

# The Value of Outside Directors: Evidence from Corporate Governance Reform in Korea

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## Abstract

This paper examines the valuation impacts of outside independent directors in Korea, where a regulation requiring outside directors was instituted after the Asian financial crisis. In contrast to studies of U.S. firms, the effects of independent directors on firm performance are strongly positive. Foreigners also have positive impacts. The effects of indigenous institutions such as chaebol or family control are insignificant or negative. This implies that the effect of outsiders depends on board composition as well as the nature of the market in which the firm operates.

## I. Introduction

Board directors in a modern corporation are responsible for monitoring management (Berle and Means (1933), Jensen and Meckling (1976)). This is particularly true for outside directors who are independent in contrast to inside managing directors. Since inside directors may not feel compelled to contradict the CEO, outside directors are in a better position to monitor managerial activities. As such, board independence is expected to be associated with enhanced corporate performance and valuation. Such expectations, however, have not been demonstrated empirically. Studies of U.S. firms show no relation between the proportion of outside directors and firm performance (see a survey by Hermalin and Weisbach (2003)). International evidence on this relation is also inconclusive. (e.g., Denis and McConnell (2003)).

Independence may also be associated with indifference (Monks and Minow (1995)). Independent outside directors may lack not only the operational expertise of insiders, but also an understanding of basic corporate strategies (e.g., Klein (1998)). Existing evidence regarding the insignificance of board independence

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may reflect this reality: during stable periods, the management oversight benefits of outside directors are offset by the operational expertise of inside directors with ambiguous net results on firm performance (Fama and Jensen (1985)).

This paper provides evidence in support of the positive impact of board independence for Korea in the aftermath of the Asian financial crisis. Responding to demands from the International Monetary Fund (IMF) and shareholder activists in the aftermath of the crisis, the Korean government instituted a series of corporate reform measures and for listed firms required at least 25% of the board to be composed of outside directors. Since outside directors were uncommon in Korea prior to 1997, post-crisis Korea presents a natural laboratory for testing the effect of board independence enforced by the authorities.

Our basic empirical result is that board independence, measured by the proportion of outside directors, has significant and positive effects on firm performance in post-crisis Korea. The effects are stronger for independent outside directors than gray outside directors who may have professional ties with the firm. Indigenous domestic factors, such as family ownership or chaebol affiliation, have negative or insignificant effects on firm performance. This appears to be partly related to the proclivity of chaebol firms to appoint executives of affiliate firms or individuals with political connections as outside directors. On the other hand, external institutional ownership shows clear positive impacts on firm performance—especially foreign investors who can influence corporate governance through their shareholder activism as well as participation on the board.

After controlling for institutional and indigenous factors relevant to firm performance, this paper indicates that the presence of independent outsiders is critical in an emerging market that is subject to external shocks and that may lack sufficient liquidity as well as indigenous institutional infrastructure. In such market environments, firms with insider-dominant boards and entrenched inside ownership can improve performance by adding independent directors and actively involving them in major corporate affairs, with additional assistance from outside institutional shareholders, particularly foreign investors. This is in contrast to the findings of insignificant effects of super-independent boards in developed economies such as the U.S., which is characterized by high market liquidity, economic stability, and well-developed external governance mechanisms. A general implication is that the effect of outsiders on firm performance depends on the nature of market conditions in which the firm operates.

Existing work on Korea, such as Choe, Kho, and Stulz (1999), Bae, Kang, and Kim (2002), and Joh (2003), examines the effects of indigenous Korean institutions, chaebols, in the pre-crisis period. Baek, Kang, and Park (2004) show that share price reductions were smaller during the 1997–1998 crisis for firms with greater external ownership. Claessens, Djankov, Fan, and Lang (2002) document the positive effects of the largest shareholders in Asian firms during 1996. Black, Jang, and Kim (2005) show that the overall corporate governance index constructed by the Korea Stock Exchange (KSE) in 2001 is useful in predicting share prices.

This paper proceeds as follows. Section II discusses regulatory changes in Korea and introduces hypotheses. Section III defines variables used in our empirical work and describes sample characteristics. Section IV presents basic empiri-

cal results using Tobin's  $q$  as a measure of firm performance. Section V explores additional issues such as the impacts of director quality, board reform, and voluntary compliance. Section VI examines the implications of endogeneity on board composition and foreign investment. Section VII closes with concluding remarks.

## II. Regulations and Hypotheses

Given the separation of ownership and management for a modern corporation, the board of directors has been created as an internal governance mechanism to represent and protect shareholders from managers who may pursue their own personal interests or otherwise may not act in the best interests of shareholders. To do this, the presence of independent outsiders is crucial because only then can the board truly monitor and, if necessary, discipline the management. The general expectation, therefore, is that firm performance increases with the independence of the board.

Existing empirical studies of U.S. firms show inconclusive results. Rosenstein and Wyatt (1990) show that the appointment of outside directors is positively related to stock price reactions. However, other studies such as Hermalin and Weisbach (1991), Mehran (1995), Yermack (1996), Klein (1998), and Dalton, Daily, Ellstrand, and Johnson (1998) find no association between the presence of outside directors and firm performance. Agrawal and Knoeber (1996) even report that firm performance is negatively related to the percentage of outsiders on the board, with the implication that boards are not optimally constructed to maximize firm value.

Despite the inconclusive empirical results in the U.S. and elsewhere, the idea of a monitoring board was vigorously imported and implemented by Korean authorities as a part of the reform measures in the aftermath of the Asian financial crisis. Weak corporate governance was viewed as one of the factors that had contributed to the Asian financial crisis in 1997 according to the IMF. Since 1998, the government, in principle, has adopted the American-style monitoring board structure and proceeded with a series of regulatory changes. The Securities Listing Regulations in February 1998 required all firms listed on the KSE (effective April 1, 1999) to have at least 25% of the board composed of outside directors. Table 1 provides the principal regulatory changes concerning outside directors and board structure in Korea. The government's objective was to induce firms to improve transparency and the oversight role of the board by installing independent outside directors.

*Hypothesis 1.* Firm performance increases with board independence.

In addition to the board and internal mechanisms, corporate governance mechanisms also include external markets and institutions, such as the market for corporate control and institutional investors who can monitor and discipline the corporate management. Admati, Pfleiderer, and Zechner (1994) and Shleifer and Vishny (1997) suggest that large institutional investors can mitigate managerial opportunism or exploitation of atomistic investors by controlling insiders. In Korea, the main institutional blockholders are banks and foreign investors other than the government. Excluding the public sector holdings, which may be motivated

TABLE 1  
Regulatory Changes Concerning Outside Directors in Korea

Year.Month	Regulatory Changes
1998.2	Firms listed on the Korea Stock Exchange are required to appoint outside directors for at least 25% of the board.
1999.2	Firms listed on the Korea Stock Exchange are required to set up an audit committee.
2001.1	Except for firms classified as venture businesses, firms listed on the KOSDAQ are required to appoint outside directors. Firms with assets of two trillion or more won and financial institutions are required to maintain the ratio of outside directors to board size at 50% or more.
2001.3	Firms with assets of two trillion or more won are required to set up an outside director nominating committee. The outside director nominating committee should consider a candidate recommended by minority shareholders. Firms with assets of two trillion or more won should establish an audit committee.
2003.12	Firms with assets of two trillion or more won should have at least three outside directors that account for at least 50% of the board.

