M. (2020). *Gender bias could make it harder for women to become CEO, according to a recent study*. Business Insider. Retrieved 22 September 2021, from https://www.businessinsider.com/why-women-almost-never-become-ceo-2016-9.

Goh, M. (2017). Despite push for gender diversity on boards, Asia lags behind in female representation. Retrieved 15 March 2020, fromhttps://www.cnbc.com/2017/03/08/despite- push-for-gender-diversity-on-boards-asia- lags-behind-in-female-representation.html.

Gopalan, S., & Watson, K. (2015). An agency theoretical approach to corporate board diversity. *San Diego L. Rev.*, *52*, 1.

Gordini, N., & Rancati, E. (2017). Gender diversity in the Italian boardroomand firm financial performance. Management Research Review, 40, 75–94. https://doi.org/10. 1108/MRR-02- 2016-0039

Governance Factors Drive Firms' Earning Per Share: Evidence from Pakistan Stock Exchange Listed Companies. *Corporate Governance*.

Gujarati, D. N., & Porter, D. C. (2009). Basic econometrics (international edition). *New York: McGraw-Hills Inc*.

Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices? Journal of Accounting and Economics, 51(3), 314e338

Gupta, P., & Sharma, A. M. (2014). A study of the impact of corporate governance practices on firm performance in Indian and South Korean companies.

Procedia-Social and Behavioral Sciences, 133(4), 4-11.

Haldar, A., Shah, R., & Rao, S. N. (2015). Gender diversity in large listed Indian companies. *Corporate Ownership & Control, 12*(13), 1727-9232.

Haldar, A., Shah, R., Rao, S. V. D. N., & Bombay, I. I. T. (2014, March). Board room diversity and firm value: Evidence from india. In *Proc. of Annual Conference on Government, Corporate Governance and Growth of Capital Markets, IICM, Mumbai*.

Hamid, M. A., Ting, I. W. K., & Kweh, Q. L. (2016). The relationship between corporate governance and expropriation of minority shareholders' interests. *Procedia Economics and Finance, 35*, 99-106.

Harjoto, M., Laksmana, I., & Lee, R. (2015). Board diversity and corporate social responsibility. *Journal of Business Ethics, 132*(4), 641-660.

Harun, A. (2017). *Corporate governance and its effect on financial performance of the Ethiopian private commercial banks* (Doctoral dissertation, Addis Ababa University).

Hashim, H. A., & Devi, S. (2008). Board characteristics, ownership structure and earnings quality: Malaysian evidence. *Research in Accounting in Emerging Economies, 8*(97), 97-123.

Hassan, R., & Marimuthu, M. (2014). Gender diversity on boards and market performance: An empirical investigation on Malaysian listed

Hassan, R., & Marimuthu, M. (2016). Corporate governance, board diversity, and firm value: Examining large companies using panel data approach.

Hassan, R., Marimuthu, M., & Johl, S. K. (2015). Diversity, corporate governance and implication on firm financial performance. *Global Business and Management Research, 7*(2), 28.

Hassan, Z. (2018). Impact of Gender Diversity on Indian Firm's Financial Performance. *Dankwano, RN, & Hassan*, (2018), 319-341.

Hatane, S. E., Agustin, M., Kana, V. R., & Dautrey, J. M. (2019). Do Value Added Intellectual Coefficient and Corporate Governance Contribute to Firm's Economic Value Added. *Petra International Journal of Business Studies, 2*(2), 96-108.

Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management review, 28*(3), 383-396.

Hodigere, R., & Bilimoria, D. (2015). Human capital and professional network effects on women's odds of corporate board directorships. *Gender in Management: An International Journal*.

HOLTOM, B. (2019). The case for gender equality in male-dominated industries. *THE HILL*. Retrieved 15 March 2020, from https://thehill.com/opinion/international/456058-the-case-for- gender-equality-in- male-dominated-industries.

Horak, S., & Cui, J. (2017). Financial performance and risk behavior of gender diversified boards in the Chinese automotive industry: Initial insights. Personnel Review, 46(4), 847. Hsiao, C. (2014). *Analysis of panel data* (No. 54). Cambridge university press.

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of financial Economics*, *108*(3), 822-839.

Huang, J., Krivkovich, A., Starikova, I., Yee, L., & Zanoschi, D. (2020). *Women in the Workplace 2019*. McKinsey & Company. Retrieved 11 March 2020, from https://www.mckinsey.com/featured-insights/gender-equality/women-in-the-workplace- 2019.

