



# The Effects of Supervisory Mechanism in Taiwan

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## Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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## ABSTRACT

This study empirically explores Taiwan Supervisory mechanism affect firm performance on a data base of 537 listed firms. The regression results yielded statistically significant effects indicate more independent supervisors; less pledge and remuneration and more expertise with lecturer, certificate and business experience which the Supervisors have and the quantity of the supervisors' members did play a role in monitoring firm performance. The results prove the Supervisors in Taiwan's supervisory mechanism have some effects on firm performance, which may help refine general knowledge on the role of corporate governance and may provide impetus for further research in the Taiwan setting.

**Keywords:** Effects; corporate governance; supervisors; audit committees.

## 1. INTRODUCTION

The setting up of an internal supervisory corporate governance (CG) mechanism is not compulsory in the regulations of certain countries in the world. National conditions would normally determine whether these countries should

develop CG mechanisms. The supervisory system in the western counties such as the United States, Germany and many other developed countries, shareholders are represented by a board of directors (BoD). In the U.S., the Audit Committee is a sub-committee of the BoD. While, in Germany the Supervisory

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Board plays the key role in monitoring and controlling firm management. The role of such corporate governance mechanism is to mitigate the agency problems that arise from the separation of ownership and management [1,2] suggest that the board performs both a management decision role and a control role. The control role aims to restrain managers' latitude to gain excessive personal benefits at the expense of the firm, and indirectly affects firm performance by way of preserving the integrity of assets and external reporting [3]. Numerous studies in Western settings have suggested that both firm performance are affected by such BoD/AC attributes as the proportion of outside board members, board size, frequency of board meetings and share ownership by members of the board (e.g. [4-9]).

In the case of Taiwan, for years the authority concerned has been striving to improve CG by encouraging the listed companies to establish the Audit Committee (AC). Taiwan listed firms are required to have an AC in the BoD of one-tier governance structure or a system of the Supervisors of two-tier governance structure, with the latter being charged with overseeing both the BoD and firm management. Currently, both with- and without-AC systems exist simultaneously in Taiwan's listed companies. Some have chosen to establish ACs to replace the Supervisors (Ss), while others have opted to maintain the Supervisors (Ss). The AC was first adopted in Taiwan in 2007 to replace the existing supervisory system of the Supervisors. By the end of 2013, however, because only less than 17% of publicly listed Taiwan companies have willingly established ACs, this low percentage has raised a question as to whether the existing system of the Supervisors is effective to make the performance of the companies and also operate better than those with the ACs. The objective of this study is to provide exploratory evidence on this issue. While conceptually, having a two-tier governance structure should enhance outsiders' oversight over management, whether this outcome would hold in the case of Taiwan firms is still an open question. The reason is that the incentives and ability of internal governance bodies to control management are not independent of external disciplining devices, including the legal infrastructure, shareholder activism, executive compensation, external auditing, and takeover markets (e.g., [3,10-14]). Taiwan firms' BoDs/ACs and Supervisors may not have the effects on firms' performance observed in

Western settings. This paper mainly focuses on exploring the effects of the Supervisors in Taiwan's existing system. In addition to considering BoD/AC and Supervisory Board attributes suggested by the extant literature, this study also explores potential impact attributes, as well as the effects of comparison of the periods before and after 2007, when the Taiwan authorities significantly expanded the responsibilities and authority of the BoD to establish AC to replace the existing system of the Supervisors.

The remainder of this article is organized as follows. Section 2 provides an overview of the literature on the performance impacts of internal governance structure. Section 3 discusses the institutional background for this study, in particular Taiwan's two-tier board system and Taiwan regulations with a bearing on internal governance mechanisms. Section 4 combines this institutional background with the extant—and predominantly Western based—literature to develop the hypothesis. Section 5 presents the research methods and results, and section 6 concludes the paper with a summary and discussion.

## **2. OVERVIEW OF PRIOR RESEARCH**

### **2.1 Attributes of the Supervisory Effects**

This topic has been extensively studied in many developed countries. Especially in the US, the Audit Committees (AC) plays the key role of internal supervisory structure. At present, there is still scant empirical evidence on the effects of internal corporate governance practices in Taiwan. In the U.S. the AC is a sub-committee of the BoD; and confines the definition mainly to the composition and the key responsibilities of ACs (See US Securities Exchange Act of 1934 #10 (m) (3); SOX Section 404, 2002). All definitions of the AC tend to emphasize two attributes of its composition, namely independence and financial expertise, as well as its responsibility or operations of activities.

A large number of studies have been done to explore the relationship between BoD /Audit Committees characteristics and firm performance. The board /Audit Committees characteristics most often tested include their composition, size, the intensity of activities, and inside ownership. Relating to board/Audit Committees composition, it is widely hypothesized that due to their

independence from firm management, outside/independent (i.e., non-employee) directors would be more effective than inside members in monitoring and controlling management [2,4,12,15-17] have argued that outside members have incentives to develop a reputation as experts in decision control and monitoring. However, this does not imply that inside directors have no value at all. For example, [16] has argued that insider directors contribute to monitoring functions by bringing expertise and knowledge to investment and financial decision making. [18] Found that professional accounting certification and AC experience are valued positively by the board of directors when designating an AC member as a financial expert. The literature also has suggested effects due to membership size of the board/ACs. It is held that increased size reduces the board's monitoring effectiveness because candid discussions of managerial performance and timely decisions making become more difficult [2]. Theorizes that as board/AC size increases, processes become more complex and coalitions develop, and their additional costs outweigh the benefit of having input by more directors. According to [19 and 20], the dysfunctional effects surfaces when board size goes beyond seven or eight members. The trend towards smaller board/AC sizes among prominent companies (such as General Motors, IBM, and Time Warner) provides support for this view [21]. Empirically, has reported an inverse relationship between the board sizes of large U.S. public corporations and firm value. The largest fraction of lost value occurs as boards grow from small to medium size (i.e., from six to twelve members). [22] Also found a negative correlation between board/AC size and firm profitability as measured by industry-adjusted return on assets. Other studies have focused on the intensity of board activity, commonly identifying this construct with the number of board/AC meetings. The reason for this focus is that meeting time is an important resource to improving a board's /AC's effectiveness [23] found that firms experience increased board activity following share price declines, which implies that board/AC meetings are viewed, at least by board members, as being beneficial to firm performance. It is further argued that the intensity of board/AC activity is positively related to the number of outside directors. Unlike the insiders who can exert control through daily involvement, outside directors rely mainly on board/AC meetings to monitor firm performance. The intensity of board/AC activities thus impacts firm performance [24]. [25] Found that the existence

of an AC, more frequent committee meetings are related to higher effects. [26] Found that the presence of a committee increased activity positively correlate with increased effects. The research issues associated with the AC's effects [26-33.] all highlighted the AC's characteristics of the independence, expertise and diligence in association with the effects of the AC [27,34-37].

