

Effects of Corporate Governance on the Performance of State-Owned Enterprises

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Abstract

State-owned enterprises play an important role in economic growth and the delivery of critical public services such as health, education, water, and energy. The underperformance of state-owned enterprises can lead to significant challenges in overall national growth and competitiveness and pose a fiscal risk to the government. Consequently, improving the performance of state-owned enterprises remains an important issue for policy makers and development practitioners. More recently, efforts to strengthen corporate governance have been gaining international momentum as a means to improve the performance of state-owned enterprises. This study aims to examine the relationship between corporate governance and the performance of state-owned enterprises. Using data from 320 state-owned enterprises in the Republic of Korea, the study examines the effects of

corporate governance on various measures of state-owned enterprise performance, including performance evaluation results, customer satisfaction, and financial performance. The empirical results indicate that board size, corporatization, and transparency and disclosure are positively related to the performance of state-owned enterprises, suggesting that they have an impact on the efficiency of state-owned enterprises. Independence of the board of directors and separation between the positions of board chair and chief executive officer have an insignificant or negative impact on specific measures of performance. These results suggest that a larger board, corporatization of state-owned enterprises, and more transparent disclosure practices can be beneficial for the performance of state-owned enterprises.

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1. Introduction

The contributions of state-owned enterprises (SOEs) to the national economy are significant in both developed and developing countries. SOEs contributed 20 percent of global investment and 5 percent of employment in 2006 (World Bank 2014). In less developed countries, the importance of SOEs is greater. In the Middle East and North Africa, SOEs contribute 20–50 percent of economic value added and account for about 30 percent of total employment (OECD 2012). More than 10 percent of the world’s largest firms are state-owned (World Bank 2014). SOEs are also central to the delivery of essential public services to citizens in important economic sectors such as utilities, finance, and natural resources.

SOEs, however, often face important financial and service delivery performance challenges. Due to principal-agent issues, soft budget constraints, lack of competition, and multiple competing objectives, SOEs can suffer from inefficiency and poor performance compared to some private sector companies. The underperformance of some SOEs can impede competitiveness and growth and translate into a fiscal burden and a source of fiscal risk for the state.

As a response to these challenges, many countries and international organizations have recently taken measures to increase the efficiency and performance of SOEs by strengthening corporate governance. Many governments have undertaken SOE reforms using a variety of corporate governance related policy instruments, including mechanisms for performance monitoring and evaluation. The World Bank is also emphasizing the importance of SOEs for growth and good governance through the IDA18 agenda, in which it has identified SOE issues as one of the cross-cutting priorities for improving governance institutions in International Development Association (IDA) countries. Key principles of good corporate governance are laid out in the *Guidelines on the Corporate Governance of SOEs* (OECD 2005; revised in 2015).

Despite the growing interest in SOE corporate governance, only a few empirical studies have looked into the relationship between corporate governance and SOE performance. Most studies analyzing the effects of corporate governance on performance have focused on publicly traded companies, owing to the limited availability of data. Moreover, in most cases, those studies did not distinguish between private companies and SOEs in their analysis. A few studies have obtained SOE-specific data from a limited number of countries, such as China (Fan, Wong, and Zhang 2007), Italy (Menozzi, Gutiérrez Urriaga, and Vannoni 2011), Lithuania (Curi, Gedvilas, and Lozano-Vivas 2016; Jurkonis and Petrusauskaitė 2014), Kenya (Miring’u and Muoria 2011), and countries in the Latin America and Caribbean region (Andrés, Guasch, and Lopéz Azumendi 2011; Andrés, Schwartz, and Guasch 2013).

This study aims to contribute to the existing literature on the topic by investigating two key questions: First, can good corporate governance lead to better SOE performance? Second, what are the specific aspects of corporate governance that have a significant relationship with SOE performance? Using data from SOEs in the Republic of Korea, the study examines the effects of corporate governance on various measures of SOE performance, including performance evaluation results, customer satisfaction, and financial performance.

The study is organized as follows. Section 2 reviews studies regarding the relationship between corporate governance and performance of SOEs. Section 3 provides an overview of SOEs in Korea

and corporate governance. Section 4 presents the data and model used for this study, and Section 5 provides the results of empirical models. Section 6 explains the findings and concludes with implications.