Hussin, N., & Othman, R. (2012). Code of corporate governance and firm performance. *British Journal of Economics, Finance and Management Sciences*, *6*(2), 1-22.

Hutchinson, M., Mack, J., & Plastow, K. (2015). Who selects the 'right'directors? An examination of the association between board selection, gender diversity and outcomes. *Accounting & Finance*, *55*(4), 1071-1103.

Ibhagui, O. W., & Olokoyo, F. O. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance*, *45*, 57-82.

Ibrahim, H., & Samad, F. A. (2011). Corporate governance mechanisms and performance of public-listed family-ownership in Malaysia. *International Journal of Economics and Finance*, *3*(1), 105-115.

Ibrahim, M., & Abdullahi, B. B. Corporate Governance and Financial Performance of Listed Non-financial Companies in Nigeria.In *2010 International Conference on Information and Finance-Proceeding* (pp. 100- 103). Institute of Electrical and Electronics Engineers, Inc. *Interdisciplinary journal of research in business*, *1*(7), 95-98.

Ingley, C. B., & van der Walt, N. T. (2003). Board configuration: Building better boards. *Corporate Governance: The international journal of business in society*

Ishak, R., Ku Ismail, K. N. I., & Abdullah, S. N. (2013). CEO succession and firm performance: Evidence from publicly listed Malaysian Firms. *Asian Academy of Management Journal of Accounting and Finance*, *9*(2), 29-48

Isidro, H., & Sobral, M. (2015). The effects of women on corporate boards on firm value, financial performance, and ethical and social compliance. *Journal of Business Ethics*, *132*(1), 1-19.

Islam, M. S., Shahriar, M. S., Akter, R., & Ahmad, S. (2018). BOARD OF DIRECTORS STRUCTURE AND BANK'S PERFORMANCE: EVIDENCE FROM BANGLADESH.

Jia, J. (2019). Does risk management committee gender diversity matter? A financial distress perspective. *Managerial Auditing Journal*.

Jizi, M. I., & Nehme, R. (2017). Board gender diversity and firms' equity risk. *Equality, Diversity and Inclusion: An International Journal*.

Joecks, J., Pull, K., & Vetter, K. (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass?". Journal of Business Ethics, 118(1), 61e72.

Jonty, T., & Mokoteli, T. M. (2015). The impact of gender diversity in the boardroom on firm performance: a South African perspective. *Corporate Boards: Role, Duties & Composition*, *11*(1), 74-82.

Jubilee, R. V. W., Khong, R. W., & Hung, W. T. (2018). Would diversified corporate boards add value? The case of banking institutions in Malaysia. *Asia-Pacific Journal of Business Administration*.

Julizaerma, M. K., & Sori, Z. M. (2012). Gender diversity in the boardroom and firm performance of Malaysian public listed companies. *Procedia-Social and Behavioral Sciences*, *65*, 1077-1085.

Kaur, M., & Vij, M. (2017). Impact of board effectiveness on performance of banks: A structural equation model analysis. *IPE Journal of Management*, *7*(1), 1-25.

Kaur, M., & Vu, M. (2017). Board characteristics and firm performance: Evidence from banking industry in India. *Asian Journal of Accounting and Governance*, *8*, 39-53.

Khan, A., & Awan, S. H. (2012). Effect of board composition on firm's performance: A case of Pakistani listed companies. *Interdisciplinary Journal of Contemporary Research in Business*, *3*(10), 853-863.

Khan, H., Hassan, R., & Marimuthu, M. (2017). Diversity on corporate boards and firm performance: An empirical evidence from Malaysia. *American Journal of Social Sciences and Humanities*, *2*(1), 1-8.

Kılıç, M., & Kuzey, C. (2016). The effect of board gender diversity on firm performance: evidence from Turkey. *Gender in management: An international journal*.

Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative dentistry & endodontics*, *38*(1), 52-54.

Kimanzi, K., Mwangi, M., Ochieng, D. E., & Lishenga, J. (2020). Moderating Effect of Board Gender Diversity on the Relationship between Financial Structure and Operating Efficiency. *Journal of Finance and Investment Analysis*, *9*(1), 1-1.

Kiran, S. (2015). Corporate social responsibility and firm profitability: A case of oil and gas sector of Pakistan. *City University Research Journal*, *5*(1).

Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, *29*(2), 346-364.

