

# **Korean bank governance reform after the Asian financial crisis**

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## **Abstract**

We discuss corporate governance reforms in the Korean banking sector, which include reforms in board composition and executive compensation, implemented after the Asian financial crisis in 1997 and examine the stock market's response to the reforms. We find that the banking returns and volatilities became more Granger-causally prior to both KOSPI and finance sector returns after 1998. The announcements of banking governance reforms are generally associated with significant increases in banking sector stock returns. The KIF survey finds that board governance is considered essential in assessing the value of the firm. The participants in the McKinsey survey indicate that they are willing to pay a premium of 24% on average for firms with outstanding corporate governance systems.

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## 1. Introduction

Korea and several Asian countries have experienced a severe financial crisis that was accompanied by large exchange rate depreciations and stock market declines since mid-1997. In the end, the financial crisis forced the IMF to orchestrate a record \$57 billion rescue bailout package for Korea in early December 1997 to help shore up its foreign reserves and bolster its currency. Various explanations have been offered as to the cause of the Asian financial crisis. Some argue that the crisis reflects permanent, structural (or fundamental) problems in the Korean economy, while others argue that it is mainly due to a non-fundamental liquidity shortage.<sup>1</sup> For example, Radelet and Sachs (1998a, b) and Wade and Veneroso (1998) attribute the East Asian economic crisis to financial panic that was made serious by IMF pressure to increase interest rates and to close down banks. Another view is based on international bank behavior and argues that the Asian panics had their origins in implicit guarantees offered by governments and believed by investors [e.g., Krugman (1998)]. These explanations tend to emphasize macroeconomic and banking issues but tend to agree that there was a loss of confidence by domestic and foreign investors in these markets. This led to a fall in capital inflows and an increase in capital outflows that triggered, in some cases, a very large nominal depreciation and a stock market crash.

The important role of corporate governance during the Asian financial crisis is well documented by Johnson, Boone, Breach, and Friedman (2000). They present evidence that measures of corporate governance, particularly the effectiveness of protection for minority shareholders, explain the extent of exchange rate depreciation and stock market decline better than do standard macroeconomic measures. A possible explanation is that in countries with weak corporate governance, worse economic prospects result in more expropriation by managers and thus a larger fall in asset prices.<sup>2</sup> In the case of the Asian crisis, they find that corporate governance provides at least as convincing an explanation for the extent of exchange rate depreciation and stock market decline as any or all of the usual macroeconomic arguments.

Since the outbreak of the financial crisis and the subsequent introduction of the IMF stabilization package in December 1997, a number of important steps have been taken to restructure the banking sector in Korea. A wide range of restructuring, which includes reforms in banking governance structure and cleaning up of non-performing loans of financial institutions, has built a foundation upon which financial institutions operate with profitability and stability. These restructuring efforts are deemed to have helped normalize the financial system earlier than expected and ease the credit crunch situation significantly. As

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<sup>1</sup> Ha, Khil, and Lee (2001) find that the sudden decline in Korea's stock market prices during the 1997 financial crisis was primarily due to fundamental components rather than non-fundamental factors, although they find evidence of substantial non-fundamental components in Korea's stock market prices. Some argue that the Asian crisis was mainly due to inappropriate macroeconomic policy during the 1990s [e.g., Greenspan (1998) and Corsetti, Pesenti, Roubini (1998)].

<sup>2</sup> By 'corporate governance' they mean the effectiveness of mechanisms that minimize agency conflicts involving managers, with particular emphasis on the legal mechanisms that prevent the expropriation of minority shareholders.

a result, the Korean economy rebounded from the crisis, and the sovereign credit rating, which plunged into the below-investment grade, soon recovered to the investment grade.

A major component of the banking sector reform was to improve board governance, which seems consistent with the argument of Johnson, Boone, Breach, and Friedman (2000). New board governance of the Korean banking sector was hastily assembled and launched after the financial crisis in response to pressing concerns over the viability of the major Korean banks. Under the supervision of the Financial Supervisory Commission, Korean banks have established a board governance system satisfying the global standard with outside-majority boards and a committee structure. The proportion of outside directors in the new boards has reached 60 to 80%. The Korean banking sector has adopted the functions of various committees including the governance committee, the management development and compensation committee, the audit committee, and the risk management committee, which are under the board of directors. It has also reformed the system of decision making. The regulations concerning the roles, the authorities, and the obligations of the board have all been stipulated.

Given the importance of the banking governance reforms in Korea, in this paper we explore the stock market's response to various board governance reforms in the banking sector, in particular, reforms in board composition and executive compensation, and provide some appraisal of the banking reforms based on a survey result. As we will review below, previous studies tend to focus on cross-sectional comparisons and obtain mixed results on the relation between board composition and firm performance. In this paper, we approach the relation from three different perspectives. First, we examine how the banking sector fares relative to the rest of the economy based on a time-series analysis of banking sector returns, the Korean stock market index (KOSPI) returns, and financial sector returns. Economists tend to hold different views on the importance of the banking sector in affecting the rest of the economy. There has been some debate in Korea regarding the order of the various sectors--banking sector or non-banking sector—corporate governance reforms. We find that the banking sector has become more Granger-causally prior to both the Korean stock market (KOSPI returns) and finance sector after the banking governance reforms. This seems consistent with the view that banking sector reforms implemented after the financial crisis may have helped lead the rest of the economy.

Second, we examine the stock market's (or investors') response to announcements of various stages of banking sector reforms using a variation of event study method. An alternative approach would be to use a regression analysis before and after the reform. Given the rapidly changing economic environment in Korea with ongoing reforms, a simple regression approach may not provide strong power to identify the market's response to various reforms compared with the event study. The conventional event study method may not fully identify important events with the market's significant reactions because the corporate governance reforms involve a series of events (announcements) and ongoing reform legislations.

As such, we employ a variation of the event study. We identify 12 out of 18 events (67%) of unusual high/low abnormal returns of the banking sector during 1997-2001 to be associated with some banking reform related announcements that are related to board composition, committee structure, and executive compensation. This implies that banking reforms have been strongly, positively received by the market.

Third, we examine bank managers' perceptions about the banking reform based on the survey results conducted by the Korea Institute of Finance (KIF) and McKinsey, respectively, which are regarded as the first serious attempt to evaluate the effects of the reform. A major finding is that the participants in the KIF survey show that board governance is essential in assessing the value of the firm. The participants in the McKinsey survey indicate that they are willing to pay a premium of 24% on average for firms with outstanding corporate governance systems.

The rest of the paper is organized as follows. In Section 2, we briefly review related literature. Section 3 describes the data and the dynamic relation between the banking sector and the rest of the economy. Section 4 discusses the announcement effects of banking sector corporate governance reforms. Section 5 briefly summarizes the KIF survey results on banking reforms delegating a more detailed discussion to appendix , and Section 6 concludes the paper.

## **2. Related Literature**

### *2.1. Board composition and firm performance*

Since the board composition and increased responsibility of board members are a major component of the board governance reform in the Korean banking sector, we briefly review previous studies on this issue.<sup>3</sup> It has long been recognized that board composition is very important with respect to the ability to monitor and is related to the reduction of agency costs, which occur when managers pursue their own interests at the shareholders' expense [e.g., Fama and Jensen (1983)]. Inside directors have valuable knowledge of the firm's operating policies and day-to-day activities, while outsiders may contribute fresh ideas, independence, objectivity and expertise gained from their own fields. However, many researchers question the ability of outside directors to exercise effective oversight [e.g., Byrd and Hickman (1992)]. Some argue that outsiders often provide little more than a source of outside contacts and advice for top management [e.g., Mace (1986), see also John and Senbet (1998)].<sup>4</sup>

Some studies focus on the relation between board composition and the incidence of particular events (e.g., hostile takeovers, CEO turnovers) with implications for corporate performance [e.g., Shivdasani (1993) and Weisbach (1988)]. Other studies concern a direct relation between board composition and

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<sup>3</sup> For an extensive review of board composition and other corporate governance related issues, see John and Senbet (1998).