Source: The Securities Listing Regulations and the Securities Trading Act.

by non-economic factors, these external blockholders can assist in the monitoring by independent directors and contribute to firm performance, especially in less liquid market environments (Coffee (1991), Froot, Perold, and Stein (1992)).<sup>1</sup>

An effective, functioning market for corporate control did not exist in Korea prior to the financial crisis. Until restrictions were lifted in 2001 after the Asian financial crisis, some institutional investors were even barred from formally exercising their voting rights.<sup>2</sup> Most securities and insurance companies belong to chaebols so that their monitoring of firms in the same group is passive and perfunctory. Given their role as lenders and investors (and in some cases as designated main banks), in principle, commercial banks are in a position to act as primary monitoring agents for their corporate clients. However, restructuring necessitated by the banks' own poor financial health may have reduced their ability to actively pursue their role as an instrument of monitoring or market discipline. Foreign institutional investors, who entered the Korean stock market primarily after the abolition of restrictions on foreign equity ownership in 1998, have filled this gap in external governance mechanisms. The potentially positive impact of foreign equity investors in Korea can be understood as a special application of the more general proposition that concentrated outside equity ownership can mitigate managerial opportunism.

*Hypothesis 2.* Firm performance increases with the proportion of shares held by institutional investors, particularly foreign investors.

In addition to shareholder activism, foreign institutional investors can also contribute through their participation in internal governance mechanisms such as the board of directors. Oxelheim and Randøy (2003) show that firms with Anglo-American outside board members have a higher valuation in the Scandinavian

<sup>1</sup>Maug (1998), however, argues that liquidity can also increase the incentives of large shareholders to monitor the firm because they can profit from informed trading.

<sup>2</sup>The shadow voting clause prohibits Korean financial institutions from exerting any influence on voting decisions of the firms in which they have ownership. The clause was abolished in 2001 after the Asian financial crisis.

markets compared to firms without foreign outside board members. They argue that importing of such outside directors into a partially segmented domestic capital market can produce superior firm performance. The presence of foreign directors on the board also has information signaling value to the extent that it communicates to the capital markets a commitment of the firm to expose itself to improved corporate governance practices.

*Hypothesis 3.* Foreign investor participation on the board enhances firm performance.

### III. Estimating Framework and Description of Data

Firm performance depends on board actions among other things. Board actions in turn depend on board composition and characteristics. Ownership variables including institutional and foreign ownership can also affect the board and firm performance. The hypotheses discussed in the previous section concerning board independence can be summarized as:

$$(1) \quad \text{Firm performance} = f(\text{Board, Ownership, Control}),$$

where we focus on board variables and their interactions with ownership and control variables. However, it is possible that board composition may also depend on firm performance and thus may be determined endogenously (e.g., Hermalin and Weisbach (2003)). As is customary in empirical corporate finance of this kind (e.g., Kang and Shivdasani (1995)), we first proceed with single-equation estimations in which endogeneity is controlled for by lagged board and ownership variables. Since a firm whose fiscal year ends in December publishes its annual report in the following spring, the use of one-year lagged variables reflects the board characteristics at the beginning of the year. The implications of endogeneity are more specifically addressed in a separate section later. A linear model of equation (1) is estimated on a pooled data sample from 1999–2002 with year dummies and a constant. Alternatively, the panel model can be estimated with a fixed firm effect. However, as Zhou (2001) criticizes, the fixed firm effect variable virtually eliminates much of the cross-sectional variability across firms, leading to insignificant estimated coefficients. Thus, we use the procedure with a random firm effect that allows for cross-sectional firm variations while capturing time variability by year dummies.<sup>3</sup>

Following common practice in empirical corporate finance (e.g., Bhagat and Black (2002)), Tobin's *q* is used as a measure of firm performance. Tobin's *q* is defined as the sum of the market value of common stock and book value of preferred stock and debt divided by the book value of total assets.<sup>4</sup>

<sup>3</sup>The Korean data used in this paper may not be suitable for an event study because the appointments of outside directors are usually announced shortly before annual shareholders meetings (typically in March) along with other major corporate news such as earnings, management changes, new investments, or restructuring. The clustering of major corporate news items makes it difficult to disentangle the effects of director appointments from those of other major corporate developments in an event study framework.

<sup>4</sup>Some alternative definitions of Tobin's *q* are i) the market value of a firm divided by the replacement costs of its assets, or ii) the sum of the market value of common stock, the book value of

The board variables concern board independence, board size, and foreign participation. Board independence is measured by the ratio of outside directors to the board size. Directors are classified in a manner similar to the schemes used by Weisbach (1988), Byrd and Hickman (1992), Brickley, Coles, and Terry (1994), and Hermalin and Weisbach (1998). In contrast to insider directors that work for the firm or are related to the founding family, outside directors are defined as those that are neither current nor former employees or members of management of the firm or their relatives. Independent directors are outside directors that have no current or potential business ties with the firm. Gray directors are defined as outside directors who appear to have current or potential business ties with the firm by virtue of their professions, such as lawyers, accountants, consultants, or bank executives. The foreign outside director dummy variable indicates the presence or absence of registered foreign citizens on the board.

Ownership variables are presented, as of the end of the year, by shareholder types: family, banks, and foreign investors. Family ownership is measured by the percentage of equity shares owned by the largest shareholder family and associated shareholders who are under the control of the largest shareholder family, including stocks held by affiliated firms.<sup>5</sup> Bank holdings include ownership stakes held by commercial banks and financial institutions other than insurance and securities companies. Foreign investor ownership is the ownership percentage held by all registered foreign investors.

Control variables include not only various firm-specific variables measuring operational and financial profiles of the firm, but also other variables such as firm age, chaebol affiliation dummy, depository receipt (DR) dummy, and year and industry dummy variables. The export to sales ratio is included to measure the firm's international operations as well as the importance of exports in Korean economic growth. The ratio of research and development (R&D) expenditures to sales is a proxy for intangible assets, which measures the firm's internalized oligopolistic advantage and is expected to increase firm value (e.g., Dunning (1980)). The ratio of debt to total assets is a measure of a firm's financial risk, but may also indicate the degree of monitoring performed by debt holders.<sup>6</sup> The natural log of total sales in Korean won measures firm size. To the extent that larger firms tend to be more diversified with potentially bigger agency and bureaucratic costs, the effect of firm size can be negative. The return on assets (ROA) is the ratio of earnings before interest, tax, depreciation, and amortization (EBITDA) to total assets. The beta is estimated from the market model by using daily stock return data obtained from the KSE; the estimation period is confined to one year to avoid the overlapping sample problem that arises when longer time-series data are used.

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preferred stock and debt, and short-term debts less short-term assets, divided by the book value of assets. The differences of these measures for most corporate finance problems are minor (Chung and Pruitt (1994)).

