



**BOARD CHARACTERISTICS AND FIRM RISKINESS:
EVIDENCE FROM THAILAND**

BY

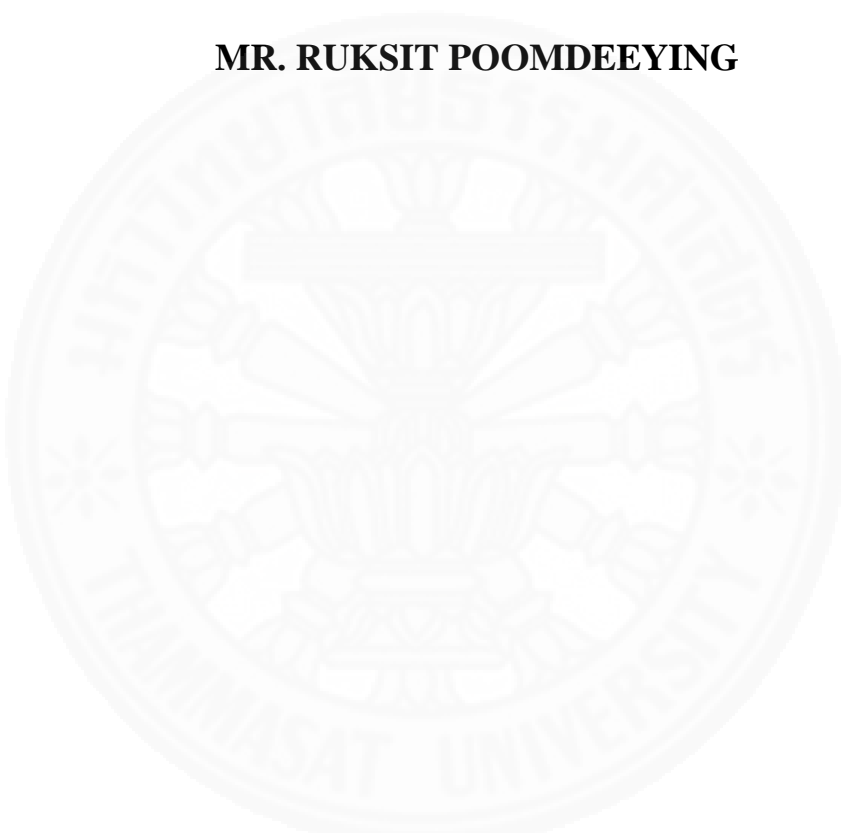
MR. RUKSIT POOMDEEYING

**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
THE MASTER DEGREE OF SCIENCE
PROGRAM IN FINANCE (INTERNATIONAL PROGRAM)
FACULTY OF COMMERCE AND ACCOUNTANCY
THAMMASAT UNIVERSITY
ACADEMIC YEAR 2019
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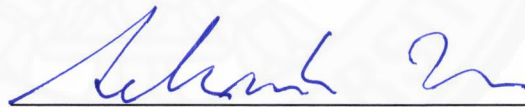
ENTITLED

BOARD CHARACTERISTICS AND FIRM RISKINESS:
EVIDENCE FROM THAILAND

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ABSTRACT

This research study was conducted to illustrate the relationship between firm riskiness and board characteristics which are the size of the board, the proportion of independent directors, the CEO/chairperson duality (Chairman of director and Chief executive officer are the same leader), the audit committee, the times that audit committee conference and the director ownership. The sample data was random 100 listed companies in period of 2008 and 2017. Results suggested that the CEO/chairperson duality significantly decreases price volatility and increases the interest coverage ratio, which decreases firm risk. The director ownership significantly decreases price volatility and debt to asset ratio and increases interest coverage ratio, which also decreases firm risk. The proportion of independent board directors significantly reduces price volatility.

Keywords: board of characteristic, riskiness, Thailand

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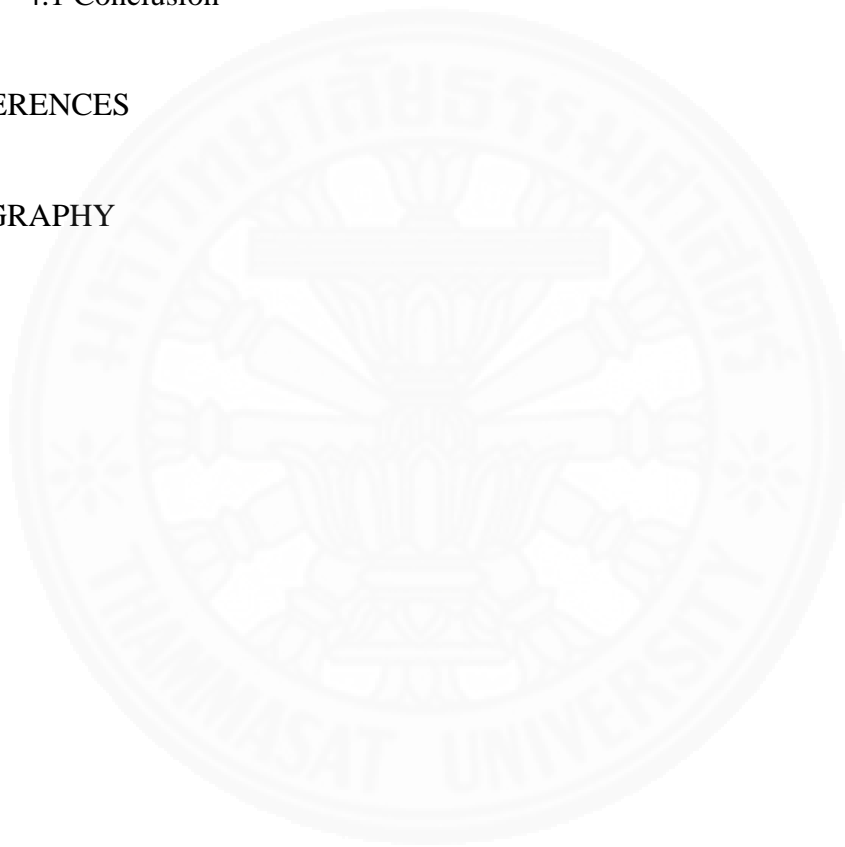
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CHAPTER 1