<sup>4</sup> An optimal board composition --an optimal percentage of outside directors-- still remains an open question.

firm performance. Prior studies tend to focus on the cross-sectional relation between board composition and performance and find, at best, mixed evidence.

Baysinger and Butler (1985) find weak evidence that firms with more outside directors in 1970 had higher industry-adjusted returns on equity in 1980. Rosenstein and Wyatt (1990), using the standard event study methodology, find that announcements of appointment of an outside directors are associated with increases in shareholder wealth.<sup>5</sup> Hermalin and Weisbach (1991) examine differences in firm performance caused by board composition and ownership structure and find little relation between board composition and performance. Agrawal and Knoeber (1996) find that more outsiders on the board of directors negatively affect performance. Bhagat and Black (1998) also find that the proportion of outside directors on the board is negatively related to firm performance as measured by Tobin's  $q$ , returns on assets, and several other accounting measures. Lawrence and Stapledon (1999) fail to find consistent evidence of a direct positive relation in a sample of listed Australian firms. In a recent study, Hossain, Prevost, and Rao (2001) explore the efficacy of monitoring by the board of directors, and especially independent outside directors, in New Zealand. They find that the effects of the Companies Act and related legislation in 1993, which are directly designed to enhance monitoring and firm performance, are relatively benign in so far as influencing the relation between firm performance and outside board representation is concerned.

## *2.2. Management compensation and firm performance*

Much theoretical and empirical literature has investigated executive compensation, often using an agency framework.<sup>6</sup> Agency theory predicts that compensation policy that ties the CEO's welfare to shareholder wealth helps align the private and social costs and benefits of alternative actions and thus provides incentives for CEOs to take appropriate actions. There are many mechanisms through which compensation policy can provide value-increasing incentives, including performance-based bonuses and salary revisions, stock options, and performance-based dismissal decisions. Numerous studies support the presence of a positive relation between management compensation and firm performance but find that the sensitivity of pay to stock returns is fairly low [See Jensen and Murphy (1990)]. A stronger relation is commonly found between top executive pay and firm size.<sup>7</sup>

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<sup>5</sup> Brickley et al. (1994) find a significant positive relation between the stock market reaction to the adoption of poison pills and the fraction of outside directors.

<sup>6</sup> See, for example, Tosi and Gomez-Mejia (1984), Rosen (1992), Gomez-Mejia (1994), and Abowd and Bognanno (1995). For the study of Japan, see Kato and Roche (1992), Kaplan (1994), Kaplan and Minton (1994), and Kato (1997).

<sup>7</sup> The Rosen (1992) survey reports the puzzling finding of a relative uniformity in the elasticity of executive pay with respect to firm size across firms, industries, countries, and time periods. See, for example, Leonard (1990) and Gibbons and Murphy (1992) for a discussion of these issues.

Concerning the relation between CEO pay and performance in the *banking* sector, Barro and Barro (1990) find that, for newly hired CEOs, the elasticity of pay with respect to bank assets (i.e., bank size) is about one-third.<sup>8</sup> For continuing CEOs, the change in compensation depends on performance, as measured by stock and accounting returns. However, the sensitivity of pay to performance diminishes with experience.<sup>9</sup>

Regarding the pay-performance relation (including pay, options, stockholdings, and dismissal), Jensen and Murphy (1990) find that while the relation between pay and firm performance is positive and statistically positive, it is small for an occupation in which incentive pay is expected to play an important role.<sup>10</sup> They also find that dismissals are not an important source of managerial incentives. Although the incentives generated by stock ownership are large relative to pay and dismissal incentives, most CEOs hold trivial fractions of their firms' stock, and ownership levels have declined over the past 50 years. They acknowledge that these findings are inconsistent with the implications of formal agency models of optimal contracting.

Instead, they provide an interesting alternative hypothesis for the findings: the implicit regulation hypothesis. According to this hypothesis, political forces may play a role in the contracting process by implicitly regulating executive compensation by constraining the type of contracts that can be written between management and shareholders. These political forces, operating both in the political sector and within organizations, appear to be important but are difficult to document because they operate in informal and indirect ways. Public disapproval of high rewards seems to have truncated the upper tail of the earnings distribution of corporate executives. Equilibrium in the managerial labor market then prohibits large penalties for poor performance, and as a result the dependence of pay on performance is decreased. They maintain that their findings that pay-performance relation, the raw variability of pay changes, and inflation-adjusted pay levels have declined substantially since the 1930s are consistent with such implicit regulation. This implicit regulation hypothesis may help explain why compensation in Korea has not been effectively used as an incentive for top executives in the past.

In a recent study for Italy, Brunello, Graziano, and Parigi (2001) find that managerial pay is positively affected by firm performance, measured by real accounting profits per head; the semi-elasticity that relates pay to profits, however, is small, which is consistent with Jensen and Murphy's (1990) findings. Importantly, they find that the sensitivity of pay to performance is higher when the firm belongs

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<sup>8</sup> They use a data set that covers chief executive officers (CEOs) of large commercial banks over the period 1982-87.

<sup>9</sup> Collins, Blackwell, and Sinkey (1995) find that total compensation and the ratio of incentive compensation-to-total compensation increased substantially at regional bank holding companies but remained stable at money-center bank holding companies for the sample period of 1979 to 1985. Chakraborty, Kazarosian, and Trahan (1999) investigate whether uncertainty in CEO compensation influences the firm's investment decisions and find that CEOs with high earnings uncertainty invest less.

<sup>10</sup> They use *Forbes* survey data that include 2,213 CEOs from 1974 to 1986 and find that CEO wealth changes \$3.25 for every \$1,000 change in shareholder wealth.

to a multinational group, is owned by foreign capital and is listed in a stock exchange. Since firms owned by foreign capital and/or affiliated to a multinational group are less likely to be affected by the main features of Italian capitalism, they interpret this finding as supportive of the view that the specific Italian economic environment leads to a lower sensitivity of managerial pay to firm performance. A similar situation can be found in Korea.

### **3. Empirical results**

#### *3.1. Data and simple statistics*

We use daily returns and compare banking sector returns with the broad market index (KOSPI) returns and finance sector returns. The finance sector includes insurance companies and security companies. Since the KOSPI includes both the banking and finance sectors, and the finance sector includes the banking sector, we obtained the three separate indices without any overlapping firms. For our statistical analyses, we use these non-overlapping indices, all of which are value-weighted indices.<sup>11</sup> Our sample period covers from 1995/1/3 to 2001/7/2. We split the sample into two sub-periods, pre-crisis period (1995/1/3-1997/9/30) and post-crisis period (1997/10/1-2001/7/2), to see whether various banking reforms after the financial crisis have made a significant difference between the two sub-periods.

Table 1 shows that all (daily) mean returns (of KOSPI, banking, and finance sectors) are negative for the sample period. All three returns show a substantially higher volatility in the post-crisis period, implying a more uncertain nature of the post-crisis period. The premium of banking sector returns over KOSPI returns (i.e., the spread) is negative for the sample period and became more negative in the post-crisis period. Table 2 reports cross correlations between banking returns and KOSPI returns and between banking return volatility and KOSPI return volatility for the whole sample period and the two sub-periods. Not surprisingly, the contemporaneous correlation is high with about 0.6 for returns and about 0.4 for return volatilities. Among other things, it is noted that return volatility spillover seems to flow from banking sector (e.g.,  $X_t$ ) to KOSPI return (e.g.,  $Y_{t-k}$  for  $k = -1$ , and  $-2$ ) in the post-crisis period.