As for the German system, the Supervisory Board plays the key role in the internal supervisory structure. According to the German regulations on CG, the SB (*Aufsichtsrat*) oversees and advises the BoD (Executive Board, *Vorstand*), and also has control over fundamental and important decisions. According to Paragraph 1 of Article 111 of the German Company Act (*Aktengesetz; AktG*), the SB has the right and responsibility to oversee (*überwachen*) the operations of the company (Chen, 2007: 154). The characteristic of the existing German system of CG indicates that the SB plays the role of overseeing the operations and finance of the company. In addition to the appointment and removal of directors, the most important right and responsibility of the SB is to oversee the operations of the directors [38]. [39] Used the characteristics of supervisory board to examine the relationship between corporate performance and supervisory board. He proves that the supervisory board of listed companies is effective. [40] Find that the types of the dominant shareholder, the size of the supervisory board, and the percentage of independent supervisors have an impact on the effects. [41] Reveal that China's corporate governance system implements both the American and the German style mechanisms, but the supervisory board, a typical feature of the German style governance is generally considered dysfunctional [39] also analyzed the characteristics of supervisory board in China to examine the relationship between corporate performance and supervisory board. He analyzed the size, number of meetings, members and remuneration as proxies of the supervisory board and found that there was a significantly negative relation between the number of meetings and corporate performance; a significantly positive relation between shareholdings of supervisors and performance; and a U curve relation between size and performance. Therefore, he concluded that the supervisory board of listed companies is effective in China. Thus, improvement of the supervisory board functions could have better corporate performance. [42] Used the independence, expertise and diligence such like the size and the

meeting times of the SB to examine the effectiveness of the supervisory functions and found that the SB could not be replaced by the AC in China.

In summary, the supervisory characteristics of independence, expertise and diligence (size and meeting times) of the SB and the AC in the western literature are the prerequisite and basis to exercise supervisory functions and viewed as the positive relationship with achieving effective oversight and supervisory characteristics which needs to be strengthened and protected. These findings indicate that corporate governance could be considered an effective internal tool to achieve greater supervisory effectiveness. It concludes that the better supervisory effects of CG will cause better corporate performance.

## 2.2 The Measurement on Firm Performance

To date, studies on the performance effects of board composition have yielded mixed results. For example, while [43] found a favorable stock price (SP) reaction to announced appointments of additional outside directors, [44] observed a negative relationship between the proportion of non-executive directors and the likelihood of fraud. Several other studies found no significant link between outside directors or board composition and firm performance, as measured by market-to-book value (MB), the price/earnings (SP/EPS) ratio, operating margin, return on assets (RoA), sales per employee, ratio of cash flows to assets, and ratio of cash flows to sales [3,4,45].

If the governance institutions can implement effective supervisory functions well, it will increase investors' trust in the company's CG and its operations because of increased earnings. The ultimate test of earnings quality is the earnings per share (EPS) and return on assets (ROA) which provides a measure of the extent to which new earnings information and the return rate [46-48] documented a positive association. [49 and 50] Suggested that earnings may also be managed to meet simple earnings expectations in the stock market. [51,52] suggested that investors' responses to an earnings surprise depend on the perceived quality and credibility of the earnings reported. The survey evidence in [53] indicated that reporting increases in quarterly earnings per share (EPS) is an important goal for management, and may be even more important than either beating analyst

forecasts or reporting profits. [19] Provided evidence that the management's first objective was to report positive earnings, then to increase quarterly earnings, and last to beat analyst forecasts. [54] Demonstrated that many more firms reported a longer series of consecutive increases in earnings per share than would be expected by chance. They interpreted this phenomenon as evidence of earnings management and provided the evidence that business managers had incentives to maintain their firms' earnings trends. The foregoing discussion illustrates that many studies have used an earnings-based measure as a proxy variable. According to Kim and Kross [39], he used EPS as a determinant to value a corporation; [39] support a positive relationship between stock market price (SP) and earnings (MB). Earnings per Share (EPS) measured as indexes to reflect the performance of a company [55,56].

In summary, prior studies have advanced reasons for firm performance (EPS, SP and MB) to be affected by board composition (independence and expertise) and diligence of size and intensity of activity. This literature, however, has not directly assessed whether these effects also would hold for the listed Taiwan companies operating within the Taiwan institutional context.

## 3. OVERVIEW OF TAIWAN REGULATIONS PERTAINING TO CORPORATE GOVERNANCE

In order to thoroughly implement the corporate governance system, the relevant agencies in Taiwan have promulgated the relevant laws and regulations. Taiwan Stock Exchange (STE) has set the mandatory provisions for regulating outside directors for the new publicly listed companies. On October 4, 2002, the Taiwan Stock Exchange and the Gre Tai Securities Market promulgated the Listed Corporate Governance Code of Practice. Earlier in 2001, they have amended the Companies Act to increase the obligations of directors and in 2002 also passed the Investor Protection Law. These measures were adopted with focus on synchronization with international corporate governance issues. In addition, on January 7, 2003, the Executive Yuan (the Cabinet) announced the approval of the composition of the "Ad Hoc Team for Reforming Corporate Governance." The task of the team was to

undertake reform based on the existing corporate governance system, and with reference to the direction of corporate governance reform both in the international and domestic context, with the aim to promote and establish a sound corporate governance mechanism in Taiwan. Unfortunately, the outbreak of the Procom scandal in June, 2004, compelled the government agencies to shift its focus by emphasizing more on corporate governance standards and principles. For this reason, the Financial Supervisory Commission has to take the issues of corporate governance more seriously and to strengthen internal controls. The Legislative Yuan in December 2005 passed the Securities Exchange Act and the relevant provisions for requiring all publicly listed companies to establish minimum standards of independent directors and supervisors. To strengthen corporate governance, the Legislative Yuan passed the amended articles of the Securities Exchange Act on December 30, 2005 which was promulgated by the President, and became effective as of January 1, 2007. The passing of the amended Act ushered in establishment of the Audit Committee as well as the adoption of the one-tier system of corporate governance model in Taiwan. According to Section 14-4-1 of the existing Securities and Exchange Act, companies which have issued stocks are required to set up either an Audit Committee or Supervisors. The setting up of an Audit Committee or Supervisors is to be decided by the size of the company, the nature of business, the scope of authority and other necessary conditions wanting to establish an audit committee instead of supervisors. Implementing approach will be made by the authority. The Financial Supervisory Commission regulates the monitoring setting. This model of corporate governance provides for the co-existence of the one-tier and the two-tier systems in Taiwan.

