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BOARD DIVERSITY, NETWORK AND FIRM VALUE

Abstract

Using a large sample analysis of Thai listed firms, we address an important question. Do board diversity and network add value to firms? This article extends the debate on the benefits and costs of board diversity and network and their effect on the broader picture of corporate governance. Moreover, this article sheds light on the necessity of applying the resource dependence theory in research about boards of directors, in addition to the agency theory. We find that diversity in age and study majors are positively related to Tobin's Q ratio, while diversity in educational levels leads to lower firm value. Our results suggest that boards with diverse age groups and study areas might generate useful advice and complement each other; however, those with diverse educational levels might create costs due to possible conflicts and a lack of coordination and communication. In addition, the results show that alumni networks have a positive effect on Tobin's Q ratio. The findings further suggest that an alumni network is significant to firms because it could help firms obtain external resources. Overall, our research provides significant findings for policy makers to widen viewpoints about corporate governance practices and human resource development in emerging countries.

Keywords

Board of Directors, Diversity, Firm Value, Network, Thailand

1. Introduction

In a world of increasing globalization, where countries cooperate in order to create even larger economic communities, questions arise as to what are the most important characteristics in determining the success of a firm in a particular market? Given that many countries have different cultural backgrounds and legal frameworks, it is not necessarily going to be the case that the characteristics that guarantee success in one market lead to success in another. However, a common characteristic of many firms is the presence of a board of directors.

A board of directors is one effective governance mechanism, the efficacy of which is widely recognized in both U.S. and non-U.S. models (Globerman, Peng and Shapiro, 2011; Hermalin and Weisbach, 2003; Kaplan and Minton, 1994; Yermack, 2006). In theory, a board represents all shareholders. It is charged with hiring, monitoring, evaluating, replacing, and advising management to ensure that all managerial decisions maximize shareholder returns. Among these functions, the monitoring and advising functions appear to be the most important (Adams and Ferreira, 2007; Boone, Field, Karpoff and Raheja, 2007; Raheja, 2005).

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Given the influence that a board of directors has on a firm, and thereby its chances of success, an obvious question is, what characteristics do successful boards share in a particular market?

Because the individuals who constitute boards have a great deal of influence over the decision-making process, shareholders and potential investors need to be aware of, and understand, the various characteristics of the individuals who make up the board. When examining this issue, most existing literature has focused on board composition, in particular the monitoring role of boards in governing management teams based on a principle-agent framework. While board composition is considered an important corporate governance mechanism (Globerman et al., 2011; Hermalin and Weisbach, 2003; Kaplan and Minton, 1994; Yermack, 2006), previous work has suggested that other board characteristics such as qualifications and competency of directors, diverse background of directors and the social network of board members are also important during the decision-making process (Espenlaub, Khurshed and Sitthipongpanich, 2012; Johnson and Powell, 1994; Peng, Buck and Filatotchev, 2003).

Moreover, Jiang and Peng (2011) suggest that institutions matter in corporate governance. Network is one of the major institutional characteristics in economies with inefficient markets. At the micro-level, network—both political and alumni, for example—could increase firm value; on the other hand, policy makers should be aware of unfair treatments from close connections. At the macro-level, improving resource allocation could help institutional and economic development. We ask whether firms could overcome market inefficiency through informal and private networks of directors.

When assessing the significance of boards of directors on firm performance and value, the majority of existing empirical research focuses on board structure, which is based upon a principle-agent framework. Specifically, existing studies examine how the size of the board, degree of separation between the chairman and the CEO, and increasing representation by independent directors make boards more effective in the performance of their monitoring role. While the agency theory views a board of directors as monitors over management teams, the resource dependence theory suggests that directors play an important part in providing various advice to managers and extracting external resources for firms.