INTRODUCTION

Many successful companies depend on executive boards as they can steer the company to its success or to its failure. A board of directors is chosen and appointed from owners. They oversee the interests and the profits of the company, supervise the management team to keep everyone in the loop with the policies and decision-making, as well as reduce agency costs that may occur in the future. There are many studies about a board of directors. Tuggle et al. (2010) shows directors' skills and incentives make the board of directors be effectiveness Nowadays, the executive boards do the strategic planning and decision-making for the organization based on short-term goals instead of long-term goals. Some studies show that the quality of the meetings has been influenced with the number of board of directors. Board of directors composed of even number of chairmen have fewer conferences and tend to attend the conference less than board of directors composed of odd number of chairmen. Consistently, when the board of chairmen are chosen by the current directors of the board, they avoid disagreement in board meeting. (Ma and Khanna (2016)). There is an evidence in China (He and Luo, 2018) that lower market value of share price is linked with firms composed of even number of chairmen.

In my study, I am interested in various components of characteristics of board which are the size of the board, the proportion of independent directors, the CEO/chairperson duality (chairman of director and chief executive officer are the same leader), the audit committee, the times that audit committee conference the influence of director ownership to firm riskiness. There are several interesting papers about board characteristics and riskiness. Huang and Wang (2014) show empirical results about the relationship between size of the boards and firm riskiness. With smaller size of the boards, the sensitivity of executive compensation, risk of investment expenditure, debt financing use and frequency of earning management are higher.

Prior studies suggest that there is a negative relationship between the number of directors on a board and the performance and monitoring efficiency of a board (Eisenberg et al., 1998). Klein (2002) find that earnings management can be

lower by having higher proportion of external directors. Anderson et al. (2004) show that a higher ratio of independent directors is linked with lower costs of debt. As stated in managerial power theory, CEO/Chairperson duality can manipulate their double power for their benefits; consequently, there is high cost of shareholders (Bebchuk & Fried, 2004). Also, the venturesome financial corporate might be influenced from the board size, board independence and the mixing role of CEO and chairperson in boards. The risky actions in financial companies are capable of dwindling by the existence of non-executive directors and potent CEOs in corporate (Akbar, Kharabsheh, Hughes and Shah, 2017). The executives are frequently motivated to take more risks when leverage is high in financial institutions (Smith and Jensen, 2000). Gao and Huang (2016) indicate that strong probability of financial restatement in US has connection with the audit committee.

According to these researches, we have many reasons to believe that board involves with firm riskiness.

1.1 Objective of the study

This research is to consider the impact of board characteristics to firm riskiness. The board characteristics is consisted of the size of the board, the proportion of independent directors, the CEO/chairperson duality (chairman of director and chief executive officer are the same leader), the audit committee, the number of audit committee conference and the director ownership.

1.2 Scope of study

The scope of this research involves with the listed company in Stock Exchange of Thailand by randomly choosing 100 companies and period of 2008 and 2017 to consider the relationship between firm riskiness and board characteristics which are the size of the board, the proportion of independent directors, the CEO/chairperson duality (chairman of director and chief executive officer are the same leader), the audit committee, the times that audit committee conference and the director ownership.

1.3 Research contribution

This research will help investors understand the company more intensive view because investors will see more details about board structure, and a company can apply board structure to run the business more efficiently.



CHAPTER 2

REVIEW OF LITERATURE

2.1 Literature review

Many studies demonstrate the relevance of board characteristics and firm riskiness. Successful companies rely on board of directors as it is one of the crucial factors. Bernile, Bhagwat and Yonker (2017) find the diversity of board directors decreases the volatility of stock return. Better decision-making, alleviating decisions, and moderating problems associated with “groupthink” are efficiently generated by the diversification of backgrounds or experience of board of directors. Company with various boards introduce stable and persistent policies which are align with board decisions. Furthermore, multiple boards avoid taking on financial risk or serious risk-taking activities. More independent boards are less prone to take risky strategies, which is consistent with the prestige and dominating hypotheses (Fama, 1980; Fama & Jensen, 1983; Raheja, 2005).

Independent directors play a vital role in management control, financial auditing decision, and protection of shareholder’s benefit. Earlier studies suggest that independent directors usually perform better than inside directors in terms of increasing owner’s profit. (Fields and Keys, 2003) 6339 firm-year samples that listed their A-shares on the Shanghai or Shenzhen Stock Exchange from 2006 to 2009 accessible from the China Stock Market and Accounting Research (CSMAR) database were collected in Zhu, Ye, Tucker, and Chan (2013)’s study before excluding 997 (15.7%) samples with missing data. Therefore, 4988 firm-year samples from 1512 different companies are final sample included in the study. They find that independent directors with higher rank are not afraid of casting doubt on management at controversial voting events and see that independent directors with higher rank less involve with earnings management.

According to the observation of 1500 firms from S&P between 2000 and 2013, distracted independent directors tend to be absent from the board meeting, simply stop trading in their company’s stock. The study reveals that distracted independent directors have a higher probability to leave the ongoing director board based on

company performance. Lack of efficient operation, weak accounting quality, and low value of the company are possibly contributed to higher share of distracted independent directors. Unfortunately, M&A (mergers and acquisitions) outcome could occur. (Masulis and Zhang 2018). Independent directors are main person to bring about an environment of stronger internal controls through overseeing and monitoring management. (Fama and Jensen, 1983; Beasley, 1996). There is a positive wealth effect associated with an additional independent director: the announcement of an additional independent director results in positive stock price reaction (Rosenstein and Wyatt, 1990). Chernobai et al. (2011) find that an increase in supervision and internal control function, decreasing in the likeliness of operational risk events among US financial institutions can come from firms with more independent directors.

