

*Journal of International Business and Economy* (2010) 11(2): 49-67 (19 pages)



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## **BOARD COMPOSITION AS A LINKAGE WITH ENVIRONMENTAL CHANGE AND FIRM PERFORMANCE: A CASE OF KOREAN BANK INDUSTRY**

### **ABSTRACT**

This study looked into the process of a firm actively adapting to the environmental shift and generating good performances by acquiring relational capital as well as personal expertise through the board members. The effect of board composition on firm's performance was measured, specifically focusing on personnel with political background, accounting specialists, and foreign company related personnel. The results indicate that firms under extreme environmental change actively utilize their network of board of directors, and such efforts substantially affect firm performance. The implication of this study is in that it empirically verified the relationship between board composition and firm performance based on resource.

*Key Words: resource dependency theory, Korean bank industry, board of director, board composition, environmental change, firm performance*

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## INTRODUCTION

Previous studies on relationship between board composition and firm performance had largely been carried on through two perspectives (Hillman and Dalziel, 2003). The first perspective viewed the relationship through the lens of agency theory, asserting that the board of directors positively affects firm performance; the board boosts performance through minimizing agency costs by monitoring the actions of executive managers (Baysinger and Butler, 1985; Baysinger and Hoskisson, 1990; Daily and Dalton, 1994a, 1994b; Fama and Jensen, 1983; Goodstein and Boeker, 1991; Lorsch and MacIvor, 1989; Mizruchi, 1983; Tushman and Romanelli, 1985). Agency theory asserts that when the board of directors is more independent from the firm's management, the monitoring function of the board works better. A greater ratio of outside directors in the board, therefore, can improve a firm's performance. And higher incentives for more intensive monitoring also can be expected to derive better performances.

Second line of research on the relationship of board composition and firm performance had been based on the resource dependency theory; board of directors not only serves as a monitoring body but also acts as a resource provider, increasing its importance in times when the firm lacks resources or when there is highly uncertainty in the external environment (Boyd, 1990; Daily and Dalton, 1994a, 1994b, Pfeffer and Salancik, 1978; Zahra and Pearce, 1989). The resource dependency theory perspective asserts that resources provided by the board positively affects firm performance, and that firm performance would be greater when there is an environmental fit between the board-provided resources and the external environment.

Nevertheless, the existing researches cannot show the result which is consistent about relationship between board composition and performance. The study of Dalton et al. (2003) conducting a meta-analysis of relations between the board composition and performance also failed to figure out the effects the board has on firm performance. Furthermore, Zahra and Pearce (1989) observed that it is necessary to take into consideration functions the board can provide, in order to explain the effects of the board of directors on firm performance.

This study focused on the fact that inconsistent results of studies on relations between structure of the board and performance lay on situational context. For the companies in emerging countries which do not clearly distinguish ownership and management or which face radical changes in the outside environment, the board's

function of linking the company with the outside world or providing resources is more important than that of supervising. This study intended to confirm that the structure of the board should be altered in accordance with environmental changes in order to properly connect the company with the outside.

This study therefore focuses on studying the relationship between board composition and firm performance based on resource dependency theory perspective. Specifically we focus on board composition following radical external environment changes, along with the effects of board's capabilities to establish environmental linkages between firm performance and survival. The object of this analysis, board composition in Korean financial sector in the 10 year period from 1997 to 2006 was selected. Korea is an emerging country and at the same time Korean financial sector had undergone severe environmental shifts during this period, including a national financial crisis followed by big regulatory reforms. This time period would thus provide an ideal sample for empirically testing the relationship between board composition changes and firm performance.

Also this study attempted to draw implications by confirming that to consider situational context and to organize the board accordingly are essential when organizing the board of a company. This study would consequently extend existing literature by applying resource dependency theory in the context of an emerging market and external environmental changes as the basis of analysis.