The World Bank announced the corporate governance enforcement framework in 1999 for corporate governance that reflects an interplay between internal incentives (which define the relationship among the key players in the corporation) and external forces (notably policy, legal, regulatory and market) that together govern the behavior and performance of the firm. The board of directors is responsible for approving the company's strategy and major decisions and for hiring, monitoring and replacing management. The Audit Committee is established in the board has fiduciary

responsibility for ensuring compliance with laws and regulations, including accounting and financial reporting requirements. In Taiwan, the existing monitoring role of the Supervisors has the same responsibility as the later introduced Audit Committees in 2007. The legal amendment triggered considerable debates on issues as to whether reserving the supervisory mechanism and strengthening the supervisors' monitoring power is desirable without replacing the Audit Committee, whether the setting up of the Audit Committee would strengthen corporate governance and whether it was desirable to let the companies decide for themselves the best way for establishing corporate governance. However, no consensus was reached amidst the arguments. By the end of 2013, Table 1 illustrates less than 17 percent of Taiwan listed companies had set up audit committee. This low percentage of willingness to establish the ACs has raised a question as to whether the existing system of the Supervisor is effective to make the performance of the companies operate better than those companies with the ACs. This particular issue serves as the motivations of this study.

*Question: What are the effects of the Supervisors on the firm performance in Taiwan?*

The Supervisors have been adopted in Taiwan from German system of Supervisory Board for quite some time. A company's Supervisors require at least two members. The duration of a supervisor's term is three years. Supervisors hold stock in the company but they do not serve as directors, managers, or staff in the company. Instead, supervisors monitor directors and managers and evaluate the management performance of the company. In Germany, the corporate board system is two-tiered. There is the supervisory board, which is the board of non-executive directors, and there is the management board, which consists of the executive directors and is chaired by the CEO. It is the management board that determines the strategic direction of the firm. The German supervisory board on the other hand, oversees the management board, approves or rejects its decisions, and appoints or removes its members and decides their salaries. Gorton and Schmid [57] find that under the German corporate governance system of codetermination, employees are legally allocated control rights over corporate assets through seats on the supervisory board—that is, the board of nonexecutive directors. Taiwan publicly listed

companies only have Supervisors, without forming the Supervisory Board as Germany. Table 2 illustrates Taiwan Supervisors and German Supervisory Board with their prerogative powers, indicating that the powers of Supervisors in Taiwan are less than the powers of German Supervisory Board. By referencing to the forerunner, the German Supervisory Board especially has the powers of approving or rejecting management board's decisions, and appointing or removing its members and deciding their salaries. This may impact to the effects of the Supervisors on the firm's performance in Taiwan.

#### 4. HYPOTHESES DEVELOPMENT

Given the similarities between the responsibilities and authority accorded to Taiwan firms' internal governance mechanisms and their Western counterparts, it is not unreasonable to expect that they would have similar performance effects. Monitoring by the Supervisors should augment direct oversight over management could have additional effects of its own. Such expectations, however, must be tempered by considering the broader context in which Taiwan firms' Supervisors operate. Two characteristics of listed Taiwan firms are particularly relevant in this regard. First, most of these firms had been carved out from shares are held by the Supervisors, these shares can be traded on Taiwan's exchange, and they can be sold to other legal entities or individuals. In Taiwan, there is the prevalence of family-owned business. Thus, it is common for those Taiwan listed firms which are predominately owned by the family. This in turn may contain the representative of the family members as the firm's Supervisors and may have impact on the functioning and efficiency of the Supervisors. Taken together, the holding shares and the dominance of family ownership suggest that motivation of the Supervisors holding and pledging shares of the Taiwan firms to increase performance. In addition, raising the company's profitability would be one of the objectives they like to pursue when compared with a company which is not predominately owned by the family willingly establishing ACs. The incentives of Supervisors' members to increase firm performance may be further reduced by the lack of rewards for establishing reputations as effective shareholder representatives, given that Taiwan's market for the services of the Supervisor's members is still

in an early stage of development. This is not to suggest that family owners' representatives would have no effect. Such owners do reap personal gains from firm ownership and as such, they are likely to desire improved firm performance. Since influencing the selection and actions of the Supervisors' members takes resources, larger family shareholders are more capable of such undertakings. Thus, the emphasis on firm performance increases with the concentration of family ownership representative as the Supervisors with shares holding, pledging and receiving remuneration. This line of reasoning is consistent with [3] and who suggested that legal person shareholdings in China positively affect firm performance. In sum, Taiwan firms' Supervisors have the potential to affect performance in a manner similar to that observed in the China, U.S. and other developed economies.

Meanwhile, the Taiwan Stock Exchange Corporation Rules Governing Review of Securities Listings provides that: "independent directors and independent supervisors must at least have one person with accounting or finance expertise respectively." How to define the degree of the accounting or finance expertise? This is still a controversial issue even in the western literature. In practice, the objective standards for selecting the qualified Supervisors often go through three channels in practice by lecture, certificate and experience: (1) Lecturer qualification for public and private universities of business, legal, financial, accounting or related company business; (2) Professional and technical staff who have certificate of national examination, such as judges, prosecutors, lawyers and accountants; (3) More than five years of work experience required for financial, legal, accounting or business. However, selected features of the Taiwan setting may negate or moderate these effects at the same time that additional variables may come into play. Empirical evidence on these relationships can be informative to both Taiwan policymakers and investors in Taiwan companies, yet it is lacking in the extant literature. The findings of this exploratory study can help to reduce this void. To provide focus and a reference point for this undertaking, it is specified the following hypothesis based largely on the extant (western) literature reviewed earlier, and supplement these with variables that are relatively unique to the Taiwan setting.