2. Corporate Governance and Performance of SOEs

Corporate governance can be defined as a set of mechanisms to address agency problems in order to ensure that investors receive a return on their investment (Shleifer and Vishny 1997; Love 2011). Corporate governance is intended to lead to better decision making, resulting in efficiency gains and more outputs. The Organisation for Economic Co-operation and Development (OECD) and the World Bank emphasize corporate governance as a way of enhancing the operational efficiency and effectiveness of SOEs (OECD 2015; World Bank 2014). Important dimensions of corporate governance explaining firm performance include: ownership structure, CEO duality, board independence, board size, board committee, remuneration, performance monitoring, and transparency and disclosure.

The actual impact of corporate governance on performance has been a popular research question in recent years, particularly for publicly traded companies (Table 1). Most of these studies show a positive relationship between the two (Gugler 2001; La Porta et al. 2002; Gompers, Ishii, and Metrick 2003; Bauer et al. 2008; Love 2011). Gugler (2001) examined the relationship between corporate governance and economic performance in several countries, including Austria, Belgium, Germany, France, Italy, Japan, the United Kingdom, and the United States. The study reported that direct monitoring by larger shareholders and by the board of directors increased shareholder rights. Better standards concerning company disclosure requirements were linked to the improvement of firms' performance. Gompers, Ishii, and Metrick (2003) constructed a "Governance Index" to proxy for the level of shareholder rights at about 1,500 large firms during the 1990s. They found that firms with stronger shareholder rights had higher firm value, higher profits, higher sales growth, and lower capital expenditures, and made fewer corporate acquisitions. Using 539 large firms from 27 wealthy economies, La Porta et al. (2002) found higher valuation in firms with better protection of minority shareholders and in firms with higher cash-flow ownership by the controlling shareholder.

A few studies have questioned the direction of the causal link between corporate governance and performance (Core, Guay, and Rusticus 2006; Yen 2005). These studies conclude that certain features of corporate governance are context-specific and may require deeper analysis before application. Table 1 illustrates the different findings from different studies.

Table 1. The Impacts of Corporate Governance in Prior Research

Corporate Governance	Dimensions of CG	Relationship	Performance	Samples	References
Ownership Structure	Stock ownership of board members	+	Operating performance	Listed Firms in the US	Bhagat and Bolton (2008)
	CEO duality	+	Operating performance		
	CEO duality	+	Firm performance	Listed Firms in Vietnam	Vo and Nguyen (2014)
Board of Directors	Board independence	+	ROE	SOEs in Lithuanian	Jurkonis and Petrusauskaitė (2014)
	Board independence	+	Firm performance	Listed Firms in Sri Lanka	Heenetigala and Armstrong (2011)

				Private Firms in the US	Baysinger and Butler (1985)
	Board independence	-	Operating performance	Listed Firms in the US	Bhagat and Bolton (2008)
	Board independence	-	Firm performance	Listed Firms in Vietnam	Vo and Nguyen (2014)
	Board size	+	Firm Performance	Listed Firms in Vietnam	Vo and Nguyen (2014)
	Board size	-	Firm Performance		Cheng (2008)
	Board size	-	Firm Performance	Listed Firms in UK	Guest (2009)
	Board size and composition	+	ROE	SOEs in Kenya	Miring'u and Muoria (2011)
	Board composition (majority nonexecutive directors)	+	Firm performance	Listed Firms in Sri Lanka	Heenetigala and Armstrong (2011)
	Board composition (politically connected CEOs)	-	Stock price Earnings growth Sales growth	Partially Privatized SOEs in China	Fan, Wong, and Zhang (2007)
	Board composition (politically connected directors)	-	(+) Employment (-) Performance	Local public utilities in Italy	Menozzi, Gutiérrez Urtiaga, and Vannoni (2011)
	Board composition (board quality)	+	Efficiency	Commercial SOEs in Lithuania	Curi, Gedvilas, and Lozano-Vivas (2016)
	Board committee	+	Firm performance	Listed Firms in Sri Lanka	Heenetigala and Armstrong (2011)
	Remuneration	+	Stock price performance	Listed Firms in Japan	Bauer et al. (2008)
Performance Monitoring	Performance orientation & professional management	+	performance	SOEs in LAC	Andrés, Schwartz, and Guasch (2013)
Transparency and Disclosure	Financial disclosure	+	Stock price performance	Listed Firms in Japan	Bauer et al. (2008)
	Transparency Index	+	Efficiency	Commercial SOEs in Lithuania	Curi, Gedvilas, and Lozano-Vivas (2016)
Protection of Shareholders	Shareholder rights	+	Stock price performance	Listed Firms in Japan	Bauer et al. (2008)