#### *3.2. Unit root and cointegration tests*

In anticipation of Granger-causality tests that use stationary variables, we test for a unit root (or the difference stationary process) employing both the augmented Dickey-Fuller (D-F) test (1979) and the Phillips-Perron (P-P) test (1988):

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<sup>11</sup> We obtained the three separate indices without any overlapping firms from the Korea Stock Exchange.

(a) Augmented Dickey-Fuller regression:  $\Delta x_t = \rho_0 + \rho x_{t-1} + \sum_{i=1}^n \delta_i \Delta x_{t-i}$

(b) Phillips-Perron regression:  $x_t = \alpha_0 + \alpha x_{t-1} + u_t$

The difference between the two unit root tests lies in their treatment of any ‘nuisance’ serial correlation. The P-P test tends to be more robust to a wide range of serial correlation and time-dependent heteroskedasticity. In these tests, the null hypothesis is that a series is nonstationary (i.e., difference stationary):  $\rho = 0$  and  $\alpha = 1$ . We use two and four lags (i.e.,  $n=2$  and  $4$ ) in the test.

Table 3 reports unit root and cointegration tests. All three index prices (i.e., KOSPI, finance, and banking index prices) are non-stationary but not cointegrated so that we use returns (i.e., log differences). I.e., the spread S1 (= a linear combination of banking prices and KOSPI prices), S2 (= a linear combination of banking prices and finance prices), and S3 (= a linear combination of finance prices and KOSPI prices) are all non-stationary.

### 3.3. Causality tests

Economists tend to hold different views on the importance of the banking sector in affecting the rest of the economy. However, it is widely recognized that financial intermediaries provide important services in pooling risks, gathering information, meeting uncertain liquidity needs and monitoring borrowers. Therefore, the health of the banking sector matters. When Korean government considered reforms in the economy, one of the questions was where to begin the reform: banking sector or non-banking sector. There was a heated debate on this issue. Eventually, the government decided to implement the reform in the banking sector prior to the non-banking sector.

We may expect to find that banking returns and volatilities Granger-cause KOSPI returns more strongly in the post-crisis period than in the pre-crisis period if the banking reforms lead the rest of the economy [see Granger (1969)].<sup>12</sup> We use the following trivariate autoregression to test for causality between the banking sector return and two other returns (KOSPI return and finance sector return):

$$Y_t = c_1 + \sum_{i=1}^m \alpha_{1i} Y_{t-i} + \sum_{i=1}^m \beta_{1i} X1_{t-i} + \sum_{i=1}^m \gamma_{1i} X2_{t-i},$$

$$X1_t = c_2 + \sum_{i=1}^m \alpha_{2i} Y_{t-i} + \sum_{i=1}^m \beta_{2i} X1_{t-i} + \sum_{i=1}^m \gamma_{2i} X2_{t-i},$$

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<sup>12</sup> The notion behind causality testing in Granger (1969) is based on the premise that the future cannot cause the present or the past. If an event  $x$  occurs before an event  $y$ , then we can say that  $x$  causes  $y$ . Formally, if the prediction of  $y$  using past  $x$  is more accurate than the prediction without using past  $x$  in the mean square error sense [i.e., if  $\sigma^2(y_t | I_{t-1}) < \sigma^2(y_t | I_{t-1} - x_t)$ , where  $I_t$  is the information set],  $x$  Granger-causes  $y$ .

$$X2_t = c_3 + \sum_{i=1}^m \alpha_{3i} Y_{t-i} + \sum_{i=1}^m \beta_{3i} X1_{t-i} + \sum_{i=1}^m \gamma_{3i} X2_{t-i},$$

Suppose that  $Y_t$ ,  $X1_t$ , and  $X2_t$  are KOSPI, finance, and banking returns, respectively. If the  $\gamma_{1i}$  coefficients are statistically significant, inclusion of past values of banking return ( $X2$ ), in addition to past history of KOSPI return ( $Y$ ) and finance return ( $X1$ ), yields a better forecast of KOSPI return, and we say banking returns Granger-cause KOSPI returns. If a standard  $F$ -test does not reject the hypothesis that  $\gamma_{1i} = 0$  for all  $i$ , then banking returns do not Granger-cause KOSPI return. Similarly, in the second equation, if the  $\gamma_{2i}$  coefficients are statistically significant, inclusion of past values of banking return ( $X2$ ), in addition to past history of KOSPI return ( $Y$ ) and finance return ( $X1$ ), yields a better forecast of finance return, and we say banking returns Granger-cause finance returns. In the third equation, if the  $\alpha_{3i}$  coefficients are statistically significant, inclusion of past values of KOSPI return ( $Y$ ), in addition to past history of finance return ( $X1$ ) and banking return ( $X2$ ), yields a better forecast of finance return, and we say banking returns Granger-cause finance returns.

The results of the Granger-causality tests based on the trivariate model are presented in Table 4. First, the banking sector has become Granger-causally prior after the crisis. That is, in the pre-crisis period, banking returns used to be Granger-caused by both KOSPI returns and finance returns, but in the post-crisis period, neither Granger-causes banking returns. As a result, the banking sector is Granger-causally prior for the whole sample period. Second, there was a feedback relation between banking returns and KOSPI returns before the financial crisis, but the relation disappeared after the crisis so that there remained no causal relation between the two returns. Third, finance sector returns have no causal relation with either KOSPI returns or banking returns. The absence of the causal relation holds in both pre-and post-crisis periods. In short, banking returns have become significantly more Granger-prior to both KOSPI and finance returns in the post-crisis period.

We now examine causal relations among stock return volatilities of the three sectors. We include the volatility in our analysis in part because return volatility tends to be associated with information flow and in part because volatility is a key ingredient of the risk-return tradeoff that permeates modern financial theories.<sup>13</sup> The results are reported in Table 5. We find that, first, as in the case of return causality, banking return volatility has become Granger-causally prior after the crisis. In the pre-crisis period, banking return volatility used to be Granger-caused by both KOSPI and finance return volatilities, but in

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<sup>13</sup> A thorough understanding of the determinants of the volatility process is critical for issues related to the functioning of markets and the implementation and evaluation of both asset pricing theories and option pricing theories. Regarding the volatility of stock returns, Hamao, Masulis, and Ng (1990) find spillover effects from the U.S. and the U.K. stock markets to the Japanese market. Although they suspect that such volatility spillovers could represent a causal relation across markets, they do not further pursue the causal relations. For a recent study of the information content in return volatility, see also Lee and Rui (2002)

the post-crisis period, neither volatility Granger-causes banking return volatility. Second, after the crisis, banking return volatility has become more Granger-causally prior to KOSPI return volatility, whereas finance return volatility has not become Granger-causally prior to KOSPI return volatility. Third, finance return volatility remains Granger-caused by banking return volatility.

Overall, banking return and volatility have become more Granger-causally prior to the rest of the economy, losing its feedback relation with KOSPI returns after the crisis. In addition, banking sector return volatility has become more strongly Granger-causally prior to KOSPI return volatility after the crisis.

#### 4. Announcement effects of banking sector corporate governance reforms

Event studies have been used in the field of law and economics as well as in finance and accounting to measure the impact on the value of a firm during a change in the regulatory environment. Given ongoing board governance related reforms in Korea's banking sector comprised of a series of announcements of changes in regulations and laws, it would be appealing to employ a variation of event study method to identify the stock market's response to various announcements of banking reforms.