Kompa, K., & Witkowska, D. (2018). Gender diversity in the boardrooms of public companies in Poland: Changes and implications. *Montenegrin Journal of Economics*, *14*(1), 79-92.

Kweh, Q. L., Ahmad, N., Ting, I. W. K., Zhang, C., & Hassan, H. (2019). Board Gender Diversity, Board Independence and Firm Performance in Malaysia. *International Journal of Learning and Intellectual Capital*, *16*(2), 193-211.

Lakhal, F., Aguir, A., Lakhal, N., & Malek, A. (2015). Do women on boards and in top management reduce earnings management? Evidence in France. *Journal of Applied Business Research (JABR)*, *31*(3), 1107-1118.

Laville, S. (2019). UK energy companies fail to promote women to executive roles. *The Guardian*. Retrieved 15 March 2020, from https://www.theguardian.com/business/2019/may/16/uk-energy-companies-fail-to- promote- women-to-executive-roles.

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage publications.

Lee-Kuen, I. Y., Sok-Gee, C., & Zainudin, R. (2017). Gender diversity and firms' financial performance in Malaysia. *Asian Academy of Management Journal of Accounting and Finance*, *13*(1), 41-62.

Li, H., & Chen, P. (2018). Board gender diversity and firm performance: The moderating role of firm size. *Business Ethics: A European Review*, *27*(4), 294-308.

Li, K., & Mínguez-Vera, A. (2007). The influence of gender on Spanish Boards of directors: an empirical analysis.

Lim, I., & Singh, R. (2018). Quota needed to increase number of women in high-level jobs? Yes, say women MPs. *Malay Mail*. Retrieved 11 March 2020, from https://www.malaymail.com/news/malaysia/2018/11/04/quota-needed-to-increase- number- of-women-in-high-level-jobs-yes-say-women-m/1689858.

Lim, K. P., Lye, C. T., Yuen, Y. Y., & Teoh, W. M. Y. (2019). Women directors and performance: evidence from Malaysia. *Equality, Diversity and Inclusion: An International Journal*.

Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China?. *Journal of corporate finance*, *28*, 169-184.

Loh, L. Y. H., & Nguyen, M. H. (2018). Board diversity and business performance in Singapore-listed companies the role of corporate governance. *Res. J. Soc. Sci.*

Loukil, N., & Yousfi, O. (2016). Does gender diversity on corporate boards increase risk- taking?. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, *33*(1), 66-81.

Low, D. C., Roberts, H., & Whiting, R. H. (2015). Board gender diversity and firm performance: Empirical evidence from Hong Kong, South Korea, Malaysia and Singapore. *Pacific-Basin Finance Journal*, *35*, 381-401.

Lukerath-Rovers, M. (2013). Women on board and firm performance. Journal of Management & Governance, 17(2), 491-509

Mahadeo, J. D., Soobaroyen, T., & Hanuman, V. O. (2012). Board composition and financial performance: Uncovering the effects of diversity in an emerging economy. *Journal of business ethics*, *105*(3), 375-388.

Malaysia is the biggest gainer in corporate governance ranking | New Straits Times. NST Online. (2021). Retrieved 27 September 2021, from https://www.nst.com.my/business/2018/12/439471/malaysia-biggest-gainer-corporate- governance-ranking.

Mansell, R., Moore, M., Winter, J., & Krzepkowski, M. (2012). Size, role and performance in the oil and gas sector. *SPP Research Paper*, (12-23)

Marimuthu, M., & Kolandaisamy, I. (2009). Demographic diversity in top level management and its implications on firm financial performance: An empirical discussion. International Journal of Business and Management, 4(6), P176

Mark Smith, L. (2019). Malaysia has one of the biggest gender gaps in South-east Asia, and places in the bottom half of WEF's Global Gender Index. *Business Insider Malaysia*.

Marn, J. T. K., & Romuald, D. F. (2012). The impact of corporate governance mechanism and corporate performance: A study of listed companies in Malaysia. *Journal for the advancement of science & arts*, *3*(1), 31-45.

Martín, C., & Herrero, B. (2018). Boards of directors: composition and effects on the performance of the firm. *Economic research-Ekonomska istraživanja*, *31*(1),

1015-1041.