**Table 1. Taiwan's listed companies introducing ACs between 2007 and 2013**  
(Source: Author, as supported by the TEJ database)

Year	2007	2008	2009	2010	2011	2012	2013
No. of Co.	658	686	719	756	801	822	854
Increase in No. of Co.		28	33	37	45	21	32
Increase in % of Co.		4.26%	4.81%	5.15%	5.95%	2.62%	3.89%
No. of Co. with AC	11	22	27	48	73	108	140
Increase in No. of Co. with AC		11	5	21	25	35	32
% of Co. with AC	1.67%	3.21%	3.76%	6.35%	9.11%	13.14%	16.39%

**Table 2. Comparison of the power of the supervisory board in Germany and the supervisors in Taiwan**

The "Supervisory Board" adopted in Germany	The "Supervisors" adopted only in Taiwan
Liability for compensation. <sup>1</sup>	The rights of debrief.
The power of convening shareholders' meeting.	To make a claim of dismissal liquidator
The right on behalf of the corporation.	The right of investigation the establishment of company and report
The supervisory authority with business and finance. (The power of approving or rejecting the management board's decisions)	When companies issue new shares, the right to exam issuance of capital stock for noncash assets. <sup>2</sup>
The power of appointing the management board members and deciding their salaries	No equivalent power

1. When Supervisors or Supervisory Board carry out their duties, if they violate the law, the Articles of Association or neglect of duties leading that damage of the company, they have the responsibility for compensation.

2. When the company issues new shares with issuance of capital stock for noncash assets, Supervisors or Supervisory Board should check the prices or valuation standards to see whether if they are equivalent with shares which company gives

H1: Performance is higher for listed Taiwan firms with Supervisors that have lower share ownership, higher proportions of independent members, lower pledge ratio of shareholding, lower proportion of receiving remunerations, more expertise with lecture, more expertise with certificate and more expertise with business experience, more frequent meetings and more members.

In considering this hypothesis, it is important to recall the caveat that given the current state of Taiwan regulations and institutions, it is unlikely that all of the factors found to be significant in Western settings would be operational in Taiwan firms. This hypothesis include a wide range of such factors because extant theory is not yet sufficiently developed for specifying which particular variables and relationships would hold in the case of Taiwan. As such, beyond being informative to policymakers and investors, the findings of this exploratory undertaking could aid to the development of more comprehensive theories capable of making such predictions. It also is worthy of note that with the 2007 Code substantially expanding the BoD's powers by establishing ACs to replace the Supervisors, this

study expects Taiwan firms' governance structure to have more pronounced effects subsequent to the Code. The test of this hypothesis includes a pre- and post-Code comparison to shed light on the efficacy of the Taiwan regulatory initiatives.

## 5. METHODOLOGY

### 5.1 Sample Selection

To exercise some control over extraneous factors, the sample was selected' from listed Taiwan companies under the General Industry classification. Thus, companies belonging to, for example, the finance industry were excluded. At the time of data analysis, complete data for fiscal 2012 were not yet available, so this study focused on 2006 through 2011. Additional sample is generated by those listed companies which started to establish ACs since 2003: 76 companies in total. The additional test sample is defined as a vertical evaluation for two stages/groups are from the same sample size, identified by chronology. Stage 1/Group 1 is identified with Supervisors only (without ACs) before setting up ACs from 2003 to 2006; Stage 2/Group 2 is marked with ACs after setting up

ACs from 2007 to 2011. The numbers of General Industry listed companies in these five years since 2007 to 2011 are 658, 686, 719, 756, and 801, respectively.

Firms were selected from this set based on the following criteria:

- (1). Annual earnings, book value, debts and share information are available on the Taiwan Stock Market and Accounting Research financial statement database;
- (2). Initial sample consists of publicly listed companies with the Supervisors in Taiwan obtained from the Taiwan Economic Journal (TEJ).
- (3). Total assets are non-negative; and
- (4). The numbers of Supervisors' meetings, Supervisors' expertise with lecture, certificate and business experience, Supervisors' size and composition are available in the annual reports.
- (5). Missing data and omits values are also excluded.

This selection process yielded a total of 537 listed companies and the additional test with 76 listed companies both of Group 1 (before establishing ACs) and Group 2 (after establishing ACs) for the Taiwan stock exchanges. To control for the effects of extreme values, this study removed observations that are (1) In the top and bottom one-half percent of book value-to-market value, (2) In the top one-half percent of firms with the most extreme values of one-time items as a percent of income, and (3) Identified as extreme outliers in the regression. More details about characteristics of the sample are reported along with the hypothesis testing results.

## 5.2 Hypotheses Tests

H1 was tested with a multiple regression which included four control variables. Size (SIZE) was included because larger companies generally enjoy economies of scale [3,58] though agency costs also may increase with firm size [3,59]. Leverage (LEVERAGE) was included because higher proportions of debt in the capital structure may reduce the cash flow available for discretionary use by management, thereby reducing the chances of managerial inefficiency [3,60,61] However, the increased burden of fixed interest payments also may hamper performance, while increasing the incentives for accounting

manipulations to satisfy debt covenants. Two proxies for growth (GROWTH) and return on asset (RoA) were included because companies with higher growth trend and higher return rate to have higher market valuation [62,3,42]. Following these earlier studies, since the data were pooled over a five year period, this paper tested in the regression coefficients for the following

Effects (Independence, Expertise, and Diligence on EPS, SP and MB)

$$\text{Effectiveness} = \beta_0 + \beta_1 \text{SSR} + \beta_2 \text{ISR} + \beta_3 \text{PR} + \beta_4 \text{RR} + \beta_5 \text{LR} + \beta_6 \text{CR} + \beta_7 \text{ER} + \beta_8 \text{Ln}(\text{SS}) + \beta_9 \text{MT} + \beta_{10} \text{Ln}(\text{Assets}) + \beta_{11} \text{GR} + \beta_{12} \text{ROA} + \beta_{13} \text{DR} \quad (1)$$

Three dependent variables are used as performance measures are based on an extensive prior literature: The market to book value of per share [3,63-65]; the stock price [46,48] and the earning per share [46]. Table 3 presents "Definitions of Variables and Expected Sign".

Table 4 shows descriptive statistics for the variables used in hypothesis testing. The sample firms have an average ratio of EPS, SP, and MB is TWD 1.62, 28.41, and 1.51. The standard deviation of EPS, SP, and MB are 2.70, 28.31, and 1.07. (US\$1=TWD 29.9, approximately.)

Relating to the independent variables,

- Independence: The standard deviation of SSR, ISR, PR, and RR are 0.0724, 0.1381, 0.1922, and 0.2452. The mean of SSR, ISR, PR, and RR are 0.0425, 0.0487, 0.1159, and 0.006. Maximum of SSR, ISR, PR, and RR are 0.7882, 1, 0.9854, and 0.696. Minimum of SSR, ISR, PR, and RR are the same, 0.
- Expertise: The mean of LR, CR, and ER are 0.0592, 0.0736, and 0.9391. The standard deviation of LR, CR, and ER are 0.1518, 0.1544, and 0.1608. Maximum of LR, CR, and ER are 1, 0.5, and 1. Minimum of LR, CR, and ER are 0.
- Diligence: Given that the mean of SS and MAR are 0.924 and 0.6861. The standard deviation of SS and MAR are 0.2468 and 0.2743. Maximum of SS and MAR are 1.9459 and 1. Minimum of SS and MTR are the same, 0.