Research on SOEs has found a positive relationship between corporate governance and performance of SOEs. Interestingly, most studies on SOEs indicate that the characteristics of the board of directors are significant in predicting SOE performance. Fan, Wong, and Zhang (2007) examined the relationship between board composition and financial performance of newly partially privatized SOEs in China and found that politically connected CEOs negatively affected the financial performance of SOEs. Similarly, Menozzi, Gutiérrez Urtiaga, and Vannoni (2011) investigated the effects of board composition in 114 Italian local public utilities on employment and performance. The results demonstrated that politically connected directors significantly increased employment but decreased performance. Curi, Gedvilas, and Lozano-Vivas (2016) assessed the impacts of corporate governance on the efficiency of commercial SOEs in Lithuania and found that good corporate governance, particularly board quality and strategic planning, enhanced firm efficiency. Jurkonis and Petrusauskaitė (2014) investigated Lithuanian SOEs and

found that improved corporate governance practices, particularly board independence, led to better financial performance. Miring'u and Muoria (2011) examined SOEs in Kenya and demonstrated that larger board size and a higher ratio of nonexecutive directors on the board had positive impacts on financial performance.

It should be noted, however, that the number of empirical studies conducted on the impacts of SOE corporate governance is quite low, and the studies have been limited to only a few countries. Data availability is the main constraint to conducting research on SOEs. While publicly traded companies are required to disclose detailed data on corporate governance and financial performance, SOEs in most countries are not required to disclose to the public. Thus, empirical evidence on corporate governance of SOEs and performance are available from a very limited number of countries such as China (Fan et al., 2007), Italy (Menozzi et al. 2011), Lithuania (Curi et al, 2016; Jurkonis & Petrusauskaite, 2014), Latin America and the Caribbean (Andres et al. 2013, Andres et al. 2011), and Kenya (Alice N. & Esther T., 2011).

Another challenge is the complexity of measuring the performance of SOEs. While the main objective of a publicly traded corporation is to maximize its profits, SOEs in many cases pursue both financial performance and social objectives, making it difficult to measure their performance comprehensively. Looking at only financial performance could lead to a biased understanding of the performance of SOEs. Although a few studies (Jurkonis and Petrusauskaitė 2014; Andrés, Schwartz, and Guasch 2013) recognized the dual goals of SOEs, most—including Jurkonis and Petrusauskaitė (2014)—analyzed only their financial performance. Andrés, Schwartz, and Guasch (2013) tried to examine various measures of SOE performance in the water and electricity industry in Latin America and the Caribbean by looking at distributional losses, service quality, coverage, labor productivity, and tariffs.

3. SOEs and Corporate Governance in Korea

SOEs have contributed significantly to economic development and to the growth of key industries in Korea. Since the end of the Korean War in 1953, SOEs have provided infrastructure, energy, and other essential public goods and services. With the expansion of SOEs, the government has concerned itself with strengthening the efficiency and the effectiveness of SOEs. Privatization was the main instrument for increasing SOE efficiency during the 1980s and 1990s. Although privatization achieved meaningful efficiency improvements, public resistance to selling out state shares to private parties has grown. As a result, in recent years, privatization has not been considered a viable option in Korea. Among the alternatives, corporate governance has drawn much attention in the effort to improve the effectiveness of SOEs. The release of the OECD's *Guidelines on Corporate Governance of State-Owned Enterprises* in 2005 influenced this recognition of the importance of corporate governance.

The Act on the Management of Public Institutions was legislated in 2007 as the legal basis for corporate governance of SOEs in Korea. This Act centralized the ownership function in the Ministry of Strategy and Finance (MoSF) and clarified key details regarding corporate governance of SOEs in Korea: the role of the board, how to appoint the board directors, the process and coverage of disclosure and audit requirements, and performance evaluation mechanisms. However, mandatory requirements of corporate governance are applied differently according to the different types of SOEs categorized by the Act.

The Act provides detailed criteria designating and categorizing SOEs according to their market orientation and size. The MoSF reviews current and candidate SOEs annually and announces an updated list of SOEs at the beginning of each year. Accordingly, the number of designated SOEs changes every year (Table 2). About 300 SOEs are designated in total (316 in 2015 and 323 in 2016). Each SOE is categorized as a Public Corporation (PC), Quasi-Governmental Institution (QGI), or Nonclassified Public Institution (NPI) depending on its commerciality and size. The legal requirements of corporate governance that apply to each SOE depend on its type. Most requirements apply only to PCs and QGIs, which are mostly larger and need more managerial attention. It is recommended that NPIs follow corporate governance requirements, but it is not mandatory. Therefore, NPIs have more autonomy in designing corporate governance approaches and, as a result, there is greater variation in the corporate governance of NPIs. It should be noted, however, that even in PCs and QGIs, there are variances in the Act's corporate governance requirements according to the detailed types of SOEs and their size, revenue, or policy influence. Publicly traded SOEs adopt more stringent criteria for corporate governance, as they have to follow all the requirements in both the Act on the Management of Public Institutions and the Financial Investment Services and Capital Markets Act.

