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## Board Structure, Ownership Structure, and Performance of Thai Listed Companies

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## Keywords

Board Structure, Ownership Structure, Corporate Performance, Agency Theory, Panel Regression Analysis

## Cover Page Footnote

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# Board Structure, Ownership Structure, and Performance of Thai Listed Companies

Surachai Chancharat<sup>1</sup> and Nongnit Chancharat<sup>2</sup>

## Abstract

The purpose of this paper is to investigate the effects of board and ownership structures on the performance of the companies listed on the Stock Exchange of Thailand (SET) during the period 2001-2014. A random effects panel regression analysis is employed to explore these relationships. The empirical evidence shows that the firm's board independence is significantly related to corporate performance. Specifically, board independence has a negative and significant impact on the performance measure return on assets (ROA). The result supports the argument that outside directors will not necessarily act in shareholders' interest since the Chief Executive Officers (CEOs) often dominate the director nomination process. Moreover, we did not find a significant relationship between other board and ownership structures and firm performance. The results from this study show how board and ownership structures influence listed firms' performance in Thailand. Firms in Thailand are generally smaller than those in developed countries, so unquestioning compliance with different codes and principles from elsewhere is inappropriate for Thai firms. The codes and principles may have to be customised to fit specific, contextual needs in Thailand.<sup>3</sup>

*JEL classification:* G32, G34, G35

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## 1. INTRODUCTION

Corporate governance is the system by which companies are directed and controlled (Robinett, Anantavasilpa & Hickey, 2013). It determines the activities in which corporations are properly engaged (Brown, Beekes & Verhoeven, 2011). The corporate governance function is intended to develop ownership and governance structures for companies to ensure that managers behave ethically and make decisions that benefit shareholders (Fauzi & Locke, 2012).

Since corporate governance is used to run companies and the board of directors is responsible for governance and the development of a company's strategy (Pass, 2004), it is expected that corporate performance is affected by corporate governance attributes. However, it should be noted that performance measurements might include other attributes rather than corporate governance mechanisms. Performance measurement provides the information needed to assess the extent to which an organisation delivers value and achieves excellence. This definition also relates well to the balanced scorecard. The usual four scorecard dimensions include financial, customer, internal processes, innovation and learning are implied: financial aspects are included in "delivering value", customers and stakeholders are key to the definition, while internal processes, innovation and learning are central to the way organisations are managed (Moullin, 2007).

Corporate governance has become a prominent topic over at least the last two decades. One of the reasons for this prominence is the events surrounding a series of recent US scandals and corporate failures of the late 1990s (Becht, Bolton & Roell, 2002). Existing studies have explored the relationship between corporate governance attributes and corporate performance in various countries, e.g., Australia (Balatbat, Taylor & Walter, 2004), China (Claessens & Djankov, 1999; Xu & Wang, 1999; Hovey, Li & Naughton, 2003; Bai, Liu, Lu, Song & Zhang, 2004; Li & Naughton, 2007), Italy (Alimehmeti & Paletta, 2012), Malaysia (Abdullah, 2006; Zakaria, Purhanudin & Palanimally, 2014; Abidin, Kamal & Jusoff, 2009), New Zealand (Fauzi & Locke, 2012), Spain (Arosa, Iturralde & Maseda, 2010), and the UK (Weir & Laing, 2001).

In Thailand, the Asian financial crisis of 1997 highlighted the importance of good corporate governance for the long-term survival of companies. Since the 1997 financial crisis, or "the Tom Yum Kung Crisis," the concept of good corporate governance has gained popularity in Thailand because it has been claimed that this economic crisis was connected to the poor quality of corporate governance and the crony economy (Alba, Claessens & Djankov, 1998; Dhnadirek & Tang, 2003).

After 1997, many researchers attempted to explore the relationship between alternative corporate governance mechanisms as put forth by theories on firm performance. The Thai Stock Exchange Committee and concerned parties focused their attention on the roles that management, boards of directors, and controlling shareholders play in overseeing a firm's performance (Panyasrivanit, 2005).