**Table 3. Definitions of Variables and Expected Sign**

Variables	Definitions	Expected sign
Earnings Per Share (EPS)	(Net Income-Dividends on Preferred Stock)/Average Outstanding Shares	
Stock Price (SP)	Average share price in the fiscal year.	
MB ratio (MB)	Market price per share/ Book value per share	
Supervisors shareholding Ratio (SSR)	The shareholdings by the supervisors/ Total shareholding	-
Independent supervisors ratio (ISR)	The number of independent supervisors/ Total supervisors	+
Pledge ratio of directors and supervisors shareholding (PR)	The pledge shares of directors and supervisors/ Total shareholdings of directors and supervisors.	-
The ratio of receiving remunerations by supervisors of net income (RR)	Receiving remunerations by supervisors / Net income.	-
Lecturer ratio (Exp-1)	Number of supervisors with lecturer/ Total number of supervisors	+
Certificate ratio (Exp-2)	Number of supervisors with certificate/ Total number of supervisors	+
Experience ratio (Exp-3)	Number of supervisors with related business experience/ Total number of supervisors	
Size of supervisors (SS)	Ln (Total number of supervisors)	+
The ratio of number of meeting for board of director which supervisors attended (MAR)	The average meeting times for board of director which supervisors attended / Total meeting times for board of director.	+
Firm size	Ln (Asset): The natural logarithm of the assets as the proxy variable of firm size	+
Growth rate (GR)	(Total asset (t)-Total asset (t-1))/ Total asset(t-1)	+
ROA	Net income/ Average total assets	+
Debt ratio (DR)	Total liability/ Total assets	-

**Table 4. Descriptive Statistics**

Variable	Mean	Std. deviation	Minimum	Maximum
EPS	1.6201	2.7016	-10.7200	21.6800
SP	28.4103	28.3101	2.4800	268.2600
MB	1.5106	1.0681	0.2270	22.7857
SSR	0.0425	0.0724	0.0000	0.7882
ISR	0.0487	0.1381	0.0000	1.0000
PR	0.1159	0.1922	0.0000	0.9854
RR	0.0060	0.2452	0.0000	0.6960
LR	0.0592	0.1518	0.0000	1.0000
CR	0.0736	0.1544	0.0000	0.5000
ER	0.9391	0.1608	0.0000	1.0000
SS	0.9240	0.2468	0.0000	1.9459
MAR	0.6861	0.2743	0.0000	1.0000
Firm size	6.9380	0.5744	5.0811	9.2381
GR	0.0613	0.2103	-0.7837	2.4194
ROA	4.7424	6.9620	-21.4100	27.8900
DR	0.4325	0.1791	0.0127	0.9913

The mean percentage of Independent supervisors' ratio is 4.9% and the mean percentage of Supervisors shareholding Ratio is 4.3%; the mean percentage of pledge ratio of directors and supervisors shareholding is 11.6%; and the mean percentage of receiving remunerations by supervisors over net income is

0.6%. For mean of ER, shows that more than 90% of supervisors have relevant business experience. With respect to ER, LR and CR are relatively low of the mean. During the sample period, the mean of the natural logarithm of total number of supervisors is 0.92. On average, the Supervisors attended 68.6% meeting times of board of director per year. These characteristics of the BoD and Supervisors suggest that in many of the firms, they do have the potential to play an active role in overseeing management.

Table 5 presents the correlations among the variables, with Pearson correlations under the diagonal and Spearman correlations above the diagonal. Many of the correlations are significant at the  $p=.05$  level and most are small in absolute value with significance.

Table 6 reports the regression results. Log transformations were performed on Size of supervisors (Ss) and assets (firm size) to allow for non-linear relationships. The variance inflation factor (VIF) was within acceptable levels, consistent with limited, if any, multicollinearity problems.

**Table 5. Pearson Correlations with variables**

	EPS	SP	MB	SSR	ISR	PR	RR	LR	CR	ER	SS	MAR	FS	GR	ROA	DR
EPS	1	.728**	.346**	.014	.187**	-.082**	-.042*	.096**	.080**	.006	.110**	.013	.224**	.364**	.009	-.006
SP	.728**	1	.643**	.002	.226**	-.113**	-.046*	.186**	.065**	-.044*	.152**	.014	.251**	.245**	.017	-.020
MB	.346**	.643**	1	.017	.138**	-.092**	-.049*	.111**	.042*	-.036	.114**	-.007	.009	.120**	-.008	-.020
SSR	.014	.002	.017	1	.034	-.035	-.004	-.016	.004	.017	.040*	-.027	-.015	-.012	-.008	-.034
ISR	.187**	.226**	.138**	.034	1	-.074**	.014	.131**	.058**	-.059**	.166**	-.036	-.017	.056**	.056**	-.046*
PR	-.082**	-.113**	-.092**	-.035	-.074**	1	.010	-.083**	-.022	.037	-.007	-.032	.125**	-.041*	.041*	-.044*
RR	-.042*	-.046*	-.049*	-.004	.014	.010	1	.042*	.010	.020	.064**	.028	-.084**	.009	.024	-.011
LR	.096**	.186**	.111**	-.016	.131**	-.083**	.042*	1	.154**	-.061**	.081**	.038*	.048*	.022	.010	-.034
CR	.080**	.065**	.042*	.004	.058**	-.022	.010	.154**	1	-.053**	.046*	.086**	.005	.004	-.042*	.020
ER	.006	-.044*	-.036	.017	.059**	.037	.020	-.061**	-.053**	1	-.090**	.036	.017	-.008	.053**	.003
SS	.110**	.152**	.114**	.040*	.166**	-.007	.064**	.081**	.046*	-.090**	1	.014	.023	.029	.055**	-.052**
MAR	.013	.014	-.007	-.027	-.036	-.032	.028	.038*	.086**	.036	.014	1	.093**	-.007	.008	.016
FS	.224**	.251**	.009	-.015	-.017	.125**	-.084**	.048*	.005	.017	0.023	0.093**	1	0.140**	-0.044*	-0.035
GR	.364**	.245**	.120**	-.12	.056**	-.041*	.009	.022	0.004	-0.008	0.029	-0.007	0.140**	1	0.019	0.007
ROA	.009	.017	-.008	-.008	.056**	.041*	.024	.010	-0.042*	0.053**	0.055**	0.008	-0.044*	0.019	1	-0.275**
DR	-.006	-.020	-.020	-.034	-.046*	-.044*	-.011	-.034	0.020	0.003	-0.052**	0.016	-0.035	0.007	-0.275**	1