In an attempt to identify the board governance related reforms and the stock market's response, we use, as a measure of abnormal return, a three-day window cumulative abnormal return (CAR) of the banking sector in excess of the KOSPI index return. The daily *Abnormal Return (AR)* for the banking sector on day  $t$  is defined as the difference between the banking return and the KOSPI return:

$$AR_t = R_{bt} - R_{mt},$$

where  $R_{bt}$  is the banking sector return on day  $t$ , and  $R_{mt}$  is the KOSPI market index (value-weighted) return on day  $t$ . The three-day (-2, -1, 0) window Cumulative Abnormal Return of the banking sector (CAR) is given by :

$$CAR_t = \sum_{i=-2}^0 AR_{t+i}.$$

Event studies usually identify announcement dates on the basis of exogenous data and then examine the market's responses around the dates [see Rosenstein and Wyatt (1990)].<sup>14</sup> Given numerous board governance related reforms in Korea's banking sector comprised of a series of announcements of changes in regulations and laws, we take a somewhat different approach, focusing on the dates (and events) with significant stock market responses. First, we identify dates with the CAR being either greater than 5% or less than -5%. We find 19 dates. Figure 1 shows abnormal returns of the banking sector for the sample period of 1995/1/3 – 2001/7/2. Then, we search various newspapers to determine whether there were any

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<sup>14</sup> Rosenstein and Wyatt (1990) find significant positive excess returns around the days of the announcements of outside board appointments by using the standard event methodology.

banking reform related announcements (or events) around the date. Although our sample begins in January 1995, the first event with more than 5% CAR occurs on November 29, 1997.<sup>15</sup> However, since the Korean government and the IMF agreed to an emergency funding package on December 3, 1997, and the banking reforms began after the IMF agreement, we focus our attention on the sample period after December 1, 1997. Therefore, we have 18 dates of unusual abnormal returns. Among 18 dates, we can relate 12 dates (e.g., 67%) to board governance related banking reforms (or events). For the remaining six dates, we attempt to provide in footnotes related events that may not be directly associated with board governance related banking reforms. There are 12 positive CARs and 6 negative CARs. Five negative CARs are related to banking cash flows either by capital requirement or additional funding. These events are briefly summarized below.

(1) December 4, 1997: CAR = +6.50%

The Korean government and the IMF agreed to an emergency funding package on December 3, 1997, and three major political parties announced on December 4 that they agreed to pass the Financial Reform Act, which requires structural reforms for the banking sector and the opening of the Korean capital market. It also allows foreign banks' M&A of Korean banks and their entry into domestic banking and requires adoption of an international accounting system and audits by internationally certified accounting firms.

(2) March 3, 1998: CAR = +6.28%

Change in the selection procedure of a bank president: To strengthen domestic banks' international competitiveness, the government realized that the current system of the selection of bank presidents is outdated and announced on March 2, 1998, that foreign bankers and banking experts can be presidents or directors of domestic banks, and the Bank Act will be revised accordingly.

On April 1, 1998, the Financial Supervisory Commission (FSC) was established in order to strengthen the supervision of financial institutions. With the establishment of the FSC, the four supervisory authorities for banks, security houses, insurance companies, and other financial institutions were placed under one umbrella, and the FSC was given the authority to engineer the restructuring of the financial sector.

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<sup>15</sup> On November 27, 1997, the government announced the implementation of plans for financial market stability, which include a provision of up to 4 trillion won (about \$3.08 billion) of public money for the troubled bank and investment securities sector. Government officials hoped that this could help to stabilize the capital market. On the same day, one of the troubled banks, Korea First Bank, announced the new issue of 800 billion won (about \$615 million). As a result, the amount of capital in Korea First Bank became 1.62 trillion won (about \$1.25 billion).

(3) September 15, 1998: CAR = -5.99%

No significant event of board governance related banking reform is found.<sup>16</sup>

(4) September 29, 1998: CAR = +5.06%

The Ministry of Finance and Economy (MOFE) announced on October 1 that it began review of bank ownership structure reform and the change in the bank president selection procedure. The MOFE will repeal the current 4% of maximum individual ownership restriction and consider the selection of president of a bank by majority shareholders, not by the government.

(5) October 21, 1998: CAR = +5.36%

Hearing of the Bank Act Revision was held. Major items include:

1. Relaxation of the very restrictive ownership restriction,
  2. Bank management structure reform including the selection procedure of bank presidents, and
  3. Increasing management's responsibility and strengthening of small shareholders' monitoring function.
- In addition, in late October 1998, unified disclosure standards for financial institutions were introduced. As a result, all financial institutions are now subject to the new disclosure system. This new system stipulates that a regular disclosure is to be made twice a year and strengthens the penalty for false or dishonest disclosures.

(6) November 11, 1998: CAR = -5.58%

No significant event of board governance related banking reform is found.<sup>17</sup>

(7) December 16, 1998: CAR = -7.04%

On December 15, 1998, the Financial Development Committee came up with the draft of Bank Act Revision. On December 17, the MOFE announced that the government intends to revise the Bank Act in such a way that the government (or deposit insurance corporation) can appoint directors of the banks to which the government contributed at least 4% of their capital. This was considered as a setback from the bank governance perspective.

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<sup>16</sup> On September 14, 1998, the Financial Supervisory Commission ordered the capital reduction of 90% to two troubled banks, Commercial Bank of Korea and Hanil Bank. Seoul Bank and Korea First Bank have already reduced their capital. Several other banks that experienced troubles are expected to follow suit. This news was perceived as a strongly negative one for the banking industry.

<sup>17</sup> Chohung Bank announced that it would have a substantial capital reduction. It is rumored that the Moody will lower the credit rating of Chohung Bank soon.

(8) January 14, 1999: CAR = +7.53%

On January 14, Hanvit Bank announced board governance reforms that ensure the independence of the board from management. On January 18, 1999, Housing & Commercial Bank of Korea announced changes in personnel structure and governance structure. The bank will introduce a stock option system for top managers and make them more responsible (liable) for the management. The bank will also change the governance structure by introducing outside directors and allow one of them to be elected as chair of the board. Housing & Commercial Bank of Korea's stock price rises significantly on that day.

(9) April 12, 1999: CAR = +5.01%

On April 13, 1999, the president and directors of Chohung Bank agreed to implement various management reforms. The bank disclosed on April 9 that the bank presidential candidate and six directors agreed to a set of management goals and promised to hire outside experts. On April 14, at the shareholders meeting, they strengthened stock options for top managers, linking them to the profitability (or performance) of the bank. Regarding the governance structure, they decided to reduce the number of directors from 25 to 15 and executive (or standing) directors from 50% to 40%.<sup>18</sup> They also made it clear that those who have a vested interest in the bank are not allowed to be elected as non-executive directors. In addition, they strengthened the requirement for the non-executive directors. The president agreed to a certain set of management goals. The bank stock price increased substantially on the day of the announcement.

(10) August 27, 1999: CAR = -6.05%

No significant event of board governance related banking reform is found.<sup>19</sup>

(11) December 14, 1999: CAR = +5.40%

On December 16, 1999, the 'Corporate Structure Reform Advisory Committee' at the Ministry of Justice announced a recommendation draft. On the same day, the Parliament passed the Revised Bank Law, Securities Law, Insurance Law, and other related laws. These laws include, among other things,

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<sup>18</sup> This seems consistent with the finding of Yermack (1996) that there is an inverse relation between firm's market valuation and the size of board of directors.

<sup>19</sup> On August 26, 1999, a group of creditors announced the workout plan for Daewoo Group. Given Daewoo Group's heavy reliance on bank loans, it was a strong negative event for the banking industry. On the same day, a committee announced the first formal draft on 'The Standard for the Corporate Governance Structure', and the Ministry of Justice announced a draft of the Commercial Law Revision. Although these might have been a positive development from the corporate governance perspective, the announcement of Daewoo group's workout was a dominant, negative event.