Table 2. Type and Number of SOEs in the Republic of Korea from 2014 to 2017

Type of SOE	Criteria	Number of SOEs			
		2014	2015	2016	2017
Public Corporation	<ul style="list-style-type: none"> • Workforce: 50 persons and above • Revenue from nongovernmental sources: 50% and above 	30	30	30	35
Market-type PC	<ul style="list-style-type: none"> • Revenue from nongovernmental sources: 85% and above • Assets: 2 trillion won and above 	14	14	14	14
Semi market-type PC	<ul style="list-style-type: none"> • All PCs except market-based PCs 	16	16	16	21
Quasi-Governmental Institution	<ul style="list-style-type: none"> • Workforce: 50 persons and above • Revenue from nongovernmental sources: less than 50% 	87	86	90	89
Fund management-type QGI	All QGIs managing national funds, as stipulated by the National Financial Act	17	17	16	16

Commissioned service-type QGI	All QGIs except fund-managing QGIs	70	69	74	73
Nonclassified Public Institution	All public institutions excluding PCs and QGIs	185	200	203	208
Total SOEs		302	316	323	332

4. Analytic Design

4.1 Hypotheses

Corporate governance intends to address the “principal-agent problem,” which deals with how the principal (shareholder) can prevent the agent (generally, the management) from maximizing his or her own self-interest (Biswas and Bhuiyan 2008). The theory argues that, when the principal and agent are different, their interests and objectives can differ, resulting in potential miscommunications about expectations and performance. The problem is exacerbated by asymmetric information (with the agent having more information), making it difficult to monitor performance. The challenge is to align the conflicting objectives and introduce rules and processes to enhance the flow of information and performance monitoring. The role of corporate governance is to identify clear reporting rules and objectives for agents, performance criteria against which they will be evaluated, and incentives (or consequences) that flow from the evaluation results. Solutions to agency problems have involved establishing contracts between the owners and management of the company, setting clear legal frameworks, and improving the composition and independence of the board of directors. Firm performance can be expected to improve with enhanced corporate governance mechanisms because, with better oversight and processes, the principal-agent problem would be mitigated as managers are more likely to better understand the principal’s expectations, invest in value-maximizing projects, and operate more efficiently (Love 2011). The following hypotheses will be tested to address the research questions about the relationship between corporate governance and firm performance.

H1: Separation of the positions of CEO and Board Chairman leads to better SOE performance

The board leadership structure of a firm is considered to have an important impact on firm performance. Based on the agency theory, separation of the positions of CEO and Board Chairman would allow the operational and oversight arms of the firm to function independently and therefore more effectively. Under this structure, the CEO is responsible for day-to-day management, while the Chair leads the board and monitors the performance of the CEO and the firm. Were the same person to manage both the operational and oversight functions, the board’s ability to oversee the firm may become compromised, and the lack of accountability may in turn adversely affect firm performance (Heenetigala and Armstrong 2011; World Bank 2014).

H2: Larger board size is associated with better SOE performance

The advantages of a larger board size include more diversity in handling problems and increasing the company’s impact on society due to the relationships of board members. Firms with many

directors will therefore mobilize more resources from the outside in order to improve their performance (Vo and Nguyen 2014). There is also a possibility, however, that larger board size imposes greater transaction costs in the decision-making process (Cheng 2008; Guest 2009). A larger board is more likely have communication and coordination issues, taking more effort to reach consensus (Cheng 2008). Sometimes a large board delays decisions that require a prompt response, possibly leading to lower profits and effectiveness for the firm.

H3: More independent boards improve SOE performance

According to agency theory, nonexecutive outside directors are an important component of a board's structure. The theory predicts that the oversight role of the board of directors can be done more effectively if nonexecutive directors make up a majority of the board. This is because nonexecutive directors are believed to behave neutrally and independently from management. Consequently, agency theory identifies a board composed of a majority of nonexecutive directors as a key characteristic of high-performing SOEs (Heenetigala and Armstrong 2011; World Bank 2014). However, this prediction would not apply if outside nonexecutive directors were not independent or qualified. For example, politically connected directors are known to have a negative impact on SOE performance (Fan, Wong, and Zhang 2007; Menozzi, Gutiérrez Urriaga, and Vannoni 2011).