<sup>5</sup>All ownership variables used here measure the proportion of cash flow rights due to shareholders. This may understate the influence of family that can amass larger voting rights because of pyramidal or circular ownership structures in Korea. The issues relating to the gap between cash flow and voting rights are examined in Baek, Kang, and Park (2004).

<sup>6</sup>A priori, the effect of the debt ratio on firm value is ambiguous, depending on whether the benefit of financial leverage outweighs the cost, and also on whether the debt ratio indicates the monitoring role of debt holders. In the latter interpretation, the effect can be positive.

The log of firm age is included because it is plausible that as the firm ages, it may become more complex, causing more agency problems (Denis and Sarin (1999), Mak and Li (2001)). The chaebol affiliation dummy variable is included to indicate whether the firm belongs to one of the top 30 chaebols as classified by the Korean government. The effect of information transparency is measured by a DR dummy variable (Mitton (2002), Baek, Kang, and Park (2004)). The expectation is that a DR issue is a transparency-enhancing event because the firm has passed the disclosure requirements for international listing (e.g., Pagano, Röell, and Zechner (2002)). Dummy variables are also included for year and industry. Four industry dummy variables are used as a proxy for unobserved industry effects: services, manufacturing, construction and transportation, and utility and telecommunication. Utility and telecommunication are listed separately because of their different regulatory environments. Table 2 provides a list of all variables used in empirical work.

TABLE 2  
Descriptive Statistics of Variables

The sample consists of 457–464 firms for the period from 1999 to 2002, measured at the end of the year.

Definitions

Tobin's q	The market value of common stock and the book value of preferred stock and total debts, divided by the book value of total assets.
Outside directors	The ratio of outside directors to board size. Outside directors are directors that do not participate in the management of the firm presently or in the past, or that are not the relatives of management or controlling shareholders.
Independent outside directors	The ratio of independent outside directors to board size. Independent outside directors are outside directors who do not have current or potential business ties to the firms.
Gray outside directors	The ratio of gray outside directors to board size. Gray outside directors are outside directors who appear to be related to the firm by their profession, such as lawyers, accountants, consultants, or bank executives.
Log of board size	The natural log of the number of directors on the board.
Foreign board director dummy	A dummy variable to indicate whether the board of directors includes at least one foreign director.
Family holdings	The percentage ownership held by the largest shareholder family and associated shareholders, such as affiliated firms, who are under the control of the largest shareholder family.
Foreign investor holdings	The percentage ownership held by registered foreign investors.
Bank holdings	The percentage ownership held by commercial banks and other financial institutions other than insurance and securities companies.
Exports to sales	The ratio of exports to total sales.
R&D expenditure to sales	The ratio of the research and development expenditure to total sales.
Total debt ratio	The ratio of total debts to total assets.
Log of total sales	The natural log of the total sales in Korean won.
Return on assets (ROA)	The ratio of earnings before interest, tax, depreciation, and amortization (EBITDA) to total assets.
Beta	The beta coefficient of a firm estimated by the market model using daily returns of individual stock and broad market KOSPI dividend-adjusted index for the year.
Log of firm age	The natural log of the number of years of the firm from its inception as a corporation.
Chaebol dummy	A dummy variable to indicate whether a firm belongs to one of the 30 largest chaebols. The Korea Fair Trade Commission updates the list of the 30 largest chaebols annually.
Depository receipt dummy	A dummy variable to indicate whether a firm has issued an American depository receipt or a global depository receipt.
Gray outside director dummy	A dummy variable to indicate whether a firm has gray outside directors.
Positive ROA dummy	A dummy variable to indicate whether the ROA changes are positive relative to the previous financial year.

(continued on next page)

TABLE 2 (continued)  
Descriptive Statistics of Variables

Variable	Obs.	Mean	Median	SD	Max	Min
<i>Performance Variable</i>						
Tobin's q	1,808	0.85	0.78	0.34	2.92	0.21
<i>Board Variables</i>						
Outside directors	1,803	0.32	0.29	0.10	0.80	0.25
Independent	1,803	0.21	0.25	0.14	0.78	0.00
Gray	1,803	0.10	0.05	0.12	0.80	0.00
Log of board size	1,803	1.85	1.95	0.33	3.00	0.69
Foreign board director dummy	1,834	0.04	0.00	0.20	1.00	0.00
<i>Ownership Variables</i>						
Family holdings	1,815	0.31	0.30	0.19	0.96	0.00
Foreign investor holdings	1,796	0.06	0.01	0.12	0.86	0.00
Bank holdings	1,194	0.05	0.01	0.11	0.89	0.00
<i>Firm Characteristics</i>						
Exports to sales	1,817	0.29	0.20	0.30	1.00	0.00
R&D expenditure to sales	1,818	0.01	0.00	0.02	0.41	0.00
Total debt ratio	1,829	0.59	0.53	0.81	22.37	0.04
Log of total sales	1,215	25.86	25.73	1.52	31.33	17.26
Return on assets (ROA)	1,812	0.05	0.06	0.17	1.93	-1.60
Beta	1,823	0.69	0.67	0.34	5.37	-2.61
Log of firm age	1,834	3.41	3.43	0.38	4.44	1.39
Chaebol dummy	1,834	0.19	0.00	0.39	1.00	0.00
Depository receipt dummy	1,831	0.03	0.08	0.17	1.00	0.00
Gray outside director dummy	1,834	0.49	0.00	0.50	1.00	0.00
Positive ROA dummy	1,780	0.50	1.00	0.50	1.00	0.00

Sources: The Korea Stock Exchange, the Financial Supervisory Service, the Korea Fair Trade Commission, and the Korea Listed Companies Association.

All board, ownership, and firm-specific accounting data are obtained from the Listed Company Database of the Korean Listed Companies Association as well as Web sites of the Financial Supervisory Service and the Fair Trade Commission of the Korean government (KFTC). The daily stock price and market index data are obtained from the KSE. The chaebol affiliation of each firm is based on the KFTC's classification. The list of the 30 largest chaebols is maintained by KFTC, and is subject to change each year. This may result in minor changes in the chaebol affiliation dummy variable each year.

The sample is composed of 457–464 firms from 1999 to 2002, and there are 1,834 firm-year observations.<sup>7</sup> The sample covers the period from the institution of independent board reform. The sample includes all KSE-listed nonfinancial firms for which necessary board, ownership, and firm-specific variables are available. The outside director requirement was announced in 1998, and 1999 was the first year when such regulations were actually required to be implemented by firms. The frequency of all variables is annual, and the values are measured at the end of each fiscal year ending in December.

Regarding board characteristics, Table 3 shows that the regulatory changes appear to have succeeded in making Korean boards "mixed" with both inside and outside directors. For the full sample period of 1999–2002, outside directors comprise 31.8% of the board of directors on average: they include 21.3% for independent directors and 10.5% for gray directors. The average board size of 6.75 directors for Korean firms is smaller than the 12.25 reported for U.S. firms by

<sup>7</sup>The numbers of total listed firms on the KSE are 683–725 for 1999–2002. Financial firms are excluded from the sample because they are subject to different regulatory requirements and have undergone severe restructuring since the Asian financial crisis.