This study examines how the characteristics of a board influence decision making within a firm. In particular, this paper examines how diversity in the characteristics of a board such as gender, age, educational background, professional expertise and international perspectives affect firm value. On the one hand, it may result in new ideas and skills being brought into the firm, which improve monitoring and advisory efficiency (Anderson, Reeb, Upadhyay and Wanli, 2011). On the other hand, a board with highly diverse individuals may experience some coordination and communication problems (Milliken and Martins, 1996). Additionally, not only does a diverse board bring ideas and skills, but also they bring their social networks of both personal and professional connections. Agrawal and Knoeber (2001), Khwaja and Mian (2005) and Siegel (2007) document, for example, that political networks could help firms obtain external resources such as government concessions; moreover, networks of friends and alumni could provide useful information including opportunities for investment. Nevertheless, Fan, Wong and Zhang (2007) argue that politically connected boards adversely

affect firm value and might lead to expropriation problems.

Additionally, the majority of previous studies have analyzed boards in developed markets such as the U.S., UK, Japan, Germany, and Australia. Little evidence has been documented on how board characteristics influence the decision making of firms in emerging markets, such as those in Asia. This study aims to redress this balance in part by using the experience of Thailand as an example. The 1997 Thai economic meltdown had been perceived as the origin of the whole Asian region's financial failure, indicating that more understandings about Thai firms are needed (Peng, Au and Wang, 2001). Moreover, institutional settings in which corporate governance is embedded are different between developed and emerging markets (Claessens, Djankov and Lang, 2000; Globerman et al., 2011; La Porta, Lopez de Silanes and Shleifer, 1999). Furthermore, a single country study provides a unique analysis because the influence of board of directors can vary under different legal systems, institutional settings, and governance frameworks (Filatotchev, Jackson and Nakajima, 2012).

This study aims to make a number of contributions. First, in addition to examining board composition, an area that has already been extensively studied, we examine how diversity in gender, age, educational background, professional expertise, and international perspectives affect firm value. Second, previous research by Yammeesri and Herath (2010) determines that board composition is not related to firm value in Thai firms. Hence, in this paper we attempt to determine what are the characteristics of Thai boards that do influence firm value. Third, we extend the research done by Choi, Park and Yoo (2007), who focus on the role of outside independent directors as a mechanism of corporate governance in response to the regulatory reform after the Asian financial crisis. The authors find the strong effect of board independence on firm value. We extend their paper by looking at the characteristics of Thai boards in response to public attention of good governance practices, e.g., director qualifications, board diversity and network, and board composition in the wake of the Asian financial crisis. Finally, networks are found to be one of the key institutional characteristics in the Asia-Pacific region (Bunkanwanicha and Wiwattanakantang, 2009; Espenlaub et al., 2012; Peng et al., 2001; Siegel, 2007). In Thailand, Peng et al. (2001) find that military directors are significant to multinational firms. This article differs from Peng et al. (2001) in that proxies of networks combine both political connections, namely ex-military and ex-bureaucrats, and university alumni networks. The remainder of this article begins with backgrounds of corporate governance in Thailand, followed by hypotheses, methods, findings, and discussion.

2. Hypotheses

This study breaks down our question of diversity and network into eight discreet hypotheses. Six hypotheses concerning diversity are addressed: 1) gender, 2) age, 3) educational levels, 4) study majors, 5) expertise, and 6) international perspectives. The two remaining hypotheses concerning network are addressed: 7) political connections and 8) alumni networks.

2.1. Gender

From the view that female directors bring different ideas and attributes to board discussions and provide additional board monitoring (Letendre, 2004), gender diversity on boards benefits the firms. We hypothesize that a higher proportion of female directors increases firm value.

Therefore:
Hypothesis 1 Diversity in gender has a positive impact on firm value.

2.2. Age

Regarding how age diversity in boardrooms affects performance, Hagendorff and Keasey (2012) document that director age diversity increases merger returns in the banking industry. McIntyre and Mitchell (2004) find a positive effect of the variation in director age on firm performance. They also find that there exists an optimal level of age diversity among board members. Thus, they argue that boards with too little diversity may lack a variety in knowledge, skills and experience, while boards with too much diversity may have conflicts and communication problems.

Therefore:
Hypothesis 2 Diversity in age has a positive impact on firm value.

2.3. Educational levels

As noted by prior research, the educational level indicates an individual's knowledge base and intellectual ability (Bhagat and Black, 1999). A director could use his/her educational knowledge to come up with distinctive perspectives and innovative ideas in advising the management team. It is expected that a board of directors with diverse educational levels could provide applicable and constructive advice to boards, thus resulting in higher firm value.