Several studies have examined the relationship between corporate governance mechanisms, ownership structure, and firm performance across countries with different characteristics, with the majority being developed countries. The studies yielded different results, affected by the nature of the prevailing governance system for each country.

In Thailand, there exist a number of studies which explored the influence of board and ownership structure on corporate performance and suggested that these corporate governance attributes influence significantly the performance of a company. The significant corporate governance attributes suggested by previous studies as affecting corporate performance include ownership concentration (Alba et al., 1998; Dhnadirek & Tang, 2003), family-controlled characteristics (Suehiro, 2001; Wiwattanakantang, 2001), board composition (Connelly & Limpaphayom, 2004), and managerial ownership (Kim, Kitsabunnarat & Nofsinger, 2004).

Though the impact of board and ownership structures on Thai firms' performance has been extensively studied in recent years, the results remain inconclusive. Thus, this study focuses on exploring the impacts of board and ownership structures on the performance of Thai non-financial companies listed on the Stock Exchange of Thailand (SET).

Claessens, Djankov, Fan and Lang (2002) propose that a good corporate governance framework can benefit a firm through easier financing, lower costs of capital, improved stakeholder favour, and overall better company performance (Fauzi & Locke, 2012). This study focuses particularly on various aspects of the structure of a board and how they affect the performance of a firm. These aspects of board structure included board size, board independence, Chief Executive Officer (CEO) duality, board gender diversity, and board political connections.

Investigating Thai listed firms could add diversity to the growing body of work examining board structures. This research attempts to extend the research on agency theory, first purposed by Jensen and Meckling (1976), by focusing on the impact of the ownership mechanism on firm performance in an emerging country, Thailand. Studying Thai firms will be interesting because the ownership structure in Thailand has a distinctive characteristic. According to Wiwattanakantang (2001), previous studies suggest that dispersedly-held corporations described in the model of Berle and Means (1932) are actually less common in countries outside the US and UK. Even in other developed countries, the concentrated ownership structure is more universal. Specifically, about 64% of large firms in the 27 richest countries have controlling shareholders (La-Porta, Lopez-De-Silanes & Shleifer, 1999). In Thailand, about 80% of non-financial companies traded on the SET are family-owned (Wiwattanakantang, 2000). Furthermore, Chienwittayakun and Mankin (2015) pointed out that family owned businesses account for 95% of the total enterprises in Thailand. According to Cracknell (2019), family-run businesses in Thailand have a combined net worth of approximately THB 30 trillion, out of a total net worth of THB 42 trillion from all Thai businesses. Around 80% of all businesses in Thailand are owned or controlled by families, with an impressive figure of approximately three-fourth of all businesses listed on the SET are family-run businesses. Therefore, it will be interesting to see how the ownership structure will affect firm performance, especially in an environment in which information asymmetry is likely to be high. The scope of ownership structure, in this study, includes the top three shareholders (TOP 3) and family shareholders.

Therefore, this research investigates the effects of board and ownership structures on the performance of the companies listed on the SET during the period 2001-2014. Fixed effects and random effects panel regression analysis will be employed to explore such relationships.

It is expected that the study findings will provide insights into the various parties who are interested in participating in the Thai stock market. It is also important for regulators and policy makers to understand the corporate governance mechanism and its effect on firm performance. In addition, the results of this study will show how board and ownership structures influence listed firms' performance in Thailand. Firms in Thailand are generally smaller than those situated in developed countries, so unquestioning compliance with different codes and principles from elsewhere is inappropriate for Thai firms. The codes and principles may have to be customised to fit specific contextual needs in Thailand.

The following section will describe the background and literature review, then the data and econometric method will be presented in Section 3. Section 4 describes the empirical results. Finally, Section 5 contains the discussion and conclusions.