Board size is also mentioned in the present day because there is question about the effect of board size on the efficiency in running a business. There is a paper from (Lipton and Lorsch, 1992) claim that the substantially large scale of the board lead to difficulty in making decision. Therefore, firms should take small scale of the board into consideration to reduce delay in decision making (Jensen, 1993). However, Huang and Wang (2014) find that the smaller the size of boards is, the higher the future risk is. They also explained that the board size has a straightforward and clear impact on capital expenditure but there is no relevance with R&D spending. Yermack (1996) shows that the sensitivity of CEO's payroll drops with larger board size, advising that smaller boards tend to add more value but possibly increase higher uncertainty in organizational decisions than do bigger boards. John and John (1993) shows that investment with high return is riskier and causes to higher agency cost of dept. An adverse relationship between managerial risk incentive and debt level can be inferred from their model. Chen and Zhao (2006) find higher market-to-book ratios companies are able to deal with debt: reduce lending costs and further debt payment better than lower market-to-book ratios companies are. The liability and firm capital structures negatively affect from having the boards which are controlled by politically connected directors such as the boards of Italian water utilities. Board composition with non-graduate and elder directors bring about low profitability. Age and educational qualification of board members influence economic performance (Romano and Guerrini, 2014).

Board meetings are another factor that impacts the business. When a board meeting is arranged, a company has to pay compensation to the boards. So, there is a question about board meeting frequency. There are many studies said about board meetings. Chou, Chung and Yin (2013) show more intelligent directors in terms of higher experiences are willing to join board meetings by themselves and the meeting with high number of directors' presence can improve a company's performance, on the other hand the meeting with high number of the representatives of directors has an opposing outcome. Using broad panel data with 5,228 firm-year in period 1999 to 2005 finds that regular board monitoring controlled by the boards leads to increase the company value and does not impact return on assets (ROA). (Brick and Chidambaran, 2010) Vafeas (1999) shows more profitable firms lead to meet fewer but, Brick and Chidambaran (2010) explain a positive correlation between board meetings and firm value and stress the idea that the higher frequencies the board meeting has, the higher level of monitoring the firm has. There are studies show that the limitation of board meetings is the existence of oversee nonexecutive directors, which causes reduce in owner returns and enhance remuneration of the CEO and the chairman. Boards which compose of many international directors tend to be larger global operations and higher complication (Hahn and Lasfer, 2015). The diligence of board directors is often measured on the board meeting attendance by each of the board directors. (Ilaboya and Obaretin, 2015) On the Nigeria stock exchange (NSE) market, there are positive relationship between frequency of board meeting and firm performance (Eluyela, Akintimehin, Okere, Ozordi, Osuma, Ilogho and Oladipo, 2018).

Board ownerships are an essential factor that has to consider nowadays. Firm performance is considerably and negatively influenced by the chairman and CEO positions (Thaddee and Ndonzuau, 2000). Using 557 companies recorded on Vietnam stock exchanges since their listing year to 2014 finds that the CEO ownership impacts positively on return on asset (ROA), but does not have any relationship with return on equity (ROE), the number of independent members in board of directors, the number of women members in the board of directors. The president and CEO position have no significant influence, neither on ROA nor ROE of the company (Vu Phan and Le, 2018).

Mykhayliv and Zauner (2017) find that state ownership is likely to cut down investment budget, while the management ownership has little influence on investment. Also, there are studies that find that institutional ownership develops corporate credit rating (Aman and Nguyen 2013). Comparing to family-owned firms, non-family firms spend lower dividend payout ratios, lower liability levels, and higher degrees of board independence. (Atmaja, Tanewski and Skully, 2009). There are studies in a publicly listed company in Taiwan using the dynamic generalized method of moments estimation finds that some characteristics of corporate governance have interpretative power for default likelihood, but the impact is not upright (Chiang, Chung and Huang, 2013).

In Thailand, there are many studies of corporate governance, ownership structure, board structure, and firm riskiness as following.

Detthamrong, Chacharat and Vithessonthi (2017) find that corporate governance was not link with financial leverage and firm performance. Moreover, leverage had a positive impact on firm performance. Connelly, Limpaphayom and Nagarajan (2012) find that CG was positively related to Tobin'q. Furthermore, benefits in complying good corporate governance refuted the pyramid ownership structure and increased suspect on the efficiency of corporate governance measurement when ownership structure was unclear.

CHAPTER 3

RESEARCH METHODOLOGY

The theoretical framework of this study, the hypothesis using in research, how to test the theory, and data that using in testing the hypothesis model that used in the test will be described in this chapter.

The objective of this chapter is to explain comprehensively about the research methodology carried out for this study. First, the chapter will demonstrate the theoretical framework of this study, then the hypotheses. This will be followed by data collection and data analysis methods. The chapter then goes on explanation for all variables and equations to test the hypothesis.

3.1 Theoretical framework and hypothesis

3.1.1 Agency theory

Agency theory is a basis that is familiar to explain and deal with problems in the relationships between business leaders and their agents. Normally, that association is the one between shareholders, as leaders, and corporate executive officers, as agents. These conflicts of interest between managers and shareholders can be alleviated in two directions. Firstly, managers should be given the motivation to take the same action as the owner's interests. For instance, if managers are the principal shareholders themselves, their benefits are consistent with those of shareholders. Likewise for structuring administrator compensation agreements, the manager's compensation should be linked to shareholders' wealth. This can straighten managerial and ownership interests even if administrator does not hold principal shareholders. Second, managerial activities can be controlled by the company's board of directors or by the owner themselves. These monitoring mechanisms are imperfect. However, administrative activities are frequently unobservable. Besides, small external shareholders have little incentive to control because they get the full cost of control, but they must divide any controlling interests with all other shareholders.