1. To promote healthy management of financial institutions, the ratio of outside directors are determined by the law, and
2. The audit committee of the bank should be established as part of the board, and two thirds of the committee members should be outsiders.

(12) January 5, 2000: CAR = +6.48%

The Minister of MOFE, Mr. Bong Gyun Kang, announced on January 4, 2000, that he is considering the establishment of the Financial Holding Company to meet the needs of the global scale of financial institutions and diversification of their operations. This was the first announcement regarding the holding company. In this case, the share holding restriction will be relaxed. On January 5, 2000, the government announced that it strongly encourages banks to adopt an executive stock option system through a special resolution at shareholder meetings in February because it is desirable to reform bank management.

(13) April 14, 2000: CAR = +10.88%

On April 10, 2000, the Financial Supervisory Commission announced that listed companies should include clauses on the corporate governance structure when they submit required public documents such as operations reports or securities reports. On April 14, 2000, the Financial Supervisory Commission announced that Deutsche Bank is allowed to participate in the management of Seoul Bank and provide advice on board governance.

(14) May 17, 2000: CAR = -8.25%

No significant event of board governance related banking reform is found.<sup>20</sup>

(15) May 25, 2000: CAR = +11.28%

On May 24, 2000, it was announced that 14 companies completed their work-out procedure earlier than expected. On May 25, 2000, Shinhan Bank and Hana Bank decided that their ex-CEOs would be converted from executive (standing) directors to non-executive (non-standing) directors after the FSC raised the question about the arrangement. This was motivated to prevent the banks from the dual governance system.

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<sup>20</sup> On May 17, 2000, it was revealed that the size of bad loans and losses in the banking sector were significantly larger than expected. The Financial Supervisory Commission announced its plan to induce the M&A between good quality banks and troubled banks, which was perceived as bad news because a good quality bank cannot merge with another good quality bank. Commentators expressed their concern and predicted the need for additional infusion of public money. On May 14, 2000, the Financial Supervisory Commission (FSC) announced that banks should include items on the corporate governance structure (e.g., composition of the board, the audit committee, small shareholders' exercise of rights) in their quarterly report. We believe the negative news of large bad loans and losses on May 17 was strong enough to offset the positive announcement effect of the FSC on May 14.

(16) June 1, 2000: CAR = -5.72%

No significant event of board governance related banking reform is found.<sup>21</sup>

(17) June 8, 2000: CAR = +7.09%

On June 8, 2000, the meeting of deputy ministers passed the Revised Bank Law draft that includes changes in the governance structure sponsored by the MOFE. It is expected to pass the cabinet meeting next week. The draft strengthens small shareholders' monitoring function and requires that half of the board members be outside directors and an audit committee be established.

(18) September 26, 2000: CAR = +5.32%

No significant event of board governance related banking reform is found.<sup>22</sup>

## **5. KIF survey results on banking reforms**

A survey was undertaken in 2000 to assess the progress and current status of board governance in the banking sector. The survey was conducted by the Korea Institute of Finance in cooperation with the FSS (Financial Supervisory Service) and McKinsey. Seventy-two outside directors and 56 executive directors from 15 commercial banks took part in the survey. The numeral ratings are based on a scale of 1 (low) to 5 (high).<sup>23</sup>

Overall, the survey finds substantial improvement in the board governance of the Korean banking sector. The directors who participated in the survey replied that the board acquired a significant amount of independence, and the authority of the board has been strengthened. The survey finds that board governance is considered essential in assessing the value of the firm. This is especially apparent in the response of foreign institutional investors. Another survey conducted by Professor Sang-Yong Park (1999) in collaboration with McKinsey, in which 64 institutional investors participated, find that the participants are willing to pay a premium of 24% on average for firms with outstanding corporate governance systems [see also Coombes and Watson (2000)]. This is a significant finding about the value of corporate governance. The banks with the best practice of governance proudly display their governance system in their website, and they use their governance system as an important instrument for investor

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<sup>21</sup> On June 1, 2000, the troubled Hyundai Group announced its restructuring plan. It may have not been good enough news to the banking sector that lends enormous amount of loans to the group. There have been rumors about various M&A among banks. The Financial Supervisory Commission asked to refrain from spreading the unfounded rumors.

<sup>22</sup> On September 26, 2000, the government made it clear that it intends to implement the second structural reform in the banking sector and plans to raise 40 trillion won (about 30.8 billion) of public funds to finance the reform.

<sup>23</sup> See also Kim and Chung (2000) for the discussion of governance structure of Korean banks.

relations. The directors who participated in the survey believe that the competitive advantage of the banks in the future will be decided not only by the hardware side, such as quality of the assets and capital adequacy, but also by intangible assets such as the governance system.

A brief summary of the survey results is provided in Table 6 [see also Appendix].

### *5.1. The survey results on board activities*

#### *5.1.1. The Composition of the Board*

After the reform, outside directors became the majority of the board. The average number of directors on the board was 12, and 73.4% of directors were outside directors. The majority (80%) of the directors replied that the current number of directors on the board is adequate for supervising management. The desirable occupations for the outside directors were suggested in the order of bank executives, accountants, professors, and attorneys.

#### *5.1.2. The authority of the board*

The directors responded that the authority of the board has been enhanced after the outside directors became the majority of the board (3.7 out of 5 rating). This is an indication that the directors perceived the change in board composition positively. The directors of the major banks rated the authority of the board higher (4.0) than the directors of the local banks (3.4). The executive directors of the major banks (4.3) rated the authority of the board higher than the outside directors (3.7).

The board members answered that the board generally maintained independence (3.7 out of 5 rating). The major banks (3.9) were considered to maintain more independence than the local banks (3.4). The executive directors of the major banks (4.2) and the local banks (3.2) showed difference in opinion on the board independence.

The board members answered that their banks did not have major problems with the conflict of interests. The directors of the major banks (1.5) and the local banks (1.7) showed similar responses. The cases of personal loans or loans to related companies, or the cases of a friend or a relative of the director being employed are not frequent. There was not much difference in answers between the executive directors (1.6) and the outside directors (1.7).

The board members point out that the requirements for the board directors need to be specifically documented for board independence. Only 59% of major banks have documentation of director's qualifications, while 77% of local banks have the documentation.

#### *5.1.3. Satisfaction with the role of the board*

Directors' satisfaction level is above average and no severe dissatisfaction has been noted (3.3 out of 5 rating). The executive directors of the major banks (3.6) were generally more satisfied with activities of the outside directors than those of the local banks (2.7). The outside directors of the major banks (3.3) and the local banks (3.5) were generally satisfied with their own roles.

The performance of the chairman of the board was generally considered effective. The executive directors (3.7) of the major banks rated the chairman's performance higher than the outside directors (3.4) did. The outside directors (3.3) and the executive directors (3.3) of the local banks showed a similar opinion on the chairman's performance.

Unclear role division and lack of leadership hinder chairmen's performance and depress board performance. About 80% of the board members (88% of the outside directors) felt the need for specific documentation of the roles and the responsibilities of the board. Only 50% of banks have a basic description of board/committee duties. Even when they do, their effectiveness is deemed low (2.8). The majority (80%) of the banks do not have a job description for CEO or chairman. Even when they do, its effectiveness is considered low (2.3 average).

#### *5.1.4. The chairman of the board/CEO*

About two thirds (66%) of the board members were in favor of combining the bank CEO position and the chairman of the board. Seventy-three percent of the executive directors and 59% of the outside directors were in support of the combination.