## **2. BACKGROUND AND LITERATURE REVIEW**

### **2.1 Corporate Governance in Thailand: The Significance and Reform**

Corporate governance refers to the structures and processes for the direction and control of companies (Robinett et al., 2013). The basic tenets of corporate governance are accountability, responsibility, equitable treatment, transparency, vision, and ethics (Limpaphayom & Connelly, 2004). The structure of corporate governance consists of three primary groups of people: shareholders, boards of directors, and executives. Their roles involve groups of secondary people, including stakeholders, and audit and independent committees. Good corporate governance contributes to sustainable economic development by enhancing the performance of companies and increasing their access to outside capital (Robinett et al., 2013).

For emerging market countries, improving corporate governance can serve a number of important public policy objectives. Good corporate governance reduces emerging market vulnerability to financial crises, reinforces property rights, reduces transaction costs and the cost of capital, and leads to capital market development. Weak corporate governance frameworks reduce investor confidence and can discourage outside investment.

In Thailand, the 1997 financial crisis resulted in 56 financial firms being shuttered by the government. Several banks closed and were either taken over by the government or merged into larger rivals. Several of the remaining banks were forced to seek strategic foreign investors to speed their recovery. Weak corporate governance practices played a major role in these difficulties.

Limpaphayom and Connelly (2004) clearly pointed out that, as the 1997 financial crisis unfolded in Thailand, it became apparent that weak corporate governance practices may have intensified the severity of the problems. In particular, Thailand faced corporate governance problems in two areas. Firstly, poor governance practices at the firm-level included overinvestment and over-borrowing, among many others. Furthermore, Thai publicly traded companies were largely family-owned, with family and related-party shareholders as the controlling shareholders. These situations resulted in negative consequences for minority shareholders since the controlling shareholders were likely to expropriate the firm's resources.

Secondly, Thai companies typically relied on bank financing rather than capital market financing to secure funds for growth. Banks, as the main suppliers of corporate financing, should serve a vital monitoring role for their borrowers. However, the banks, themselves, were suffering from poor governance practices in many cases.

In Thailand, the foundations for good governance practices pre-dated the 1997 financial crisis. Laws and regulations covering public companies, the securities exchange, bankruptcy, accounting and disclosure standards, and other requirements were already on the books (Limpaphayom & Connelly, 2004). The key ingredients missing from wider acceptance of good governance practices were incentives and enforcement.

In 2012, the Principles of Corporate Governance for Thailand were made to be compatible with the Association of Southeast Asian Nations (ASEAN) Corporate Governance Scorecard criterion, which assesses and ranks listed companies' corporate governance practices. Recently, the Report on the Observance of Standards and Codes (ROSC) (Robinett et al., 2013), confirmed Thailand as a regional leader in corporate governance with a relatively comprehensive framework and having achieved high levels of compliance in a number of key areas.

It could be concluded that, over the past several years, the importance of corporate governance has been highlighted by an increasing body of research. Though the influence of corporate governance attributes on Thai firms' performance has been extensively studied in recent years, the results remain inconclusive. This study will add empirical results and knowledge about corporate governance to the field.

## **2.2 Board Structure and Firm Performance**

### **2.2.1 Board Size**

Board size varies from board to board, depending on factors such as type of firm, firm size, and board culture. Overall, what is the best size for a board of directors? The number of board members is considered to be one of the factors affecting firm performance, but there is no one optimal size for a board (Fauzi & Locke, 2012).

There are some perspectives on how large a firm's board size should be. From an agency perspective, it can be argued that a larger board is more likely to be vigilant in terms of agency problems simply because a greater number of people will be reviewing management actions. From a resource dependence theory perspective, it can be argued that a larger board brings greater opportunities for more links and, hence, access to resources. Organizations should increase board size to maximize the provision of resources for the organization.

From a stewardship theory perspective, it is the ratio of inside to outside directors that is of relevance, since inside directors can bring superior information to the board for decision-making. Larger boards are likely to have more knowledge and skills at their disposal, and the abundance of perspectives that they assemble are likely to enhance healthy conflict.