Yermack (1996). More than one-half, 54%, of the firms in the sample have outside director composition that exceeds the minimum 25% of the board required by the regulation. Given such characteristics, the current sample lends itself to the test of relative board independence of mixed boards that are still dominated by insiders, rather than that of truly monitoring boards that are dominated by outside directors. Chaebol firms have larger boards than non-chaebol firms, perhaps reflecting the size of chaebol firms.<sup>8</sup> The differences in the mean ratios of outside directors in the chaebol and non-chaebol samples are statistically significant, except for gray directors.

As a preliminary step, the Pearson correlation coefficients of explanatory variables are calculated (not reported). The condition index method suggested by Belsley, Kuh, and Welsch (1980) indicates no serious multicollinearity problems among explanatory variables. Board independence, measured by the ratio of independent outside directors to total board size, is positively correlated to size variables such as firm size, board size, and chaebol affiliation. Size implies complexity of operations, which necessitates a greater degree of monitoring and oversight by the board. Board independence is also correlated positively with outside blockholdings such as bank holdings and foreign investor holdings, and negatively with family holdings. This makes sense because outside blockholders have incentives to monitor management behaviors through independent directors. On the other hand, owner-managers controlled by families may want to reduce board monitoring.

## IV. Basic Empirical Results

### A. Outside Board Directors

Table 4 presents the basic empirical results. Panel A shows evidence in support of Hypothesis 1 that board independence (measured by the ratio of outside directors) affects firm performance (measured by Tobin's *q*) positively. The positive effect is particularly significant when outside directors are independent. With gray directors, the effects are insignificant. This positive impact of independent directors in Korea contrasts with existing work for U.S. firms indicating that board independence has no relation with firm performance (e.g., Hermalin and Weisbach (2003)). The difference, however, may be related to different degrees of board independence in the two countries. In the U.S., super-independent monitoring boards are the norm. If the boards are optimally determined, the replacement of an inside director by an independent outsider may not enhance, or may even reduce, firm performance (Hermalin and Weisbach (1991)).

The effects of board size are positive in sign, although the coefficient is statistically significant only when board size is the sole governance variable included and becomes insignificant when all board and ownership variables are included together. The capacity for monitoring generally increases with board size, but there is a cost of slower decision making and having a less candid culture with

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<sup>8</sup>The average asset size of chaebol firms during the sample period is 1,251.6 billion won. This compares with 157.4 billion won for non-chaebol firms.

TABLE 3  
Board Characteristics

The sample includes 457–464 firms and 1,834 firm-years from 1999 to 2002. All board variables, measured at the end of the year, show the mean values for individual years and for the full sample period. The chaebol sample includes firms that belong to the 30 largest chaebols. The non-chaebol sample includes firms that are not affiliated with any of the 30 largest chaebols. The annual report by the Korea Fair Trade Commission is used to determine whether a firm belongs to the 30 largest chaebols each year. The last column indicates the number and the proportion of firms with the ratio of outside directors exceeding the 25% minimum required by the regulation. See Table 2 for exact definitions of board variables.

	No. of Obs.	Board Size (no. of directors)	Outside Directors (proportion)	Independent Outside Directors (proportion)	Gray Outside Directors (proportion)	Firms with Outside Directors Exceeding 25% (no. & proportion)
<i>All Firms</i>						
1999	457	6.71	0.2926	0.1892	0.1034	176 (0.385)
2000	455	6.76	0.3244	0.2220	0.1024	262 (0.576)
2001	458	6.77	0.3261	0.2230	0.1031	271 (0.592)
2002	464	6.74	0.3277	0.2184	0.1093	281 (0.606)
1999–2002	1,834	6.75	0.3178	0.2132	0.1046	990 (0.540)
<i>Chaebol Firms</i>						
1999	87	7.70	0.3600	0.2643	0.0958	48 (0.552)
2000	87	7.63	0.4055	0.3051	0.1003	65 (0.747)
2001	83	7.76	0.3947	0.2936	0.1011	63 (0.759)
2002	92	7.74	0.3962	0.2761	0.1201	75 (0.815)
1999–2002	349	7.71	0.3894	0.2847	0.1047	251 (0.719)
<i>Non-Chaebol Firms</i>						
1999	370	6.49	0.2771	0.1720	0.1051	128 (0.346)
2000	368	6.56	0.3052	0.2023	0.1029	197 (0.535)
2001	375	6.55	0.3106	0.2070	0.1036	208 (0.555)
2002	372	6.49	0.3108	0.2042	0.1066	206 (0.554)
1999–2002	1,485	6.52	0.3010	0.1964	0.1046	739 (0.498)
<i>t-Statistics for Mean Difference between Chaebol and Non-Chaebol Firms</i>						
1999		-4.31	-5.37	-5.16	0.65	
2000		-3.96	-6.67	-6.57	0.18	
2001		-4.08	-5.91	-4.75	0.16	
2002		-3.97	-6.46	-4.16	-0.92	
1999–2002		-8.03	-12.16	-10.03	-0.01	

larger boards (see, e.g., Jensen (1993), Yermack (1996), and Eisenberg, Sundgren, and Wells (1998)). Since Korean boards are relatively small to begin with, the gains of size increase may be greater than the costs on the margin.

We now examine the issue of nonlinearity by including the square terms of the ratios of outside directors in the basic regressions. The estimate for the square term in Panel B of Table 4 is statistically insignificant. We further test interaction terms of independent directors with respect to banks, foreign investors, and the foreign director dummy, which are all positive and significant except for the estimate for foreign director when all variables are jointly included. Interaction terms with family ownership and chaebol are negative or insignificant. The *F*-test of joint significance nevertheless confirms the positive and significant effects of board independence overall on firm performance, considering both own and interaction terms for each of these variables.

Black, Jang, and Kim (2005) find that a dummy variable for at least 50% outside directors has a significant coefficient based on the KSE corporate governance index and cross-sectional data for 2001. In our post-crisis sample of 1999–2002, there are 180 such observations, which comprise 9.8% of the total sample. The substitution of these dummies for continuous outside director variables in the basic regression of (A1) and (A2) leads to statistically significant coefficients of

TABLE 4  
Effects of Outside Directors on Tobin's q: The Basic Models

The dependent variable is Tobin's q. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. Panel A shows the results of basic regressions, and Panel B shows the estimation results with quadratic and interaction terms for independent outside directors. The sample consists of 1,834 firm-years from 1999 to 2002. See Table 2 for exact definitions of the variables. The  $p$ -values are shown in parentheses using White heteroscedasticity-consistent standard errors.