Martín-Ugedo, J.F., Minguez-Vera, A.: Firm performance and women on the board: Evidence from Spanish small and medium-sized enterprises. Feminist Econ. **20**(3), 136–162 (2014)

Melkamu, E. (2016). Effects of Corporate Governance on the financial performance of Micro- Finance Institutions in Ethiopia. *Addis Ababa: Department of Accounting and Finance*.

Mitiku, B. (2015). *Impacts of corporate governance mechanism on financial performance of selected insurers in Ethiopia* (Doctoral dissertation, Addis Ababa University Addis Ababa, Ethiopia).

Mittal, S., & Lavina. (2018). Females' representation in the boardroom and their impact on financial distress: an evidence from family businesses in India. *Indian Journal of Corporate Governance*, *11*(1), 35-44.

Mogbogu, O. (2016). Women on the board of directors and their impact on the financial performance of a firm: An empirical investigation of female directors in the United States technology sector.

Mohamada, Z. Z., Bakarb, J. A., Razakc, R. A., & Badaruddind, M. N. (2017). DIVERSITY IN BOARDROOM AND FIRM VALUE IN MALAYSIA. *PROCEEDING OF ICARBSS 2017 LANGKAWI, MALAYSIA*, *2017*(29th), 255.

Mohanram, P., Saiy, S., & Vyas, D. (2018). Fundamental analysis of banks: the use of financial statement information to screen winners from losers. *Review of Accounting Studies*, *23*(1), 200-233.

Muttakin, M. B., Khan, A., & Subramaniam, N. (2012). Board structure and firm performance: Evidence from an emerging economy. *Academy of Taiwan Business Management Review*, *8*(2) Nelson, J. A. (2012).

New Straits Times. (2021, June 30). "A Change in Mindset is Needed". Retrieved 13 September 2021, from https://www.nst.com.my/opinion/letters/2021/06/703555/change-mindset-needed.

New Straits Times. (2021, March 25). "Malaysia's top 100 PLCs have 25.8 per cent women on their board of directors". Retrieved 17 September 2021, from http://Malaysia's top 100 PLCs have 25.8 per cent women on their board of directors.

Nguyen, T., Locke, S., & Reddy, K. (2015). Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics & Finance*, *37*, 184-202.

Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate governance: An international review*, *18*(2), 136-148.

Obara, L. C., & Nangih, E. (2017). Accounting practices and performance of oil and gas industry (upstream sector) in Nigeria: An empirical analysis. *International journal of Academic Research in Accounting, Finance, and Management Sciences*, *7*(2), 215-222.

Okoth, B., & Coşkun, M. (2016). Evaluating the impact of corporate governance on firm performance using board index.

Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International journal of economics and financial issues*, *3*(1), 237-252.

Park, H. M. (2011). Practical guides to panel data modeling: a step-by-step analysis using stata. *Public Management and Policy Analysis Program, Graduate School of International Relations, International University of Japan*, *12*, 1-52.

Parrotta, P., & Smith, N. (2013). Female-led firms: Performance and risk attitudes.

Pasaribu, P., Masripah, M., & Mindosa, B. (2019). Does Gender Diversity in the Boardroom Improve Firm Performance? Evidence from Indonesia. *Economics and Finance in Indonesia*, *65*(1), 1-19.

Pathan, S., & Faff, R. (2013). Does board structure in banks really affect their performance? *Journal of Banking & Finance*, *37*(5), 1573-1589.

Pearl-Martinez, R., & Stephens, J. C. (2016). Toward a gender diverse workforce in the renewable energy transition. *Sustainability: Science, Practice and Policy*, *12*(1), 8-15.

Petrovic, J. (2008). Unlocking the role of a board director: a review of the literature. *Management Decision*.

Pham, T. T. K. (2016). Research on the relationship between corporate governance and firm performance: Empirical evidence from companies listed on the stock exchange in Vietnam. *International journal of management and applied research*, *3*(4), 172-183.

Point, S., & Singh, V. (2003). Defining and Dimensionalising Diversity:: Evidence from Corporate Websites across Europe. *European Management Journal*, *21*(6), 750-761.

Poon, W. C., Yap, A., & Teck-Heang, L. (2013). The outcome of politically connected boards on commercial bank performance in Malaysia. *Modern Applied Science*, *7*(1).

Prihatiningtias, Y. W. (2012). *Gender diversity in the boardroom and firm performance: evidence from Indonesian Publicly-Listed Financial Firms*. University of Canberra. PUBLIC SECTOR. *Australian Journal of Sustainable Business and Society*, *2*(1).