There are a number of studies that have investigated whether or not board size has an effect on firm performance. Some studies found a positive relationship between board size and firm performance, for example, Goktan, Kieschnick, and Moussawi (2006), and Haniffa and Hudaib (2006). However, Jensen (1986) suggests that smaller boards enhance

communication, cohesiveness, and co-ordination, which makes monitoring more effective. Studies which found results supporting this concept include Eisenberga, Sundgrenb, and Wells (1998) and Yermack (1996).

Though the results are inconclusive, it is assumed that larger boards provide more expertise, greater management oversight, and access to a wider range of resources. Therefore, the first research hypothesis is established, as follows:

**Hypothesis 1: Board size positively affects firm performance.**

### **2.2.2 Board Independence**

The board of directors plays an important role in corporate governance. They help solve agency problems inherent in an organization because they perform internal control mechanisms designed to monitor the actions of top management. However, the board does not always act on behalf of shareholders. In general, a board dominated by inside directors may not be able to fulfil its supervisory function properly (Panyasrivanit, 2005). Therefore, numerous studies have explored the effect of board independence on firm performance (Fauzi & Locke, 2012). One important mechanism of board structure is the composition of the board. An independent board examines company decisions, balances the company administration, controls decisions, and eliminates conflicts of interest between the shareholders and management team, and, according to the agency theory of administrators, performs these duties more efficiently than dependent boards. The agency theory states further that people are motivated to advance personal interests (Letza, Kirkbride, Sun & Smallman, 2008). A board composed of external parties will act to protect the interests of all shareholders, in all groups, who are unlikely to confront the executive director, and examine efficiently the administrative department's operation (Hu, Tam, & Tan, 2010) because they must to retain their reputations. This causes the independent board to become an essential asset to corporate governance, one that will be able to reduce problems arising from the representatives. A study by Jiamsagul (2007) found that a higher proportion of independent board members can reduce the agency problem and improve operations (Pietra, Grambovas, Raonic & Riccaboni, 2008; Apadore and Zainol, 2014).

However, other studies argue that outside directors will not necessarily act in shareholder interest since CEOs often dominate the director nomination process (Panyasrivanit, 2005). The research hypothesis for this section follows:

**Hypothesis 2: The proportion of independent directors on a board positively affects firm performance.**

### **2.2.3 CEO Duality**

A dual leadership structure, or CEO duality, exists when a firm's CEO also serves as chairman of the board of directors. If different individuals serve in these positions, then the term 'independent structure' is used.

The evidence regarding the effect of CEO duality on corporate performance is mixed (Arthur, Garvey, Swan, & Taylor, 1993; Pi & Timme, 1993). Some studies, for example, Fama and Jensen (1983), Rechner and Dalton (1991), Jensen (1993), Daily and Dalton (1994), and Haniffa and Hudaib (2006), argue that a board on which the chairperson and CEO are the



same person is ineffective because the CEO duality structure reduces the board's ability to fulfil its governance function, perhaps constituting a clear conflict of interest. In contrast, advocates of the CEO duality structure argue that it provides a single, clear focus for objectives and operations (Rechner & Dalton, 1991).

It should be noted that Elsayed (2007) found that CEO duality has no impact on corporate performance.

The chairman of the board should be chosen from an independent committee and should not be the same person as the Managing Director or CEO in order to divide responsibilities in policy determination and regular administration (The Stock Exchange of Thailand, 1999). This also provides a management system with a balance of power (Pannarong, 2010).

The research hypothesis will be:

**Hypothesis 3: The presence of duality negatively affects firm performance.**

#### **2.2.4 Board Gender Diversity**

The issue of gender in board diversity is especially timely, given the current movement in Europe to increase the number of women on boards. According to Fauzi and Locke (2012), the concept of gender diversity is supported by the theoretical literature; for example, from an agency theory perspective, an increase in diversity will provide a balanced board that will ensure that no individual can dominate the decision-making. From a resource dependency viewpoint, the increase in board diversity may well provide linkages to additional resources, and, from a stakeholder perspective, diversity provides representation for different stakeholders.