Therefore:
Hypothesis 3 Diversity in educational levels has a positive impact on firm value.

2.4. Study majors

Various academic majors of directors likely provide managers with broader advice, consistent with the findings of Kim and Lim (2010). They document that diversity in study areas is positively related to Tobin's Q ratio.

Therefore:
Hypothesis 4 Diversity in study majors has a positive impact on firm value.

2.5. Expertise

A board of directors could effectively perform as a result of the presence of diverse functional knowledge and skills of directors. A diversity of talented members could allow firms to obtain different external resources. Using their area of expertise, directors can contribute ideas and share their experience in board meetings (Anderson et al., 2011). It is expected that the expertise of directors matters to firms and will increase the effectiveness of boards and possibilities to obtain external resources, thus leading to higher firm value.

Therefore:
Hypothesis 5 Diversity in expertise has a positive impact on firm value.

2.6. International perspectives

We hypothesize that directors graduated from abroad are expected to have wider viewpoints and to conform to the international environment, which might bring higher competitive advantages over their local rivals (Leblanc and Gillies, 2005). Therefore, it is expected that directors with international perspectives could bring higher benefits, hence increasing firm value.

Therefore:
Hypothesis 6 Diversity in international perspectives has a positive impact on firm value.

2.7. Political connections

Political connections are found to be related to firm performance. The relationship between outside directors with government experience and firm value is positively significant (Kim and Lim, 2010). The experience of retired bureaucrats is considerably useful in some industries, and firms that deal with the government generally appoint ex-bureaucrats as their directors (Agrawal and Knoeber, 2001; Miwa and Ramseyer, 2005). we expect that political connections of directors are beneficial to firms.

Therefore:
Hypothesis 7 Political connections of directors have a positive impact on firm value.

2.8. Alumni networks

Directors graduated from elite universities are expected to be socially united because of strong ties among alumni and a long history of their institutions. Directors who are tied to such social networks are believed to obtain useful information because of lower asymmetric information among network members (Palmer and Barber, 2001; Siegel, 2007). The relations among network members could facilitate connected directors to extend relations to other stakeholders of firms. Such linkages can obviously help firms in accessing potential markets and finding financial or strategic partners. As a result, connected directors would be able to

bring higher financial benefits to firms.

Therefore:
Hypothesis 8 Alumni networks of directors have a positive impact on firm value.

3. Sample, data and methodology

Sample firms are non-financial firms listed on the SET, covering the period of 2001 to 2005. This sample period reflects the consequences of one of SET's best practice responses to the financial crisis in 1997, which was to promote professionalism through the training of directors of Thai listed firms. In addition, the period highlights the foresight of listed firms and policy makers in improving corporate governance concerning boards of directors.

The information used to define board characteristics is publicly available from the SET. We focus only on director data, which are provided in Form 56-1, which the Stock Exchange of Thailand requires all listed firms to submit. It is used to disclose relevant information of the company to the public. In addition, financial data are collected from the SETSMART database, which compiles company information of Thai firms listed in the SET. In this study, all financial data are winsorized at 1% and 99%.

We exclude firms in the banking and financial sector because of their non-traditional financial statements. Firms with missing 56-1 forms and financial statements are also removed from the sample. In addition, observations are excluded from the sample if the firm data are in the year of rehabilitation.

We obtained director biographies, including gender, age, educational background, and previous work experience over the previous five years (or more). The individual director data are quantified and aggregated for the whole board to describe the characteristics of a board of directors. Then we define board diversity and network.

Regarding variables in director characteristics, gender diversity is measured by the ratio of the number of female directors to the total number of directors. Diversity measures of age, educational levels, study majors, and expertise are defined by a modification of the Herfindahl Index (HHI). HHI is a concentration measure, while our modified index is a measure of diversity, which is also applied by Hagendorff and Keasey (2012) and Kim and Lim (2010).