H4: Corporatization is positively associated with better SOE performance

Corporatization is the process by which an SOE is converted into a legal entity with a corporate structure similar to a private firm. The main goal of corporatization is to allow the government to retain its ownership while creating an opportunity for the firm to operate on a more commercial basis. This includes, but is not limited to, the reporting standards that are adopted, the ways in which strategic decisions are made, and the processes through which board members and senior management are appointed. Studies show that when an SOE is corporatized, government influence in operational activities is reduced, which gives more flexibility to the board and senior management to clarify their goals, adopt innovative governance practices, and improve firm profitability and efficiency (World Bank 2014).

H5: Increased transparency and disclosure have positive effects on the performance of SOEs

Transparency and disclosure are critical for improving accountability and firm performance. The timely and accurate disclosure of information, use of high-quality accounting standards, and institutionalization of independent internal and external auditing mechanisms are all tools for holding the management of a firm accountable for its performance. In the case of SOEs, the general public has a special stake in the management's performance, since public enterprises are often significantly involved in the provision of public services. Thus, the existence of and adherence to transparency and disclosure requirements exert positive pressure on management to improve the firm's performance (Jurkonis and Petrusauskaitė 2014; World Bank 2014).

4.2 Data

In this study, the impact of corporate governance on SOE performance is investigated primarily using data on SOEs in Korea. Most data for the study are obtained from an online management information disclosure system (the ALIO system).² The ALIO system, established and operated by the MoSF, provides financial and nonfinancial management information at the individual firm level for the latest five years. All SOEs designated by the Act on the Management of the Public Institutions are required to disclose data on ALIO and on their own website. The information disclosed in the ALIO system includes the number of employees, shareholders, and shares; remuneration and benefits of executives and employees; the number of board members and nonexecutive directors; the job experience, terms, and gender of the CEO and board members; and membership and collective bargaining agreement of the labor union. Financial information such as assets, equity, liability, revenue, profits, audit reports, and investment is also disclosed through the ALIO system. For this study, data on CEO duality, number of executive and nonexecutive directors, assets, equity, debt, profits, and operation years were obtained directly from the ALIO system. Data on disclosure inspection were obtained from the MoSF.

This paper uses various measures of SOE performance, including financial performance, performance evaluations, and customer satisfaction survey results. Financial performance data such as return on assets (ROA) and the debt ratio are calculated using financial data obtained from the ALIO system. Performance evaluations are conducted annually by the MoSF for all firms categorized as either PCs or QGIs. All 116 SOEs from these two categories were evaluated for performance in 2015. The evaluation assesses the firm's annual performance against preset performance indicators on leadership, management system, and core business performance. This evaluation examines whether the complex objectives of SOEs, such as financial performance and social objectives, have been met fully in that year. An annual SOE customer satisfaction survey, also conducted by the MoSF, assesses the level of customer satisfaction with SOE services via phone interview, face-to-face interview, or online survey of direct customers. In 2015, 180 SOEs were included in the customer satisfaction survey. SOEs' performance evaluation grades have been obtained from the ALIO system, and customer satisfaction survey results from the Korea Institute of Public Finance.

Table 3. Number of SOEs Participating in Disclosure, Performance Evaluation, and Customer Satisfaction Survey in the Republic of Korea

Type of SOE	Number of SOEs in 2015			
	Designated by the Act	Disclosed in the ALIO	Performance Evaluation	Customer Satisfaction Survey
Public Corporations	30	30	30	24
Quasi-Governmental Institutions	86	86	86	84
Nonclassified Public Institutions	200	200	0	72
Total	316	316	116	200

² The All Public Information in One (ALIO) system can be accessed at the following address: <http://www.alio.go.kr>.

4.3 Conceptual Framework

Using a multivariate regression model, this study aims to investigate the effect of various aspects of corporate governance on the performance of SOEs. The main research question addressed in this study is to identify the relationship between corporate governance and SOE performance. The simple model for testing this question can be written as follows:

$$\text{Firm Performance}_i = \alpha + \beta \text{Firm Governance}_i + \gamma \text{Controls}_i + \varepsilon_i$$

where α is the constant, β is the coefficient for each variable of corporate governance, γ is the coefficient for control variables, and ε is the error term. To capture various objectives of SOEs, three types of performance measures are adopted in the model: financial performance, performance evaluation grade, and customer satisfaction survey score.

