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Comparison of Effectiveness between Two Supervisory Systems in China: With and Without Audit Committees

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Abstract: China's Securities and Exchange Commission's regulations for supervisory functions of Corporate Governance—Audit Committees (ACs)—make ACs voluntary. Thus, two systems may exist simultaneously: Supervisory Boards with and without ACs. Between 2000 and 2007, the proportion of listed companies with ACs increased from 1% to 41%, implying that companies with ACs add them to improve the effectiveness of supervisory functions. This study investigates whether such companies' ACs enhance supervisory effectiveness. I obtained panel model regression test results. The data analysis of the quantitative research results compared the data of the two systems. The results yielded statistically significant evidence that the ACs' contributions did improve the supervisory effectiveness on six variables. However, the Supervisory Boards (SBs') must remain along with ACs because companies without ACs perform more supervisory activities and listed ACs increase SBs' legal and internal audit expertise.

Key words: effectiveness; audit committee; supervisory board; corporate governance
JEL code: M480

1. Introduction

The role of an Audit Committee (AC) in corporate governance (CG) has been one of the most significant monitoring themes of research. In monitoring, CG strives to create a mechanism for minimizing the risk of harmful practices, such as reducing the possibility of fraudulent accounting practices (OECD, 1999; OECD, 2004a), as in Enron's case. The regulations of Chinese ACs' forerunners in the U.S. and U.K. stipulate that establishing an AC is compulsory for every listed company (SOX, 2002; SOX, 2003; FRC, 2008; FRC, 2010). However, China's Securities and Exchange Commission's (SEC's) regulations, Section 52 of the Code of CG for Listed Companies, for establishing the monitoring system of CG—ACs—states that establishing an AC is optional, not a compulsory requirement.

Meanwhile, the internal supervisory CG mechanism is not compulsory in the regulations of certain other countries. National conditions determine whether these countries should develop CG mechanisms. At present, however, AC effectiveness is questionable. Collier concluded that evidence of ACs' effectiveness is very limited and certainly insufficient to support their rapid increase in popularity, describing this as a "curious phenomenon"

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(Collier, 1996). Goodwin and Seow asserted that "further investigation into the effectiveness of AC is needed" (Goodwin & Seow, 2002, p. 220). DeZoort et al. (2002) reported that the definition of an effective AC varies. Krishnan (2005), however, found that independent ACs and ACs with financial expertise are significantly less likely to be associated with the incidence of internal control problems. Abbott et al. (2007) reported firms with independent, active, and expert ACs being less likely to outsource routine internal audit activities to an external auditor. They asserted that an effective AC can monitor the sourcing of a firm's total (i.e., internal and external) audit coverage. Naiker and Sharma (2009) found that the presence of the AC of former partners who are affiliated or unaffiliated with the firm's external auditor is associated with more effective monitoring, internal controls, and financial reporting. Agoglia et al. (2011) found no effect of AC strength when the standard is less precise. They suggested that U.S. policymakers continue to contemplate a shift to more principles-based accounting standards, e.g., IFRS, and that further research on understanding of the roles played by precise standards and AC strength in mitigating aggressive financial reporting practices is required. Sharma et al. (2011) demonstrated that ACs can be moderate threats to auditor independence, thus supporting the quality of financial reporting. Throughout the related studies of ACs, their effectiveness has been an issue of concern. Currently, both with- and without-AC systems exist simultaneously in China's listed companies. Some choose to establish ACs in addition to Supervisory Boards (SBs), while some have only SBs. This study explores China's adoption of its own form of ACs, in addition to the optional regulatory designation, to form a unique internal supervision mechanism, by comparing the effectiveness of the two existing systems as the focus of its CG analysis.

Shareholder ownership status is more centralized in China than in the U.S. and U.K. Yet, developing countries seem more driven by the Anglo-American model. Concentrated shareholding may affect the effectiveness of supervisory functions if developing countries successfully adopt the Anglo-American model. The institutional ownership theory enables this study to reveal concentrated shareholding status as a basis for studying the effectiveness of China's two systems, SBs with and without ACs. This theory defines institutional shareholdings as so large that it is difficult to switch owners' invested capital from one firm to another. As a result, these shareholdings play an important role in the decision-making processes of the firms in which they have invested (Changati & Damanpour, 1991). Duggal and Millar (1999) found that institutional ownership is greatly determined by firm size, insider ownership, and the firm's presence in the S&P 500 Index. For the supervisory function, this study features control over managers in the institutional ownership theory as a special consideration influenced by concentrated shareholders, because the key concept of this theory is that an increase in the concentration of shareholders increases their impact on the board of directors (BoDs).

The test results in this study show six of the 17 variables in the categories of independence, expertise, and activities provide statistically significant evidence, proving that establishing an AC in a monitoring role can contribute to the effectiveness of implementing supervisory functions. The findings also suggest that SBs cannot be replaced even after incorporating ACs, although SB effectiveness does need to be enhanced.

The remainder of this paper is organized as follows. Section II first introduces the background and hypothesis based on related prior research. Section III describes the research method. Section IV presents the empirical findings, and Section V concludes the study.

2. Background and Related Research

2.1 Background and Hypothesis Development

Shortly after the foundation of the People's Republic of China in 1949, the supervisory profession in China nearly disappeared. Independent monitoring was virtually nonexistent under the planned economy before the 1980s, when the state both owned and ran enterprises. The re-emergence of independent supervision resulted from the increasing Sino-foreign joint ventures encouraged by China's open door policy, adopted in the early 1980s. Because of nonstate-owned interests in joint ventures, demand emerged for the verification of capital contributions and audits of annual financial statements and income tax returns by registered nongovernment-employed certified public accountants (Xiao et al., 2004). The progress of full-scale economic reforms, with the separation of ownership and management of enterprises, has led to agency problems in business firms, necessitating independent monitoring to alleviate these problems.

The Chinese Institute of Certified Public Accountants (CICPA) was established in the early 1980s when the rapid development of shareholding companies (stock companies) led to a sharp increase in the demand for supervisory mechanisms. The China Securities Regulatory Commission (CSRC) requires that all listed firms have their annual reports audited by certified public accountants (CPAs). The monitoring of both public and private enterprises by independent auditors has been employed by the government as an important supervisory mechanism in transforming the Chinese economy from one directed by the "visible hand" of centralized government-managed setup and scheduling to one directed by the "invisible hand" of market forces.

In the legislation passed in December 1993, the Chinese Company Law specified for the first time that every listed company must establish an SB to supervise the company's financial activities and the conduct of directors. Subsequently, additional regulations involving the appointment of independent directors were introduced. Initially, starting in 1997, independent directors were optional, but they became compulsory for listed companies from 2005.

In 1997, as China celebrated the historic return of Hong Kong to its rule, the occasion was suddenly dampened by the unexpected outbreak of the Asian financial crisis. Ten years later, as Asia has once again become a crucial market that attracts international capital and as the pressure of an international financial imbalance has increased, there is great concern whether another shock like the Asian financial crisis of 1997 will occur.

The International Monetary Fund and the World Bank, while providing assistance to the crisis-ridden and cash-strapped Asian economies, urged them to supervise their listed companies effectively by setting up CG systems. Since the 1997 crisis, the establishment of CG in the region has started being regarded as a critical priority for government. Subsequently, various Asian administrations have initiated serious efforts to develop CGs to improve their international competitiveness. A survey by McKinsey (2000)—which examined 188 companies in India, South Korea, Malaysia, Mexico, Taiwan, and Turkey to test the link between market valuation and CG practices—found that, "institutional investors in companies based in emerging markets claim to be willing to pay as much as 30% more for shares in companies that are well governed." Similar findings were reported in the 2002 McKinsey survey.

China applied to join the World Trade Organization (WTO) in September 2001 and was admitted in November of the same year. Since joining the WTO, China has strengthened its supervision of domestic listed companies in order to align itself with the international market, gradually moving toward an export-oriented economy and eventually implementing an open economic system. Recently, for example, the shareholding

structure of wholly state-owned commercial banks such as the Construction Bank, the Bank of China, and the Industrial and Commercial Bank have been significantly reformed. These three banks have been reconstructed into joint stock companies and have been listed in Hong Kong and various inland stock markets. The changes in their roles and functions have opened a new chapter in China's history of financial reform. Presently, while China has left no stone unturned in luring foreign capital into the country, it has also encouraged local enterprises to focus on the global market and become competitive internationally. To ensure success in both directions, the next milestone for China's ongoing reform will be to actively promote the implementation of CG systems as the international trend dictates.