Many studies mention about agency theory. Jensen & Meckling, (1976) and Fama (1980) show the framework of the agency relationships had been claimed that managers were risk averse. Although, Baysinger & Hoskisson and Jensen & Murphy (1990) report managerial motivation, mainly linked to corporate performance, might enhance risk-taking managers. However, some studies such as Laneet al (1998-1999) claim that the forecasts/predictions of agency theory are not practical to diversified corporate/company because the firm has various business models and various strategic choices. So, managerial interests do not obviously conflict with those of shareholders.

3.1.2 Board size

Many studies mention about board size. Lipton and Lorsch (1992) claim that the substantially large scale of the board lead to difficulty in making decision. Therefore, firms should take small scale of the board into consideration to reduce delay in decision making (Jensen, 1993). Another paper by studying panel data from New Zealand company for the financial period time 1991-97 shows that profits informativeness is negatively associated with board size but the ratio of external directors who work for the board is not associated with board size. (Ahmed, Hossain and Adams 2006). Nakano and Nguyen (2012) show that companies with higher number of board members are tending to lower volatility in performance and lower in bankruptcy risk, although board size is not strongly related to volatility in performance in the US and the influence of board size is lower when companies have a high investment opportunity. Further study shows the board size relates to an equity discount in the firm that has more long-term debt, but the board size associated with an equity premium when the firms have a more short-term debt to asset ratio. Another document concludes that firms with more boards have a better credit rating and a lessen realized cost of debt (Upadhyay, 2014). Inconsistent with Cheng (2008) analyzed 1,500 S&P U.S. firms and find that the correlation between larger boards and variable firm performance, R&D expense, takeover, and limited activities are negative. Su, Liu and Zhang (2019) studied A-share listed firm in China period 2003 to 2016 found that larger board of directors has a greater struggle in carrying out conclusion on difficult decisions and therefore lead to diminish taking risk in Chinese circumstances. Moreover,

confidence of society to the company can significantly alleviate influence on the association between size of board and corporate risk-taking.

Hypothesis 1: The relationship between board size and firm riskiness is negative.

3.1.3 Independent directors

(Masulis and Zhang 2018) studied the observation from S&P 1500 firms in period 2000- 2013 and find distracted independent directors are likely to be absent from the board meeting, simply stop trading in their company's stock. The study also reveals that distracted independent directors have a higher probability to leave the ongoing director board based on company performance. Lack of efficient operation, weak accounting quality, and low value of the company are possibly contributed to higher share of distracted independent directors. Unfortunately, M&A (mergers and acquisitions) outcome could occur. Other papers from Gupta and Fields (2019) show that the resignation of independent director seems to be a disadvantage to market stakeholders. If the board is not much dependent before the exit and when institutional ownership is high, the market response is not so much adverse. From an analysis of an example of Fortune 200 companies which are representing prime executives of other publicly listed companies as directors who are skillful and independent and dominating to firm specifics, board characteristics, and individual director characteristics, it finds that the appearance of directors who are skillful and independent on board and in the audit committee improves firm benefit. (Chan and Li, 2008). Other papers from Dou, Sahgal, and Zhang (2015) study the duty of independent directors with expanding to board-level governance, dominating decisions, and counseling result. These directors present a higher level of responsibility as they serve more board meetings and take more board memberships. A company with a lower ratio of independent directors has higher chief executive officer (CEO) compensation, lower CEO turnover-performance volatility, and a higher chance to voluntarily disguise profit reports. These companies also limit the extension of resources under the CEO's monitoring as they are less likely to make takeover, while the takeover they do make is of higher quality. Attempts to determine term limits on directors may, therefore, be confused.

Hypothesis 2: The relationship between independent directors and firm riskiness is negative.

3.1.4 Board ownership and the CEO/chairperson duality

(Vu Phan and Le, 2018) Using 557 companies recorded on Vietnam stock exchanges since their listing year to 2014 finds that the CEO ownership expands positively on return on asset (ROA), but does not have any relationship with return on equity (ROE), the number of independent members in board of directors, the number of women members in the board of directors. The president and CEO position have no significant influence, neither on ROA nor ROE of the company. (Zou, Adams and Xiao 2012) by using data on 2,231 firm-years which bought corporate insurance, reflecting 753 firms shows that many independent boards inspect the essential of having property insurance for asset and loss risk management. Many independent boards might not encourage to buy additional insurance or insurance irrelevant to risk management or self-interest as it does not have an advantage. Using a sample size of 203 companies with an average of 26 billion US dollar annual sales and around 30 years company existence shows that family business particularly has an impact on changing in organization and internationalization, therefore we normally separate family involvement firms from other categories of organization (Sciascia, Mazzola, Astrachan and Pieper 2012). Other papers from Leung and Horwitz (2004) studied recorded companies in Hong Kong that have focused director ownership. The papers find that firms with strongly intensive board ownership less voluntarily reveal segment publication and when the firm performance is extremely low achievement, this relationship is sharply negative. Also, non-executive directors effectively strengthen to voluntarily expose public report for cooperates with low leader ownership but not for high leader ownership. Farrer and Ramsay (2012) studying 180 listed Australian firms show the association between director shareowner level and firm achievement is positive. Another paper about board ownership and return by Cosh, Guest, and Hughes (2006) indicates that long-term stock yields positively impact from overall board ownership and running achievement has small beneficial effect from overall board ownership as well. Nevertheless, when the measurement of overall board is divided into CEO, managerial, and non-managerial directors, we find more significant impact. And

there is apparent indication of favorable connection between union performance and CEO ownership, which dominates to both long-term yields and running achievement estimate.

Hypothesis 3: The relationship between board ownership and firm riskiness is negative.

Hypothesis 4: The relationship between CEO/Chairperson duality and firm riskiness is negative.