Financial performance is measured using the ROA and debt ratio. Financial performance is the most frequently used measure for capturing SOE performance in previous studies. ROA and debt ratio data are available for most SOEs. Since the stocks of only a few SOEs in Korea are publicly traded in the market, data on market value or stock price are not available for most SOEs. It should be noted, however, that not all SOEs in Korea are commercially oriented. Many SOEs work more like parastatal institutions in that they deliver public policy. Even many commercial SOEs have social objectives in addition to economic goals. Therefore, financial performance alone does not accurately represent the overall performance of SOEs in Korea.

To consider both financial and nonfinancial performance, performance evaluation results and customer satisfaction survey scores are also adopted as performance variables. Performance evaluations aim to assess the comprehensive performance of SOEs, including both financial and nonfinancial achievements. Performance evaluations, established by the Act on the Management of Public Institutions, are conducted annually by the MoSF for all PCs and QGIs. Performance evaluations assess performance in two areas: business management and core business performance. Business management is examined by assessing the managerial aspects of the subject organization, business strategy, social responsibility, business process efficiency, human resources management, and financial management, remuneration, and employee benefits. Achievements on core business performance are assessed according to planning and strategy, resource mobilization, implementation, outcomes, and feedback processes. Annual performance in each category is assessed and compared with preset indicators based on stated performance goals. The evaluation outputs are graded into six levels: S (Outstanding), A (Very Good), B (Good), C (Satisfactory), D (Poor), and E (Very Poor) after aggregating the scores of each performance indicator.

The customer satisfaction survey measures the SOE's performance from the perspective of customers who directly use the services or goods it provides. Customer satisfaction surveys are conducted annually by the MoSF for all SOEs that have direct customers. The survey selects a sample of individuals or firms that have received or purchased a good or service from each SOE and then asks about their level of satisfaction regarding the quality and the delivery of the service or good. Most surveys are conducted via phone interview, but for customers who are not available for phone interviews, face-to-face interviews or online surveys are conducted. Scores for individual questionnaires are aggregated, and total scores are announced at the end of the survey.

In this study, five individual aspects of SOE corporate governance are included in the model. First, CEO duality refers to separation of CEO and board chair positions. In Korea, the Act on the Management of Public Institutions requires that one of the outside nonexecutive directors become the board chair for all market-type PCs and larger semi market-type PCs with assets greater than or equal to two trillion won. For other SOE types, the CEO also performs as board chair. In this model, CEO duality is a dummy variable that is recorded as 1 if the firm has a nonexecutive director as board chair. Second, board size is measured as the total number of board of directors. The Act sets the maximum number of board members at 15 for PCs and QGIs. However, SOEs categorized as PCs or QGIs can decide the exact number of board members within the maximum. The number of board members for NPIs is not regulated in the Act and, hence, SOEs categorized as NPIs can decide the number of board members without any limits. For instance, the board of the Korea Water and Wastewater Works Association, an NPI, has a total of 65 directors. However, most research institutions categorized as NPIs do not have any board members.

Third, board independence is measured as the share of outside nonexecutive directors on the board. The Act requires that the share of nonexecutive directors of PCs, larger QGIs, and several specifically designated QGIs be equal to or greater than one-half. For the smaller QGIs, the share of nonexecutive directors should be equal to or greater than one-third. For NPIs, the Act does not impose any requirements regarding the composition of the board. Fourth, corporatization is measured as the percentage of self-generated revenue in the firm's total revenue, which represents the level of commerciality of the firm. Fifth, disclosure practices are included as one of the aspects of corporate governance in the model. All SOEs in Korea are obliged to disclose detailed management information on the ALIO system and on their own websites. In this model, SOEs' disclosure practices are measured by the penalty score of the MoSF's annual disclosure inspection. To deliver credible information to the public, the MoSF annually inspects the accuracy, frequency, timeliness, and quality of the information disclosed and issues a penalty score to the SOE if there is any inaccuracy or inappropriateness. The greater the penalty score, the lower the quality of information disclosure. Firm size, firm age, publicly traded SOEs, and the type of SOE are used as control variables in the model to control for compounding effects (Table 4).