In 2002, China announced the regulation of the Code of CG for Listed Companies (CSRC and SETC 2002: Section 52), encouraging listed companies to set up an AC voluntarily, although its installation is not mandatory. This introduction of ACs is an attempt to compensate for SBs' deficiencies. China expects that the implementation of ACs will improve the internal supervisory mechanism of CG, effectively oversee the internal directors, and protect the interests of the investors, because the functions of ACs are similar to those of SBs. Nevertheless, it expects to encounter difficulties in trying to transplant the AC from the unary control system to the binary control system with the SB. Recently, many listed companies in China have begun establishing ACs alongside the existing SBs to form their own structure of internal supervisory mechanisms, combining the Anglo-American and German-Japanese systems into one.

2.1.1 Two Systems, With and Without ACs, Existing Simultaneously in China

In practice, an increasing number of Chinese companies have installed ACs recently. The statistics for the period between 2000 and 2007 on the proportion of listed companies with ACs report an increase from 1% (12 companies) to 41% (635 companies), as shown in Table 1.

Table 1 Chinese Companies Introducing ACs between 2000 and 2007

Year	2000	2001	2002	2003	2004	2005	2006	2007	Average
No. of Co.	1092	1140	1205	1266	1355	1351	1434	1545	1299
Increase in No. of Co.		48	65	61	89	−4	83	111	57
Increase in % of Co.		4.40%	5.70%	5.06%	7.03%	−0.3%	5.79%	7.18%	4.36%
No. of Co. with AC	12	73	312	483	604	641	640	635	425
Increase in No. of Co. with AC		61	239	171	121	37	−1	−5	78
% of Co. with AC	1.13%	5.38%	19.92%	38.15%	44.61%	47.45%	44.63%	41.10%	30.3%

Source: Author, as supported by the CCER Database.

These figures suggest that there is willingness among listed companies in China to voluntarily install ACs, probably to enhance their internal supervisory mechanisms and meet international expectations for governance structures for monitoring and supervision. Given that many Chinese companies have introduced ACs into their governance structures, it is interesting to consider whether this reflects a lack of public confidence in SBs' effectiveness. The following research question is therefore raised:

Which system, with or without ACs, has more effective supervisory functions in China?

Therefore, in order to answer the key research question, the following hypothesis, stated formulaically, is formed:

SBs with ACs (G2 (With AC)) are more effective than SBs alone (G1 (Without AC)): G2 (With AC) ≥ G1 (Without AC)

2.2 Related Research

2.2.1 Measurement of effective supervisory functions

As Chinese listed firms are usually controlled by the government or parent state-owned enterprises (SOEs), they have far fewer political costs than their U.S. counterparts. As controlling shareholders are usually government agencies or parent SOEs, it is very difficult for Chinese investors to effectively sue business managers (usually appointed by the controlling shareholders) and control shareholders. Management buyout is nearly impossible as business managers of Chinese listed firms are usually appointed by the government and they hold none or an insignificant amount of the firm's shares. The controlling shareholders of many listed firms, primarily government agencies or parent SOEs, care only about raising funds from the stock market. For Chinese listed firms, the main benefit of introducing an AC is that firms may be able to raise funds in the capital market at a lower cost, or sell shares at a higher price, as the market may perceive that higher quality supervision will ensure better information disclosure. The costs will be the reduction in opaqueness of profits: the AC's high monitoring standards may inhibit the controlling owners from maximizing their self-interest through benefit transfer.

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 market's response to earnings (PER), which provides a measure of the extent to which new earnings information is capitalized in the stock price (Kim & Kross, 2005; Ryan & Zarowin, 2003). Holthausen and Verrecchia (1988) documented a positive association between the magnitude of stock price responses and the precision of accounting information. Teoh and Wong (1993) and Balsam et al. (2003) suggested that investors' responses to an earnings surprise depend on the perceived quality and credibility of the earnings reported.

Specifically, Teoh and Wong (1993) hypothesized that investors perceive Big Eight auditors as providing higher quality audits. Examples of this include the reaction of the stock market toward unanticipated income reports of Big Eight clients. Thus, by linking financial reporting results to PERs, they provide evidence that the financial statements audited by the Big Eight clients are of higher quality and utility. Their study revealed that a higher stock pledge of supervisors and directors results in lower fluctuation in the stock price and they studied the relationship between stock price and the effectiveness of the company's operation, revealing a positive correlation between them.

The survey evidence in Graham et al. (2005) indicated that reporting increases in quarterly earnings per share is an important goal for management, and may be even more important than either beating analyst forecasts or reporting profits. Degeorge et al. (1999) provided evidence that the management's first objective was to report positive earnings, then to increase quarterly earnings, and last to beat analyst forecasts. Myers et al. (2005) 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.

Yang and Krishnan (2005) used the unexpected annual earnings scaled by stock prices at the end of the year to control the incentives. Burgstahler and Eames (2002) and Abarbanell and Lehavy (2003) suggested that earnings may also be managed to meet simple earnings expectations in the stock market. Jones (1991), Cahan (1992), Han and Wang (1998), and Yang and Krishnan (2005) used the natural logarithm of a firm's market value of equity as the proxy variable for political costs, because their studies assumed that managers of politically sensitive firms may manage earnings to minimize their political or regulatory scrutiny. The foregoing discussion

illustrates that many studies have used an earnings-based measure as a proxy variable. The market's response to earnings (PER) is likely to vary with the stockholders' perceptions of supervisory institutions' effectiveness. This study, therefore, applies the market's response to earnings (PER) as the dependent variable for evaluating the effectiveness of SBs and ACs in China. This study applies accepted research concepts to define market response to earnings (PER or P/E) of the firm as the dependent variable, and assumes that the firm's better PER will reflect better effective performance of its supervisory functions. PER or P/E is an important indicator of listed companies' earning ability by reflecting investors' willingness to pay the price per dollar of net earnings. Therefore, it is assumed that firms' PER and supervisory function performance have a positive correlation.

2.2.2 Audit Committee Characteristics Related to Effectiveness

Subsequent to the passage of the Sarbanes-Oxley Act, AC research continued to concentrate on examining the relationship between the three AC characteristics (independence, expertise, and activity) and AC effectiveness (Carcelle & Neal, 2000; Klein, 2002b). A plethora of studies concerning AC effectiveness concentrate on the role played by ACS' mandated characteristics.

2.3 Independence

The Chinese Company Act states that an SB comprises employee supervisors and stakeholder supervisors. It is difficult for employee supervisors to be independent in carrying out their supervisory obligations because they themselves are subject to the company's administrative hierarchy, and their wages and positions are determined by the management. The Company Act provides no administrative protection against this threat, and so this lack of independence is assumed to impact the effectiveness of SBs. This assumption will be examined for the attribute of independence according to the studies of Beasley (1996), Abbott et al. (2004), Klein (2002a), Klein (2002b), Carcello and Neal (2003), Xie et al. (2003), Bedard et al. (2004).

The Blue Ribbon Committee (BRC) (1999, p. 22) noted that "several recent studies have produced a correlation between AC independence and two desirable outcomes: a higher degree of active oversight and a lower incidence of financial statement fraud." This statement indicates that more independent ACs could exercise better oversight of the quality of financial reporting. Any serious regulatory attempt should have specific requirements related to these factors, and different levels of regulatory requirements may result in different levels of supervisory performance. According to the requirements of the Charter of the AC across the American, British, and Chinese Systems (CSRC 2001, CSRC and SEC 2002, FRC 2008, FRC 2010, and SOX 2002), the Anglo-American model requires all members of the AC to be independent directors, while the Chinese model requires only half of the members to be independent directors. According to the U.K., U.S., and China's regulations, the independent directors must not receive fees for consultation or reward; must not participate in share holding; must not have any affiliations of "significant relationship" with the company by participating in any related transaction with the company or its subsidiaries; must not work for the company or its subsidiaries in the current year or have in the past three years acted as an "identified title or function", such as being a partner, executive, or the creator of financial statements.