## **THEORY AND HYPOTHESIS**

### **Theoretical background**

In the resource dependency theory perspective, board of directors is a direct provider of resources (Boyd, 1990; Daily and Dalton, 1994a, 1994b; Hillman, Cannella, and Paetzold, 2000; Pfeffer, 1972; Pfeffer and Salancik, 1978). Lynall, Golden, and Hillman (2003) had integrated existing literature on board of directors and categorized resources provided by the board of directors into the following four types: first, advice and counsel on firm's actions; second, heightened legitimacy for the firm; third, channels for communicating information between the firm and external organization; and fourth, assistance in obtaining resources and commitment from important elements outside the firm (Hillman, Cannella, and Paetzold, 2000; Pfeffer and Salancik, 1978).

Numerous prior studies have reported that resources provided by board of directors positively affect firm performance. Selznick (1949) had shown that the heightened

legitimacy provided by the board can improve focal firm's corporate image. The expertise of the board (Baysinger and Hoskisson, 1990) and administering advice and counsel provided by the board (Lorsch and MacIver, 1989; Mintzberg, 1983) were also proven to be useful in improving firm performance.

Hillman and Dalziel (2003) further conceptualized such resources as "Board Capital". Board Capital is a broad concept including both human resources provided directly by the board members and relational capital provided through utilizing their social networks. They also indicated that studies concerning board of directors had mostly focused on human resources directly provided by board members, with only relatively few studies looking into relational capital.

Nahapiet and Ghoshal (1998) defined relational capital as a sum of resources either potentially existing in or obtainable through relational networks of individuals and organizations. Few prior studies on relational capital had regarded relational capital as a link between board of directors and the external environment. Board of directors act as a buffer for the firm, absorbing and reducing shocks coming from uncertainties in the external environment. The link between the firm and external environment is determined according to the level and types of focal firm's external dependency (Boyd, 1990; Pfeffer and Salancik, 1978).

Prior studies have also found board composition to be closely related to the surrounding environment. The ratio of attorneys in the board of directors is associated with the strength of regulations in the industry; the ratio of board members from financial institutions increases when the financial requirements are high for the focal firm (Pfeffer, 1972). Hillman (2005) stated that the government is a key factor in determining a firm's external interdependency, causing firms to appoint ex-politicians as their board members to attenuate external interdependency caused by the government. Hillman also proved that this tendency becomes more significant in industries with stronger government regulations.

However, even the above stated researches lack more detailed inquiries into the relationship between board composition change and firm performance following environmental shifts (Hillman, 2005). As firm's environment is greatly affected by institutional contexts, further researches with specific contexts in regard are required; In short, future researches should address the question regarding which types of

environmental shifts and corresponding linkages may be most effective in contexts of different countries.

### **Korean economic crisis and environmental change in financial industry**

Korean economy, which had grown with tremendous speed in 1980s, began preparing for globalization of financial market with step-by-step deregulation plans in the financial sector. The planning began with joining of OECD (organization for economic cooperation and development) in 1996. Before these plans were carried out, however, Korean economy encountered a huge crisis. Incidents such as the crash of Thailand's Baht in other Asian countries grew into full-fledged foreign currency crisis and its effect was stronger than anticipated. On top of that, Korean companies that had focused on external growth through foreign currency loans, such as Hanbo and Kia, collapsed. Suddenly repayment of national foreign debt became impossible. In December 1997, Korea finally resorted to calling IMF (International Monetary Fund) for a bailout program.

As a return for financial aid, IMF program required Korean financial sector to be restructured according to more developed standards. Details of restructuring included structural adjustments for underperforming financial firms, improvements on transparency and global competitiveness of financial institutions, strengthening of accounting principles, meeting BIS(Bank for International Settlement) capital adequacy ratio levels, and opening financial market to the outside world (Keith, 1998). Table 1 shows the demands of IMF and the enforcement of government.