#### *5.1.5. Activities of the board and committees*

The board members rated the board's activities to supervise and advise management to be higher than average. The executive directors of the major banks (3.9) rated substantially more highly the board activities than those of the local banks (2.6). However, there was not much difference between the outside directors of the local banks (2.9) and the major banks (3.1). The reasons for the lack of board performance mentioned by the board members were that the outside directors lack professional knowledge and that the banks do not supply the board with sufficient and adequate information.

Regarding the measures to improve board activities, the majority of respondents (82%) agreed that they need to appoint a business-oriented person as a board member. On appointing a risk management specialist as a board member, 82% responded yes. On changing the director's term to one year, only 29% said yes. On replacing directors with low performance, 69% responded yes.

The overall committee activities under the board were rated average, although those of the local banks (2.7) were considered below average. The reason for inefficient committee activities was that the committees were not provided with sufficient information and that the committees lack legal authority over management. The plan to replace the current statutory audit system with the audit committee system was supported by 49% of the directors. Sixty-one percent of the outside directors felt the need for the audit committee. However, only 33% of the executive directors were in support of the committee.

## *5.2. The survey results on management compensation*

### *5.2.1. The evaluation of the board and the directors*

Overall, the board members rated the current performance evaluation criteria as average, whereas the executive directors of the local banks (2.7) rated it below average. About half (53%) of the board members were considered to have a higher level of competence and make a positive contribution to the board activities. A third (33%) of the board members were considered to have a fair level of competence and contribution and were in need of training. About 14% of the board members were considered to be incompetent. More than half (60%) of the outside directors were considered to be either in need of training or were considered incompetent. The executive directors and the outside directors showed similar responses.

The specific reasons for the lack of contribution were the lack of professional knowledge and participation in the board meetings. The board members suggested several ways to motivate the board activities. These include appointing risk management specialists (82%), or personnel with commercial business backgrounds (69%), or replacing the directors of low contribution (9%). The executive directors and the outside directors showed similar responses. The methods suggested for replacing incompetent outside directors were across-the-board resignation, persuading them to resign, and a shareholders' resolution. Changing the directors' term to one year did not receive much support.

The executive directors, including the bank CEO, were reluctant to be individually evaluated by the board. The executive directors of the major banks (3.2) seemed more receptive to the idea of individual performance evaluation relative to those of the local banks (2.4). The outside directors of the major banks (3.8) showed higher support than the outside directors of the local banks (3.4).

The idea of the board evaluating the management as a whole and delegating the individual evaluation of the executive directors to the bank CEO was very much supported by the executive directors. The executive directors (85%) showed more support than the outside directors (65%). The executive directors of the major banks (90%) showed the highest support. The outside directors of the local banks (77%) showed more support than those of the major banks (56%).

### *5.2.2. The board and the management compensation*

The board members responded that the current level of compensation did not reflect performance. The board members of the major (local) banks suggested that the performance-based incentives should be 41% (31%) of overall payments. The board members of the local banks (4.0) and the major banks (4.7) both showed strong support for the plan to give stock options to the executive directors. The executive directors (4.9) and outside directors (4.5) of the major banks showed stronger support than those of local banks. The executive directors (4.1) and the outside directors (3.9) of local banks did not show much difference in opinion.

There was a significant difference on the plan to give stock options to the outside directors. The executive directors of the major banks (3.6) support the plan, while those of the local banks (2.2) were against it. The executive directors (3.6) and the outside directors (3.8) of the major banks did not show much difference in opinion. There was a significant difference between the executive directors (2.2) and the outside directors (3.1) of the local banks. Obligating the outside directors to hold the bank's stocks received more support from the outside directors of the major banks (3.2) than those of the local banks (2.6).

The directors generally felt that the level of compensation needs to be raised. The adequate level of payment suggested for the CEO by the board members of the major banks was much higher than that suggested by those of the local banks. The adequate level of payment suggested for the major bank CEOs was 400 million won (about \$308,000) plus stock options, whereas 200 million won (about \$154,000) plus stock options was suggested for the local bank CEOs. This is much higher than the current level of payment for bank CEOs, which is 130 million won (about \$100,000) for the major banks and 88 million won (about \$67,700) for the local banks.

## **6. Summary and concluding remarks**

We have investigated the stock market's response to various banking reforms in Korea after the Asian financial crisis, focusing on the reforms in board composition and executive compensation and provided some appraisal of the banking reform. Economists tend to hold different views on the importance of the banking sector in affecting the rest of the economy. There has been some debate in Korea regarding the order of the various sector reforms in Korea. Employing a time-series analysis, we find that the banking sector has become more Granger-causally prior to both the Korean stock market (KOSPI returns) and the finance sector after banking reforms. In addition, banking return volatility has become more strongly Granger-causally prior to KOSPI return volatility after the crisis. These findings

lend support for the view that banking sector reform after the financial crisis may have helped lead the rest of the economy.

The empirical evidence on the relation between board composition and firm performance has been mixed, using mostly cross-sectional comparisons. Using a variation of the event study method due to ongoing nature of reforms, we have investigated the stock market's (or investors') response to announcements of various stages of banking sector reforms. We find that 12 out of 18 (67%) dates of unusual high/low abnormal returns of the banking sector are associated with banking sector board governance related reforms for the sample period. This finding implies that the banking reforms were strongly and positively received by the market. In particular, we find that six dates of unusual high abnormal returns (e.g., 3/3/1998, 1/14/1999, 4/12/1999, 12/14/1999, 5/25/2000, and 6/8/2000) are related to events associated with outside directors, which suggests a significant relation between board composition and the market-based measure of corporate performance. This finding seems consistent with Rosenstein and Wyatt (1990). We also find that three dates of unusual high abnormal returns (e.g., 1/14/1999, 4/12/1999, and 1/5/2000) are related to the introduction (or strengthening) of executive stock options or other compensation, and at least one date (e.g., 12/14/99) is related to the committee structure (i.e., audit committee). Among 18 dates of unusual abnormal returns, there are 12 positive CARs and 6 negative CARs. Five negative CARs are related to banking cash flows either by capital requirement or additional funding.

We have also examined bank managers' perceptions about the banking reform based on the survey results conducted by the Korea Institute of Finance and McKinsey, respectively. The participants in the KIF survey indicate that, among other things, board governance is essential in assessing the value of the firm. The participants in the McKinsey survey indicate that they are willing to pay a premium of 24% on average for firms with outstanding corporate governance systems.

Despite the remarkable recovery from the financial crisis, the Korean economy still remains fragile. This is in part due to the fact that the financial reform that includes corporate governance reform has not been fully completed, and further improvements are required to strengthen the financial system. The government-driven reform may have been quite effective in building a public consensus on the need for financial reform, but the private sector has yet to show a more positive attitude towards the reform. In order to sustain the initial spirit of the reform, the market needs to lead the reform, motivating the private sector with profitable incentives. Given the market's positive response to banking reforms, this will help increase the shareholders' value and contribute to enhancing the competitiveness of the Korean economy.

## **Appendix: More on the Survey results**

### **1. The problems of board management**

*(1) Ambiguous roles of the board and the management:* The survey shows that a major problem with the board management is that the roles of the board and management are ambiguous. The duties of the board and the committees are also unclear and not explicitly specified. Currently, the majority (80%) of the banks do not have a job description of the board. Even when the roles and duties are stated, they often disagree on interpreting their roles and on specific issues.<sup>24</sup> Management and the board even have different opinions on who should chair the shareholders' meeting.

*(2) Inadequate board resolution item:* A problem that is often mentioned regarding the lack of board authority is that most items in the agenda are report items, whereas very few are resolution items. This makes it difficult for the board to carry out its roles. Presently, the board resolution items are restricted to those that are stipulated only in the board regulation. Thus, it is difficult for the board to participate in important issues that are not specifically stated in the board regulation.