*Panel A. Basic Models*

	(A1)	(A2)	(A3)	(A4)	(A5)	(A6)
Outside directors	0.307 (0.01)					
Independent outside directors		0.271 (0.00)				0.193 (0.07)
Gray outside directors			-0.091 (0.21)			-0.016 (0.87)
Foreign outside director dummy				0.188 (0.00)		0.063 (0.21)
Log of board size					0.104 (0.00)	0.044 (0.23)
Family holdings						-0.112 (0.06)
Foreign investor holdings						0.723 (0.00)
Bank holdings						0.423 (0.00)
Total debts to total assets	0.958 (0.00)	0.958 (0.00)	0.956 (0.00)	0.960 (0.00)	0.957 (0.00)	0.956 (0.00)
Chaebol affiliation dummy	0.006 (0.82)	0.001 (0.96)	0.012 (0.64)	0.025 (0.41)	0.014 (0.59)	0.015 (0.56)
Depository receipt dummy	0.041 (0.68)	0.046 (0.64)	0.048 (0.63)	0.018 (0.85)	0.043 (0.66)	0.003 (0.98)
Exports to sales	-0.032 (0.35)	-0.029 (0.39)	-0.032 (0.34)	-0.056 (0.10)	-0.033 (0.35)	-0.023 (0.50)
R&D expenditure to sales	5.689 (0.01)	5.698 (0.01)	5.806 (0.01)	5.856 (0.01)	5.670 (0.01)	5.065 (0.03)
Log of total sales	-0.044 (0.00)	-0.042 (0.00)	-0.037 (0.00)	-0.041 (0.00)	-0.043 (0.00)	-0.074 (0.00)
ROA	0.148 (0.08)	0.136 (0.12)	0.125 (0.15)	0.102 (0.19)	0.131 (0.13)	0.121 (0.07)
Beta	0.024 (0.67)	0.028 (0.61)	0.031 (0.58)	0.032 (0.57)	0.036 (0.53)	0.101 (0.04)
Log of firm age	-0.219 (0.00)	-0.217 (0.00)	-0.215 (0.00)	-0.223 (0.00)	-0.243 (0.00)	-0.205 (0.00)
2000 year	-0.158 (0.00)	-0.153 (0.00)	-0.142 (0.00)	-0.162 (0.00)	-0.126 (0.00)	-0.142 (0.00)
2001 year	-0.097 (0.01)	-0.091 (0.01)	-0.072 (0.03)	-0.087 (0.01)	-0.057 (0.07)	-0.081 (0.02)
2002 year	-0.094 (0.01)	-0.088 (0.01)	-0.069 (0.03)	-0.086 (0.01)	-0.053 (0.08)	-0.087 (0.01)
Manufacturing industry	0.029 (0.58)	0.029 (0.58)	0.033 (0.53)	0.018 (0.75)	0.039 (0.46)	-0.008 (0.88)
Services industry	0.171 (0.01)	0.164 (0.02)	0.163 (0.02)	0.133 (0.06)	0.169 (0.01)	0.093 (0.17)
Utilities and telecommunication industry	0.161 (0.14)	0.155 (0.15)	0.169 (0.12)	0.141 (0.19)	0.146 (0.15)	0.156 (0.12)
Intercept	2.121 (0.00)	2.095 (0.00)	2.019 (0.00)	2.156 (0.00)	2.036 (0.00)	2.782 (0.00)
Adjusted $R^2$	0.783	0.783	0.782	0.769	0.780	0.813
$F$ -Statistics	399.1	399.8	396.9	379.5	391.0	333.6
$p$ -Value ( $F$ -statistics)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Observations	1,765	1,765	1,765	1,811	1,766	1,683

(continued on next page)

TABLE 4 (continued)  
Effects of Outside Directors on Tobin's q: The Basic Models

	(B1)	(B2)	(B3)	(B4)	(B5)	(B6)	(B7)
Board independence	0.179 (0.25)	0.481 (0.00)	0.035 (0.63)	0.175 (0.04)	0.250 (0.00)	0.238 (0.02)	0.097 (0.61)
Board independence squared	0.211 (0.56)						-0.034 (0.93)
Board independence*Family		-0.779 (0.00)					-0.265 (0.24)
Board independence*Foreign investor			2.676 (0.00)				2.697 (0.00)
Board independence*Bank				1.245 (0.00)			0.952 (0.00)
Board independence*Foreign director					0.439 (0.05)		-0.044 (0.83)
Board independence*Chaebol affiliation						0.133 (0.40)	-0.055 (0.76)
Firm characteristic variables, year and industry dummies, and intercepts are included in all regressions.							
F-Test of joint significance of board independence and interaction terms (p-value)	4.99 (0.01)	10.06 (0.00)	26.18 (0.00)	12.55 (0.00)	6.42 (0.00)	5.97 (0.00)	14.89 (0.00)
Adjusted R <sup>2</sup>	0.783	0.802	0.808	0.797	0.784	0.783	0.812
F-Statistics	376.2	412.8	423.0	399.4	377.5	376.2	328.3
p-Value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Observations	1,765	1,732	1,708	1,730	1,765	1,765	1,665

0.125 and 0.177, respectively, which quite closely coincide with their estimates of 0.129 and 0.163.

## B. Foreign Institutional Investors—The Ultimate Outsider

While the board is an internal governance system, external governance institutions are represented by ownership variables. The results of the basic model in Table 4 show that external institutional investors, such as foreigners and banks, have statistically significant and positive coefficients at the 1% level, which supports Hypothesis 2.<sup>9</sup> In Japan and Korea, banks may also have a potentially significant role as “main banks” for the purpose of monitoring corporate clients (e.g., Kang and Shivdasani (1995)). The coefficients of the long-term debt ratios (the bulk of which are bank loans) are significant and have positive signs. These results are consistent with the notion that concentrated external stockholdings can mitigate managerial opportunism or value expropriation by insiders (Admati, Pfleiderer, and Zechner (1994), Shleifer and Vishny (1997)), or the notion that less than perfect liquidity increases the incentives of institutional investors to engage in performance-enhancing monitoring (Coffee (1991), Froot, Perold, and Stein (1992)).

It is noteworthy that the coefficient of foreign ownership is not only statistically significant at the 1% level but much greater in magnitude than that of banks: 0.723 versus 0.423 in equation (A6) in Table 4. Thus, it looks as if an increase in

<sup>9</sup>We have also included stock holdings owned by securities and insurance firms. The results (not reported here) are somewhat less significant than those of banks possibly because of the government regulation that limits the voting rights of securities and insurance firms that belong to chaebols.

foreign investor ownership might exert a greater impact than the same increase in domestic bank ownership as it pertains to their relative contributions to improved corporate governance and performance in Korea.

These points are further reinforced in Panel B of Table 4, where interaction terms between independent directors and institutional investors such as banks and foreigners are significant and positive. Again, the coefficient of the interaction with foreign investor holdings is greater than that of the banking sector holdings, lending further support to Hypothesis 2. The results on outside blockholders, in both Panels A and B, are consistent with the notion that the alignment of interests and resolution of agency conflicts is easier when outside shareholders can interact with inside directors. As Mak and Li (2001) suggest, it might be less costly for external institutional investors to resolve their conflicts through an internal governance mechanism, such as boards and shareholder meetings, than to initiate takeovers as a means of increasing firm value.

In addition to their role as shareholder activists, foreign investors can also exert pressure by putting their representatives on the board. In Panel A of Table 4, the foreign outside director dummy variable is significant and positive at the 1% level when it is the sole board variable, but becomes statistically insignificant where it is estimated with other board and ownership variables. Similarly, in Panel B, the interaction term between independent directors and the foreign director dummy variable is significant and positive in (B4) but is insignificant when all variables are included. The results from both Panels A and B, Table 4 indicate that foreign participation on the board generally adds to board independence and is a performance-enhancing measure (Hypothesis 3). This is largely consistent with Oxelheim and Randøy's (2003) finding for Swedish firms.