Such sudden and dynamic environmental shifts that come with the Korean economic crisis can be divided largely in the three categories. First of all, Korean economic crisis caused a rapid carrying out of various regulatory changes that had been postponed before the crisis. Financial industry was not only considered as an independent industry, but more so as a typical industry that is heavily regulated and is acting as a supporting function for other industry sectors. Although liberalization measures had been planned beforehand, they were not easily carried out due to environmental constraints. Korean economic crisis overruled all of these constraints and rapidly pushed liberalization measures into actual enactments.

Liberalization measures following Korean economic crisis started with the adoption of automatic floating exchange rate regime and liberalization of foreign currency in December 1997. In May 1998, stock market was fully opened to the world market by

removing stock investment limit for foreigners to better attract foreign capital. Criteria for establishment of insurance and securities companies were alleviated in 2003, along with regulations for shops and asset management. Interest rate regulations for demand deposits were also removed in 2004 to complete the interest rate liberalization, and the operation of financial institutions was extended to help build competitiveness and to provide more diversified services.

**Table 1: Demands by IMF and enforcement of governments**

Demands by IMF	Enforcement of Governments	Source
<b>Restructuring of Banks</b>	-Capital reduction and privatization for Seoul First Bank -Improvements of management for 12 banks with BIS ratio below 8% -Cease of operations and revocation of licenses for incompetent financial firms	Kim (2007) Lee et al. (2001) Min et al. (2007)
<b>Strengthening of Financial Supervision</b>	-Establishments and revisions of financial reform laws (1997. 12) -Unification of financial supervisory system (1998. 4)	Kim (2007) Lee et al. (2001)
<b>Strengthening of Accounting Principles</b>	-Unrealized loss of securities reflected 100% on the B/S (98. 8. 15.) -Reserve for credit loss reflected 100% on the B/S (99. 1. 1.)	Kim (2007) Min et al. (2007)
<b>Globalization of Financial Industry</b>	-Admission for banks and security firms to set up local subsidiaries (98. 3. 31.)	Kim (2007) Min et al. (2007)

Secondly, the Korean economic crisis caused the government to strengthen prudential regulations; Prompt Corrective Action system was adopted and enforced across the entire financial industry, and Forward Looking Criteria (FLC) was reinforced. FLC for banks, merchant banks, and insurance companies were amended to include their future ability for debt payments in the criteria. Furthermore, evaluation methods for securities owned by financial institutions were changed to mark-to-market method in order to improve management transparency. Public announcement periods for accounting and management reports too were reduced to quarterly basis from the reporting system that had previously been operating on half-year basis for banks, merchant banks, and insurance companies.

Thirdly, Korean economic crisis caused the Korean financial market to fully open its doors to the outside world, further leading to an increase in both the foreign investment on Korean securities and the Korean investment on foreign securities; in short, globalization of the financial market was quickly showing a progress. Liberalization of

capital—such as removing the limit of foreign ownership of stocks—had lifted the ratio of stocks owned by foreign investors from 18.5% in late 1999 to 40.1% in 2004. Foreign acquisition of Korean financial institutions and direct investments also greatly increased in the process of selling off insolvent financial institutions. Market share of these foreign-owned banks have been continuously increasing, along with the investments on foreign securities by the Korean financial institutions.

Such dynamic environmental shift had a tremendous effect on the management of the concerned institutions. Efforts to reduce uncertainties and external dependency caused by environmental shifts are still being made.

### **Research hypotheses**

As aforementioned, this study will look into how board composition of Korean financial institutions were changed to adapt to the environmental shifts in financial industry—easing of regulation, strengthening of accounting principles, and opening up to global market—and how the change affected performance. Hypotheses to be presented in this section are derived from contexts of specific environmental shifts.