*(3) Inactive committee functions:* Because most of the items in the agenda are discussed and decided in board meetings and the authorities of the board are not being delegated enough to committees, the functions of the various committees under the board are very weak. This makes it difficult for the committees to carry out their functions to discuss and decide the agendas. Most of the committees only review the agendas that are scheduled to be placed before the board. This forces the board to hold unnecessary meetings to make resolutions for every agenda, thus rendering board management inefficient.

*(4) Lack of professional knowledge and transparency of board members:* Another reason for the board being inactive is that it does not consist of business experts. There are board members who have little understanding of the agenda and the issues. Some of the outside directors show little interest and low participation in the board activities. The process of appointing the directors is still not transparent. The government still has direct and indirect influences over the major banks in appointing the bank's directors. The survey shows that the bank CEO does not have authority in appointing the board members.

### **2. The problems of performance evaluation and compensation**

*(1) Performance evaluation:* According to the survey, the item 'Performance Evaluation and Compensation' that is considered one of the most important functions of the board of the banks in the advanced countries, is not considered serious by Korean banks. Seventy percent of the banks do not have

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<sup>24</sup> For example, on the issue of moving or closing a branch office, the management believes that this should be their decision because it is in the ordinary course of business matters. On the other hand, the board believes that this should be decided by the board, because it is stipulated as a board resolution item.

an official procedure to evaluate the bank CEO's performance, and 80% of the banks do not have a standard for performance evaluation of management. Even when they do have a standard, it is not specific. This makes it difficult for the CEOs to be compensated for their performance.

One of the fundamental problems is the lack of a well-specified profit index, which is the most important criterion for management performance evaluation, to be used for performance assessment. Instead of the profit index, the growth rate of deposit has long been used as the bank's short-term objective, although it is not an adequate standard for performance criteria. However, the bank's short-term objective along with the performance criteria is changing recently to profitability. Still, an accurate cost accounting system needs to be established as a prerequisite for an effective profit assessment system.

*(2) Performance-based compensation and stock options:* In the past, compensation was not linked to performance in Korean banks. The level of base pay needs to be enhanced for top management, and difference of salary among the positions needs to be more distinguished. Compared to the foreign banks, the compensation system of the domestic banks is very fragile. For example, in 1998, the compensation of a typical CEO of a bank in Korea consists of 77% base salary and 23% annual incentive, whereas that of a typical CEO of the top 20 banks in the U.S. consists of 15% base salary, 34% annual incentive, 28% stock options, 14% restricted stock, and other compensations.

The performance-based incentive should be given on the basis of a short-term goal or budget. All of the means of hidden compensation in the past scheme need to be reflected in the base salary for a transparent compensation scheme. The proportion of performance-based compensation should be higher in the higher levels of bank hierarchy. Obligating all directors and executive officers to own the bank's stock in order to relate their interest with that of the stockholder's equity should be considered.

Stock options can be given to the CEO and the board members as a long-term incentive scheme to maximize the shareholder's wealth. The merits of stock options do not interfere with business efficiency, and they can solve the problems of conflicts of interests. Stock options also monitor the moral hazard of management.

As pointed out by Brunello, Graziano, and Parigi (2001), an important element for a successful and effective stock option plan is the establishment of a performance-oriented corporate culture. As the implicit regulation hypothesis by Jensen and Murphy (1990) suggests, compensation in Korea has not been effectively used as an incentive for top executives in the past. In addition, for a successful stock option plan, the activities of the compensation committee need to be enhanced, and the stock option plan needs to be consulted with an outside expert.

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Table 1

Simple statistics: Daily data, 1995:1:3 - 2001:7:2 (1772 observations)

Index	sample period	observations	mean(%)	std. dev
Panel A: Index returns:				
KOSPI	95:1:4 -01:7:2	1771	-0.03034	2.23338
KOSPI	95:1:4 -97:9:30	794	-0.04402	1.16203
KOSPI	97:10:1 -01:7:2	977	-0.01929	2.81929
Finance	95:1:4 -01:7:2	1771	-0.03691	3.11347
Finance	95:1:4 -97:9:30	794	-0.10248	1.88435
Finance	97:10:1 -01:7:2	977	0.01638	3.83255
Banking	95:1:4 -01:7:2	1771	-0.08845	3.04428
Banking	95:1:4 -97:9:30	794	-0.08724	1.66180
Banking	97:10:1 -01:7:2	977	-0.08942	3.81619
Spread	95:1:4 -01:7:2	1771	-0.05807	2.50463
Spread	95:1:4 -97:9:30	794	-0.04323	1.45143
Spread	97:10:1 -01:7:2	977	-0.07013	3.10879
Panel B: Index prices:				
KOSPI	95:1:4 -01:7:2	1771	783.8426	225.7158
Finance	95:1:4 -01:7:2	1771	551.1599	223.8344
Banking	95:1:4 -01:7:2	1771	310.2723	184.4996

notes:

1.  $\text{Spread}_t = \text{banking return}_t - \text{kospi return}_t$
2. KOSPI excludes Finance sector, and Finance excludes Banking sector.

Table 2  
Cross-correlations between returns and between return volatility

X(t)	Y(t-k)										
K =	-5	-4	-3	-2	-1	0	1	2	3	4	5
banking KOSPI 95:1:4 -01:7:2	-0.027	0.022	0.009	-0.039	0.067	0.587	0.046	-0.022	0.004	-0.010	-0.061
banking KOSPI 95:1:4 -97:9:30, pre-crisis period	0.033	-0.005	0.076	0.083	0.147	0.519	-0.020	-0.111	-0.022	0.004	0.040
banking KOSPI 97:10:1 -01:7:2, post-crisis period	-0.035	0.026	-0.002	-0.057	0.055	0.597	0.056	-0.008	0.006	-0.011	-0.075
bankingv KOSPIv 95:1:4 -01:7:2	0.154	0.171	0.181	0.258	0.231	0.423	0.128	0.137	0.191	0.179	0.161
bankingv KOSPIv 95:1:4 -97:9:30, pre-crisis period	0.110	0.042	0.115	0.076	0.071	0.276	0.080	0.055	0.058	0.103	0.077
bankingv KOSPIv 97:10:1 -01:7:2, post-crisis period	0.062	0.085	0.094	0.184	0.154	0.365	0.035	0.046	0.107	0.092	0.072

notes:

1. bankingv and KOSPIv denote return volatilities in banking sector and KOSPI index.
2. KOSPI excludes Finance sector, and Finance excludes Banking sector.

Table 3  
Unit root and cointegration tests

Panel A. Unit root tests of index price

(a) Augmented Dickey-Fuller regression:  $\Delta x_t = \rho_0 + \rho x_{t-1} + \sum_{i=1}^n \delta_i \Delta x_{t-i}$

(b) Phillips-Perron regression:  $x_t = \alpha_0 + \alpha x_{t-1} + u_t$

Variables( $x_t$ )	Dickey-Fuller Test		Phillips-Perron Test	
	n = 2	n = 4	k = 2	k = 4
KOSPI	-1.659	-1.691	-1.702	-1.704
finance	-2.181	-2.269	-2.273	-2.292
banking	-1.170	-1.246	-1.370	-1.368
Spread	-23.280*	-20.040*	-36.161*	-36.100*

Panel B. Cointegration test

Regressions:

(1)  $\text{banking}_t = \alpha_1 + \beta_1 \text{KOSPI}_t + S_{1t}$ ,

(2)  $\text{banking}_t = \alpha_2 + \beta_2 \text{finance}_t + S_{2t}$ ,

(3)  $\text{finance}_t = \alpha_3 + \beta_3 \text{KOSPI}_t + S_{3t}$ .