Age of directors is divided into five age cohorts: less than 30 years old, 31-40 years old, 41-50 years old, 51-60 years old, and greater than 60 years old. Diversity in age is defined as follows:

$$\text{Diversity in Age}_{i,t} = 1 - \left[\sum_{g=1}^{n} \left(\frac{Age_g}{Total\ number of\ directors} \right)^2 \right]_{i,t}$$

where Age_g = the number of directors in each age cohort (g).

The educational levels are categorized into the four highest educational levels, i.e., below bachelor's, bachelor's, master's, and doctoral degrees. The variable of the educational levels is defined as a percentage of directors with each of the highest degree level within a board of directors. Diversity in educational levels is defined as follows:

$$\text{Diversity in educational levels}_{i,t} = 1 - \left[\sum_{g=1}^{n} \left(\frac{Edu_g}{Total\ number\ of\ directors} \right)^2 \right]_{i,t}$$

where Edu_g = the number of directors in each category of educational levels.

We also classify different knowledge bases into six study areas: 1) accounting/finance/economics, 2) business-related knowledge, 3) law, 4) engineering/science, 5) medicine, and 6) others. Diversity in study majors is defined as follows:

$$\text{Diversity in study majors}_{i,t} = 1 - \left[\sum_{g=1}^{n} \left(\frac{Major_g}{Total\ number\ of\ study\ majors\ of\ all\ directors} \right)^2 \right]_{i,t}$$

where $Major_g$ = the number of majors held by all directors in each study area.

Work experience of directors is divided into seven areas of expertise: 1) accounting/finance/economics, 2) business, 3) law, 4) engineering/science, 5) medicine, 6) academic professor, and 7) others. Diversity in expertise is defined as follows:

$$\text{Diversity in expertise}_{i,t} = 1 - \left[\sum_{g=1}^{n} \left(\frac{Expertise_g}{Total\ number\ of\ work\ experience\ of\ all\ directors} \right)^2 \right]_{i,t}$$

where $Expertise_g$ = the number of work experience held by all directors in each area of expertise.

The variable of diversity in international perspectives of directors is defined as the ratio of the number of directors graduated from abroad to the number of directors graduated from local institutions.

Network variables are defined to demonstrate director abilities in seeking and obtaining external resources and information from their social networks. We define political connections as a dummy variable that is equal to 1 if there is a former government, police, or military officer on board, and zero otherwise. The alumni network variable is defined as a proportion of directors who graduated from Chulalongkorn University, which is the most elite and longest established university in Thailand.

Considering board composition, board size is defined as the number of directors. Board

independence is measured by the fraction of independent directors. CEO duality is a dummy variable equal to 1 if the CEO also holds the position of chairman of the board, and zero otherwise. The percentage of executive and non-executive directors to total directors is also provided in the descriptive analysis.

We investigate the impact of board diversity, network, and composition on firm value, using a regression analysis. The model is controlled by industry and year effects as follows:

$$\begin{aligned} Firm\,value_{i,t} = {} & \alpha_{i,t} + \beta_1 Gender_{i,t} + \beta_2 Age_{i,t} + \beta_3 Edu_{i,t} + \beta_4 Major_{i,t} + \beta_5 Expertise_{i,t} + \beta_6 Inter_{i,t} \\ & + \beta_7 PolCon_{i,t} + \beta_8 Alumni_{i,t} + \beta_9 BoardSize_{i,t} + \beta_{10} Independence_{i,t} + \beta_{11} Duality_{i,t} \\ & + \beta_{12} Size_{i,t} + \beta_{13} Leverage_{i,t} + \beta_{14} Firm\,age_{i,t} + \beta_{15} Sales\,growth_{i,t} + \beta_{16} Ind_{i,t} + \beta_{17} Year_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Firm value is measured by the market to book ratio (a proxy of Tobin's Q ratio), which is the ratio of market value of total assets to book value of total assets. Our main independent variables include board diversity and network as discussed in the previous section. We also introduce several variables into our analysis to control for board composition, firm characteristics, and industry and year effects. Board composition includes board size, board independence, and CEO duality. Firm characteristics include size (proxied by the log of sales), leverage (proxied by the ratio of total debt to total assets), firm age (proxied by the number of years since establishment), and sales growth (proxied by the annual change in sales).