1. \*\*\*, \*\*, and \* denoted significance at the 1%, 5% and 10% levels, 2. This table presents correlations among selected variables

Table 6. Phase I: The results of the empirical model I (Sample 1)

Dep.: EPS, SP, MB		(1) EPS	(2) SP	(3) MB
		Coef. T-stat.	Coef. T-stat.	Coef. T-stat.
C	Predicted sign	-5.946*** (-8.865)	-61.488*** (-8.686)	1.333*** (4.598)
SSR	+	0.385 (0.602)	-1.443 (-0.214)	0.138 (0.500)
ISR	+	2.892*** (8.431)	35.913*** (9.919)	0.775*** (5.226)
PR	-	-1.065*** (-4.364)	-16.082*** (-6.241)	-0.390*** (-3.691)
RR	-	-4.256** (-2.249)	-48.421** (-2.425)	-2.614*** (-3.195)
LR	+	0.780** (2.499)	23.830*** (7.239)	0.573*** (4.252)
CR	+	1.045*** (3.440)	5.006 (1.561)	0.122 (0.930)
ER	+	0.495* (1.710)	-2.287 (-0.749)	-0.069 (-0.554)
SS (Ln)	+	0.761*** (3.982)	11.512*** (5.707)	0.388*** (4.699)
MTR	+	-0.064 (-0.379)	-1.114 (-0.621)	-0.030 (-0.404)
Firm size (Ln)	+	0.865*** (10.441)	11.353*** (12.990)	-0.013 (-0.368)
GR	+	4.168*** (18.774)	25.970*** (11.082)	0.556*** (5.788)
ROA	+	0.002 (0.324)	0.063 (0.862)	-0.003 (-1.092)
DR	+/-	0.107 (0.398)	0.472 (0.166)	-0.112 (-0.969)
	$R^2$	0.212	0.200	0.057
	Adj. $R^2$	0.208	0.197	0.053

\*\*\*, \*\*, and \* denoted significance at the 1%, 5%, and 10% levels in p-values.

Ordinary least squares coefficients and t-statistics are shown. The dependent variables are earnings per share (EPS), stock price (SP) and market to book ratio (MB). C is the intercept, SSR is supervisors shareholding ratio, ISR is independent supervisors ratio, PR is pledge ratio by directors and supervisors shareholding, RR is the ratio of receiving remunerations by supervisors of net income, Exp-1 is lecturer ratio, Exp-2 is certificate ratio, Exp-3 is experience ratio, SS is the size of supervisors, MAR is the ratio of number of meeting which supervisors attend, Firm Size is Ln (assets), GR is growth rate of the firm, ROA is return of assets, DR is debt ratio

Table 6 shows that two of four control variables are significantly related to firm performance: Firm size (positive), growth rate (positive). By and large, the directions of these relationships are consistent with prior findings from western settings. More important, 7 of the 9 coefficients for the EPS; 5 of the 9 for the SP and MB variables are statistically significant. All of these are consistent with our expectation of how governance structure may affect firm performance: The proportion of independent supervisors (positive), the proportion of the pledge shares of directors and supervisors (Negative), the proportion of receiving remunerations by supervisors over net income

(Negative), Expertise with lecture, certificate and business experience on EPS (Positive) and with lecture on SP and MB (positive); Size of supervisors on EPS, SP and MB all (positive) associated with higher firm performance.

## 6. SUMMARY AND DISCUSSION

The findings based on 537 listed companies from 2006 to 2011 indicate that Taiwan internal governance structure—Supervisors—have some effects on firm performance. While only two of the governance attributes –The percentage of shareholdings by the Supervisors and the Supervisors' meeting times- suggested by prior

research in western settings were not significant, the others of the effects were directionally consistent with predictions based on this literature. In the case of firm performance, independent supervisors, expertise with certificate, lecture and business experience and more members of supervisors had the expected positive effects; and both the pledge ratio of directors and supervisors' shareholding and the percentage of receiving remunerations by supervisors had the predicted negative effects. These findings imply that more independent supervisors, less pledges of shareholding and remuneration which the Supervisors have, the more supervisors with the expertise as lecturers, certificate and experience; the more members of the Supervisors, the more it will lead to greater effects of the Supervisor's functions on the firm's performance to prove the hypothesis.

At the same time, however, the findings strongly caution against the indiscriminate application of theories and expectations based on western settings. Support for this caveat comes from two aspects of the findings. First is the lack of effects from variables that had been found to be significant in other settings, such as the Supervisors' shareholding ratio and the Supervisors' meeting times on EPS, MB and SP respectively. This may be due to the fact that companies in Taiwan do not establish supervisory board and their supervisors only attend meeting of the board of directors. Consequently, this has resulted in no significant effects of the frequency of the Supervisors' meetings on the firm's performance. In the case of the Supervisors' shareholding ratio, it may be due to the fact that in Taiwan, there is the prevalence of family-owned business. Future researchers may consider the family-owned business factor for testing the effectiveness of supervisory functions. Second, Taiwan firms' two expertise attributes of certificate and business experience are lack of effects on SP and MB from expectations. Findings like these suggest that, while theories and findings from western settings do provide a useful point of departure for understanding corporate governance relationships and effects in Taiwan, they are far from adequate for unearthing the complexities and intricacies of this phenomenon. For example, can it be that the different degree of expertise of the percentage of the Supervisors' members with firm performance – certificate, business experience (non-significant on SP and MB) and lecture (with-significant on EPS, SP and MB) reflect different degrees of the Supervisors'

effectiveness in monitoring the aspects of firm operations? Or is this a reflection of Taiwan investors' emphasis on the effects of supervisory mechanism? Questions like these relate to the "hows" and "whys" behind phenomena and addressing them will require going beyond examining cross sectional differences in effects. However, these findings present the Supervisors' contributions in improving the characteristics of supervisory functions in addition to the defined attributes of the literature and regulations but also input two independent variables of expertise with "Lecturer" and "Certificate" which may contribute to future research on the similar studies. As such, there is room for other modes of investigation, such as in-depth interviews, field studies/direct observation, and detailed analyses of archival records [3]. Such undertakings are made even more worthwhile because as Taiwan increasingly seeks integration into the global economy and capital market, it can be expected to continue the promulgation of regulations on governance, disclosure and their enforcement. Without an accurate picture of the relationships and effects, such policy initiatives risk generating substantial costs without accomplishing their objectives [3].