Abbot et al. (2003b) postulated that independent ACs would limit the non-audit services of the external auditor in order to enhance auditor independence. Their results suggested that independent and diligent (meeting at least four times a year) ACs were negatively associated with the non-audit fees ratio, signifying the members' reluctance to approve non-audit services by the external auditor. In another study, Abbot et al. (2003a) investigated the relationship between AC characteristics (independence, financial expertise, and activity) and audit fees, which

serve as a proxy for audit quality. After examining 492 proxy statements, they found a significant association between the characteristics and high audit fees. The following related studies support the contention that an AC's independence can increase the company's value and strengthen the quality of financial reporting and the effects of earnings management (Beasley, 1996; Klein, 2002a; Klein, 2002b; Carcello & Neal, 2003; Xie et al., 2003; Abbott et al., 2004; Bedard et al., 2004). The findings of all these related studies empirically support a positive correlation between the AC's independence and its effectiveness in executing supervisory functions. All studies conclude that higher levels of independence increase the shareholders' and stakeholders' trust in CG.

Consequently, I use four measures for examining the independence of supervisory functions performed by China's with- and without-AC systems. (1) Independent directors' percentage (IND1DIR %): A positive relationship is expected to exist because firms with more independent directors over the board perform more effective supervisory functions. (2) Percentage of shareholdings by supervisors (IND2SBSH %): A negative relationship is anticipated because it is assumed that a higher percentage of shareholding supervisors will cause lower independence of SBs and a negative effect on supervisory functions' effectiveness. (3) & (4) Number of supervisors and directors receiving remunerations (IND3SBRE# and IND4DIRRE#, respectively). A negative correlation is expected between the number of supervisors and directors receiving remuneration or rewards, respectively, and the effectiveness of supervisory functions.

2.4 Expertise

Although Chinese guidelines discuss the need for supervisors to have professional knowledge or work experience in areas such as law and accounting (Code of CG for Listed Companies in China), it is not yet a mandatory requirement. That said, at least one member of a Chinese AC must have expertise in accounting, and at least one member must have recent and relevant financial experience in the U.S. and U.K.

A deficiency that could lead to ineffectiveness in China's SBs is the absence of a clear-cut requirement for the expertise of board members. Although there are a few brief comments in the Code of CG for Listed Companies in China stating that the members should have expertise in law and accounting, the legal status of that code has to date not been established, and it therefore does not constitute an enforceable mandate. Therefore, there is no guarantee that an SB has in its membership the basic expertise for the fulfillment of its roles. It could even be assumed that SB membership is essentially an honorary title with no effective function in practice. Therefore, levels of expertise relating to Chinese SBs' effectiveness must be closely examined. In this study, the financial, legal, and internal audit expertise of SBs will be defined as the independent variables for evaluating the effectiveness of supervisory functions. The attribute of expertise is referenced in the studies of DeZoort and Salterio (2001); Abbotte et al. (2000); Abbotte et al. (2003); Xie et al. (2003); Abbott et al. (2004); Bedard et al. (2004); Defond et al. (2005). The emphasis on AC members' expertise in regulation and the research results from academic studies empirically support a positive correlation between an AC's financial expertise and its effectiveness in executing its supervisory function. These studies support the view that higher levels of financial expertise lead to greater ability to prevent earnings management, and higher levels of professional expertise increase shareholders' and stakeholders' trust, reflected in, for example, a positive stock market reaction.

According to China's regulations, at least one expert with financial or accounting background and legal background is required. Although prior literatures provide credible attempts to examine the boundaries of AC effectiveness, a need to look beyond these boundaries remains.

In practice, there have been three old and three new institutions in the Chinese system. The new institutions

include the General Assembly Meeting, the BoD, and the SB, while the old institutions in SOEs include the Party Officers' Committee, the Union and the Stakeholders' Representatives' Committee. Therefore, the SB is composed of stockholders and employees and directly elected by stockholders and employees. The SB's members interact with new and old institutions. Now, the problem of bridging the old and new institutions arises. The elected SB representatives are responsible to the stockholders and stakeholders; they are supposed to take their responsibilities seriously even though there is no required financial or legal professional accountable for these responsibilities. It is mandatory that the SB perform its supervisory function once they are elected even though they may not have the required professional background. Therefore, the question has been raised as to whether the elected SB member is a party member employee without the required professional expertise to effectively perform the supervisory function. Internal auditors with special skills in specific operations may be transferred from other departments, but without a financial or accounting background. The internal audit without experts from a financial or accounting profession is defined as one single variable in this paper to differentiate it from the audit experience defined in the regulation of the SEC, Disclosure Required by Sections 406 and 407 of the Sarbanes-Oxley Act of 2002. This study will also consider internal audit literacy and party member employee as independent variables of expertise.

A positive correlation is anticipated; that is, a higher number of experts with an accounting, financial, legal, or internal audit background will lead to more effective supervisory function performance. In contrast, party-member employees with no expertise related to accounting or a financial, legal, or internal audit background are assumed to have a negative correlation with effective supervisory functions. Four expert variables are as follows*: EXP1FIN%, EXP2LEG%, EXP3IA%, and EXP4PARTY%.*

2.5 Activities

(1) Size (ACT1SBNUM#): Under the Company Act, the minimum number of members of an SB is three, and there is no maximum limit. In comparison, in Germany and Austria, the range is 3-20 members, and in France, 3-12. The actual number is determined by the company rather than the General Meetings of Shareholders in accordance with the company's volume of its shares, the number of employees, and the relationship between investors and managers, as specified in its constitution. Encouraged by the BRC and the accounting profession (IIA 1991), the SEC (1999) mandated that ACs consist of a minimum of three directors. In China, the Code of CG for Listed Companies mandates at least three members in ACs, but its actual practice is still questionable. The statistics for the size of SBs and ACs across China are therefore reserved for future research. The size of supervisory institutions is referenced from Yermark (1996), Eisenberg et al. (1998), SEC (1999), and Xie et al. (2003). The numbers of members of SBs and BoDs are also treated as variables reflecting the level of diligence, which can affect the supervisory function effectiveness. The size of the supervisory institutions will be defined as the independent variable hypothesizing a positive correlation. The size of the supervisory institutions will be defined as the independent variable for evaluating supervisory functions' performance and operations hypothesizing a positive correlation

(2) Annual Number of Meetings (ACT2SBMIT# & ACT3BoDMIT#): Section 56 of the Chinese Company Act stipulates that the SB has to hold at least one meeting annually. The Treadway Commission recommended in "The Good Practice Guidelines for ACs" in 1987 that ACs should hold a minimum of three or four meetings a year and special meetings when necessary (IIA ,1991; Price Waterhouse, 1993). Meeting frequency has been noted as a measure of an AC's due diligence. The international norm is that ACs must hold at least three or four meetings annually. The meeting frequency has been noted as a measure of due diligence in executing the

supervisory functions. The annual number of meetings of the SB and BoD is defined as the independent variable for evaluating the effectiveness of supervisory functions, with reference to the studies of McMullen and Raghunandan (1996), Abbott et al. (2000), DeZoort et al. (2002), Xie et al. (2003), and Abbott et al. (2004). The number of meetings including both those specified in the charter and those actually taken in practice can be used to gauge the level of diligence. In practice, the various companies may hold different numbers of meetings year on year. The supervisory institutions' due diligence is assumed to affect their supervisory function effectiveness. This study will use the number of meetings of supervisory institutions as independent variables for their operational diligence in carrying out their supervisory functions, thus hypothesizing a positive correlation.

2.6 Other Variables

(1) CEO dual positions: (OTH1CEODUAL): The BRC (1999) suggested that the position of the CEO should be separated from that of the BoD President to prevent a decline in supervisory functions. Abbott et al. (2000) demonstrated that the CEO's concurrently holding the position of BoD President increases the risk of fraud or negligence in financial reporting. In addition, Liu and Sun (2005) proved that dual positions held by the CEO leads to less independence, thereby increasing levels of earnings management. They used a dummy variable and assumed that if the CEO holds the concurrent post of BoD President, the company would have less willingness to establish ACs. This study also captures whether the BoD President serves concurrently as the CEO, hypothesizing negative correlation with supervisory function effectiveness.

(2) Shareholding structure in Chinese listed companies (OTH2SBSH 123%): U.S. regulations state that independent directors must not have a significant shareholding or represent major shareholders, but in China, the shareholding structure is different. Therefore, shareholdings of 50% or more by the three largest shareholders in Chinese companies are also included as a possible influence on supervisory institutions' effectiveness. Considering the essential attribute of independence to perform effective supervisory functions, it is presently a challenge for China to determine whether the independence of SB members can be strengthened by instituting regulations that consider the interests of the stakeholders of the company, by preventing the members from being influenced by insiders, and by establishing the appropriate external independent directors. It is anticipated that requiring SB members to be independent directors will increase the protection of the interests of small and medium shareholders because it would provide a check and balance against the high concentration of shareholdings in listed companies.