4. Findings

Table 1 shows that gender diversity is low in Thai boardrooms. Only about 16% of total directors are female. Nevertheless, around three quarters of the sample firms have at least one woman on the board. Concerning director age, the results show that the average age of directors is roughly 55 years old, with the youngest average age of around 40 years old and the oldest average age of around 70 years old. When separating director age into five cohorts, we find that directors who are in the range of 51-60 years old are appointed most often, with the average number of four directors and the maximum number of 18 directors per board. Moreover, about 95% of companies have at least one director who is in the 51-60-years-old age cohort. Interestingly, directors who are younger than 40 years old occupy only one board seat on average. Nonetheless, these young directors are appointed by almost 60% of firms. As for age diversity measure, the mean value is 0.59 (median, 0.62), while the highest value is 0.78.

Regarding educational levels of directors, almost 10%, 40% and 35% of directors have the highest degree of a doctoral, master's, and bachelor's degree, respectively. Diversity in educational levels is similar to diversity in age. Specifically, the average diversity index is 0.57 (median, 0.59) and the maximum is 0.75. The results of study majors of directors show that business administration is the most frequently found academic major on the board, followed by accounting/finance/economics and engineering/science, respectively. It is interesting to find that law is one of the least commonly found study areas in our sample. Diversity

measure of educational majors appears to be higher than that of educational levels. More precisely, the mean value of diversity measure of study majors is 0.65 (median, 0.68) with the maximum value of 0.82.

As expected almost all firms have a director with some business expertise, while roughly 60% of the firms have a director with accounting, financial, or economics skills. Consistent with the results of educational background, only 20% of firms appoint a director with legal experience. Also, academicians are appointed as director in less than 10% of firms. Compared with other diversity indices, expertise diversity index is the lowest. The average is 0.4 (median, 0.42) and the highest is 0.79. This result shows that expertise of directors is not as diverse as study areas. Furthermore, on average, about 60% of the directors have studied overseas. As a diversity measure of international perspectives, the average ratio of the number of directors with international education to the number of directors with local education is 2.13 (median, 1.4). The ratio ranges from 0 to 18.

Considering networks of boards of directors, interestingly, a large number of Thai listed firms appoint directors who were in government sectors. Approximately 70% of the sample firms appoint former bureaucrats as the directors. As for the network through education from alumni of the most prominent university in Thailand, about 15% of the directors are alumni of Chulalongkorn University.

In terms of board composition, the results show that the average number of directors on board is around 11, with the minimum of five (as stipulated by the law) and the maximum of 25. Independent directors account for about one third of total directors, which is consistent with the regulation by the SET. This may imply that listed companies appointed independent directors only to meet the minimum requirement. However, when considering the fraction of external directors (i.e., independent and non-executive directors), these directors consist of roughly 60% of total board seats, which is the majority of the board. We also find that almost one quarter of Thai companies combine the CEO and chairman positions.

Variables	Mean	Standard deviation	Median	Min	Max
Board characteristics					
Gender:					
Percentage of firms with female directors	78.21	-	-	-	-
Percentage of Female directors	16.22	14.16	13.64	0	75.00
Age:					
Average age of directors	55.52	4.78	55.67	40.08	70.17
No. of directors who are					
- Less than 30 years old	0.11	0.36	0	0	3
- 31-40 years old	0.86	1.05	1	0	6
- 41-50 years old	2.70	1.84	2	0	11
- 51-60 years old	4.07	2.47	4	0	18
- Older than 60 years old	3.71	2.67	3	0	12
Percentage of firms with directors who are					
- Less than 30 years old	8.95	-	-	-	-
- 31-40 years old	52.61	-	-	-	-
- 41-50 years old	91.91	-	-	-	-
- 51-60 years old	95.88	-	-	-	-
- Older than 60 years old	91.21	-	-	-	-
Diversity in age	0.59	0.11	0.62	0	0.78