Qian, M. (2016). Women's leadership and corporate performance. *Asian Development Bank Economics Working Paper Series*, (472).

Ran, G., Fang, Q., Luo, S., & Chan, K. C. (2015). Supervisory board characteristics and accounting information quality: Evidence from China. *International Review of Economics & Finance*, *37*, 18-32.

Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2015). Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics*, *141*(2), 337-350.

Saat, N. A. M., Karbhari, Y., Heravi, S., & Nassir, A. M. (2011). Effective oversight roles of board of directors–The case of listed firms on Bursa Malaysia. *World review of business research*, *1*(1), 231-245.

Sabatier, M. (2015). A women's boom in the boardroom: effects on performance? *Applied Economics*, *47*(26), 2717-2727.

Sahu, T. N., & Manna, A. (2013). Impact of Board Composition and Board Meeting On Firms' Performance: A Study of Selected Indian Companies. *Vilakshan: The XIMB Journal of Management*, *10*(2).

Saleem, Q., & Rehman, R. U. (2011). Impacts of liquidity ratios on profitability.

SAMUEL, B. P. (2014). *FACULTY OF BUSINESS AND ADMINISTRATION* (Doctoral dissertation, UGANDA CHRISTIAN UNIVERSITY).

San Ong, T., & Gan, S. S. (2013). Do family-owned banks perform better? A study of Malaysian banking industry. *Asian Social Science*, *9*(7), 124.

Sanan, N. K. (2016). Board gender diversity, financial and social performance of Indian firms. *Vision*, *20*(4), 361-367

Sanda, A. U., Mikailu, A. S., & Garba, T. (2010). Corporate governance mechanisms and firms' financial performance in Nigeria. *Afro-Asian Journal of Finance andAccounting*, *2*(1), 22-39.

Sanda, A., Garba, T., & Mikailu, A. S. (2011). Board independence and firm financial performance: evidence from Nigeria (No. RP_213). In *African Economic Research Consortium. In proceeding of the Centre for the Study of African Economies (CSAE) for presentation at the CSAE Conference 2008 titled Economic*.

Sanglimuthu, T. D., Subramaniam, M., Awin, E., & Veejayen, N. (2018). 'Liquidity Risk and Its Determinants': A Study on Manufacturing Industry (Oil and Gas) in Russia. *Available at SSRN 3182435*.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Schmidt, I. M. (2019). Board gender diversity and firm performance: How do educational levels and board gender quotas affect this relationship? evidence from Europe.

Schwartz-Ziv, M. (2013). Does the gender of directors matter. *Edmond J. Safra Working Papers, 8*.

Securities Commission Malaysia. (2019). *Corporate Governance Monitor 2019*. Retrieved from https://www.sc.com.my/api/documentms/download.ashx?id=98f99389-e438-4546- 85e4-754717fa56ed

Shafto, J. (2019). *Oil, Gas Sector Struggling To Attract, Elevate Women Amid Gender Diversity Gap*. Spglobal.com. Retrieved 15 March 2020, from https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/oil- gas-sector-struggling-to-attract-elevate-women-amid-gender-diversity- gap.

Shan, Y. G., & McIver, R. P. (2011). Corporate governance mechanisms and financial performance in China: Panel data evidence on listed non financial companies. *Asia Pacific Business Review, 17*(3), 301-324.

Sheikh, N. A., Wang, Z., & Khan, S. (2013). The impact of internal attributes of corporate governance on firm performance. *International Journal of Commerce and Management*.

Shukeri, S. N., Shin, O. W., & Shaari, M. S. (2012). Does board of director's characteristics affect firm performance? Evidence from Malaysian public listed companies. *International business research*, *5*(9), 120.

Solakoglu, M. N., & Demir, N. (2016). The role of firm characteristics on the relationship between gender diversity and firm performance. *Management Decision*.

Solsvik, T., & Fouche, G. (2013). Norway's gender quota law has made boards more professional: state fund boss. *REUTERS*. Retrieved 15 March 2020, from https://www.reuters.com/article/us-nordic-investment-fund/norways-gender-quota- law-has- made-boards-more-professional-state-fund-boss-idUSBRE98T0LM20130930.

Sufian, F., & Habibullah, M. S. (2009). Bank specific and macroeconomic determinants of bank profitability: Empirical evidence from the China banking sector. *Frontiers of Economics in China*, *4*(2), 274-291.