Therefore, given the shareholding structures in Chinese listed companies, this issue inevitably leads to concerns regarding insider control. This indicator will be thus considered as the independent variable for evaluating supervisory function effectiveness. As the stakeholder members of the SB are elected by the shareholders' meeting, there is no constraint against large shareholders controlling an SB. Thus, big shareholders can control both the BoD and the SB, and in the event of serious conflicts between them, it would be difficult to maintain effective, fair, and objective supervision. Negative correlation with supervisory function effectiveness is hypothesized for this variable.

2.7 Control Variables

Titman and Wessels (1988) used the total assets increased percentage to evaluate the growth rate (GR %); Bedard et al. (2004) also used the total asset increase rate as a proxy control variable and applied (RoA %) as a control variable to measure abnormal accruals and/or AC characteristics. Yang and Krishnan (2005) asserted that major agent problems between stockholders and creditors are caused by debt. Accordingly, the debt-monitoring

hypothesis (Gul & Tsui 1998; 2001) asserted that a higher percentage of debt would lead to more stringent supervisory roles created by the creditors. Gul and Tsui (1998; 2001) and Bedard et al. (2004) applied the natural logarithm of the assets as the control variable of firm size. Becker et al. (1998) and Lee and Chen (2004) noted that the firm size may represent many omitted variables. According to the aforementioned research, this study applies firm size (Ln(Asset)), growth rate of assets(GR%), return on assets (RoA %), and debt ratio (Debt by Equity: DEBT %) as control variables of the supervisory function effectiveness to identify which system of listed companies, those with or without ACs, exhibits more effective supervisory functions.

3. Method

3.1 Design

This study applies quantitative research by the multiple linear regression of ordinary least squares (OLS). The Panel Data Regression Model is applied to examine the independent variables representing the characteristics and activities of supervisory functions to the dependent variable of market response to earnings (PER). Comparing the two simultaneously existing supervisory systems for listed companies in China, those having only SBs (G1 (Without AC)) and those having SBs with ACs (G2 (With AC)), will reveal which system is more effective. If the test result shows that the estimated coefficients and p value are positive and statistically significant across the sample years, it suggests that investors positively recognize AC effectiveness in developing the monitoring function for the company. The more effective system will emerge from a comparison between the two groups of the sample targets to answer the research question and prove or disprove the hypothesis.

3.1.1 Empirical Model

Models 1 and 2 are designed to examine the relationship between market response to earnings (PER) and governance characteristics by estimating the coefficients in the following multinomial linear regression of panel data model.

Model 1: independence, activity, and control variables

$$PER = \beta 0 + \beta 1 IND\ 1 DIR\ \%1 + \beta 2 IND\ 2 SBSH\ \% + \beta 3 IND\ 3 SBRE\ \# + \beta 4 IND\ 4 DIRRE\ \# + \beta 5 ACT\ 1 SBNUM\ \# + \beta 6 ACT\ 2 SBMIT\ \# + \beta 7 ACT\ 3 BoDMIT\ \# + \beta 8 OTH\ 1 CEODUAL + \beta 9 DEBT\ \% + \beta 10 GR\ \% + \beta 11 RoA\ \% + \beta 12 Ln(Asset) + \varepsilon$$

Model 2: expertise, shareholdings by the top 1-3 shareholders and control variables

$$PER = \beta 0 + \beta 1 EXP\ 1 SBFIN\ \% + \beta 2 EXP\ 2 SBLEG\ \% + \beta 3 EXP\ 3 SBIA\% + \beta 4 EXP\ 4 SBPARTY\ \% + \beta 5 OTH\ 2 SBSH\ 123\% + \beta 6 DEBT\ \% + \beta 7 GR\% + \beta 8 RoA\% + \beta 9 Ln(Asset) + \varepsilon$$

Models 1 and 2 are used because the data are retrieved from different sources, the CCER database and financial statements, respectively, and so have different sample size. The independence and activity data are retrieved from the CCER database as sample 1 to fit into the Model 1 regression; the expertise data are retrieved from the financial statements as sample 2 to fit into the Model 2 regression.

The independence, expertise, activity, and the others with 13 variables measure supervisory characteristics and constitute the test variables; the next four control variables for omitted variables in market response to earnings (PER) serve as the proxy dependent variables for supervisory function effectiveness.

The research data for testing the hypothesis span sectors and time sequences for the period 2005-2007. To resolve the possible problems related to correlation in analyzing time series, the panel data model has been chosen

because it can analyzes the data with cross sections and time series at the same time, decreasing the likelihood of problems of autocorrelation of the variables, as well as possible problems of heteroskedasticity of the samples in cross sections. Panel data are particularly suitable for capturing more information and improving the efficiency of the estimated value.

3.2 Rationale for Applying Data from 2005 to 2007

China's security market was established only in December 1990, its rules and policies are not yet well established, the accumulated problems in the capital market, such as the lack of system and structure, begin to appear, and when the market enters an adjustment period, the difficulty is increased for new stock releases and existing stock refinancing. Meanwhile, SOE (A) shares occupied the share market of over 91% in China between 2003 and 2009 (CSRC (2002)); B shares of listed companies (Available for foreign investors only) represent less than 10% in the Chinese security market at present. Normally governments are the controlling owners or parent SOEs that owned shares that are not tradable. Therefore, the preceding discussion suggests that whether a firm introduces an AC to serve a CG function is controversial, depending on the potential costs and benefits to the controlling owner. The controlling owner may be inhibited in their ability to maximize self-interest through benefit transfer because of high standard monitoring by the AC. In general, the more concentrated the ownership structure, the weaker the internal supervisory mechanism; hence, there will be more opaqueness gains for the controlling shareholders.

Since 2005, the appointment of independent directors was become compulsory for listed companies to improve the internal supervisory mechanism in China. Meanwhile, stockholders' rights of SOE (A) shares were divided into tradable and non-tradable two patens since 2005. An SOE share can be further divided into four types: shares owned by central or local governments; employees; individuals; and institutions, SOE shares cannot be tradable; the other three types have been permitted for tradable. Apparently, year 2005 is a divide of stockholder right's reform from non-tradable to tradable led China into regarding the monitoring system of CG as more important. Therefore, this study collects the data since 2005. And also, to prevent periodic earnings deviations of the industries or the corporations, the value should not use only one year's earnings. In this study, at least three years' statistics are used to avoid deviation since 2005 to 2007.

4. Empirical Results

4.1 Sample Descriptive Statistics

Tables 2 and 3 report data on SB and BoD descriptive statistics composed from the two samples, respectively. Both Samples 1 and 2 are retrieved from 2005 to 2007, with three years' statistics. Sample 1 is generated by dividing all the listed companies in Group 1 (G1: SBs alone) and Group 2 (G2: with AC) between 2005 and 2007. Group 1's 891 companies had SBs without ACs, while Group 2's 624 companies had both SBs and ACs. The sample size of Group 1 with SBs only is larger than Group 2's, with 59% and 41%, respectively, in 2007. Group 2's size is 47%, 45%, and 41% in 2005, 2006, and 2007, respectively.

Sample 1 is designed for investigating the independent variables of independence, activity, CEO in dual position, and control variables. Sample 2 targets the investigation of the expertise and shareholding structure variables. Sample 2 is created as no data provided are related to the expertise variables from the CCER database. The level of expertise is randomly retrieved from financial statements from the websites of the SSE with 100 listed companies' financial statements from 2005 to 2007. The overall figure for Group 2, companies with ACs, is

44% in Sample 2. This fits with the average percentage of 44% of those setting up ACs between 2005, 2006, and 2007: 47%, 45%, and 41%, respectively (Table 4 reports SB members' expertise and party status). The shareholding structure derived by measuring the top three shareholders' shareholding percentages is placed in Sample 2 to avoid harmful correlation. It is because there is a serious co-linear problem in testing the correlation coefficient over 0.81 between the relationship of shareholding structure and debt percentage if the shareholding structure variable (SH123%) is placed in Sample 1.

The mean and median are used as the parameters to describe the central position of the statistical data in reviewing the trend of centralization. Tables 2 and 3 report that the centralization trends in both groups of the two samples have no deviation for comparison in this study.