Firms that create linkages with important sources of external dependency can reduce uncertainty (Pfeffer, 1972). And these linkages buffer firms from environmental fluctuations (Thompson, 1967). The reduction in uncertainty provided by such linkages also lowers transaction costs inherent with external exchange (Williamson, 1984) and ultimately improves survival (Singh, House, and Tucker, 1986) and performance

Policy, regulation, and enforcement of the government are one of the most critical factors of a firm's external environment (Hillman, Zardkoohi, and Bierman, 1999; Mahon and Murray, 1981; Marsh 1998; Shaffer, 1995). As for the Korean financial industry, this was truer because Korean financial institutions had traditionally functioned as a supporting organization for other business sectors, for which government regulations had left standing out in its effect. Hillman (2005) stated that there is a tendency to appoint ex-politicians as members of the board in highly regulated industry in order to reduce uncertainties caused by relatively high external interdependence to government. Hillman had found that the number of ex-politicians in the board of directors is meaningfully associated with firm performance in a highly regulated industry.

Above argument could also be applied to the context of Korean financial industry. In order to manage huge environmental shifts including Korean economic crisis, various

regulatory changes, and a full market opening, Korean financial institutions had to change. Efforts to recruit personnel with network ties to government were recognized to have positive effect on firm performance, by assisting in building a stronger relationship with the regulating body. This flow of logic leads to the first hypothesis.

*Hypothesis 1: Firm performance is more positively associated with the number of government related personnel in the board composition during the economic crisis than after the crisis.*

Another important environmental factor that had a substantial effect on financial institutions after the Korean economic crisis regards the strengthening of accounting reporting standards. This was aimed to improve management transparency. Before the Korean economic crisis, securities owned by financial institutions were evaluated based on book value. But after crisis, this was changed to applying market-to-market rule for evaluation of securities. Other standards such as reserve requirement ratio were also amended to follow BIS standards, which were widely accepted as a global standard. Accounting standards and the level of supervision for Korean financial institutions had become much stricter following the crisis.

As adopting global standard for accounting had become one of the critical external factors of survival—in the flurry of M&A and organizational reform that followed the Korean economic crisis—the importance of having accounting specialists in the board of directors increased.

Professional expertise of accounting specialists is the human capital the board can directly benefit from. On the other hand, such accounting specialists also could provide relational capital such as information, visibility, legitimacy, and signaling acquired through their networks in the accounting or inspection organizations.

Compared to the composition of board of directors before the Korean economic crisis, increased ratio of accounting specialists in the board of directors can be expected to have a more powerful effect on the firm performance. The second hypothesis is that the increase in the ratio of accounting specialist in the board after the crisis would have a positive effect on the performance of financial institutions.

*Hypothesis 2: Firm performance is more positively associated with the number of accounting specialists in the board composition during the economic crisis than after the crisis.*



Third important factor in the external environmental shift after the crisis is globalization of financial capital. Globalization of an industry can take many forms. In the Korean financial sector, globalization primarily meant entrance of global financial companies such as Goldman Sachs and Citi Bank into the Korean market. The competition between Korean banks and such global banks soon intensified. Introduction of new financial products developed by financial engineering along with the competition on their rate of return was also a field new to Korean banks.

Globalization, in the form of intensified competition, had increased external dependency of Korean financial institutions on global firms. An effective countermeasure that could be taken by Korean firms to cope with negative external effects of globalization was creating more linkages with the global firms. These linkages, similar with having more accounting specialists in the board composition, would provide direct human capital along with information, visibility, legitimacy, and signaling as a relational capital.

*Hypothesis 3: Firm performance is more positively associated with the number of directors with foreign company related personnel in the board composition during the economic crisis than after the crisis.*

## **DATA AND METHOD**

### **Sample**

The sample of this study consists of 177 observations from 34 Korean banks in the 10 year period between 1997 and 2006. 1997 is when the Korean economic crisis had struck Korea. Following the Korean economic crisis, Korean financial industry took a series of actions to strengthen prudential regulations; Prompt Corrective Action (PCA) was adopted and Forward Looking Criteria (FLC) was reinforced. Globalization was also greatly accelerated. Moreover, the financial market fully opened, letting in foreign capital investments on the Korean securities and letting out Korean capital investments on foreign capital. Such settings provide an ample research opportunity for studying the effects of board composition changes on firm performance.