### C. Family and Chaebol—Indigenous Institutions

In contrast to external blockholders, such as foreign investors and banks, family holdings have a negative effect on firm performance. Table 4, Panel A shows that the coefficient of family holdings is significant, but negative. In addition, the interaction term of family holdings with independent directors also has a negative and statistically significant coefficient at the 1% level in (B2). The negative impacts of family holdings indicate the likely entrenchment of family manager-owners. Despite initial entrepreneurial contributions of founders, it appears that continuing to keep the firm ownership and management as a family affair has more costs than benefits. This is consistent with the role of founding families in Asia reported by Mitton (2002) and Lins (2003), and contrasts with the finding of Anderson and Reeb (2003) who report the positive influence of family ownership for U.S. firms.

No study of Korean corporate finance can conclude without addressing chaebol. Although many chaebol firms are family-controlled, family and chaebol firms are different—one shows the effect of ownership, and the other shows the effect of group membership. In Table 4, chaebol affiliation dummy variables are positive but statistically insignificant across all specifications of Panel A. Similarly, the interaction term with outside directors is positive but insignificant in Panel B.

The tentative conclusion is that the effects of chaebol affiliation on board independence and firm performance are weak and insignificant.

Because of its importance in Korea, we pursue the chaebol issue further by dividing the sample into chaebol and non-chaebol groups. The results (not reported) show that the two samples are quite different. The non-chaebol sample basically produces the same results as obtained from the total sample in Table 4: i) the coefficients of outside and independent directors are significant and positive, ii) gray directors produce negative but statistically insignificant results, iii) the board size is positive, iv) foreign investors and banks both have significant positive coefficients, and v) foreigners have a greater positive coefficient than banks. The only difference is that the effect of family holdings, which is still negative, now becomes insignificant. The results of the chaebol sample are much weaker overall, compared to the non-chaebol sample as well as the total sample in Table 4: the effects of outside or independent directors are now insignificant at the 5% level. Foreign investor holdings are still significant and positive, but the foreign director dummy variable becomes insignificant. Similarly, both bank and family holdings become insignificant. These results suggest the view that chaebols are so powerful in Korea as to possibly dominate and nullify the oversight and market discipline functions of all other parties and institutions, with the possible exception of foreign investors.

## V. Further Investigations

### A. Director Backgrounds and Quality

Table 5 shows information on professional backgrounds of directors, obtained from annual reports of each firm, augmented by personnel directories available at the Chung-ang Daily News Web site. The professional backgrounds reported here represent current or representative careers of outside directors, except for politicians or government officials who are indicated by their professions immediately prior to their appointments as outside directors. Directors who are lawyers or accountants do not have any current or prior professional relationships with the firm either directly or through affiliation. Most outside directors invited to join the boards are male, middle-aged, and members of professions or managers of other firms. For most firms, outside directors took up seats formerly held by inside managing directors without increasing the size of the board. Generally, they own no stock of the firms they join.

There are important differences in the profiles of outside directors between chaebols and non-chaebols. Compared to non-chaebol firms, a greater proportion of chaebol firms appoint former politicians and government officials as outside directors: 22.5% versus 11.2%. Chaebol firms also recruit lawyers as outside directors more than non-chaebol firms. Similarly, 22.3% of chaebol firms appoint the executives of affiliated group firms, as opposed to only 6.2% for non-chaebol firms. Almost half (47.6%) of all chaebol firms also use academics as outside directors, many of whom may be politically influential in Korea through their memberships in professional or public organizations as well as social circles. These results indicate that despite the fact that chaebols may ostensibly have a greater

TABLE 5  
Professional Background of Outside Directors

Table 5 shows the breakdown of the total number of firm-year observations by professional categories of outside directors for the full sample, chaebol, and non-chaebol samples. The professional backgrounds represent current or representative careers of outside directors, except for politicians or government officials who are indicated by their professions immediately prior to their appointments as outside directors. Lawyers and accountants do not have any current or prior professional relationships with the firm either directly or through affiliation. There are 1,834 firm-year observations and 3,268 outside directors. Because firms usually have multiple categories of outside directors, the sum of individual observations for each category can exceed the total firm-year observations. The last three columns provide the percentage distribution of outside directors by professional background.

	Number (% proportion to the sample) of Observations with a Particular Director Category			Percentage Distribution of Outside Directors		
	Full Sample	Chaebol Sample	Non-Chaebol Sample	Full	Chaebol	Non-Chaebol
Total firm-year observations	1,834	355	1,479	3,268	840	2,428
Executives of affiliated firms	170 (9.3%)	79 (22.3%)	91 (6.2%)	5.4	7.9	4.6
Former politicians or government officials	245 (13.4%)	80 (22.5%)	165 (11.2%)	6.2	7.4	5.8
Lawyers	301 (16.4%)	86 (24.2%)	215 (14.5%)	9.6	11.5	8.9
Executives of financial institutions	375 (20.4%)	83 (23.4%)	292 (19.7%)	15.7	13.5	16.5
Accountants	247 (13.5%)	59 (16.6%)	188 (12.7%)	10.4	8.6	11.0
Academics	461 (25.1%)	169 (47.6%)	292 (19.7%)	20.3	28.8	17.3
Executives of non-affiliated firms	585 (31.9%)	89 (25.1%)	496 (33.5%)	22.6	14.4	25.4
Others	257 (14.0%)	57 (16.1%)	200 (13.5%)	9.8	8.0	10.3

proportion of outside directors on the board than non-chaebols (Table 3), chaebol firms utilize more outside directors that are connected politically or affiliated within their groups. This implies that chaebols may have been more efficient than non-chaebols in countering the government's policy objective of improved monitoring of management with the institutionalization of outside directors.

In addition to board independence, firm performance may also depend on the quality of outside directors. We use regression analysis to address this issue in two ways. First, we include a multiple directorship dummy. The fact that a board member has a directorship in another firm may be indicative of his reputation and ability, and hence the presence of such a board member in the firm could enhance firm performance (e.g., Yermack (1996)). The dummy is one if at least one outside director of the firm has multiple directorships, and zero otherwise. There are 199 such outside directors with multiple directorships, and 354 firm-year observations during the sample period of 1999–2002. Second, we also include dummies for each professional category of outside directors, on the ground that a member of a certain profession may be more effective than others as outside directors.

Table 6 presents the results of such estimations using the basic empirical models, (A1) and (A2) in Table 4. Panel A shows that the multiple directorship dummies are statistically insignificant for both specifications although the signs are positive. Estimation with a multiple directorship dummy for independent directors only (excluding gray outside directors) shows a similar result (not reported). It is possible that despite the potentially positive reputation effect of multiple directorships, the board reform in 1999 has created a rush to fill outside director positions without sufficient time to sort out the potential director pool in terms of their capability.