Women have been accepted into business more frequently, and this trend seems to be increasing (Cole, 1997). In the past, the participation of women in family businesses was difficult due to their gender (Lyman, 1988), but, at present, women are in a better position to inherit a business and take a leading role in organizational leadership (Phondej, Kittisarn & Neck, 2010).

Many researchers are interested in the study of business management as performed by women, such as Yasser (2012), Langdon McMenamin and Kroluk (2002), Azmi and Barrett (2013), Vandergrift and Brown (2005) and Wei (2007).

The principles of corporate governance revised for firms listed on the SET included a focus on the structure of the board. According to the Principles, boards should consist of equitable committees with diverse qualifications in terms of skills, experience, and specific abilities and a focus on gender equity. These guidelines suggest including at least one woman in the boardroom who is not an executive director, but who has experience in the business or industry in which the company operates. This suggests that gender diversity is important and engenders trust in women to manage large national companies. The research hypothesis for this section is as follows:

**Hypothesis 4: The proportion of female board directors positively affects firm performance.**

### **2.2.5 Political Connections**

There are mixed results on how political connections impact firm performance. Some studies argue that political connections positively affect firm performance, such as Su and Fung (2013) and Li, Meng, Wang and Zhou (2008), while some studies, such as Saeed, Belghitar and Clark (2015), claim that political connections negatively affect firm performance.

Furthermore, the literature could be grouped into two main arguments based on the relationship between government ownership and firm performance. The first argument supports the negative effects of government ownership on firm performance, as seen in Shleifer and Vishny (1997), for example. This study suggests that governments are likely to pay special attention to political goals, such as low output price, employment, and many external factors, that may be negatively related to firm performance. Furthermore, firms with mixed control experienced poor performance due to ambiguity of ownership control, property rights, agency issues, profits, and welfare objectives (Zakaria et al., 2014). Other studies that also found a similar conclusion include Xu and Wang (1997), Qi, Wu, and Zhang (2000), Thomsen and Pedersen (2000), and Chen (2001).

The second argument supports the positive effect of government ownership on firm performance by suggested that, in the developing countries, government-controlled firms are considered separate entities because they are operating in monopoly markets, which may give rise to superior performances (Wiwattanakantang, 2001; Panyasrivanit, 2005).

In addition, other studies also claim there is a positive relationship between government-controlled firms and performance and discuss some feasible reasons, such as government-controlled firms are likely to obtain capital at low cost as a result of political connections (Leuz & Oberholzer-Gee, 2006), the government can face any difficulties and put effort into enhancing the company in order to maintain the equality and stability of the economy (Najid & Abdul Rahman, 2011; Eng & Mak, 2003), and government-controlled firms obtain more information and find it easier to obtain financing from different channels than non-state firms (Zakaria et al., 2014).

After reviewing those two arguments, the research hypothesis is set as follows:

**Hypothesis 5: There is a positive relationship between the board's political connections and firm performance.**

## **2.3 Ownership Structure and Firm Performance**

### **2.3.1 Family Ownership**

There are two opposite arguments associated with an individual or a group of family members as controlling shareholder(s). Many studies point out that a family is likely to put the interests of the family above the interests of other stakeholders. Due to immense voting power and frequent involvement in management, families can implement policies that benefit themselves which are detrimental to firm performance (La-Porta et al., 1999; Wiwattanakantang, 2001; Panyasrivanit, 2005). Additionally, Cucculelli and Micucci (2008) and Arosa et al (2010) state that there is negative impact on company performance when control is passed to the next generation of a family. In particular, when family firms are run by descendent-CEOs, those firms are worse off than they would have been had they been

nonfamily firms, in which they would have been exposed to classic agency conflict with managers.