The 10 year period of 1997 to 2006 is when merger and acquisition between Korean financial institutions actively took place as a result of Korean economic crisis. All of the 34 banks observed in this study are categorized into acquirer and acquired banks.

Additionally, the observations of the acquirer banks are classified into pre-merger and post-merger. All of the classifications are considered as independent observations. Merger and acquisition of firms does not only affect the firm's management, but also greatly affects board compositions. Although firm's title might not change after the merger, the acquirer undergoes substantial changes in both management and organizational structure. It would therefore be logical to treat pre and post merger observations as two separate fields.

For instance, the observations of Kookmin Bank are divided into pre-merger and post-merger Kookmin Bank observations and post-merger observations. Observation data of Housing Bank, which was acquired by Kookmin Bank, is gathered until when the merger took place in the 2000. For the banks that went out of business during the proposed time frame—such as Daedong Bank and Dongnam Bank—data was gathered until the point of closure.

### **Variable definitions and measurements**

#### *Dependent variables*

Two dependent variables were selected in measuring bank performances. Return on assets (ROA) was selected as the first variable to measure a general firm performance. To capture distinctive performance characteristic of banks, net interest margin (NIM) was selected as the second dependent variable. NIM is the most fundamental source of operating income directly related to the bank's profitability and management capability. For these reasons, NIM has already been used as a measure which is unique for banks in a number of prior studies (Demirguc-Kunt and Huizinga, 1999; Claessens et al., 2001; Unite and Sullivan, 2003). NIM is calculated as the net interest revenue divided by the total assets.

#### *Independent variables*

Independent variables in this study were the numbers of personnel in the board composition who has network ties to either the government or foreign companies, or who is an accounting specialist. Board of directors for a bank can be limited to directors appointed in the general stockholders' meeting.

Nevertheless, the executives not officially included in the board too have quite powerful positions in the actual management of Korean banks. The board approval rate

of management plans presented by non-listed executives—without any amendments to the original plan—reaches as high as 96.3% (for Korean banks in 2004). Therefore, the concept of board of directors is extended in this study to include the CEO, the actual directors of the boards, and other executives (non-listed) as the subjects of this study (Chaganti and Sambharya, 1987). Personnel with government network ties were defined as executives with an experience in the Congress, Prosecutor's Office, Ministry of Finance and Economics, Financial Supervisory Service, or the Bank of Korea. Personnel with network ties to foreign companies were defined as the executives with foreign nationality or with an experience in the foreign financial institutions. This is in line with Usdiken's (1992) study, which included the vice president of a bank in the definition of the bank's top management team.

The accounting specialists, also included in the broad definition of board of directors, were defined as executives who are also CPAs or professors in accounting-related departments. The career paths of selected executives were verified using data from KIS-LINE, which is database provided by Korea Investors Service. It offers reliable corporate data on more than 1.2 million companies. Data sources for the database include Financial Supervisory Service, The Bank of Korea, and various press releases.

#### *Control variables*

Following Hillman's (2005) research, firm size and board size were controlled for in order to correctly identify the relationship between bank performance and board composition. Firm size was defined using the amount of asset a bank possessed. We observed a significant positive skewedness, and therefore took logarithm (Tabachnick & Fidell, 1996). We have further controlled for size of board of directors since the effects of independent variables can change according to the size of board. Prior performance is controlled for performance ( $t - 1$ ), using the instrumental variable technique to avoid specification problems. Controlling for prior performance effectively accounted for other factors which could affect performance apart from board composition (Johnston & DiNardo, 1997). Finally, outside director size were controlled because the size of outside directors have influenced to firm performance (Hillman, 2005).