Sunil, P. (2019). *Women on boards: How Singapore, Malaysia, Thailand and Indonesia fare*. Human Resources Online. Retrieved 15 March 2020, from https://www.humanresourcesonline.net/women-on-boards-how-singapore-malaysia- thailand- and-indonesia-fare/.

Syahirah, S., & Hussain, N. (2016). A GENDER QUOTA POLICY IMPLEMENTATION AND WOMEN EMPOWERMENT IN THE MALAYSIAN ECONOMY

Syamsudin, S., Setiany, E. and Sajidah, S., 2017. Gender diversity and firm value: a study on boards of public manu- facturing firms in Indonesia. Problems and Perspectives in Management, 15(3), p.276-284

Sylvester, D., Rani, A., & Shima, N. (2010). Theoretical framework: factors for project success in oil & gas companies & contractors in Miri, Sarawak, Malaysia.

Tammela, I., Canen, A. G., & Paganelli, F. C. (2016). Green supply chain management performance: a study of Brazilian oil and gas companies. *International Journal of Logistics Systems and Management*, *25*(1), 61-80.

Tariq, I., & Naveed, M. (2016). Effects of board and ownership structure on firm financial performance: An economic value-added perspective. *Developing Country Studies*, *6*(8), 1-9.

Terjesen, S., Couto, E. B., & Francisco, P. M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management & Governance*, *20*(3), 447-483.

Terjesen Rodriguez-Fernandez, M., Fernandez-Alonso, S., & Rodriguez-Rodriguez, J. (2014). Board characteristics and firm performance in Spain. *Corporate Governance*.

The Star. (2018). We're on track. Retrieved 15 March 2020, from https://www.thestar.com.my/news/nation/2016/11/20/were-on-track.

Tinsley, C. H., Wade, J. B., Main, B. G., & O'Reilly, C. A. (2017). Gender diversity on US corporate boards: Are we running in place?. *ILR Review*, *70*(1), 160-189.Torchia, M., Calabrò, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of business ethics*, *102*(2), 299-317.

Trianatan and Marwan Asri. (2017). The Impact of Female Directors on Firm Performance Evidence from Indonesia. Journal of Indonesian Economy and Business. Volume 32, Number 1, pp. 19-32.

Tu, T. T. T., Loi, H. H., & Yen, T. T. H. (2015). Relationship between Gender Diversity on Boards and Firm¡¯ s Performance-Case Study about ASEAN Banking Sector. *International Journal of Financial Research*, *6*(2), 150-159

Ujunwa, A. (2012). Board characteristics and the financial performance of Nigerian quoted firms. *Corporate Governance: The international journal of business in society*.

Umar, B., & Aliyu, A. M. A. IMPACT OF LEASE FINANCING ON LIQUIDITY

OF NIGERIAN OIL AND GAS COMPANIES.

Urhoghide, R. O. O., & Korolo, E. O. (2017). Effect of Corporate Governance on Financial Performance of Quoted Oil and Gas in Nigeria. *International Journal of Business and Social Science*, *8*(7).

Valsan, R. (2015). Gender diversity in the boards of directors: A corporate governance perspective. *European Union Centre of Excellence Working Papers, University of Alberta*, *2*, 1-47.

Vithessonthi, C., & Tongurai, J. (2015). The effect of firm size on the leverage–performance relationship during the financial crisis of 2007–2009. *Journal of multinational financial management*, *29*, 1-29.

W. Z. (2018). Corporate Governance and Firm Performance in Malaysia. *Corporate Governance and Firm Performance in Malaysia (April 10, 2018)*.

Wan Yusoff, W. F., & Ramin, A. K. (2013). Women on corporate boards: Malaysian perspectives.

Women in the boardroom - A global perspective | Deloitte | Risk. Deloitte. (2021). Retrieved

Yang, T., & Zhao, S. (2014). CEO duality and firm performance: Evidence from an exogenous shock to the competitive environment. *Journal of banking & finance*, *49*, 534-552.

Yasser, Q. R. (2012). Affects of female directors on firms performance in Pakistan. *Modern Economy*, *3*, 817-825.

Yasser, Q. R., Al Mamun, A., & Seamer, M. (2017). Do corporate boards affect firm performance? New evidence from an emerging economy. *International Journal of Productivity and Performance Management*.

Yusoff, W. F. W., & Alhaji, I. A. (2012). Corporate governance and firm performance of listed companies in Malaysia. *Trends and Development in Management Studies*, *1*(1), 43-65.