Another group of literature claims that family members provide good monitoring in family-controlled firms, resulting in lower agency costs (Fama & Jensen, 1983; DeAngelo & DeAngelo, 1985; Wiwattanakantang, 2001; Panyasrivanit, 2005). Family members have incentives to increase the firm's value and be good monitors because their wealth is linked to the continuation of the firm. A possible explanation for the positive effect of family-controlled firms on performance is that there is a close tie between the family and firm as the family's last name is commonly used in the company name. Therefore, monitoring and disciplining of management by family members could be efficient (Wiwattanakantang, 2001; Panyasrivanit, 2005; Smith & Amoako-Adu, 1999).

After reviewing those two arguments, the first argument may prevail in Thailand. Therefore, the research hypothesis is set as:

**Hypothesis 6: Family ownership negatively affects firm performance.**

**2.3.2 Blockholders' Ownership**

According to Wiwattanakantang (2001), controlling shareholders, or blockholders, are defined based on Thai corporate law. Specifically, a shareholder is a controlling shareholder if he owns at least 25% of a company's shares. At this level of ownership, a shareholder has a legal right to nullify any corporate decision.

The role of blockholders is likely to vary over time periods and countries as a function of the legal system and other regulations. Previous literature documents that there are both costs and benefits associated with ownership concentration. The presence of blockholders, or controlling shareholders, may increase the agency problem because the controlling shareholders' interests may not align with those of non-controlling shareholders (La-Porta et al., 1999; Shleifer & Vishny, 1997). Controlling shareholders may pay out the companies' cash flows to themselves in several ways, including simply paying themselves excessive salaries and dividends, and giving top executive positions and board seats to unqualified family members (Wiwattanakantang, 2001).

However, the presence of controlling shareholders may not necessarily be detrimental to the firm. Some studies found that blockholders' ownership is likely to reduce agency costs (Shleifer & Vishny, 1986; Admati, Pfleiderer & Zechner, 1994). Hartzell and Starks (2003) report that blockholders' ownership is positively related to the performance sensitivity of managerial compensation.

On the other hand, Doukas, Kim and Pantzalis (2000) argue that blockholders have neither the time nor expertise to act as effective monitors. Furthermore, Singh and Davidson (2003) found no evidence that blockholders' ownership affects agency costs.

According to Parigi and Pelizzon (2008), the measure of ownership concentration is the percentage of shares owned by the TOP 3. Accordingly, this study takes the shares of the top three shareholders as a proxy for the shares of the controlling shareholder or blockholders' ownership, under the assumption that all the largest shareholders are potentially able to obtain

control benefits. This study will explore the effect of blockholders' ownership measured by TOP 3 shareholders on firm performance. Therefore, the research hypothesis is:

**Hypothesis 7: There is a positive relationship between blockholders' ownership and firm performance.**

### 3. DATA AND ECONOMETRIC METHOD

#### 3.1 Data and Variables

To achieve the objective, the sample consists of all companies listed on the SET between 2001 and 2014. However, firms belonging to the financial sector are excluded from the analysis because their financial statements differ from those of the other groups. Data regarding the annual reports of listed companies were collected from the DataStream database.

Table 1 presents the variables and definitions used in the study.

**Table 1: Definitions of Variables Used in This Study**

	Variable	Definition
<i>Firm performance:</i>	ROA (Return on Assets)	Ratio of profit before interest and tax to total assets.
Independent variables		
<i>Board structure:</i>	Board size	The total number of board members.
	Board independence	The proportion of independent directors to the total number of board members.
	CEO duality	If the chairperson and CEO are the same person, this variable is assigned a value of 1, 0 otherwise.
	Board gender diversity	The proportion of female directors on the board.
	Political connection	If the board has political connections, the variable is assigned a value of 1, 0 otherwise.
Ownership structure		
<i>Ownership concentration:</i>	TOP 3 shareholders	The proportion of top 3 shareholders.
	Family shareholders	If the family holds at least 10% of shares, the variable is assigned a value of 1, 0 otherwise.
<i>Control variables:</i>	Firm size	Natural logarithm of total assets

#### 3.2 Econometric Methodology

This study uses panel data, which allows the unobservable heterogeneity for each observation in the sample to be eliminated and multicollinearity among variables to be alleviated. Descriptive analysis, Pearson correlation analysis, and fixed effects and random effects panel regressions analysis will be employed as the underlying statistical tests.