In summary, except for these attributes without significant effects, the other results consistently present the effects of the Supervisors and lead the firms to have better performance. On the basis of the finding in this study, the Audit Committee is neither persuasive nor convincing to replace the supervisory system of the Supervisors in Taiwan. Since almost 85% of the listed companies in Taiwan have maintained the Supervisors' system, and according to the comparison of the Supervisors' powers between Germany and Taiwan (Table 2), the results may provide a consideration or suggestion for the government to further strengthen the Supervisors' power in order to intensify the effects of the corporate governance in Taiwan. The findings reported in this paper, and related comments on the interpretation of those findings and suggestions may be of assistance to users such as regulators, supervisors or Boards of Directors in considering what governance structures for internal supervisory functions within companies will be more effective, and the ways to improve the effective supervisory functions.

## 7. CONCLUSION

This study examines the effects of supervisory mechanism in Taiwan with the sample period

from 2006 to 2011 by using EPS, stock price and MB ratio in three perspectives: Independence, expertise and diligence. The multiple regressions conclude empirical results as the following:

- Independence
- SSR is insignificant, ISR is positive significantly, PR and RR are negative significantly with EPS, SP, and MB. Given that more independent supervisors in the company will lead to more effects of supervisory functions. The results also show that more directors and supervisors who receive remunerations would lead to lower effects of supervisory monitoring.
- Expertise
- Exp-1 is positive significantly with EPS, SP and MB. Exp-2 and Exp-3 are only positive significantly with EPS but are insignificant with SP and MB. Given that more supervisors of lecturer, certificate, and experience would strengthen the effects of supervisory functions.
- Diligence
- Supervisor's size is positive significant with EPS, SP and MB. However, MAR is insignificant with three dependent variables. The result shows that companies do not have supervisory board in Taiwan. Their supervisors only attend the board of director. It would lead to lower effects of supervisory functions.

The research results may suggest future researchers to consider the family business factor of the effects of supervisory functions and compare the effects of Supervisors and Audit Committees for there is the prevalence of family business and over 15% listed companies have established Audit Committees in Taiwan in the end of 2013. Meanwhile, Supervisors do not participate in the decision making of the company's management in Taiwan. They also do not have their own organization as the Supervisory Board. It may suggest that government could strengthen the Supervisors' power to intensify corporate governance.

### COMPETING INTERESTS

Author has declared that no competing interests exist.

### REFERENCES

1. Sloan RG. Financial accounting and corporate governance: A discussion.

2. Fama E, Jensen M. Separation of ownership and control. *Journal of Law and Economics*. 1983;26(2):301-325.
3. Cho S, Rui OM. Exploring the Effects of China's Two-Tier Board System and Ownership Structure on Firm Performance and Earnings Informativeness. *Asia-Pacific Journal of Accounting and Economics*; 2009.  
Available:[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1111424](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1111424).
4. Hermalin BE, Weisbach MS. The effects of board composition and direct incentives on firm performance. *Financial Management*. 1991;Winter:101-112.
5. Vafeas N. Board meeting frequency and firm performance. *Journal of Financial Economic*. 1999;53:113-142.
6. Klein A. Audit committee, board of director characteristics, and earnings management. *Journal of accounting and Economics*. 2002;33(3):375-400.
7. Klein A. Economic determinants of audit committee independence. *The Accounting Review*. 2002;77(2):435-452.
8. Bédard J, Chtourou SM, Courteau L. The effect of audit committee expertise, independence, and activity on aggressive earnings management. *Auditing: A Journal of Practice & Theory*. 2004;23(2):13-35.
9. Srinivasan S. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research*. 2005;43(2):291-334.
10. Karpoff J, Malatesta P, Walking R. Corporate governance and shareholder initiatives: Empirical evidence. *Journal of Financial Economic*. 1996;42(3):365-395.
11. Sundaramurthy C, Mahoney J. Board structure, anti-takeover provisions, and stockholder wealth. *Strategic Management Journal*. 1997;18(3):231-245.
12. MacAvoy P, Millstein IM. The active board of directors and its effect on the performance of the large publicly traded corporation. *Journal of Applied Corporate Finance*. 1999;11(4):8-20.
13. Allen F, Gale D. Comparing financial system, Cambridge, MA, MIT Press; 2001
14. La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny R. Investor protection and

- corporate valuation. *Journal of Finance*. 2002;57:1147-1170.
15. Mehran H. Executive compensation structure, ownership and firm performance. *Journal of Financial Economics*. 1995;38(2):163-184.
  16. Klein A. Firm performance and board committee structure. *Journal of Law and Economic*. 1998;41:275 - 299.
  17. Bhagat S, Black B. The uncertain relationship between board composition and firm performance. *Business Lawyers*. 1999;54:921-946.
  18. Iyer VM, Bamber EM, Griffin J. Characteristics of audit committee financial experts: Et al. Characteristics of audit committee financial experts: An empirical study. *Managerial Auditing Journal* 2013;28(1):65-78.
  19. Lipton M, Lorsch JW. A modest proposal for improved corporate governance. *Business Lawye*. 1992;48(1): 59-77.
  20. Jensen M. The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance*. 1993;48(3):831-880.
  21. Monks RAG, Minow N. *Corporate Governance*. Cambridge, UK, Basil Blackwell; 1995.
  22. Eisenberg T, Sundgren S, Wells MT. Larger board size and decreasing firm value in small firms. *Journal of Financial Economics*. 1998;48:35-54.
  23. Conger J, Shivdasani A, Zenner M. Appraising boardroom performance. *Harvard Business Review*. 1998;76:136-148.
  24. Shivdasani A, Yermack D. CEO involvement in the selection of new board members: An empirical analysis. *Journal of Finance*. 1999;54:1829-54.
  25. Goodwin SJ, Kent P. Relation between external audit fees, audit committee characteristics and internal audit. *Accounting & Finance*. 2006;46(3):387-404.
  26. Chien WW, Mayer RW, Sennetti JT. Audit committee effects in the largest US public hospitals: An empirical study. *Accounting & Taxation*. 2010;2(1):107-127.
  27. He L, Labelle R, Piot C, Thornton DB. Board monitoring, audit committee effectiveness, and financial reporting quality: Review and synthesis of empirical evidence. *Journal of Forensic & Investigative Accounting*. 2009;1(2).
  28. Carcello JV, Neal TL, Palmrose ZV, Scholz S. CEO Involvement in Selecting Board Members, Audit Committee Effectiveness, and Restatements. *Contemporary Accounting Research*. 2011;28(2):396-430.
  29. Ika SR, Ghazali NAM. Audit committee effects and timeliness of reporting: Indonesian evidence. *Managerial Auditing Journal*. 2012;27(4):403-424.
  30. Carcello J, Hollingsworth C, Klein A, Neal T. Audit committee financial expertise, competing corporate governance mechanisms and earnings management. *Competing Corporate Governance Mechanisms and Earnings Management*; 2006.
  31. Rahman RA, Ali FHM. Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal*. 2006;21(7):783-804.
  32. Ghosh A, Marra A, Moon D. Corporate Boards, Audit Committees, and Earnings Management: Pre-and Post-SOX Evidence. *Journal of Business Finance & Accounting*. 2010;37(9-10):1145-1176.
  33. Chandrasegaram R, Rahimansa MR, Rahman SKA, Abdullah S, Mat NN. Impact of audit committee characteristics on earnings management in malaysian public listed companies. *International Journal of Finance and Accounting*. 2013;2(2):114-119.
  34. Zhang Y, Zhou J, Zhou N. Audit committee quality, auditor independence, and internal control weaknesses. *Journal of accounting and public policy*. 2007;26(3):300-327.
  35. Al-Najjar B. The determinants of audit committee independence and activity: Evidence from the UK. *International Journal of Auditing*. 2011;15(2):191-203.
  36. Cohen JR, Gaynor LM, Krishnamoorthy G, Wright AM. The impact on auditor judgments of CEO influence on audit committee independence. *Auditing: A Journal of Practice & Theory*. 2011;30(4):129-147.
  37. Sarkar J, Sarkar S. Auditor and audit committee independence in India. This paper is produced as part of financial sector regulatory reforms project; 2012.