3.1.5 Audited board

More clever directors in terms of higher experiences are tending to join board meetings by themselves and the meeting with high number of directors' presence can improve a company's performance, on the other hand the meeting with high number of the representatives of directors has an opposing outcome. (Chou, Chung and Yin 2013). (Zhou, Ansah and Maggina 2018) find that firm performance does not significantly depend on audit committees. The necessary requirement of the formation of internal audit in Greek firms is up-to-date, consequently, the conclusion is that there probably is no any apparent effect on firm performance. The paper from (Chan, Liu and Sun 2012) studying data consists of a 1524 firm-year sample between the years 2005 and 2006 shows the correlation between audit fees and the ratio of holding directors on the independent audit committee is adverse and the quality of internal auditing committee can replace with external auditing. Other papers from Duru, Iyengar, and Zampelli (2016) find that board independence alleviates the negative impact of CEO duality on firm achievement, while Yang and Zhao (2014) indicate that when their competitive situation switches, CEO duality companies beat non- CEO duality companies.

Hypothesis 5: The relationship between audited board and firm riskiness is negative.

3.2 Sample

The sample of this research are random 100 firms listed in SET-listed companies in the period of 2008 to 2017.

Board characteristics data such as the size of the board, the proportion of independent directors, the CEO/chairperson duality (Chairman of director and Chief executive officer are the same person), the audit committee and the times that audit committee conference and the director ownership was corrected from the Stock Exchanges of Thailand (SEC) in the Annual Registration Statement (Form 56-1). Moreover, financial data such as firm size, market to book ratio, price volatility, debt to asset ratio and interest coverage ratio was gathered from data stream database.

3.3 Data analysis

The main data techniques used in this research was fixed-effects panel model. The model used to test hypotheses with the panel data on the relationship between the firm riskiness and the board of directors' characteristics which are the size of the board, the proportion of independent directors, the CEO/chairperson duality (chairman of director and chief executive officer are the same leader.), the audit committee, the times that audit committee conference and the director ownership.

To discuss a potential endogeneity concern, the following papers are made. Firstly, usually lecturing, the Chinese regulatory authorities (Chen & Al-Najjar, 2012) determined that the board size is usually considered as exogenous factor. Furthermore, we imitate Cheng (2008) by applying the first sample of board size instead of its average during the 5-year rolling window so as to partly mitigate the possible endogeneity driven by contradict causality. Secondly, to decrease the omitted variable problem, industry and year fixed effects are included in the estimation of the regression models the same as Wang (2012).

The use of fixed effects models manages the impact of fixed effect, but the transformation to get rid of the fixed effects will still show relationship between the transformed lagged dependent variable and the changed error term. We estimate a six equation structural fixed-effects panel model with equations.

3.4 Variable

3.4.1 Dependent variable

Firm riskiness

i. Total debt to total asset ratio is one of proxies of firm riskiness

1. Total debt to total asset ratio = $\frac{\text{Total Debt}}{\text{Total Asset}}$

2. Total debt is using at the end of each year

3. Total asset is using at the end of each year

ii. Interest Coverage Ratio is one of proxies of firm riskiness

1. Interest Coverage Ratio = $\frac{\text{EBIT}}{\text{interest expenses}}$

2. EBIT is the company's earnings before interest and taxes

3. Interest expense is Interest expense for the same period with EBIT

iii. Stock Return Volatility is one of proxies of firm riskiness

1. Using daily return volatility of each year as the volatility

2. Stock Return Volatility = Standard deviation of the daily return

3.4.2 Independent variable

- a. Board size is the natural logarithm of the number of directors serve on the board.

- b. Board independence is proportion of independent directors serve on the board.

- c. Audited board meeting is the natural logarithm of the number of audited board meetings.

- d. The CEO/chairperson duality is CEO and chairman of the director (dual) are the same people.

- e. Board ownership is a proportion of share held by members serve on the board.
- f. Audited by the big 4 company is financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC).

3.4.3 Control variable

- a. Firm size is the natural logarithm of total assets.
- b. Market to book ratio is market price divided by the book value

3.5 Hypothesis test

The hypothesis testing is divided into three equations due to three dependent variables and extended to another three equations because of the assumption of the effect of board size and the CEO/chairperson duality together. So, there are total six hypothesizes to be tested.

The first equation is testing the relationship between interest coverage ratio and board characteristics.

$$ICR_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 DUL_{i,t} + \beta_6 BOW_{i,t} + \beta_7 AS_{i,t} + \beta_8 MBV_{i,t} + \epsilon t, \quad (1)$$

Where

- ICR_{i,t} = Interest Coverage Ratio
- BS_{i,t} = The natural logarithm of the number of directors serve on the board.
- ND_{i,t} = The proportion of independent directors serve on the board.
- AM_{i,t} = The natural logarithm of the number of audited board meetings.
- B4_{i,t} = The financial statement audited by big 4 firms such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
- DUL_{i,t} = Chairman of director and Chief executive officer are the same person
- BOW_{i,t} = The proportion of share held by members serve on the board.

- AS_{i,t} = The natural logarithm of total assets.
 MBV_{i,t} = Market price divided by the book value

The second one is testing relation between total debt to total asset ratio and board characteristics.

$$DA_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 DUL_{i,t} + \beta_6 BOW_{i,t} + \beta_7 AS_{i,t} + \beta_8 MBV_{i,t} + \epsilon t, \quad (2)$$

Where

- DA_{i,t} = Total debt to total asset ratio
 BS_{i,t} = The natural logarithm of the number of directors serve on the board.
 ND_{i,t} = The proportion of independent directors serve on the board.
 AM_{i,t} = The natural logarithm of the number of audited board meetings.
 B4_{i,t} = The financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
 DUL_{i,t} = Chairman of director and Chief executive officer are the same person
 BOW_{i,t} = The proportion of share held by members serve on the board.
 AS_{i,t} = The natural logarithm of total assets.
 MBV_{i,t} = Market price divided by the book value

The third one is testing relationship between stock return volatility and board characteristics.