The fixed effects and random effects panel regressions analysis is performed using the following equation:

$$PER_{i,t} = \beta_0 + \beta_1 * B-Size + \beta_2 * B-Ind + \beta_3 * DUAL + \beta_4 * GENDER + \beta_5 * POL + \beta_6 * FAM + \beta_7 * TOP3 + \beta_8 * F-Size + e$$

where  $PER_{i,t}$  is the firm performance measured by ROA for company  $i$  at time  $t$ ,  $B-Size$  is the board size,  $B-Ind$  is the measure of board independence,  $DUAL$  is the presence of CEO duality,  $GENDER$  represents board gender diversity,  $POL$  is the presence of board political

connections, *FAM* is the presence of a family-controlled firm, *TOP3* is the proportion of top 3 shareholders, *F-Size* is the firm size, and *e* is the random error term.

#### 4. EMPIRICAL RESULTS

##### 4.1 Descriptive Statistics

Table 2 reports the descriptive statistics for the variables used in the study. The average ROA for the sample, as a whole, is 8.29%. During the time period 2001-2014, the average board size for the sample is approximately 11.18, while the board independent average is 32.62%.

**Table 2: Descriptive Statistics of the Variables, 2001-2014**

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	0.0829	0.0801	20.3687	-1.5177	0.4096
BD_SIZE	11.1798	11.0000	26.0000	0.0000	3.1262
BD_IND	0.3262	0.3333	0.8000	0.0000	0.1177
CEO_DUAL	0.1235	0.0000	1.0000	0.0000	0.3291
BD_WOMEN	1.8531	2.0000	9.0000	0.0000	1.6069
POLITICAL	0.3772	0.0000	1.0000	0.0000	0.4848
OWN_TOP3	55.9354	55.8400	99.8700	5.7100	19.5277
FAM	0.6217	1.0000	1.0000	0.0000	0.4850
F_SIZE	14.9867	14.7297	20.4468	10.9627	1.4868

**Note:** ROA = Return on Assets, BD\_SIZE = Board size, BD\_IND = Board independence, CEO\_DUAL = CEO duality, BD\_WOMEN = Board gender diversity, POLITICAL = Political connection, OWN\_TOP3 = Top 3 shareholders, FAM = Family shareholders and F\_SIZE = Firm size.

##### 4.2 Correlation Analysis

The Pearson correlation coefficients matrix for the variables is reported in Table 3 and is used to examine the correlations between variables. The results indicate a weak relationship between the independent variables, which implies that there is no multicollinearity problem.

**Table 3: Correlation Matrix of the Variables, 2001-2014**

	ROA	BD_SIZE	BD_IND	CEO_DUAL	BD_WOMEN	POLITICAL	OWN_TOP3	FAM	F_SIZE
ROA	1.0000								
	-								
BD_SIZE	0.0068 (0.7176)	1.0000							
		-							
BD_IND	-0.0562* (0.0028)	-0.3427* (0.0000)	1.0000						
			-						
CEO_DUAL	-0.0143 (0.4466)	-0.0656* (0.0005)	-0.0061 (0.7455)	1.0000					
				-					
BD_WOMEN	-0.0059 (0.7526)	0.1081* (0.0000)	-0.0817* (0.0000)	0.0926* (0.0000)	1.0000				
					-				
POLITICAL	-0.0164 (0.3828)	0.1750* (0.0000)	0.0030 (0.8716)	-0.0369 (0.0496)	-0.0366 (0.0520)	1.0000			
						-			
OWN_TOP3	0.0084 (0.6549)	-0.1039* (0.0000)	0.0004 (0.9822)	0.0787* (0.0000)	-0.0384 (0.0410)	0.0159 (0.3995)	1.0000		
							-		
FAM	-0.0176 (0.3487)	0.0124 (0.5096)	0.0201 (0.2860)	0.0510* (0.0066)	0.2194* (0.0000)	-0.0102 (0.5886)	-0.2312* (0.0000)	1.0000	
								-	
F_SIZE	0.0141 (0.4530)	0.2754* (0.0000)	0.0211 (0.2624)	-0.0219 (0.2444)	-0.1861* (0.0000)	0.1075* (0.0000)	0.0220 (0.2418)	-0.1829* (0.0000)	1.0000
									-