Zabri, S. M., Ahmad, K., & Wah, K. K. (2016). Corporate governance practices and firm performance: Evidence from top 100 public listed companies in Malaysia. *Procedia Economics and Finance*, *35*, 287-296.

Zainal, D., Zulkifli, N., & Saleh, Z. (2013). Corporate board diversity in Malaysia: A longitudinal analysis of gender and nationality diversity. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *3*(1), 136- 148.

Zubaidah, Z. A., Nurmala, M. K., & Jusoff, K. (2009). Board Structure and Corporate Performance in Malaysia. International Journal of Economics and Finance, 1(1), 150-164

APPENDIX

Appendix A: Table of multiple regression of ROA

Random Effect GLS regression; ROA (2013-2019)		Observations: 194 F: 2.31 Wald Chi2: 33.80 Prob>Chi2: 0.0001 R-squared: 0.2164		
ROA	Coef.	Std. Err.	z	P> t
SI	-0.0057883	0.0961743	-0.06	0.952
QA	-0.5024969	0.3009696	-1.67	0.095
SI*QA	0.8681993	0.4591407	1.89	0.059
WQI	-0.008828	0.0273243	-0.32	0.747
WRM	-0.137964	0.1281134	-1.08	0.282
BI	0.1192981	0.0774403	1.54	0.123
LEV	-0.002787	0.0008577	-3.25	0.001
FS	0.0394387	0.0158868	2.48	0.013
BS	0.0131114	0.0057882	2.27	0.024

Appendix B: Table of multiple regression of market capitalization

Fixed Effect GLS regression; Market Capitalization (2013-2019)		Observations: 192 Wald Chi2: 18.45 Prob>Chi2: 0.0000 R-squared: 0.5232		
Market Capitalization	Coef.	Std. Err.	z	P> t
SI	-0.4514	0.3115	-1.45	0.158
QA	-1.5322	0.7773	-1.97	0.058
SI*QA	2.4737	1.1976	2.07	0.048
WQI	0.0220	0.1074	0.20	0.839
WRM	-0.1363	0.2165	-0.63	0.534
BI	-0.0715	0.3500	-0.20	0.839
LEV	-0.0104	0.0019	-5.37	0.000
FS	0.2957	0.0712	4.15	0.000
BS	0.0897	0.0284	3.16	0.004

Appendix C: Table of multiple regression of EVA

Random Effect GLS regression: EVA(2013-2019)		Observations: 197 Wald Chi2: 14.78 Prob>Chi2: 0.0972 R-squared: 0.3018		
EVA	Coef.	Std. Err.	z	P> t
SI	-0.0385	0.0638	-0.60	0.546
QA	-0.8314	0.6993	-1.19	0.235
SI*QA	1.3485	1.0451	1.29	0.197
WQI	0.0000	0.0257	-0.00	0.998
WRM	-0.0623	0.1085	-0.57	0.567
BI	0.0113	0.0544	0.21	0.835
LEV	-.0013**	0.0005	-2.59	0.010
FS	-0.0237**	0.0129	-1.83	0.067
BS	0.0003	0.0028	0.12	0.901

Appendix D: Table of Name of the Energy listed Companies

Serial Number	Company Name
1	TH Heavy Energy Berhad
2	Sapura Energy Berhad
3	Bumi Armada Berhad
4	KNM Group
5	Hibiscus Petroleum Berhad
6	Dayang Enterprise Holding Berhad
7	Dialog Group Berhad
8	Perdana Petroleum Berhad
9	Serba Dinamik
10	Scomi Group Berhad
11	T7 Global Berhad
12	Handal Energy Berhad
13	Daya Materials Berhad
14	Hengyuan Refining Company Berhad
15	Malaysia Marine and Heavy Holdings Berhad
16	Petra Energy Berhad
17	Petron Malaysia Refining & Marketing Berhad
18	Reach Energy Berhad
19	Carimin Petroleum Berhad
20	Deleum Berhad
21	Velesto Energy Berhad (UMW oil and gas)
22	Icon Offshore Berhad
23	Sino Hua-An International Berhad
24	Costal Contracts Berhad
25	Scomi Energy Services
26	Wah Seong Corporation Berhad
27	Alam Maritime Resources Berhad
28	Sumatec Resources Berhad
29	Barakah Offshore Petroleum Berhad
30	Uzma Berhad
31	Yinson Holdings Berhad