Educational levels:					
Percentage of directors who have					
- Below bachelor's degree	14.04	14.41	10.00	0	87.50
- Bachelor's degree	36.77	19.11	36.36	0	92.86
- Master's degree	39.37	19.45	37.50	0	100
- Doctoral degree	9.81	10.91	8.33	0	66.67
Diversity in educational levels	0.57	0.11	0.59	0	0.75
Study majors:					
No. of directors whose study major is					
- Accounting, finance, or economics	2.82	2.21	2	0	16
- Business administration	3.43	2.36	3	0	13
- Law	0.79	1.05	0	0	8
- Engineering or science	2.86	2.97	2	0	30
- Medicine	0.37	1.26	0	0	11
Percentage of firms with directors whose study major is					
- Accounting, finance, or economics	88.02	-	-	-	-
- Business administration	92.68	-	-	-	-
- Law	49.88	-	-	-	-
- Engineering or science	82.80	-	-	-	-
- Medicine	15.33	-	-	-	-
Diversity in study majors	0.65	0.13	0.68	1	0.82
Expertise:					
Percentage of firms with directors whose expertise is					
- Accounting, finance, or economics	59.61	-	-	-	-
- Business administration	98.99	-	-	-	-
- Law	21.25	-	-	-	-
- Engineering or science	35.64	-	-	-	-
- Medicine	28.72	-	-	-	-
- Academics	8.16	-	-	-	-
Diversity in expertise	0.40	0.20	0.42	0	0.79
International perspectives:					
Percentage of directors who have international education		-	-	-	-
Diversity in international perspectives	2.13	2.36	1.4	0	18
Political connections:					
Percentage of firms with directors who are a former government, police or military officer	68.79	-	-	-	-
Alumni networks:					
Percentage of directors who are alumni of Chulalongkorn University	15.27	16.90	11.11	0	90.00
Board composition					
Size:					
: No. of directors on board	11.44	3.20	11	5	25
Independence:					
Percentage of executive directors	42.09	17.27	42.86	5.26	81.25
Percentage of non-executive directors	26.42	18.97	25.00	0	78.95
Percentage of independent directors	31.49	9.61	30.00	12.00	83.33
CEO duality:					
Percentage of firms with CEO duality	23.35	-	-	-	-

Table 1: *Descriptive statistics of board characteristics and composition*

	Model (1)		Model (2)		Model (3)	
Board diversity						
Diversity in gender	0.1016				0.0978	
	(0.431)				(0.449)	
Diversity in age	0.2577				0.2925	*
	(0.102)				(0.059)	
Diversity in educational levels	-0.3401	**			-0.3231	**
	(0.012)				(0.017)	
Diversity in study majors	0.2702	**			0.2389	**
	(0.024)				(0.046)	
Diversity in expertise	-0.1288				-0.1648	
	(0.178)				(0.122)	
Diversity in international perspectives	-0.0039				-0.0011	
	(0.545)				(0.862)	
Board networks						
Political connections			0.0228		0.0513	
			(0.539)		(0.229)	
Alumni networks			0.2838	***	0.2633	***
			(0.004)		(0.007)	
Control variables						
Board size	-0.0184	***	-0.0182	***	-0.0190	***
	(0.006)		(0.006)		(0.005)	
Independence	-0.1008		-0.1913		-0.1115	
	(0.677)		(0.409)		(0.640)	
Duality	-0.0117		0.0008		-0.0011	
	(0.780)		(0.985)		(0.980)	
Size	0.1027	***	0.0895	***	0.0965	***
	(0.000)		(0.000)		(0.000)	
Leverage	-0.2489	***	-0.2208	**	-0.2451	***
	(0.004)		(0.010)		(0.005)	
Firm age	-0.0031	*	-0.0030	*	-0.0028	*
	(0.055)		(0.061)		(0.084)	
Sales growth	0.1182	***	0.1179	***	0.1164	***
	(0.006)		(0.007)		(0.007)	
Year dummy	Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes	
No. of observations	1,285		1,285		1,285	
Adjusted R-squared	0.1795		0.1783		0.1836	

Table 2: *The impact of board diversity and network on firm value*

Table 2 shows the impact of board diversity and networks on firm value. Model 1 presents the regression results of the effects of diversity on firm value. In addition to board diversity, we investigate the impact of board networks on firm value as shown in Model 2. In Model 3, we combine variables of board diversity and networks.