Table 2 Sample 1 Descriptive Statistics

Sample 1: All Listed Companies–Ind., Activity, and CEO Variables													
G1&G2	PER1	IND1 DIR%	IND2 SBSH%	IND3 SBRE#	IND4 DIRRE#	ACT1 SBNUM#	ACT2 SBMIT#	ACT3 BoDMIT#	OTH1 CEODUAL	DEBT%	GR%	ROA%	$Ln_{(Asset)}$
Expected Sign	+	+	−	−	−	+	+	+	−	−	+	+	−
Mean1 (G1)	83.77	0.35	0.00	0.71	6.27	4.05	3.81	8.03	0.10	1.81	0.16	0.02	21.25
Mean2 (G2)	78.04	0.35	0.00	0.68	6.25	4.22	4.01	8.24	0.07	0.32	0.15	0.03	21.40
Median1(G1)	37.12	0.33	0.00	0.00	6.00	3.00	4.00	8.00	0.00	1.10	0.07	0.03	21.19
Median2(G2)	35.19	0.33	0.00	0.00	6.00	4.00	4.00	8.00	0.00	1.13	0.08	0.03	21.33
No. of Obv.1	2148	2145	2148	2148	2148	2148	2148	2148	2148	2148	2148	2148	2148
No. of Obv.2	1873	1873	1873	1873	1873	1873	1873	1873	1873	1873	1873	1873	1873

Note: Variable Definitions: PER1 = Formula of market response to earnings = stock price of per common share/earnings per share (EPS); IND1DIR% = Independent Directors' Percentage = Total number of independent directors by the size of the BoD; IND2SBSH% = Percentage of shareholdings by the SB supervisors = Shareholdings by the supervisors divided by the total shareholding; IND3SBRE# = Number of supervisors receiving remunerations or rewards; IND4DIRRE# = Number of directors receiving remunerations or rewards; ACT1SBNUM# = Size of SB = Number of SB supervisors; ACT2SBMIT# = Annual number of meeting times of SB; ACT3BoDMIT# = Annual number of meeting times of BoD; OTH1CEODUAL(Dummy) = 1 if the firms have dual positions of CEO and BoD President concurrently, and 0 otherwise; DEBT% = Debt Equity = Total Liability/Total Equity; GR% = Total asset's growth rate = TA (t) – TA (t − 1)/TA (t − 1); RoA% = RoA is measured by the percentage of net income by average total asset. The formula is calculated = (Net income/average total asset) × 100%, Average total asset = (beginning balance + ending balance of total asset)/2; $Ln_{(Asset)}$ = Natural logarithm of total assets (in million).
Source: Author.

Table 3 Sample 2 Descriptive Statistics

Sample 2: With Expert & Shareholding Structure Variables										
G1&G2	PER2	EXP1 FIN%	EXP2 LEG%	EXP3 IA%	EXP4 PARTY%	OTH2 SH123%	DEBT%	GR%	RoA%	$Ln_{(Asset)}$
Mean1	73.03	0.22	0.04	0.03	0.16	0.47	2.94	0.27	0.02	21.29
Mean2	71.23	0.19	0.03	0.10	0.11	0.53	3.46	0.17	0.02	21.61
Median1	34.62	0.20	0.00	0.00	0.00	0.47	1.28	0.08	0.03	21.30
Median2	40.38	0.20	0.00	0.00	0.00	0.57	1.22	0.08	0.02	21.45
No. of Observation1	140	140	140	140	140	140	140	140	140	140
No. of Observation2	115	115	115	115	115	115	115	115	115	115

Note: Variable Definitions: PER1 = Formula of market response to earnings = stock price of per common share/earnings per share; EXP1FIN% = Number of Financial or Accounting background members divided by the size of SB; EXP2LEG% = Number of legal background members divided by the size of SB; EXP3IA% = Number of internal audit background members divided by the size of SB; EXP4PARTY% = Number of party member employees divided by the size of SB; OTH2SH123% = Shareholdings by the top 1-3 shareholders divided by the total shareholdings; Definitions of four control variables (DEBT%, GR%, RoA%, & $Ln_{(Asset)}$) see Table 2.
Source: Author.

Table 4 SB Members' Expertise and Party Status

	Number of expertise	Average (2005–2007)		2007		2006		2005	
	(*1)	No. #	%	No.#	%	No.#	%	No.#	%
Companies having SB members with financial or accounting expertise	0	40	44.33%	38	42%	41	45%	40	46%
	1	34	38.00%	35	39%	35	39%	31	36%
	2	12	13.67%	15	16%	10	11%	12	14%
	3	3	3.00%	3	3%	4	4%	2	2%
	4	1	1.00%	0	0%	1	1%	2	2%
Total		90	100.00%	91	100%	91	100%	87	100%
Companies having SB members with legal expertise	0	78	87.33%	77	85%	79	87%	78	90%
	1	11	11.67%	14	15%	11	12%	7	8%
	2	1	1.00%	0	0%	1	1%	2	2%
Total		90	100.00%	91	100%	91	100%	87	100%
Companies having SB members with internal auditing literacy (*2)	0	72	80.33%	76	84%	70	77%	70	80%
	1	14	16.00%	13	14%	17	19%	13	15%
	2	3	3.67%	2	2%	4	4%	4	5%
Total		90	100.00%	91	100%	91	100%	87	100%
Companies having SB members with party connections and without accounting, financial, legal, or auditing expertise.	0	55	62.00%	58	64%	57	63%	51	59%
	1	24	27.00%	24	26%	23	25%	26	30%
	2	7	8.00%	5	6%	8	9%	8	9%
	3	3	2.67%	3	3%	3	3%	2	2%
	4	0	0.33%	1	1%	0	0%	0	0%
Total		90	100.00%	91	100%	91	100%	87	100%
Companies having SB members with accounting, financial, and legal expertise simultaneously.		8	9.00%	9	10%	7	8%	7	9%

Note: *1: The data exclude two banking companies and seven companies whose records were unclear regarding the SB members' expertise in 2005, 2006, and 2007. Therefore, the effective sample is 91 companies in 2006 and 2007. Four companies were listed since 2006 and 2005 financial statements were unavailable, meaning 87 companies' data are presented for 2005; *2: Internal audit literacy is defined as having audit skill and experience in the audit process. Experience of external auditing and a background of financial and accounting expertise has been counted in the item of the financial and accounting expertise.

Source: Author, sample 100 listed companies, as supported by data from yearly financial statements retrieved from the websites of the Shanghai Stock Exchange and Shenzhen Stock Exchange.

4.2 Industry Types

Table 5 reports industry statistics of research samples. The samples are categorized according to the CCER database, the CSRC definition is described, and the sample industries in this study are listed. The two samples include nearly every category of industry, except finance and insurance, whose requirements for supervisory functions are stricter than those of the others because these two industries are fully or at least strongly reliant upon public's trust. In this study, the manufacturing industry (code C) covers over 50% of the sample companies in both groups of Samples 1-2, paralleling industry allocation in China.

Table 5 Industry Statistics of Research Samples

CSRC Code *	S1:G1 No.# of listed co.	S1:G2: No.# of listed co.	S2:G1 No.# of listed co.	S2:G2: No.# of listed co.
A	25	13	3	0
B	19	11	0	0
C	529	353	33	22
D	31	31	0	1
E	20	13	0	3
F	33	34	3	1
G	57	39	2	3
H	46	46	0	2
J	34	29	3	0
K	24	22	0	0
L	9	5	0	0
M	19	1	0	0
Z	45	27	6	6
Total	891	624	50	40

Note: * There are 13 industry categories for the listed companies:

A: Agriculture, forestry, animal husbandry, fishery
(Sample 1: 1); (Sample 2: G1: 25; G2: 13); (Sample 3: G1: 3; G2:0);

B: Mining industry (1; 1); (19; 11); (0; 0);

C: Manufacturing (7; 7); (529; 353); (33; 22);

D: Electricity, gas, and water production and provision (6; 6); (31; 31); (0; 1);

E: Building trade (0; 0); (20; 13); (0; 3);

F: Transportation and storage (6; 6); (33; 34); (3; 1);

G: Information skill (2; 2); (57; 39); (2; 3);

H: Wholesale and retail trade (6; 6); (46; 46); (0; 2);

I: Finance and Insurance (0; 0; 0);

J: Real estate (5; 5); (34; 29); (3; 0);

K: Social service (5; 5); (24; 22); (0; 0);

L: Advertising and culture industry (1; 1); (9; 5); (0; 0);

M: Others (3; 3); (19; 1); (0; 0);

Z: No Associated (0; 0); (45; 27); (4; 4).