Table 4. Variable Descriptions

Variable	Description
Performance evaluation	Performance evaluation grade (6=Outstanding, 5=Very Good, 4= Good, 3=Satisfactory, 2=Poor, 1=Very poor)
Customer satisfaction	Customer satisfaction survey score
Debt ratio	Debt ratio
ROA	Return on assets
CEO duality	Separation of CEO and board chair? (1=Yes, 0=No)
Board size	Number of directors on the board
Board independence	Ratio Share of non-executive directors on the board Ratio Share of revenue from non-governmental
Corporatization	sources
Disclosure	Disclosure inspection score

Assets	Log- scaled assets (in million won)
Operation period	Operation period (in years)
Publicly traded company	Publicly traded company? (1=Yes, 0=No)
Public corporation	Public corporation? (1=Yes, 0=No)
Quasi-governmental organizations	Quasi-governmental organization? (1=Yes, 0=No)

5. Results

To investigate the association between corporate governance and SOE performance, this study estimated OLS regressions based on the econometric model described in the previous section. Table 5 provides the summary statistics for the variables included in the model. It should be noted that financial variables such as debt ratio and ROA are spread broadly, indicating that financial performance varies significantly across SOEs. This could be explained by the fact that some SOEs have small assets compared to the activities and business of the firm. As for corporate governance of SOEs, the summary statistics show that the percentage of SOEs that separates the CEO and the board chair is very low. Board sizes of SOEs vary across SOEs, ranging from 0 to 65. Several variables such as size of assets and operation period of SOEs are very diverse, which implies SOEs in Korea are composed of firms with very different characteristics.

Table 5. Summary Statistics of SOEs Corporate Governance and Performance

Variable	Observations	Mean	Standard Deviation	Min	Max
Performance evaluation	114	3.68	0.96	1	5
Customer satisfaction	174	87.09	6.09	71.70	99.59
Debt ratio	309	8.03	57.52	-21.48	929.08
ROA	309	-14.36	214.48	-3,083.83	135.36
CEO duality	320	0.07	0.25	0	1
Board size	320	8.53	5.64	0	65
Board independence	276	0.84	0.20	0	1
Corporatization	320	40.94	34.35	0	100
Disclosure	279	-48.37	18.86	-109.10	-10.17
Assets	320	11.31	2.94	0.00	20.06
Operation period	320	22.13	17.52	0.60	110.90
Publicly traded company	320	0.03	0.16	0	1
Public corporation	320	0.09	0.29	0	1
Quasi-governmental organization	320	0.28	0.45	0	1

Table 6 reports the results of the OLS regressions for each dependent variable.

Table 6. OLS Estimates of SOE Performance in the Republic of Korea

	Performance Evaluation	Customer Satisfaction	Debt Ratio	ROA
CEO duality	-0.451 (0.415)	0.057 (2.434)	-7.653 (27.713)	-165.573** (90.108)
Board size	0.075** (0.035)	-0.087 (0.123)	-2.895** (1.283)	3.148 (4.172)
Board independence	-0.285 (0.722)	-6.489** (2.598)	29.989 (26.674)	-25.602 (86.694)
Corporatization	-0.010** (0.005)	0.029* (0.017)	-0.284* (0.167)	0.129 (0.547)
Disclosure	0.010** (0.005)	0.009 (0.024)	0.264 (0.242)	1.892** (0.790)
Assets	0.070 (0.043)	0.002 (0.199)	6.570*** (2.128)	3.167 (6.965)
Operation period	0.003 (0.005)	0.050** (0.023)	-0.258 (0.253)	-1.167 (0.826)
Publicly traded company	-0.570 (0.588)	-1.525 (2.894)	2.162 (26.177)	97.845 (85.105)
Public corporation	0.687 (0.436)	3.607* (2.059)	-6.512 (24.492)	0.324 (79.617)
Quasi-governmental organization		0.387 (1.115)	-3.052 (10.986)	-8.719 (35.936)
Constant	3.001*** (1.030)	90.494*** (3.702)	-31.393 (37.160)	63.599 (121.267)
Adj R-squared	0.1048	0.2136	0.0241	0.041
Observations	113	169	226	225

Notes: *** Significant at .01; ** Significant at .05; * Significant at .10

^{a/} Standard errors are in parentheses.

While some of the results are consistent with the predictions of hypotheses H2 (board size) and H5 (transparency), those significant relationships are not found for all performance measures. For instance, on board size, the results indicate that it is positively associated with performance measurements such as the performance evaluation grade and the debt ratio, but no significant

associations are found for the other performance measurements including customer satisfaction and ROA. The results also show that better disclosure practices are significant in predicting the performance evaluation grades and ROA.