TABLE 6  
The Effects of Director Quality

Table 6 estimates the effects of the quality of outside directors using the basic empirical models, (A1) and (A2), in Table 4, Panel A. Both equations are estimated in full specifications although only the results concerning director quality are reported here. The director quality is measured in two ways: first by a multiple directorship dummy; second by dummies indicating the particular professional categories of outside directors. The multiple directorship dummy is one if at least one director of the firm has multiple directorships, and zero otherwise. The number of firm-year observations with such multiple directorships is 354, with 199 outside directors involved with multiple directorships. The total sample consists of 1,834 firm-years from 1999 to 2002. The dependent variable is Tobin's  $q$ . The  $p$ -values are shown in parentheses using White heteroscedasticity-consistent standard errors.

*Panel A. Multiple Directorship of Outside Directors*

	(A1)	(A2)
Outside directors	0.307 (0.01)	
Independent outside directors		0.270 (0.00)
Multiple directorship	0.004 (0.88)	0.005 (0.84)
Adjusted $R^2$	0.722	0.723
Observations	1,765	1,765

*Panel B. Professional Background of Outside Directors*

	(B1)	(B2)
Outside directors	0.232 (0.14)	
Independent outside directors		0.186 (0.07)
Executives of affiliated firms	-0.001 (0.96)	-0.001 (0.97)
Former politicians or government officials	0.007 (0.79)	0.003 (0.91)
Lawyers	-0.028 (0.19)	-0.016 (0.45)
Executives of financial institutions	-0.071 (0.00)	-0.057 (0.00)
Accountants	-0.001 (0.98)	0.013 (0.69)
Academics	0.099 (0.00)	0.093 (0.01)
Executives of non-affiliated firms	0.084 (0.00)	0.077 (0.00)
Adjusted $R^2$	0.732	0.732
Observations	1,594	1,594

Nevertheless, the results of professional category dummies in Panel B, Table 6 are informative. Interestingly, the effects of bankers as outside directors are statistically significant and negative. The contributions of lawyers, former politicians, and government officials are also negative, albeit statistically insignificant. However, outside directors who are executives of non-affiliated firms have significant, positive impacts on firm performance, in contrast to executives of affiliated firms who have insignificant, negative impacts. Thus, the common practice by chaebol firms of appointing affiliated firm executives as directors appears to be a value-losing proposition. However, it should be heartening for most readers that the contributions of academics are significant and positive at the 1% level.

## B. Intertemporal Effects of Board Reform

Although the regulation requiring outside directors became effective in 1999, some firms had appointed outside directors voluntarily even prior to the reform. It is of interest to examine whether the positive effect of board independence demonstrated above during the post-reform period can also be obtained prior to the board reform. To address this concern, the data for the pre-reform period of 1994–1998 were collected for the same firms that are included in the post-reform sample period of 1999–2002. However, the extent of voluntary deployment of outside directors was relatively minor in the pre-reform period. The ratio of outside directors in the sample was only 2.3% of observations on average for 1994–1998, indicating largely insider-dominant boards before the reform (Table 7, Panel A).



Only about 12% of firms in the sample from 1994–1998 had at least one outside director, and even that is largely due to a big jump in 1998 because of the Asian financial crisis. The proportion of listed firms with at least one outside director grew from 4.3% in 1994 to 31.4% in 1998.

TABLE 7  
Board Reform and Board Independence: An Intertemporal Perspective

Table 7 examines the longitudinal effects of board reform on firm performance. Even before the 1999 board reform that mandated outside directorship, some firms had appointed outside directors voluntarily. Data for the pre-reform period of 1994–1998 are collected for the same firms included in the post-reform sample of 1999–2002. There are 1,653 firm-years from 1994–1998 for the matching firm sample. Panel A describes the board characteristics of the matching sample in the pre-reform period. Panel B presents the results of estimating model (A2) in Table 4 for the pre-reform sample (1994–1998) with and without year dummies. Panel C provides the results of estimating the same model for the entire sample (1994–2002) covering both pre- and post-reform periods. In Panel C, a board reform dummy replaces year dummies (one indicates the post-reform period of 1999–2002). An interaction term between the ratio of independent outside directors and board reform is also included. The dependent variable is Tobin's  $q$ . The  $p$ -values are shown in parentheses using White heteroscedasticity-consistent standard errors.

Panel A. Pre-Reform Board Characteristics of Firms Included in the Post-Reform Sample of 1999–2002 (sample means)

	All Matching Firms				Firms with Any Outside Directors	
	No. of Obs.	Board Size	Ratio of Outside Directors	Ratio of Independent Outside Directors	No. of Obs.	Proportion to All Matching Firms
1994	302	10.93	0.0100	0.0100	13	0.0430
1995	315	10.97	0.0147	0.0140	23	0.0730
1996	330	10.64	0.0159	0.0148	24	0.0727
1997	352	10.21	0.0189	0.0174	28	0.0795
1998	354	9.98	0.0567	0.0474	111	0.3136
1994–1998	1,653	10.55	0.0232	0.0207	199	0.1204

Panel B. Pre-Reform Effects of Independent Outside Directors for the Matching Sample from 1994–1998 (1,653 obs.)

	(B1)	(B2)
Independent outside directors	-0.159 (0.11)	-0.042 (0.63)
Inclusion of year dummy variables	No	Yes
Adjusted $R^2$	0.324	0.417

Panel C. Intertemporal Effects of Board Reform for the Matched Sample from 1994–2002 (3,114 obs.)

	(C1)	(C2)	(C3)
Independent outside directors	0.171 (0.01)		-0.075 (0.53)
Board reform dummy	-0.072 (0.00)	-0.092 (0.00)	-0.094 (0.00)
Independent directors*Board reform dummy		0.263 (0.00)	0.336 (0.02)
Adjusted $R^2$	0.786	0.786	0.786

Panel B, Table 7 presents the results of estimating the basic model, (A2) in Table 4, for the pre-reform period of 1994–1998. The results on the effects of independent directors on firm performance, in (B1) and (B2), are statistically insignificant.<sup>10</sup> Estimation for the extended period of 1994–2002 in Panel C, however, shows that the effects of independent directors are positive and significant in model (C1) although the board post-reform (1999–2002) dummy itself is negative. In addition, interaction terms between independent directors and board reform are positive and significant in (C2) and (C3). These results suggest that, while the voluntary addition of outside directors may have insignificant impacts

<sup>10</sup>Similar results are obtained with total outside directors rather than just independent outside directors.

on firm performance in the pre-reform period, the net effects of board independence conditional on board reform (requiring a minimum of 25% outside directors for KSE-listed firms) are significant and positive in the extended sample period.

As a robustness check, we estimate the basic models for cases of voluntary compliance (beyond the regulatory minimum of 25% outside directors) during the post-reform period of 1999–2002, and also for instances in which firms in the post-reform sample had already met the 25% minimum requirement in the pre-reform period of 1994–1998. Results from the former estimation show that the effects on performance are the same qualitatively, regardless of whether the proportion of outside directors is set at a regulatory minimum or goes beyond it at the discretion of the firm. The latter estimation indicates that the pre-reform compliance has no significant effect on firm performance although the signs are positive.