$$SV_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 DUL_{i,t} + \beta_6 BOW_{i,t} + \beta_7 AS_{i,t} + \beta_8 MBV_{i,t} + \epsilon t, \quad (3)$$

Where

- $SV_{i,t}$ = Stock Return Volatility
 $BS_{i,t}$ = The natural logarithm of the number of directors serve on the board.
 $ND_{i,t}$ = The proportion of independent directors serve on the board.
 $AM_{i,t}$ = The natural logarithm of the number of audited board meetings.
 $B4_{i,t}$ = The financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
 $DUL_{i,t}$ = Chairman of director and Chief executive officer are the same person
 $BOW_{i,t}$ = The proportion of share held by members serve on the board.
 $AS_{i,t}$ = The natural logarithm of total assets.
 $MBV_{i,t}$ = Market price divided by the book value

The forth one is testing relationship between interest coverage ratio and board characteristics with the cross effect of board size and the CEO/chairperson duality.

$$ICR_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} * DUL_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 BOW_{i,t} + \beta_6 AS_{i,t} + \beta_7 MBV_{i,t} + \varepsilon_t, \quad (4)$$

Where

- $ICR_{i,t}$ = Interest Coverage Ratio
 $BS_{i,t}$ = The natural logarithm of the number of directors serve on the board.
 $ND_{i,t}$ = The proportion of independent directors serve on the board.
 $AM_{i,t}$ = The natural logarithm of the number of audited board meetings.
 $B4_{i,t}$ = The financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
 $DUL_{i,t}$ = Chairman of director and Chief executive officer are the same person
 $BOW_{i,t}$ = The proportion of share held by members serve on the board.
 $AS_{i,t}$ = The natural logarithm of total assets.
 $MBV_{i,t}$ = Market price divided by the book value

The fifth one is testing relationship between total debt to total asset ratio and board characteristics with the cross effect of board size and the CEO/chairperson duality.

$$DA_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} * DUL_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 BOW_{i,t} + \beta_6 AS_{i,t} + \beta_7 MBV_{i,t} + \varepsilon_t, \quad (5)$$

Where

- DA_{i,t} = Total debt to total asset ratio
 BS_{i,t} = The natural logarithm of the number of directors serve on the board.
 ND_{i,t} = The proportion of independent directors serve on the board.
 AM_{i,t} = The natural logarithm of the number of audited board meetings.
 B4_{i,t} = The financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
 DUL_{i,t} = Chairman of director and Chief executive officer are the same person
 BOW_{i,t} = The proportion of share held by members serve on the board.
 AS_{i,t} = The natural logarithm of total assets.
 MBV_{i,t} = Market price divided by the book value

The sixth one is testing relationship between stock return volatility and board characteristics with the cross effect of board size and the CEO/chairperson duality.

$$SV_{i,t} = \alpha_{i,t} + \beta_1 BS_{i,t} * DUL_{i,t} + \beta_2 ND_{i,t} + \beta_3 AM_{i,t} + \beta_4 B4_{i,t} + \beta_5 BOW_{i,t} + \beta_6 AS_{i,t} + \beta_7 MBV_{i,t} + \varepsilon_t, \quad (6)$$

Where

- SV_{i,t} = Stock Return Volatility
 BS_{i,t} = The natural logarithm of the number of directors serve on the board.
 ND_{i,t} = The proportion of independent directors serve on the board.
 AM_{i,t} = The natural logarithm of the number of audited board meetings.

- B4 i,t = The financial statement audited by big 4 company such as KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC)
- DUL i,t = Chairman of director and Chief executive officer are the same person
- BOW i,t = The proportion of share held by members serve on the board.
- AS i,t = The natural logarithm of total assets.
- MBV i,t = Market price divided by the book value



CHAPTER 4

STUDY CONCLUSION

This chapter summarizes the results of data analysis in two sections and inference of the results. The first section presents the summary in terms of descriptive statistics for each variable. The second part contains the result from regression model and the discussion of the results found in relationship between firm riskiness and board characteristics.

Table 4.1 The descriptive analysis of each variable

Variable	Obs	Mean	Std. Dev	Min	Max
ICR	865	24.64032	90.59488	-66.793	363.906
DA	759	28.06378	22.94016	0.01	148.96
SV	787	32.10342	16.97586	0	55.25
BOARDSIZE	984	9.393293	2.73309	1	21
IN	984	3.61687	1.336764	0	12
AUD	941	5.952179	3.027682	0	24
B4	980	0.2765306	0.4475107	0	1
DUL	982	0.398167	0.4897697	0	1
BOW	976	0.0476491	0.1058183	0	1
ASSET	908	6,686,252	65,510,548	21,204	70,131,6240
MBV	915	1.69435	2.17808	-0.25	8.69

Where

- ICR = Interest Coverage Ratio.
- DA = Total debt to total asset ratio.
- SV = Stock Return Volatility.
- BOARDSIZE = The number of directors serve on the board.
- IN = The number of independent directors serve on the board.
- AUD = The number of audited board meetings.
- B4 = The financial statement audited by big 4 companies KPMG, Ernst & Young (EY), Deloitte and PricewaterhouseCoopers (PwC).

DUL	=	Chairman of director and Chief Executive officer are the same person.
BOW	=	The proportion of share held by members serve on the board.
ASSET	=	The total assets of firm.
MBV	=	The market price divided by the book value.

The descriptive statistics of the variables are shown in Table 4.1 According to the riskiness variables consideration, the evidence showed that the average total debt to the entire asset was 28.06378. The average price volatility was 32.10342, and the average interest coverage ratio was 24.64032. Board size varied from 1 to 21 directors with an average of 9.39 directors in corresponding with the studies that finds the average board size of Chinese companies is 9.4 and the mean of US firm board size of 9.113 are very much alike but the mean Japanese organizational board size of 10.4 (Nakano and Nguyen 2012) is higher than Chinese and US cooperate board size. Independent directors comprised 3.62 members on average ranged from 0 to 12 members. The average audited board meeting frequency was 5.95 times each year. Moreover, board ownership was about 0.05. On average, board compensation was 3.9. Finally, the firm size was 6,686,252 thousand baths on average.