### **Data description and methodological procedures**

A panel data of financial institutions in the Korean financial sector within the 10 year time frame since 1997 was collected for this study. The panel data, in comparison to the cross-sectional or time-series data, can capture changes happening both cross-sectional and longitudinal-wise. Also, the panel data can help in measuring the effects of diverse independent variables on dependent variables, both observable and unobservable. The estimations can be more effective as the degree of freedom increases with the use of panel data, for panel data is in a form that integrates both cross-sectional and longitudinal data. The probability of multicollinearity also decreases with the use of a panel data.

Table 2 shows descriptive statistics of the variables used in this study. The average number of government-related personnel in the sample was 1.8. Average number of accounting specialists was 0.23 and 2.57 individuals were foreign-related personnel. Net interest margin which represents actual profitability of a bank, showed an average of -3.87 and ROA showed an average of -0.64. Average size of a board of directors was close to 17, while the average number of outside directors was 5.9 and the largest number of personnel a board contained was 36 directors. The asset size, controlled for as firm size variable, showed an average of approximately 39 trillion KRW. Figure1 depicts the changes in board composition during the period between 1997 and 2006.

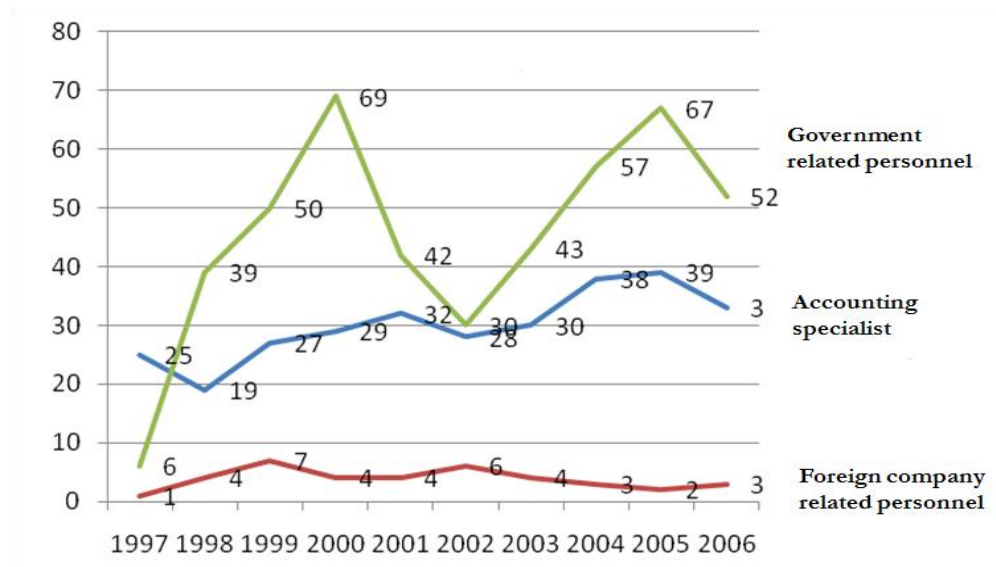
In this study, two analyses has been carried out to highlight the effects of board composition changes made in order to adapt to environmental shift on performance of financial firms. First analysis looked at 10 year period containing the Korean economic crisis—from 1997 to 2006—for relationship between board composition of a bank and its performance.

For analyzing a panel data of this study, we used 'xtgls' in STATA 11 to estimate coefficients based on feasible generalized least squares (FGLS). FGLS is frequently used to remedy possible problems of panel heteroschedasticity, contemporaneous correlation and serial correlation (Hitt, Gimeno, and Hoskisson, 1998), since these can violate the traditional ordinary least squares (OLS) assumptions of constant variance and no autocorrelation of the error term. FGLS produces residuals which are used to estimate the unit-specific serial correction of the errors and then used to transform the model into one with serially independent errors. In this way, errors without contemporaneous correlation and autocorrelation allow for OLS estimation.