Source: Author, as supported by CCER data base.

4.3 Correlation Coefficient Analysis

The correlations coefficient test among the identified variables demonstrates the tolerance between two variables. This study investigates the correlation degree rather than a positive or negative direction, and so the absolute value is considered as follows: a higher coefficient means a closer correlation between two variables, whereas a lower coefficient suggests a weak correlation between two variables. If the coefficient's absolute value is less than 0.3, it indicates a low correlation; a value between 0.4 and 0.7 indicates medium correlation; a value between 0.7 and 0.8 indicates high correlation; and a value above 0.8 indicates extremely high correlation. Where the correlation coefficient modulus (absolute value) is greater than 0.8, it suggests a strong linear relationship and may have a harmful linear correlation (Tsai, 2006).

Sample 1: Correlations: In this study, the correlation coefficients for both groups in Sample 1 are less than 0.3. All variables in both groups have low correlation, as shown in Table 6: Sample 1 Correlations among Possible Correlated Variables.

Sample 2: Correlations: In this study, the correlation coefficients for both groups in Sample 2 are less than 0.5. Most of the coefficients fall below the 0.3 low correlation threshold, except that the correlation between firm size ($Ln_{(Asset)}$) and party-member employee is 0.46 in Group 1, and the correlation between RoA and the asset's growth rate (GR) is 0.37 in Group 2.

Overall, no value in both groups is larger than 0.8. This result does not generate a co-linear problem. There is, therefore, no need to delete any variable presented in Tables 6-7: Sample 1 & 2 Correlations among Possible Correlated Variables.

Table 6 Sample 1 Correlations among Possible Correlated Variables

S1G1	PER1	IND1DIR%	IND2SBSH%	IND3SBRE#	IND4DIRRE#	ACT1SBNUM#	ACT2SBMIT#	ACT3BoDMIT#	OTH1CEODUAL	DEBT%	GR%	RoA%	Ln(asset)
per1	1.0000												
ind1	0.0175	1.0000											
ind2sbsh	-0.0169	0.0155	1.0000										
ind3sbre	-0.0317	-0.0193	0.0945	1.0000									
ind4dirre	-0.0145	-0.0860	0.0297	0.0981	1.0000								
num1sbsize	-0.0519	-0.0878	-0.0448	0.1976	0.1438	1.0000							
mt1sb	0.0847	0.0215	-0.0220	-0.0201	0.0089	0.0418	1.0000						
mt2bod	0.0401	0.0063	-0.0395	-0.0063	0.0215	-0.0264	0.2788	1.0000					
ceo1	-0.0004	0.0196	-0.0040	-0.0319	0.0026	-0.0341	-0.0344	-0.0060	1.0000				
debt1	0.0203	0.0056	-0.0044	0.0121	0.0057	-0.0019	-0.0053	-0.0296	-0.0332	1.0000			
gr1	-0.0069	-0.0131	0.0085	-0.0170	-0.0025	-0.0001	0.0614	0.0304	-0.0211	0.0058	1.0000		
roa1	0.0005	-0.1095	0.0124	-0.0063	0.0080	0.0409	0.0315	0.0372	-0.0404	-0.0034	0.0614	1.0000	
Ln(asset)1	-0.0526	-0.0313	0.0172	0.1582	0.0894	0.0868	0.0932	0.0556	-0.0740	0.0049	0.1868	-0.0116	1.0000
S1G2	PER2	IND1DIR%	IND2SBSH%	IND3SBRE#	IND4DIRRE#	ACT1SBNUM#	ACT2SBMIT#	ACT3BoDMIT#	OTH1CEODUAL	DEBT%	GR%	RoA%	Ln(asset)
per2	1.0000												
ind1	0.0562	1.0000											
ind2sbsh	-0.0221	-0.0218	1.0000										
ind3sbre	-0.0567	-0.0155	0.1395	1.0000									
ind4dirre	-0.0676	-0.0727	0.0519	0.0691	1.0000								
num1sbsize	-0.0472	-0.1327	-0.0343	0.1017	0.0592	1.0000							
mt1sb	0.0301	0.0209	-0.0504	-0.0512	-0.0942	0.0297	1.0000						
mt2bod	0.0202	-0.0478	-0.0166	-0.0326	-0.0214	-0.0359	0.2598	1.0000					
ceo2	0.0147	0.0215	0.0353	-0.0361	0.0405	-0.0210	-0.0539	-0.0581	1.0000				
debt2	0.0120	0.0029	0.0029	-0.0093	-0.0252	0.0239	0.0265	-0.0050	-0.0689	1.0000			
gr2	-0.0219	-0.0550	0.0301	-0.0257	-0.0352	0.0386	0.0858	0.1154	-0.0303	0.0194	1.0000		
roa2	-0.0050	-0.0240	0.0248	0.0145	-0.0370	0.0417	0.0836	0.0206	-0.0439	0.0279	0.1932	1.0000	
Ln(asset)2	-0.1141	-0.1217	-0.0583	0.0826	0.0457	0.1852	0.0920	0.1308	-0.0966	0.0242	0.2477	0.1228	1.0000

Source: Author.

Table 7 Sample 2 Correlations among Possible Correlated Variables

S2G1/G2	PER1	EXP1 FIN%1	EXP2 LEG%1	EXP3 IA%1	EXP4 PARTY%1	OTH2 SH123%1	DEBT %1	GR %1	RoA %1	$Ln_{(Asset)}$ 1	PER2	EXP1 FIN%2	EXP2 LEG%2	EXP3 IA%2	EXP4 PARTY%2	OTH2 SH123%2	DEBT %2	GR %2	RoA %2	$Ln_{(Asset)}$ 2
PER1	1.00										1.00									
EXP1FIN%	0.10	1.00									-0.12	1.00								
EXP2LEG%	0.03	0.24	1.00								0.15	-0.06	1.00							
EXP3IA%	-0.11	0.00	0.16	1.00							0.23	-0.31	0.05	1.00						
EXP4PARTY%	-0.16	0.02	-0.01	0.07	1.00						0.05	-0.30	-0.08	0.20	1.00					
OTH2SH123%	-0.01	0.10	0.01	0.10	0.20	1.00					0.01	0.04	0.01	-0.09	0.14	1.00				
DEBT%	-0.06	-0.10	-0.05	0.00	-0.06	-0.01	1.00				-0.06	0.00	-0.03	-0.04	0.16	-0.08	1.00			
GR%	0.00	0.16	-0.05	-0.06	0.04	0.07	-0.02	1.00			-0.14	0.13	-0.08	-0.04	-0.10	0.09	0.03	1.00		
RoA%	0.03	-0.06	-0.07	0.00	0.16	0.07	0.01	0.17	1.00		0.01	0.21	0.06	0.01	-0.08	0.09	-0.11	0.37	1.00	
$Ln_{(Asset)}$	-0.17	-0.15	-0.13	0.07	0.46	0.04	-0.11	0.28	0.27	1.00	-0.20	0.07	0.20	0.07	0.01	0.30	-0.10	0.25	0.17	1.00

Source: Author.

4.4 The Results of Panel Data

Table 8 presents "The Results of Two Empirical Models (Sample 1 and Sample 2) to Prove Hypothesis. The purpose of the significance test is to examine the relationship between the dependent variable (PER) as a proxy for the effectiveness of supervisory functions and the individual independent variables.

Table 8 The Results of Two Empirical Models (Sample 1 and Sample 2)

Sample 1: all listed co.		Group 1: SB only			Group 2: SB plus AC		
Variables	Exp Sign	P Value	Coef.1	G1:Sig.	P value	Coef.2	G2: Sig.
(1) ind1%	+	0.834	14.18		0.139	111.65	
(2) ind2sbsh%	-	0.531	-395.4		0.445	-988.8	
(3) ind3sbre	-	0.620	-2.23		0.144	-7.61	
(4) Ind4dirre	-	0.917	-0.17		0.014	-3.93	**
(9) num1sbsize	+	0.048	-6.96	Reverse**	0.545	-2.06	
(10) mt1sb	+	0.000	11.45	***	0.269	3.21	
(11) mt2bod	+	0.467	1.07		0.275	1.61	
(13) CEO dual	-	0.819	-3.84		0.747	6.20	
(14) DEBT%	-	0.501	0.18		0.607	0.06	
(15) ROA%	+	0.890	2.38		0.660	17.51	
(16) GR%	+	0.960	0.32		0.943	0.77	
(17) $Ln_{(asset)}$	-	0.026	-10.21	**	0.000	-20.31	***
Sample 2: with expertise variables		Group 1: SB only (Without AC)			Group 2: SB plus AC (With AC)		
Variables	Exp Sign	P Value	Coef.1	G1:Sig.	P Value	Coef.2	G2: Sig.
(5) exp1fin%	+	0.428	48.16		0.871	-8.63	
(6) exp2leg%	+	0.851	-23.54		0.045	268.70	**
(7) exp3ia%	+	0.454	-93.85		0.008	178.38	***
(8) exp4party%	-	0.277	-71.47		0.980	1.70	
(12) SH123%	-	0.747	-20.79		0.235	67.57	

Note: ***, **, * Significant at 1 percent, 5 percent, and 10 percent levels, respectively, One-tailed where signs are predicted, two-tailed otherwise. See Tables 2-3 for definition of the dependent and independent variables.
Source: Author.