Table 4.2 Analysis of regression results of riskiness and board characteristics variables

VARIABLES	(1) ICR	(2) DA	(3) SV	(4) ICR	(5) DA	(6) SV
BS	52.68** (21.45)	-1.078 (5.146)	0.611 (1.197)			
BSDUL				10.84** (4.649)	2.664** (1.077)	-0.710*** (0.272)
ND	-39.67 (33.26)	9.330 (7.995)	-5.035** (2.017)	-66.07** (31.18)	10.60 (7.429)	-5.579*** (1.896)
AM	7.068 (8.686)	-0.0111 (2.058)	0.444 (0.503)	7.848 (8.695)	-0.0614 (2.051)	0.475 (0.502)
B4	-0.610 (10.71)	-0.682 (2.594)	0.164 (0.592)	-1.127 (10.74)	-0.648 (2.582)	0.188 (0.592)
DUL	21.40** (10.38)	5.531** (2.410)	-1.423** (0.614)			
BOW	60.40 (41.10)	-28.39*** (9.875)	-13.86*** (2.237)	65.10 (40.95)	-29.00*** (9.825)	-13.60*** (2.224)
AS	-5.779 (5.004)	4.103*** (1.185)	-0.194 (0.306)	-3.802 (4.935)	4.082*** (1.170)	-0.178 (0.304)
MBV	-0.945 (1.533)	1.009*** (0.360)	0.320*** (0.0888)	-1.353 (1.525)	1.037*** (0.356)	0.315*** (0.0883)
Constant	-13.60 (81.98)	-35.92* (20.00)	38.28*** (5.152)	83.88 (71.84)	-38.54** (17.20)	39.63*** (4.480)
Observations	769	686	690	769	686	690
Number of id	94	93	94	94	93	94
R-squared	0.032	0.064	0.122	0.027	0.065	0.122

Standard errors in parentheses

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

The regression models show the relationship between the board of directors' characteristics: the size of the board, the proportion of independent directors, the CEO/chairperson duality (Chairman of director and Chief executive officer are the same leader.), the audit committee, the times that audit committee conference and the director ownership and the firm riskiness by using sample data that was randomly selected 100 firms on the SET-listed companies in the period of 2008 to 2017.

From (1) regression results show that p-value for board size and CEO/chairperson duality are less than 0.05 with positive coefficients. So, both board size and CEO/chairperson have significant and positive impact on the interest coverage ratio.

The coefficient of board size is 52.68: with one unit increase in board size, interest coverage ratio increases by 52.68 units holding all other factors constant. Board size is positively and significantly associated with the interest coverage ratio because a good and effective board size can create a good value for the company and leads to the success of the company. The coefficient of CEO/chairperson duality is 21.40: with one unit increase in CEO/chairperson duality, interest coverage ratio increases by 21.40 units holding all other factors constant. The CEO/chairperson duality is positively and significantly associated with interest coverage ratio because CEO duality could be more helpful under the situations of lack of source and environmental dynamism corresponding with the Boyd (1995) 's study Consistent with the study of Anderson, Mansi, and Reeb, 2004, it shows that there is association between the cost of debt financing and board size, but the proportion of independent board director is not significantly associated with the interest coverage ratio. Also, the number of audited board conference is not significantly associated with the interest coverage ratio corresponding with past papers find that firms with capable audit committees are less likely to engage in earnings management (Vafeas, 2005).

From (2) regression results show that p-value for CEO/chairperson duality is less than 0.05 and p-value for the proportion of shares held by members serve on the board, the total assets of the firm and the market price divided by the book value are less than 0.01. So, all variables mentioned above have significant impact on the debt to asset ratio. The coefficient of CEO/chairperson duality is 5.53: with one unit increase in CEO/chairperson duality, debt to asset ratio increases by 5.53 units holding all other factors constant. The CEO/chairperson duality is positively and significantly associated with debt to asset ratio causes more experience and confidence in investment opportunity project consistent with stewardship theory shows that CEO duality builds strong, unambiguous leadership organized in a unity of control and firms with CEO duality may make better and faster decisions and, thereby, may better than firms that split into two positions (Donaldson and Davis, 1991). The coefficient of the proportion of shares held by members serving on the board is -28.39: with one unit increase in the proportion of shares held by members serving on the board, debt to asset ratio decreases by 28.39 units holding all other factors constant. The proportion of shares held by members serving on the board is negatively and significantly associated with debt to asset ratio

because board may risk aversion behavior. The coefficient of the total assets of the firm is 4.1: with one unit increase in the total assets of the firm, debt to asset ratio increases by 4.1 units holding all other factors constant. The coefficient of the market price divided by the book value is 1.01: with one unit increase in the market price divided by the book value, debt to asset ratio increases by 1.01 unit holding all other factors constant. However, the board size is not significantly associated with the debt to asset ratio.