The effects of corporatization on SOE performance are mixed. Corporatization is negatively associated with performance evaluation grades but positively associated with the level of customer satisfaction and debt reduction. This could be explained by the fact that performance evaluations assess both financial and nonfinancial achievements. SOEs that have a greater share of self-generated revenue tend to pursue more financial performance, as they receive less government support for their daily operations. Considering that there could be some trade-offs between financial and nonfinancial performance, it could be challenging to obtain good performance evaluation results if SOEs are focusing heavily on financial performance. These results imply that corporatized SOEs or SOEs with a higher share of self-generated revenue would be more likely to pursue financial performance by enhancing customer satisfaction or maintaining good financial sustainability. However, this is not likely to lead to a better balance between financial and nonfinancial performance. As a result, hypothesis H4 (corporatization) is not accepted for all performance variables but still holds for financial performance.

The model provides interesting results regarding two variables on nonexecutive board members: CEO duality and board independence. CEO duality was expected to increase SOE performance because it could reduce agency issues by allowing effective oversight from an independent board chairman. Contrary to the expectation, however, the empirical model suggests that there is a negative association between CEO duality and ROA. Similarly, board independence, as measured by the share of nonexecutive directors in the board, is negatively associated with the level of customer satisfaction. This result implies that the expected roles for nonexecutive directors in the board may not be fully achieved in reality. Several studies on SOE boards of directors point out that, in many cases, boards are composed of various politically connected directors and may suffer from corruption and lack of expertise (Menozzi, Gutiérrez Urtiaga, and Vannoni 2011; Fan, Wong, and Zhang 2007). In that case, the independent board directors in the board could have negative impacts on the performance of SOEs. Thus, the empirical results do not confirm hypotheses H1 (CEO duality) and H3 (board independence). These unexpected results of the empirical model suggest the need for further investigation to explain the relationship between board independence and performance.

6. Conclusion

Corporate governance reforms are increasingly considered as important vehicles in improving the efficiency of SOEs. Although there is plenty of evidence on the effects of corporate governance on private sector firm performance, empirical studies on the role of corporate governance in SOE performance is scant due to data limitations. The biggest contribution of this study is to understand the relationship between corporate governance and performance and the specific aspects of corporate governance using detailed SOE data in Korea. Corporate governance has been the key instrument in SOE policy in Korea since the government centralized the ownership function in 2007.

Multivariate regression results show that corporate governance has a significant association with the performance of SOEs after controlling for other influencing factors. Board size has a positive association with the variability of SOE performance, particularly as measured by performance evaluation results and the debt ratio. Transparency and disclosure practices also have a positive association with SOE performance evaluation results and financial performance, as measured by ROA. Corporatization shows statistically significant effects on improving customer satisfaction and debt ratios, but negatively associates with other performance measure like performance evaluation results. Two variables related to nonexecutive directors are either not significant or have rather negative associations with SOE performance, contrary to expectations from research hypotheses.

Overall, these results suggest three key insights. First, several important aspects of corporate governance do have a significant association with the performance of SOEs. Improving corporate governance practices could therefore influence the efficiency and performance of SOEs. However, as Love (2010) pointed out, the study investigating the relationship between corporate governance and performance in many cases suffers from endogeneity problems. The positive relationship could be interpreted in both ways: well-designed corporate governance could lead to better performance or well performing firms have more resources to enhance corporate governance. Resolving this kind of endogeneity issue is very difficult but some of the results from this research show promising areas for future research. Second, as illustrated in the model, various aspects of corporate governance work differently depending on how performance is measured. Most studies have focused on private firms and therefore measured performance on financial outcomes such as ROA, ROI, and changes in stock price. SOEs, on the other hand, pursue both financial and non-financial objectives in many cases. Both financial and nonfinancial performance should be assessed in order to understand comprehensive SOE performance. Third, the impact of board composition should be examined carefully. Designing better corporate governance practices depends heavily on the assumption that nonexecutive directors are independent and professional. Recommending CEO duality and a majority of nonexecutive directors assumes that independent and professional nonexecutive directors would better monitor firm operation. Under this assumption, the SOE board is designed to possess critical decision-making authority for the firm. Yet, several studies on SOE boards of directors have argued that the board directors with political connections or without enough qualifications could rather harm SOE performance. The results of this study suggest that the mere existence or majority of independent board directors does not guarantee enhanced performance. However, to investigate the reasons why variables regarding nonexecutive board directors yielded unexpected results requires further analysis using additional data on the background and qualifications of board directors.

It should be noted that this study is based on data covering a short time period and only one country. Moreover, specific contexts of the country, business environment, the quality of board directors, and organizational culture could have different effects on SOE performance. Considering the constraints, it is difficult to generalize the findings of this study to all SOEs. However, the results from this study are meaningful given the rich experience in SOE corporate governance reform in Korea.

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