## VI. Endogeneity

Thus far, we have estimated firm performance as a function of board composition and other firm-specific variables in the context of a single equation. However, board composition may also depend on firm performance and thus may need to be determined endogenously (Hermalin and Weisbach (2003)). Bhagat and Black (2002) argue that the endogeneity problem is not so serious in the case of the board because board composition typically changes slowly over time. In Korea, the installation of outside directors was done in a relatively short period of time. The law was enacted in February 1998 in the aftermath of the Asian financial crisis, mandating that for listed firms a minimum of 25% of the board be outside directors. After about a one-year grace period, the regulation became effective as of April 1, 1999. The changes came mostly as a result of government regulations rather than through independent decisions by the firms. Therefore, the creation of outside directors during the sample period in Korea arguably was largely an exogenous event. Dahya, McConnell, and Travlos (2002) make a similar argument with respect to the Cadbury Committee that recommended a similar (but voluntary) requirement of outside directors for U.K. firms.

Nevertheless, to the extent that inadequate governance is one of the reasons for the Asian financial crisis (e.g., Choi (2000)), the possibility of an endogenous determination of board composition cannot be discounted. In Sections IV and V, we address the endogeneity issue by using lagged board and ownership variables. We now estimate the ratio of independent directors endogenously in the first stage and use their estimated values for the estimation of firm performance in the second stage using the two-stage least squares (TSLS) method in Table 8.<sup>11</sup> Instruments used in the first stage include lagged endogenous variables and all exogenous variables in the system. This means all explanatory variables in the firm performance equation in Table 4 (other than the independent director that is now endogenous). Since TSLS is a “limited information” estimation method, the

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<sup>11</sup>We have also estimated a three-variable system with endogenous foreign ownership along with independent directors and firm performance. The first stage results show that foreign investors prefer larger, more profitable, and newer firms. The second stage results for firm performance, however, are qualitatively the same as those from a two-variable system reported in Table 8.

results of the second-stage estimation are not so sensitive to alternative specifications of the first-stage equation (e.g., Staiger and Stock (1997)).

TABLE 8  
Two-Stage Least Squares Estimation

The ratio of independent directors is estimated in the first stage (equation (1)), and its estimated values are used to estimate firm performance in the second stage (equation (2)). Instruments used for the first stage include lagged ownership variables and all contemporaneous firm-specific control variables used in Table 4, including industry and year dummies. In addition, indicator dummies for the presence of gray outside directors and the ownership lagged variable are used in the first stage. The sample consists of 1,834 firm-years from 1999 to 2002. See Table 2 for exact definitions of the variables. *p*-values are shown in parentheses using White heteroscedasticity-consistent standard errors. Additionally, we have also estimated a three-variable system with endogenous foreign ownership along with independent directors and firm performance. The first stage results show that foreign investors prefer larger, more profitable, and newer firms. The second stage results for firm performance, however, are qualitatively the same as those reported here from a two-variable system.

	(1) Independent Directors	(2) Tobin's <i>q</i>
Independent outside directors		0.438 (0.00)
Foreign investor holdings lagged	0.012 (0.63)	0.764 (0.00)
Family holdings lagged	-0.015 (0.30)	-0.110 (0.06)
Bank holdings lagged	0.059 (0.07)	0.421 (0.00)
Chaebol affiliation dummy	0.022 (0.01)	0.003 (0.92)
Depository receipt dummy	0.003 (0.85)	0.012 (0.91)
Log of total sales	0.016 (0.00)	-0.075 (0.00)
Exports to sales	-0.016 (0.07)	-0.018 (0.58)
R&D expenditure to sales	0.547 (0.00)	4.876 (0.04)
Log of firm age	0.011 (0.13)	-0.207 (0.00)
Beta	0.008 (0.46)	0.085 (0.08)
Total debts to total assets	0.002 (0.76)	0.956 (0.00)
ROA	-0.037 (0.03)	0.136 (0.04)
Independent outside directors lagged	0.445 (0.00)	
Gray outside director dummy	-0.102 (0.00)	
Intercept	-0.255 (0.00)	3.026 (0.00)
Year and industry dummy variables are included.		
Adjusted $R^2$	0.501	0.815
Observations	1,669	1,669

The first-stage regression indicates that the ratio of independent outside directors is related positively to firm size, the R&D expenditure ratio, and its own lag, and negatively to the ROA, export to sales, and the gray director dummy. Bank ownership lagged is also positively associated with the ratio of independent outside directors. There is also evidence that chaebol firms increase the ratio of outside directors, while family firms may discourage it, although the latter relation is not statistically significant.

The second-stage results for firm performance in equation (2) reiterate the basic result obtained in Table 4 that independent directors are good for firm performance. In addition, the results that banks and foreigners have positive influences on firm performance are confirmed. The negative effect of family holdings and the insignificant effect of the chaebol dummy variable are also confirmed. Of the firm-specific control variables, it is interesting that firm age and firm size, *ceteris paribus*, reduce firm performance, which implies that agency problems may increase with a more complex organization as firms get older and larger. R&D expenditure is positive as expected, but the debt ratio is also unexpectedly positive. The latter result is surprising but can be interpreted as the benefits of monitoring by debt holders in the post-crisis market environment. In sum, the basic results obtained earlier regarding the positive influence of independent outside directors

as well as the contributions by foreigners and banks to firm performance remain in endogenous estimations.

## VII. Concluding Remarks

We examine the role of outsiders, including independent directors and foreign investors, in Korea, which instituted a regulatory requirement concerning the ratio of outside directors on firm boards and which liberalized the restrictions on foreign equity investment in the aftermath of the Asian financial crisis. Empirical results indicate that outside directors have a significant and positive effect on firm performance. The effects are stronger for independent directors than for gray directors who may have professional ties with the firm. This contrasts with the results from U.S. firms that show no relation between outside directors and firm performance. Given the still significant influence of insiders in Korean firms, these results should not be interpreted as evidence supporting U.S.-style super-independent boards. Rather, it supports the notion that an injection of independent directors into insider-dominant boards could increase firm performance.

This paper also finds that institutional equity ownership especially by foreign investors enhances board and firm performance. This finding supports an argument (e.g., Shleifer and Vishny (1997)) that concentrated outside stockholdings can mitigate managerial opportunism or value expropriation by insiders. The result is also consistent with the notion (e.g., Froot, Perold, and Stein (1992)) that large outside institutional ownership can help improve corporate monitoring in less liquid markets. That is particularly true in Korea where many incidences of moral hazards abound when controlling insider groups such as the family or chaebol often appropriate value from outside minority shareholders. Of the two major institutional investor groups, the contributions of foreigners are particularly noteworthy as banks' monitoring capabilities are weakened by a series of post-crisis financial sector restructurings.

In contrast to foreigners or banks, the contributions of such indigenous Korean institutions as the family or chaebol are insignificant or negative. Empirical results show that family ownership interferes with board independence and hinders rather than enhances firm performance in Korea. The effects of chaebols are generally insignificant statistically. This is related to the practice of chaebol firms of favoring as outside directors executives of affiliated group firms and individuals with political connections rather than independent directors suitable for management monitoring. These results suggest that the presence of outsiders—whether independent directors or foreign investors—can be good for performance because it contributes to outside monitoring and independent market discipline.

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