**Note:** \*Significant at the 1% level

### 4.3 Random Effects Panel Regressions Analysis

We ran a Hausman test and found that a random effects model is more appropriate than a fixed effect model for the data in this study. The empirical results of the estimation of the random effects model with performance measurements for the observations for the period 2001-2014 are displayed in Tables 4.

**Table 4: Estimation Results for Random Effects Regression Analysis**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1087	0.0923	1.1779	0.2389
BD_SIZE	-0.0022	0.0029	-0.7704	0.4411
BD_IND	-0.2173*	0.0708	-3.0701	0.0022
CEO_DUAL	-0.0200	0.0239	-0.8367	0.4028
BD_WOMEN	-0.0006	0.0051	-0.1174	0.9065
POLITICAL	-0.0135	0.0163	-0.8254	0.4092
FAM	-0.0088	0.0171	-0.5171	0.6051
OWN_TOP3	0.0001	0.0004	0.2465	0.8053
F_SIZE	0.0052	0.0057	0.9154	0.3601

**Notes:** No. of Observations = 2,826, Adjusted R-squared = 0.0015, \*Significant at the 1% level

According to the regression results in Table 4, BD\_IND is negatively related to ROA at the 1 % significance level. These results show that a higher board independence level leads to lower performance. However, other independent variables are not significantly related to corporate performance.

## 5 DISCUSSION AND CONCLUSIONS

This paper investigated the effect of board and ownership structures on the performance of the listed companies on the SET during the period 2001-2014.

In Thailand, some studies have explored the impact of board and ownership structures on firm performance, but the results were inconclusive. This study tried to fill the gap in this field by investigating the effects of board and ownership structures on firm performance using Thailand as a case study. The data for 2,826 observations is included in this paper. Financial data from 2001-2014 are used in random effects panel regression analysis.

A firm's board independence was found to have a significant and negative impact on the firm's performance measures. This result is consistent with Agrawal and Knoeber (1996), who also found a negative effect of a larger fraction of outside directors on firm performance in OLS estimations. The result suggests that boards might contain too many outsiders. In addition, the potential drawbacks of having outside directors include, firstly, they might be less informed about the company than insiders which refer to "information gap", specifically, and outsiders may operate at an information disadvantage that can limit their effectiveness. Secondly, they might not behave with true independence or they might be "co-opted" by management. Finally, they are not always adequately qualified or engaged. Shareholders should evaluate director talent on a company-by-company basis to determine their qualification for directorship (Larcker and Tayan, 2019). Refer to the study results, the interesting further research could be investigating more about the composition of the board skills or knowledge and the relationships brought to the companies by independent directors in Thailand.

Furthermore, the results suggested that board structure, board independence excluded, ownership structure, and firm size are not significantly related to corporate performance.

In addition, due to the fact that approximately 80% of non-financial companies traded on the SET are family-owned, it was interesting to investigate how ownership structure affected firm performance, especially in an environment in which information asymmetry is likely to be high. It should be noted that this study does not find evidence to support the hypothesis that family ownership negatively affects firm performance. Specifically, we found that there is no relationship between family ownership and firm performance.

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