4.5 The Summary of the Findings

After comparison of the effectiveness of two systems with and without ACs in China, The significances of these results are described as follows:

Independence: IND4DIRRE#: It is hypothesized that Group 2 with ACs has more independence evaluated by variables IND1-4. One of four independent variables reports that G2 of independent directors receiving remunerations (IND4DIRRE#) shows ** significance, yet no significance shows in Group 1 without AC. The listed companies after adding in ACs will decrease the proportion of independent directors receiving remuneration, so improving the effectiveness of supervisory functions.

Expertise: EXP2LEG% & EXP3IA%: It is hypothesized that Group 2 with ACs has more expertise evaluated by variables EXP1-4. The test results on legal and internal auditing expertise (EXP2LEG % & EXP3IA %) are the same as the hypothesis. Group 2 with ACs has a higher legal and internal auditing expertise in SBs than Group 1 without ACs. Listed companies after adding in ACs increase the legal and internal auditing expertise in SBs with positive impact ** significance respectively, so enhancing the effectiveness of supervisory functions in China.

Activities: ACT1SBNUM# & ACT2SBMIT#: It is hypothesized that Group 2 with ACs has more activity evaluated by variables ACT1-3. The test result on the sizes of SBs (ACT1SBNUM#) and the meeting times of SBs (ACT2SBMIT#) both present G1 without ACs has more activity than G2 with ACs, which is adverse to the hypothesis. They may be explained as the following:

The test result on the sizes of SBs shows that Group 1 with ** significance. It may be explained that quantity of the size of SBs may not be factors impacting on the effectiveness of supervisory functions. According to the comparison between groups, listed companies after adding in ACs increase the size of SBs but this factor may not impact upon the effectiveness of supervisory functions.

The test result of meeting times of SBs shows adverse to the hypothesis with *** positive influence. Group 1 with SBs alone has more meeting times than Group 2: this is adverse to the hypothesis. Companies after adding in ACs do not increase the meeting times of SBs. It may be explained that the companies after adding in ACs put more focus on strengthening the ACs but not SBs by increasing meeting times.

Others: It is hypothesized that Group 2 with ACs has a lower centralized shareholding structure and lower numbers of dual positions of CEO and President of the BoD held by the same person than Group 1 without AC evaluated by variables OTH1-2. No significance shows in both of the test results.

Control Variables: Ln(Asset) Group 2 with ACs is assumed to have a better performance of supervisory function, so has a higher market response impact to earnings of four control variable debt ratio (DEBT%); the asset's growth rate (GR%), RoA%(returns on assets) and irm size (Ln(Asset). Specifically, the test results on firm size suggest a positive impact ** and *** significance in both Groups 1 and 2. Both groups' test results show that larger firms will enjoy a more stable market response to earnings, G2 with *** is better than G1 with ** significance.

5. Conclusion

This paper has explored the effectiveness by comparison two systems with and without ACs in China and reported that based on the results 6 of 17 variables tested provide statistically significant evidence that AC contributes to improve the effectiveness of supervisory functions in China by six aspects: (1) decreasing the proportion of independent directors receiving remuneration; (2-3) increasing the legal and internal auditing

expertise in SBs; (4) increasing the size of SBs though this factor may not impact upon the effectiveness of supervisory functions; (5) put more focus on strengthening the ACs but not SBs by increasing meeting times and (6) enjoying a more stable market response to earnings.

However, the SBs still cannot be replaced after incorporating ACs into China because listed companies without ACs (G1) have more activities as measured meeting times of SBs; and listed companies with ACs still increase more size of the SB and the legal and internal audit expertise of SB. Meanwhile, the listed companies without ACs (G1) also enjoy a more stable market response to earnings. It can be foreseen that co-existence of the two institutions of SBs and ACs is unavoidable in the future. Therefore, the future research for finding the evidence provided regarding coordination between the SB and the AC in China is of particular relevance.

This paper may enrich the literature on academic to understand the ACs' performance measures by comparing the effectiveness of two systems in China. In another word, it presents the AC's contributions in improving the characteristics of supervisory functions. In addition to the defined three attributes of the literature and regulations, this paper has also input three independent variables of party-member employees, shareholding structure, and internal audit expertise, which may contribute to future research on evaluating the effectiveness of supervisory functions and this paper may serve as a useful reference point for carrying out similar studies on this topic in the future. In summary, the findings reported in this paper, and related comments on the interpretation of those findings and suggestions based upon them, 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 in China. Finally, the investigation and results reported in this paper may offer a basis for continuing research on the effectiveness of supervisory governance after introduction of an AC, and for studies of other monitoring functions such as audit and internal control.

References:

Abarbanell J. and Lehavy R. (2003). "Can stock recommendations predict earnings management and analysts' earnings forecast error?", *Journal of Accounting Research*, Vol. 41, No. 1, pp. 1-31.

Abbot L. J., Parker S. and Peters G. F. (2004). "Audit committee characteristics and restatements", *Auditing: A Journal of Practice and Theory*, Vol. 23, No. 1, pp. 69-87.

Abbot L. J., Parker S. and Raghunandan K. (2003b). "The association between audit committee characteristics and audit fees", *Auditing: A Journal of Practice and Theory*, Vol. 22, No. 2, pp. 1-15.

Abbot L. J., Park Y. and Parker S. (2000). "The effects of audit committee activity and independence on corporate fraud", *Managerial Finance*, Vol. 26, No. 11, pp. 55-67.

Abbott L. J. and Parker S. (2000). "Audit committee characteristics and auditor choice", *Auditing: A Journal of Practice and Theory*, Vol. 19, No. 2, pp. 47-66

Abbott L. J., Parker S. and Peters G. F. (2000a). "The effectiveness of blue ribbon committee recommendations in mitigating financial misstatements: An empirical study", Working Paper, University of Memphis.

Abbott L. J., Parker S., Peters G. F. and Rama D. V. (2007). "Corporate governance, audit quality, and the sarbanes-oxley act: Evidence from internal audit outsourcing", *The Accounting Review*, Vol. 82. No. 4, pp. 803-835.

Agoglia C. P., Doupnik T. S. and Tsakumi G. T. (2011). "Principles-based versus rules-based accounting standards: The influence of standard precision and audit committee strength on financial reporting decisions", *The Accounting Review*, Vol. 86, No. 3, pp. 747-767.

Balsam S., Krishnan J. and Yang J. S. (2003). "Auditor industry specialization and earnings quality", *Auditing: A Journal of Practice & Theory*, Vol. 22, No. 2, pp. 71-97.

Beasley M. S. (1996). "An empirical analysis of the relation between the board of director composition and financial statement fraud", *The Accounting Review*, Vol. 71, No. 4, pp. 443-465.

Becker C., DeFond M., Jiambalvo J. and Subramanyam K. R. (1998). "The effect of audit on the quality of earnings management", *Contemporary Accounting Research*, Vol. 15, Spring, pp. 1-24.

Bédard J., Chtourou S. M. and Courteau L. (2004). "The effect of audit committee expertise, independence, and activity on aggressive earnings management", *Auditing: A Journal of Practice* and Theory, Vol. 23, No. 2, pp. 13-35.

BRC (1999). "Blue Ribbon Committee on improving the effectiveness of corporate audit committees: Report and recommendations", *Blue Ribbon Committee, New York, NY: New York Stock Exchange and the National Association of Securities Dealers*, available online at: http://www.nasdaq.com/about/Blue_Ribbon_Panel.pdf.

Burgstahler D. and Eames M. (2002). "Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises", Working paper, University of Washington.