**Table 2: Descriptive statistics**

Variables	Min	Max	Mean	SD
ROA	-11.06	3.06	-.64	2.51
NIM	-92.58	29.63	-3.87	21.62
ROA(t-1)	-9.92	3.06	-5.793	2.33
NIM(t-1)	-1850.71	44.94	-28.2152	165.61
Firm size	1.20	218.86	38.58	40.39
Board size	4	36	17.25	7.83
Outside Director	.00	36.00	5.85	5.1
Government related personnel	.00	6.00	1.76	2.95
Accounting specialist	.00	4.00	0.23	0.58
Foreign company related personnel	.00	30.00	2.57	5.77

Note: The unit of firm size is trillion KRW. The unit of board size, outside director, government related personnel, accounting specialist, foreign company related personnel is number of person.

**Figure 1: Change in specialists during the 10 year period**

Second analysis was carried out for clear comparison between period during Korean economic crisis and post-economic crisis. Each period was separated analyzed. Using 2001, when Korean government fully redeemed the bailout funds to IMF, as the anchor year, 1997 through 2001 were defined as the period of economic crisis and 2002 through 2006 was defined as post-economic crisis period.

## RESULTS AND ANALYSIS

Prior to verifying proposed hypotheses, correlations for all variables included in this study are shown in table 3. A VIF test was carried out because correlation measures of variables indicated that some variables might be correlated. However, VIF test results were between 1.04 and 1.08, ruling out the possibility of a multicollinearity between variables.

First we provided the output of during economic crisis in table 4. It shows that the number of government related personnel in the board composition has a significant positive effect on both ROA and NIM. It means that Korean financial institutions recruit a significant number of personnel with relationships with the Korean government, and this appeared to have strong effects on firm performance. And foreign company related personnel is also significantly and positively affect on firm performance.

**Table 3: Correlations for all variables**

Variables	1	2	3	4	5	6	7	8	9	10
<b>1.ROA</b>	1									
<b>2.NIM</b>	.983**	1								
<b>3.ROA(t-1)</b>	.432**	.463**	1							
<b>4.NIM(t-1)</b>	.151	.172*	.626**	1						
<b>5.Firm size(log)</b>	-.028	-.049	.007	-.068	1					
<b>6.BOD size</b>	.150*	.135	.154	.095	.118	1				
<b>7. Outside Director</b>	.171*	.159*	.134	.043	.050	.419**	1			
<b>8. Government related personnel</b>	.201**	.221**	.197*	.130	-.025	.062	.049	1		
<b>9. Accounting specialist</b>	.020	.012	.020	.043	-.052	.182*	.210**	.004	1	
<b>10.Foreign company related personnel</b>	.172*	.154*	.140	.080	.123	.491**	.723**	.006	.114	1

**Table 4: FGLS result during 1997~2006 (n=139)**

Variable	ROA	NIM
Constant	-0.45	-6.17
ROA(t-1)	0.40***	
NIM (t-1)		0.13
Firm size (log)	-0.08	-1.07
Board size	0.01	0.15
Outside director	0.01	0.04
Government related personnel	3.98**	53.8***
Accounting specialist	1.52	-6.90
Foreign company related personnel	1.03	15.2*
Wald Chi square	50.4***	19.9**

\* Significant at 0.1, \*\* Significant at 0.05, \*\*\* Significant at 0.001

Secondly, we offer the output of separated dataset during economic crisis and post-economic crisis period in order to compare the differences. Table 5 shows the effect of board composition on performance during the economic crisis period of 1997 through 2001, using ROA as dependent variable, shows that government-related personnel and accounting specialists has positive effect on performance ( $p < 0.01$ ). In model using NIM as dependent variable government-related personnel, accounting specialists, and foreign-related personnel all has positive effect on performance.