From (3) regression results show that p-value for the proportion of independent board directors and CEO/chairperson duality are less than 0.05 and p-value for the proportion of shares held by members serve on the board and the market price divided by the book value are less than 0.01. So, all variables mentioned above have significant impact on stock return volatility. The coefficient of the proportion of independent board directors is -5.035: with one unit increase in the proportion of independent board directors, stock return volatility decreases by -5.035 units holding all other factors constant. The proportion of independent board directors is negatively and significantly associated with price volatility unlike the studies that find that inside and affiliated directors in China are better at making important decisions based on current and dependable data (Tian and Lau, 2001). The coefficient of CEO/chairperson duality is -1.423: with one unit increase in CEO/chairperson duality, stock return volatility decreases by 1.423 units holding all other factors constant. The CEO/chairperson duality is negatively and significantly associated with price volatility. The CEO/chairperson duality is more experiences in business and has full power in making decisions unlike with the studies as chairman of the board, the CEO may have extensive opportunities to seek opportunistic behavior and may, for example, appoint board members that will be less enthusiastically involved in controlling (Prevost et al., 2002). The coefficient of the proportion of shares held by members serving on the board is -13.86: with one unit increase in the proportion of shares held by members serving on the board, stock return volatility decreases by 13.86 units holding all other factors constant. Also, the proportion of shares held by members serving on the board is negatively and significantly associated with price volatility. Person who hold a little proportion of a firm's stocks may have limited incentives to control the management with enough care and passion (Ma & Khanna, 2016). The coefficient of the market price

divided by the book value is 0.32: with one unit increase in the market price divided by the book value, stock return volatility increases by 0.32 units holding all other factors constant.

From (4) regression results show that p-value for board size multiplied with the CEO/chairperson duality and the proportion of independent board directors are less than 0.05. So, both board size multiplied with the CEO/chairperson duality and the proportion of independent board directors have an impact on the interest coverage ratio. The coefficient of board size multiplied with the CEO/chairperson duality is 10.84: with one unit increase in board size multiplied with the CEO/chairperson duality, interest coverage ratio increases by 10.84 units holding all other factors constant. The board size multiplied with the CEO/chairperson duality is positively and significantly associated with the interest coverage ratio because the CEO will have more powerful in monitoring the company consistent with the previous study find that independence of the CEO and the chairman of board has a positive impact on corporate performance (Rhoades et al., 2001). The coefficient of the proportion of independent board directors is -66.07: with one unit increase in the proportion of independent board directors, interest coverage ratio decreases by 66.07 units holding all other factors constant. The number of audited board conference is not significantly associated with the interest coverage ratio inconsistent with prior study from Beasley and Salterio (2001) shows that firms, which tend to include outside directors on the audit committee exceed the mandatory minimum qualifications, improve audit committee efficiency.

From (5) regression results show that p-value for board size multiplied with the CEO/chairperson duality is less than 0.05 and p-value for the proportion of shares held by members serve on the board, the total assets of the firm and the market price divided by the book value are less than 0.01. So, all variables mentioned above have significant impact on the debt to asset ratio. The coefficient of board size multiplied with the CEO/chairperson duality is 2.664: with one unit increase in board size multiplied with the CEO/chairperson duality, debt to asset ratio increases by 2.664 units holding all other factors constant. Board size multiplied with the CEO/chairperson duality is positively and significantly associated with the debt to ratio because CEO is more confident in the business structure and expects more profit in the future. The coefficient of the proportion of shares held by members serving on the board is -29: with one unit increase in the proportion of shares held by members serving on the board,

debt to asset ratio decreases by 29 units holding all other factors constant. The director ownership is negatively and significantly associated with debt to asset ratio because board may risk aversion behavior. The coefficient of the total assets of the firm is 4.082: with one unit increase in the total assets of the firm, debt to asset ratio increases by 4.082 units holding all other factors constant. The coefficient of the market price dived by the book value is 1.037: with one unit increase in the market price dived by the book value, debt to asset ratio increases by 1.037 unit holding all other factors constant.

From (6) regression results show that p-value for board size multiplied with the CEO/chairperson duality, the proportion of independent board directors, the proportion of shares held by members serve on the board and the market price dived by the book value are less than 0.01. So, all variables mentioned above have significant impact on stock return volatility. The coefficient of board size multiplied with the CEO/chairperson duality is -0.71: with one unit increase in board size multiplied with the CEO/chairperson duality, stock return volatility decreases by 0.71 units holding all other factors constant. The CEO/chairperson duality is more experiences in business and has full power in making decisions unlike with the studies as chairman of the board, the CEO may have extensive opportunities to seek opportunistic behavior and may, for example, appoint board members that will be less enthusiastically involved in controlling (Prevost et al., 2002). The coefficient of the proportion of independent board directors is -5.579: with one unit increase in the proportion of independent board directors, stock return volatility decreases by 5.579 units holding all other factors constant. The proportion of independent board directors is negatively and significantly associated with price volatility unlike the studies that find that inside and affiliated directors in China are better at making important decisions based on current and dependable data (Tian and Lau, 2001). The coefficient of the proportion of shares held by members serve on the board is -13.6: with one unit increase in the proportion of shares held by members serve on the board, stock return volatility decreases by 13.6 units holding all other factors constant. Person who hold a little proportion of a firm's stocks may have limited incentives to control the management with enough care and passion (Ma & Khanna, 2016). The coefficient of the market price dived by the book value is 0.315: with one unit increase in the market price dived by the book value, stock return volatility increases by 0.315 unit holding all other factors constant.

4.1 Conclusion

The purpose of this research is to find related between board characteristics which are the size of the board, the proportion of independent directors, the CEO/chairperson duality (Chairman of director and Chief executive officer are the same leader.), the audit committee, the times that audit committee conference and the director ownership and firm risk which are total debt to total asset ratio, interest coverage ratio and stock price volatility. This research focused on randomly 100 firms on the SET-listed companies in the period of 2008 to 2017. The results show that the CEO/chairperson duality significantly decreases price volatility and increases interest coverage ratio which reduces firm risk consistent with prior study shows that positive stock price affects to director appointments when the representative is an active CEO, hinting that CEO directors are value improving (Fich 2005). The director ownership substantially decreases price volatility and debt to asset ratio but increases interest coverage ratio, which all lead to decrease firm risk. The proportion of independent board directors significantly reduces price volatility consistent with the studies find that the independence of directors should improve the controlling power of the board and therefore should also decrease firm risk. Consistent with some papers from (Dahya, McConnell, 2007; Choi et al., 2007), and (Brick and Chidambaran, 2008) show that board independence decreases firm risk in the absence of outside regulation, and higher-risk firms have a lower level of board controlling.

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