Focusing on board diversity, the results of Model 1 and Model 3 show no evidence to support the impact of gender diversity on firm value. Hence we reject Hypothesis 1. These findings are consistent with Zahra and Stanton (1988), Shrader, Blackburn and Iles (1997), and Rose (2007). Model 1 also shows the insignificant result of age diversity. However, in Model 3, age diversity becomes positively significant to firm value, which supports Hypothesis 2. The significance level is marginal, though. The significance of age diversity to firm value is in line with McIntyre and Mitchell (2004) and Hagendorff and Keasey (2012). In both Model 1 and 3, we find that diversity in educational levels leads to lower firm value. The significantly negative relationship between the diversity in educational levels and firm value indicates that Hypothesis 3 is rejected. In contrast, the firm value is positively associated to the diversity in study majors. Thus, we accept Hypothesis 4. Nevertheless, the results show that diversity in expertise and international perspectives of boards are not significant to firm value. Thus, we reject Hypothesis 5 and Hypothesis 6.

In addition to board diversity, we investigate the impact of board networks on firm value as shown in Model 2. We find no supporting evidence about the impact of political connections on firm value; thus, we reject Hypothesis 7. However, the value of firms is positively associated with the proportion of directors with an alumni network, therefore, we accept Hypothesis 8. The network of directors who were graduated from the oldest and arguably most prestigious university seems to be beneficial to Thai firms; this result is consistent with the findings of Siegel (2007). In Model 3, in which we combine variables of board diversity and networks, the effects of board networks on firm value remain significant as shown in Model 2.

Regarding the aspects of board composition as control variables, we find the influence of board size on firm value in all three models. The number of directors on a board is negatively related to firm value. This implies that large boards might adversely affect communication and coordination in Thai firms and might not play an effective monitoring role as documented by Jensen and Zajac (1993) and Lipton and Lorsch (1992). Our findings concerning the impact of board size on firm value confirm the results of Eisenberg, Sundgren and Wells (1998), Mak and Kusnadi (2005), Van Ees, Van der Laan and Postma (2008), Van Essen, Van Oosterhout and Carney (2011) and Yermack (1996). However, the impacts of board independence and CEO duality on firm value are not significant in this paper, which is similar to previous research (Chen et al., 2008; Dahya et al., 2009; Daily and Dalton, 1997; Dalton et al., 1998; Van Essen et al., 2011).

The results of Model 1 to Model 3 also show that firm size and sales growth are positively associated to Tobin's Q ratio. The larger firms and firms with investment opportunity are more valuable. In contrast, we find that the leverage ratio and firm age are negatively related to firm value. The higher leverage ratio could lead to poor firm value, and the younger firms seem to have better growth opportunity to generate higher value.

5. Conslusion

Boards of directors are one of the most important mechanisms of corporate governance to monitor and advise top management. In response to the financial crisis in 1997, the SET has

recommended firms to appoint competent directors and has highlighted the importance of directors' qualifications and board composition. We investigate the board characteristics and their impact on firm value by introducing several measures of board diversity (gender, age, educational levels, study majors, professional expertise, and international perspectives) and networks (political connections and alumni networks).

The results show that the diversity in age and academic majors of Thai boards appears to be beneficial to firms, while diversity in educational levels adversely influences firm value. In 2006, the revised version of Principles of Good Corporate Governance added the principles about the structure of the board of directors. That is, a board should consist of directors with various skills, experience, and expertise that are useful to the company. However, we find that Thai listed firms are concerned about the importance of director diversity in different dimensions at the wake of the Asian financial crisis. Our findings also confirm that networks are one of the key institutional characteristics in emerging markets. However, we find only the value of the alumni network of an elite university in Thailand, not those of political connections. Board composition (size, independence and CEO duality) was also included, and the results show that smaller board size is more valuable to Thai firms, suggesting a more effective monitoring role.

Our findings have important implications that diversity and networking of human resources, especially directors, are important for firms in today's dynamic and competitive business environment. Given similar features of corporate governance among Asian countries (Globerman et al., 2011), our results provide additional evidence for relevant authorities to widen their viewpoints about corporate governance practices and human resource development in Asia-Pacific region. In addition, the findings are consistent with the direction of the best practices in enhancing board competencies and director qualifications.

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