- Available:<http://oii.igidr.ac.in:8080/jspui/bitstream/2275/124/1/WP-2010-020.pdf>
38. Yang MH. Enterprises and Law – The Research of Supervisory System of Corporate Governance (Research Supervisors corporate governance system - Business and Law). Taipei: Chung-Hwa Corporate Governance Association (China Corporate Governance Association Corp); 2004.
  39. Qin B. The Influence of Audit Committee Financial Expertise on Earnings Quality: U.S. Evidence. The ICFAI Journal of Audit Practice. 2007;4(3):8-28. [online] Available at:SSRN: <http://ssrn.com/abstract=799645>.
  40. Firth M, Fung PM, Rui OM. Ownership, two-tier board structure and the informativeness of earnings—Evidence from China. Journal of Accounting and Public Policy. 2007;26(4): 463-496.
  41. Ding S, Wu Z, Li Y, Jia C. Executive compensation, supervisory board and China's governance reform: A legal approach perspective. Review of Quantitative Finance and Accounting. 2010;35(4):445-471.
  42. Lee PC. The establishment of audit committees in China and Taiwan: A comparative study. LAMBERT Academic Publishing; 2014.
  43. Rosenstein S, Wyatt JG. Outside directors, board independence, and shareholder wealth. Journal of Financial Economics. 1990;26:175-191.
  44. Beasley MS. An empirical analysis of the relation between the board of director composition and financial statement fraud. The Accounting Review. 1996;71(4):443-465.
  45. Agrawal A, Knoeber CR. Firm performance and mechanisms to control agency problems between managers and shareholders. Journal of financial and quantitative analysis. 1996;31(03):377-397.
  46. Kim M, Kross W. The ability of earnings to predict future operating cash flows has been increasing—not decreasing. Journal of Accounting Research. 2005;43(5):753-780.
  47. Ryan SG, Zarowin PA. Why has the contemporaneous linear returns earnings relation declined? The Accounting Review. 2003;78(2):523-553.
  48. Holthausen R, Verrecchia R. The Effect of Sequential Information Releases on the Variance of Price Changes in an Inter-temporal Multi-asset Market. Journal of Accounting Research. 1988;26(1):82-106.
  49. Burgstahler D, Eames M. Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises. Working paper, University of Washington; 2002.
  50. Abarbanell J, Lehavy R. Can Stock Recommendations Predict Earnings Management and Analysts' Earnings Forecast Error? Journal of Accounting Research. 2003;41:1-31.
  51. Teoh SH, Wong TJ. Perceived auditor quality and the earnings response coefficient. The Accounting Review. 1993;68(2):346-366.
  52. Balsam S, Krishnan J, Yang JS. Auditor industry specialization and earnings quality. Auditing: A Journal of Practice & Theory. 2003;22(2):71-97.
  53. Graham JR, Harvey CR, Rajgopal S. The economic implications of corporate financial reporting. Journal of Accounting and Economics; 2005.
  54. Myers JN, Myers LA, Skinner DJ. Earnings momentum and earnings Management. Working paper. University of Michigan; 2005.
  55. Rechner PL, Dalton DR. CEO duality and organizational performance: A longitudinal analysis. Strategic Management Journal. 1991;12(2):155–160.
  56. Yermack D. Higher market valuation of companies with a small board of directors. Journal of Financial Economics. 1996;40:185-211.
  57. Gorton G, Schmid FA. Capital, labor and the firm: A study of German codetermination. Journal of the European Economic Association. 2004;2(5):863-905.
  58. Singh M, Davidson WN. Agency costs, ownership structure and corporate governance mechanism. Journal of Banking and Finance. 2003;27:798-816.
  59. Jensen MC, Meckling WH. Theory of the firm: managerial behavior, agency costs and ownership structure. Journal of Financial Economics. 1976;3:305–360.
  60. Grossman S, Hart O. Corporate financial structure and managerial incentives. The Economics of Information and Uncertainty,

- Chicago: University of Chicago Press. 1982;123-155.
61. Jensen M. Agency costs of free cash flow, corporate finance and takeovers: The effect. *American Economic Review*. 1986;76:323-329.
62. Bedard JC, Johnstone KM. Earnings manipulation risk, corporate governance risk, and auditors' planning and pricing decisions. *The Accounting Review*. 2004;79(2):277-304.
63. McConnell J, Servaes H. Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*. 1990;20:293-315.
64. Chung KH, Pruitt SW. A simple approximation of Tobin's Q. *Financial Management*. 1994;23 (3):70-74.
65. Stulz R. Managerial control of voting rights. *Journal of Financial Economics*. 1988;20:25-59.

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