Cahan S. F. (1992). "The effects of antitrust investigations on discretionary accruals: A refined test of the political cost hypothesis", *The Accounting Review*, Vol. 67, No. 1, pp. 77-95.

Carcello J. V. and Neal T. L. (2003). "Audit committee characteristics and auditor dismissals following 'new' going-concern reports", *The Accounting Review*, Vol. 78, No. 1, pp. 95-117.

CCER (n.d.). Chinese Center of Economic Research (中國經濟研究服務中心). Available online at: http://www.sinofin.net.

Chaganti R. and Damanpour F. (1991). "Institutional ownership, capital structure, and firm perform", *Strategic Management Journal*, Vol. 12, No. 7, pp. 479-491.

Collier P. (1996). "The rise of the audit committee in UK quoted companies: A curious phenomenon?", *Accounting, Business and Financial History*, Vol. 6, No. 2, pp. 121-140.

CSRC. (2002). *Standard on Corporate Governance*, China Securities Regulatory Commission (CSRC), Beijing: CSRC.

DeFond M. L., Hann R. N. and Hu X. (2005). "Does the market value financial expertise on Audit Committees of Board of Directors?", *Journal of Accounting Research*, Vol. 43 (May), No. 2, pp. 153-193.

DeFond M. L. and J. R. Francis (2005). "Audit research after Sarbanes-Oxley", *Auditing: A Journal of Practice and Theory*, Vol. 24, Supplement, pp. 5-30.

Degeorge F., Patel J. and Zeckhauser R. (1999). "Earnings management to exceed thresholds", *The Journal of Business*, Vol. 72, No. 1, pp. 1-33.

DeZoort F. T. and Salterio S. E. (2001). "The effects of corporate governance experience and financial reporting and audit knowledge on audit committee directors' judgements", *Auditing: A Journal of Practice and Theory*, Vol. 20, No. 2, pp. 31-48.

DeZoort F. T. and Hermanson D. R. *et al.* (2002). "Audit committee effectiveness: A synthesis of the empirical audit committee literature", *Journal of Accounting Literature*, Vol. 21, pp. 38-75.

Duggal R. and Millar J. A. (1999). "Institutional ownership and firm performance: The case of bidder returns", *Journal of Corporate Finance*, Vol. 5, No. 2, pp. 103-117.

Eisenberg T., Sundgren S. and Martin M. T. (1998). "Larger board size and decreasing firm value in small firms", *Journal of Financial Economics*, Vol. 48, No. 1, pp. 35-54.

FRC (2008). "The combined code on corporate governance", London, UK: Financial Reporting Council (FRC), available online at: http://www.frc.org.uk/documents/pagemanager/frc/Combined_Code_June_2008/Combined%20Code%20Web%20Optimized%20June%202008(2).pdf.

FRC (2010). "The UK Corporate Governance Code", London, UK: Financial Reporting Council (FRC), available at: http://www.frc.org.uk/documents/pagemanager/Corporate_Governance/UK%20Corp%20Gov%20Code%20June%202010.pdf.

Goodwin J. and Seow J. L. (2002). "The influence of corporate governance mechanisms on the quality of financial reporting and auditing: Perceptions of auditors and directors in Singapore", *Accounting and Finance*, Vol. 42, No. 3, pp. 195-223.

Graham J. R., Harvey C. R. and Rajgopal S. (2005). "The economic implications of corporate financial reporting", *Journal of Accounting and Economics*, Vol. 40, No. 1-3, pp. 3-73.

Gul F. A. and J. Tsui (2001). "Free cash flow, debt monitoring, and auditing pricing: Further evidence on the role of director equity ownership", *Auditing: A Journal of Practice and Theory*, Vol. 20, No. 2, pp. 71-84.

Gul F. A. and Tsui J. (1998). "A test of the free cash flow and debt monitoring hypotheses: Evidence from audit pricing", *Journal of Accounting and Economics*, Vol. 24, No. 2, pp. 219-237.

Han J. C. and Wang Y. S. (1998). "Political costs and earnings management of oil companies during the 1990 Persian gulf crisis", *The Accounting Review*, Vol. 72, No. 1, pp. 103-117.

Holthausen R. and Verrecchia R. (1988). "The effect of sequential information releases on the variance of price changes in an inter-temporal multi-asset market", *Journal of Accounting Research*, Vol. 26, No. 1, pp. 82-106.

Jones J. (1991). "Earnings management during import relief investigations", *Journal of Accounting Research*, Vol. 29, No. 2, pp. 193-228.

Kim M. and Kross W. (2005). "The ability of earnings to predict future operating cash flows has been increasing—not decreasing", *Journal of Accounting Research*, Vol. 43, No. 5, pp. 753-780.

Klein A. (2002a). "Audit committee, board of director characteristics, and earnings management", *Journal of Accounting and Economics*, Vol. 33, No. 3, pp. 375-400.

Klein A. (2002b). "Economic determinants of audit committee independent", *The Accounting Review*, Vol. 77, No. 2, pp. 435-452.

Krishnan J. (2005). "Audit committee quality and internal control: An empirical analysis", *The Accounting Review*, Vol. 80, No. 2, pp. 649-675.

Krishnan J. and Ye Z. S. (2005). "Why some companies seek shareholder ratification on auditor selection", *Accounting Horizons*, (December) Vol. 19, No. 4, pp. 237-254.

Lee J. Z. and Chen J. F. (2004). "The effect of audit client's importance on magnitude of earnings management: From the perspective of audit groups within the Big 5", *The International Journal of Accounting Studies*, Vol. 38, pp. 59-80.

Liu G. S. and Sun P. (2005). "The class of shareholdings and its impacts on corporate performance: A case of state shareholding composition in Chinese public corporations", *Corporate Governance: An International Review,* Vol. 13, No. 1, pp. 46-59.

McKinsy (2005). "Survey", available online at: http://www.mckinseyquarterly.com/newsletters.

McMullen D. A. and Raghunandan K. (1996). "Enhancing audit committee effectiveness", *Journal of Accountancy* (August), Vol. 182, No. 2, pp. 79-82.

Myers J. N., Myers L. A. and Skinner D. J. (2005). "Earnings momentum and earnings management", *Working Paper*, University of Michigan.

Naiker V. and Sharma D. S. (2009). "Former audit partners on the audit committee and internal control deficiencies", *The Accounting Review*, Vol. 84, No. 2, pp. 559-587.

Ryan S. G. and Zarowin P. A. (2003). "Why has the contemporaneous linear returns earnings relation declined?", *The Accounting Review*, Vol. 78, No. 2, pp. 523-553.

SEC (1999). "Mandated that Audit Committees consist of a minimum of three directors encouraged by the BRC and the accounting profession", IIA 1991.

SEC (2002). "Proposed Rule: Disclosure Required by Sections 404, 406 and 407 of the SEC".

Sharma V. D., Sharma D. S. and Ananthanarayanan U. (2011). "Client importance and earnings management: The moderating role of audit committees", *Auditing: A Journal of Practice & Theory*, Vol. 30, No. 3, pp. 125-156.

SOX (2002). *The Public Company Accounting Reform and Investor Protection Act* ("The Sarbanes-Oxley Act"; "SOX"), United States Federal Law (Pub.L. 107-204, 116 Stat. 745, enacted 2002-07-30), Washington D.C., USA: The US Congress, available online at: http://thecompliancepartners.com/pdf/sox.pdf and http://www.sec.gov/rules/final/33-8177.htm.

Teoh S. H. and Wong T. J. (1993). "Perceived auditor quality and the earnings response coefficient", *The Accounting Review*, Vol. 68, No. 2, pp. 346-366.

Tsai C. and Tang T. Z. (2006). *On Corporate Governance and Auditing*, Beijing: China Modern Economic Publishing House.

Xiao Z-z. J., Dahya J. and Z. J. Lin (2004). "A ground theory exposition of the role of the supervisory board in China", *British Journal of Management*, Vol. 15, No. 1, pp. 39-55.

Xie B., Davidson W. N. and DaDalt P. J. (2003). "Earnings management and corporate governance: The role of the board and the audit committee", *Journal of Corporate Finance*, Vol. 9, No. 3, pp. 295-316.

Yang J. S. and Krishnan J. (2005). "Audit committees and quarterly earnings management", *International Journal of Auditing*, Vol. 9, No. 3, pp. 201-219.

Yermark D. (1996). "Higher market valuation of companies with a small board of directors", *Journal of Financial Economics*, Vol. 40, No. 2, pp. 185-211.