**Table 5: FGLS result during 1997~2001 (n=68)**

Variable	ROA	NIM
Constant	-2.61**	-23.6*
ROA(t-1)	0.20	
NIM (t-1)		-0.01*
Firm size (log)	0.09	1.17
Outside director	0.23	0.09
BOD size	0.01	0.09
Government related personnel	0.33***	2.66**
Accounting specialist	0.92***	9.09***
Foreign company related personnel	0.40*	1.16*
Wald Chi square	67.6***	35.3**

\* Significant at 0.1, \*\* Significant at 0.05, \*\*\* Significant at 0.001

**Table 6: FGLS result during 2002~2006 (n=70)**

Variable	ROA	NIM
Constant	-1.18***	20.6***
ROA(t-1)	0.20	
NIM (t-1)		0.90**
Firm size (log)	-1.03***	-0.09
Outside director	-0.04	-0.66**
BOD size	0.01	
Government related personnel	-0.01	2.59
Accounting specialist	0.98	1.23
Foreign company related personnel	-0.02	-0.09
Wald Chi square	44.37***	61.49**

\* Significant at 0.1, \*\* Significant at 0.05, \*\*\* Significant at 0.001

Table 6 shows the effect of board composition on performance during post-economic crisis period between 2002 and 2006. None of the three variables of

government-related personnel, accounting specialists, and foreign-related personnel show significant effects on ROA and NIM. Moreover, government-related personnel and foreign-related personnel showed negative effects on performance—although the results were insignificant.

Comparison of economic crisis period and post-crisis period confirmed our hypothesis that board composition changes related to environmental shifts acts as a resource for focal firm and positively effects performance. Thus, hypothesis 1, 2, and 3 are all supported.

Another out of the ordinary result is that the effect of outside directors on the board had negative associations with firm performance. And the reason for such a negative association could have been due to regulation reinforcements forcing introduction of outside directors in the board or the failure to adequately assess capabilities of outside directors prior to employment.

In this result, we can recognize that external environmental shift should be taken into account when studying effect of BOD composition on firm's performance, and environmental linkages can change according to environmental shifts.

## **SUMMARY AND CONCLUSION**

This study looked into the process of a firm actively adapting to the environmental shift and generating good performances by acquiring relational capital as well as personal expertise through the board members. The sample of analysis was the Korean banking industry during the 10 year period from 1997 to 2006. The effect of board composition on firm's performance was measured, specifically focusing on personnel with political background, accounting specialists, and foreign company related personnel. Especially results from analyses on separately categorized samples has shown that in the onset of intense environmental shifts, such as government led restructuring, strengthening of supervisory standards, improvements on accounting transparency, and rapidly pushed globalization, specific factors in BOD (board of director) composition had positive effect on firm performance; government related personnel, accounting specialists, and personnel with experience in foreign firms acted as linkages with external environment. In the post-economic crisis period, however, such personnel no longer had significant impact on the performance. It means if the environment changes, the BOD composition should be also adjusted.



These results from this study have several implications. First of all, our study shows that the context

such as external environmental shift should be taken into account when studying effect of BOD composition on firm's performance. It also shows the need for further empirical study on effects of BOD composition in various sets of environmental shifts.

Secondly, external environmental shift should be considered as an important factor when they are trying to organize a board of directors, for it could have substantial effect on firm's performance. Board members who could act as a resource increases in their importance when uncertainty in the external environment is high. And environmental linkages can change according to environmental shifts.

Third of all is that the negative association between outside director and firm performance portrayed by the results presents a meaningful implication for the real business world. And the reason for such a negative association could have been due to regulation reinforcements forcing introduction of outside directors in the board or the failure to adequately assess capabilities of outside directors prior to employment. Additionally, the inappropriate power distributions to outside directors and the readily found over-submissive attitude of the majority of outside directors to the management's decisions in the Korean financial industry also seem to be closely related to the negative relationship. This suggests researches on usefulness of outside directors needs to be carried out in emerging countries, including Korea.

This study, however, is limited to the Korean financial industry, focusing specifically on the banks. More researches on other country and other industry sectors would be necessary in order to generalize the findings of this study. Additionally, future studies should also look into how environmental linkages change according to different types of environmental shifts in various institutional contexts—especially through studying the changes in board composition.

## **ACKNOWLEDGEMENT**

This study was supported by the Institute of Management Research at Seoul National University.

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