Variables( $x_t$ )	Dickey-Fuller Test		Phillips-Perron Test	
	n = 2	n = 4	k = 2	k = 4
S1t	-1.142	-1.243	-1.152	-1.151
S2t	-1.145	-1.192	-1.137	-2.224
S3t	-2.259	-2.358	-2.203	-2.224

notes: 1. KOSPI, finance, and banking are index prices. KOSPI excludes Finance sector, and Finance excludes Banking sector.

2.  $\text{Spread}_t = \text{banking return}_t - \text{KOSPI return}_t$

3. For the cointegration tests of the spreads  $S_i$  for  $i = 1, 2, 3$ , and 4, critical values with 100 (200) observations are 10%, -3.03 (-3.02); 5%, -3.37(-3.37); and 1%, -4.07(-4.00), respectively. [see Engle and Yoo (1987,Table) p.157]

- The spreads  $S_i$  for  $i = 1, 2$ , and 3 denote the residuals from the above regressions (1) to (3).
- n, k = the number of lags in tests.
- \*: Significant at the 10% level.

Table 4  
Granger-causality tests using returns: Trivariate model

$$Y_t = b_0 + \sum_{i=1}^5 \phi_i Y_{t-i} + \sum_{i=1}^5 \lambda_{1i} X1_{t-i} + \sum_{i=1}^5 \lambda_{2i} X2_{t-i}$$

Y	period	X1 X2	F-stat F-stat	p-value p-value
Banking	95:1:4 -01:7:2	KOSPI	F(5,1745) = 0.64609	0.66453
		Finance	F(5, 1745) = 0.46603	0.80176
Banking	95:1:4 -97:9:30	KOSPI	F(5,773) = 4.25210	0.00080
		Finance	F(5,773) = 2.12348	0.06070
Banking	97:10:1 -01:7:2	KOSPI	F(5,972) = 0.37222	0.86786
		Finance	F(5,972) = 0.36932	0.86979
KOSPI	95:1:4 -01:7:2	Banking	F(5,1745) = 0.66147	0.65276
		Finance	F(5,1745) = 1.35338	0.23914
KOSPI	95:1:4 -97:9:30	Banking	F(5,773) = 3.02226	0.01038
		Finance	F(5,773) = 1.74896	0.12109
KOSPI	97:10:1 -01:7:2	Banking	F(5,972) = 0.75644	0.58140
		Finance	F(5,972) = 1.12747	0.34392
Finance	95:1:4 -01:7:2	KOSPI	F(5,1745) = 1.35914	0.23686
		Banking	F(5,1745) = 1.02280	0.40249
Finance	95:1:4 -97:9:30	KOSPI	F(5,773) = 1.19423	0.31015
		Banking	F(5,773) = 1.35850	0.23784
Finance	97:10:1 -01:7:2	KOSPI	F(5,972) = 0.99825	0.41757
		Banking	F(5,972) = 0.55444	0.73500

Notes:

1. Y, X1, X2 are returns of the KOSPI, finance sector, and banking sector, respectively, depending on the model as indicated in the table. KOSPI excludes Finance sector, and Finance excludes Banking sector.

Table 5  
Granger-causality tests using return volatility: Trivariate model

$$Y_t = b_0 + \sum_{i=1}^5 \phi_i Y_{t-i} + \sum_{i=1}^5 \lambda_{1i} X1_{t-i} + \sum_{i=1}^5 \lambda_{2i} X2_{t-i}$$

Y	period	X1 X2	F-stat F-stat	p-value p-value	
Banking	95:1:4 -01:7:2	KOSPI	F(5,1745) =	4.60275	0.00035
		Finance	F(5,1745) =	0.46272	0.80420
Banking	95:1:4 -97:9:30	KOSPI	F(5,773) =	3.05315	0.00975
		Finance	F(5,773) =	3.31943	0.00566
Banking	97:10:1 -01:7:2	KOSPI	F(5,972) =	1.68127	0.13635
		Finance	F(5,972) =	0.36727	0.87114
KOSPI	95:1:4 -01:7:2	Banking	F(5,1745) =	15.21075	0.00000
		Finance	F(5,1745) =	2.27152	0.04520
KOSPI	95:1:4 -97:9:30	Banking	F(5,773) =	4.53918	0.00043
		Finance	F(5,773) =	8.37387	0.00000
KOSPI	97:10:1 -01:7:2	Banking	F(5,972) =	7.17512	0.00000
		Finance	F(5,972) =	1.67812	0.13711
Finance	95:1:4 -01:7:2	KOSPI	F(5,1745) =	1.59628	0.15789
		Banking	F(5,1745) =	3.87000	0.00171
Finance	95:1:4 -97:9:30	KOSPI	F(5,773) =	2.00953	0.07517
		Banking	F(5,773) =	6.11655	0.00001
Finance	97:10:1 -01:7:2	KOSPI	F(5,972) =	1.10441	0.35631
		Banking	F(5,972) =	2.05513	0.06877

Notes:

1. Y, X1, X2 are return volatilities of the KOSPI, finance sector, and banking sector, respectively, depending on the model as indicated in the table. KOSPI excludes Finance sector, and Finance excludes Banking sector.

Table 6

## Summary of survey results

Item	Results
the composition of the board	the average number of directors on the board: 12 outside directors: 73.4% of directors the current number of directors on the board is adequate for supervising management: 80%
the authority of the board	the authority of the board has been enhanced after the outside directors became the majority of the board: 3.7 out of 5 rating MB = 4.0, LB = 3.4; ED of MB = 4.3, NED of MB = 3.7  the board generally maintained independence: 3.7 out of 5 rating MB = 3.9, LB = 3.4; ED of MB = 4.2, NED of MB = 3.2  their banks did not have major problems with the conflict of interests MB = 1.5, LB = 1.7; ED of MB = 1.6, NED of MB = 1.7
satisfaction with the role of the board	directors' satisfaction level: 3.3 out of 5 rating ED of MB = 3.6, ED of LB = 2.7, NED of MB = 3.3, NED of LB = 3.5  The performance of the chairman of the board ED of MB = 3.7, ED of LB = 3.3, NED of MB = 3.4, NED of LB = 3.3
activities of the board and committees	the board's activities to supervise and advise management ED of MB = 3.9, ED of LB = 2.6, NED of MB = 3.1, NED of LB = 2.9
the evaluation of the board and the directors	the idea of individual performance evaluation ED of MB = 3.2, ED of LB = 2.4, NED of MB = 3.8, NED of LB = 3.4
the board and the management compensation	the plan to give stock options to the executive directors ED of MB = 4.9, ED of LB = 4.1, NED of MB = 4.5, NED of LB = 3.9  the plan to give stock options to the outside directors ED of MB = 3.6, ED of LB = 2.2, NED of MB = 3.8, NED of LB = 3.1

Note: ED = Executive director; NED = Non-executive director; MB = major bank; LB = local bank.

## **Korean bank governance reform after the Asian financial crisis**

### **Abstract**

We discuss corporate governance reforms in the Korean banking sector, which include reforms in board composition and executive compensation, implemented after the Asian financial crisis in 1997 and examine the stock market's response to the reforms. We find that the banking returns and volatilities became more Granger-causally prior to both KOSPI and finance sector returns after 1998. The announcements of banking governance reforms are generally associated with significant increases in banking sector stock returns. The KIF survey finds that board governance is considered essential in assessing the value of the firm. The participants in the McKinsey survey indicate that they are willing to pay a premium of 24% on average for firms with outstanding corporate governance systems.

*JEL Classification: G15, G3*

*Keywords: bank governance, Asian financial crisis, Korean bank*