HOW MUCH DO CEOS MATTER IN KOREA?

By

Eun-Hyung LEE

Dissertation

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

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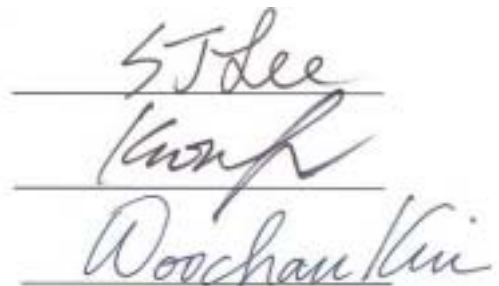in partial fulfillment of the requirements
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Committee in charge:

Professor Seung-Joo LEE, Chairperson

Professor Kwon JUNG

Professor Woo-Chan KIM

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Abstract

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This paper investigates whether Korean CEOs play a critical role in impacting company performance in comparison with the roles of industry and firms. This paper also attempts to measure the degree of importance of CEOs in Korean firms before and after the financial crisis. The empirical analysis based on a CEO-firm matched panel data set of Korean listed companies using ANOVA and VARCOMP methodology shows that CEOs account for a significant amount of profitability variance (from 15 to 25 percent depending on the ROIC and Tobin's q samples). The relative importance of CEO effects is found to be comparable to that of the firm and industry effects. CEO effects seem to be more pronounced after the financial crisis than in the pre-crisis period.

Key words: CEO effects, firm effects, industry effects, CEOs' impact on performance, Korean CEOs, demographic characteristics of Korean CEOs, CEO characteristics' impact on performance

To my parents and parents-in-law

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CHAPTER 1

Introduction

This paper investigates whether Korean CEOs play a critical role in impacting company performance in comparison with the roles of industry and firms. In contrast to the extensive research on CEOs in other countries, research on CEOs in Korea is at an early stage. Although the significance of CEOs is gaining in importance, relatively few studies have analytically and empirically examined CEOs in Korea. This inspired the research topic of the present paper, "CEOs' impact on firms' performance in Korea."

Why do CEOs matter? First, CEOs are executives who have overall responsibility for the conduct and performance of an entire organization (Mintzberg 1973) and are, first and foremost, careful and comprehensive deciders of major courses of action (Finkelstein and Hambrick, 1996). Top executives[1] may orchestrate the formulation of company[2] strategy, including the choice of which products and markets to emphasize, how to outdo competitors, how fast to grow, and so on (Ansoff 1965; Porter 1980). Galbraith and Kazanjian (1986) described CEOs as having a role in strategy implementation-allocating resources, establishing policies and programs, and developing an organization that is aligned with the strategic thrusts of the firm. In this context, it is clear that CEOs have an important influence on performance differences among firms.

Second, as Thompson (1967) argued, top executives vary in their experiences, capabilities, values, and personalities. These differences in turn, cause executives to differ in their awareness and interpretation of strategic stimuli, their aspiration levels, their beliefs on causation and its meaning, what they are trying to accomplish, and the degree of urgency in their tasks. The Harvard model (Andrews 1971) emphasized the personal role of senior executives in shaping their firms. In this model, individuals at the top of the enterprise were seen as pivotal in understanding what happens to the enterprise as a whole. The "upper echelons" perspective, presented by Hambrick and Mason (1984), suggest that executives make strategic choices on the basis of their cognitions and values and that the organization becomes a reflection of its top managers. As this formalized theory drew more attention, a growing body of research

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[1] This paper uses the terms "CEO" and "top executive" interchangeably.

[3] This paper uses the general and broad terms "company" and "firm" interchangeably, reflecting the combined structure of the business unit and corporation in Korea.

focused on the influence of top executives on firm performance (Gupta and Govindarajan, 1984; Snyder and Ickes, 1985; Hambrick and Brandon 1988).

Another research stream is "resource-based theory" (Wernerfelt 1984), which proposes that firm idiosyncrasies in the accumulation of unique and inimitable resources create sustained competitive advantage (Barney, 1991; Rumelt, 1991). In contrast to the perspective of industrial organization (IO), which argues that industry profitability is the most significant predictor of firm performance (Montgomery and Porter, 1999), resource-based theory sheds light on firm-specific resources including efficiency, competitiveness, human resources, and management (Rumelt, 1991; Roquebert et al., 1996). The reasons for shifting theoretical orientations appear to have been the inability of IOs to explain intra-industry profitability differences, which are persistent and more distinctive. In concluding that firm-specific factors have a predominant influence over firm performance, CEOs should matter, in that they have overall responsibility for the conduct and performance of an entire organization. When firm-specific resources matter, CEOs are relevant considering their role and impact on management. This implies that the unit of analysis may be narrowed from market to firm, and finally to the level of CEO.

The research questions addressed by this paper are as follows: First, do CEOs[3] matter in Korea? Second, if so, how important are they in comparison with industry and firm's impacts on company performance, traditionally considered more critical factors? Third, have there been any changes in the importance of CEOs before and after the 1997 financial crisis? Fourth, which group has greater CEO effects between chaebol[4] and non-chaebol companies, and between owner and professional CEOs? To answer these questions, this paper employs empirical methodology from prior studies and obtains data from Korea's publicly listed companies.

Considering the idiosyncratic characteristics of the Korean management system, CEOs are presumed to have a significant impact on performance differences among firms. The reasons are the following:

First, owner CEOs have often served as chairmen on corporate boards (CEO and chairman duality)[5]. According to one study, it is widely accepted that a CEO who is also chairman of the board has more discretion than a CEO who does not hold both positions (Hambrick and Finkelstein 1995). Owing to the strong influence of family traditions, there is a tendency for Korean corporate leaders, especially founders, to manage on the basis of principles governing the family or clan system (Chen, 1995; Chang and Chang, 1994). In addition, it is very common for a founder's son to succeed but rare for the daughter to take over. The concentration of authority results from the

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[3] Identifying CEOs of Korean firms requires some complicated criteria and procedures. See Data and methodology in Chapter 3.

[4] This paper uses the terms "chaebol" and "business group" interchangeably.

[5] Owner CEOs account for 70 percent of the sample used in this paper.

fact that ownership and management are not separated in most Korean companies. In this context, the CEOs of Korean firms are expected to have a stronger impact on performance whether positive or negative.

Second, because of the legacy of Confucianism, seniority-based decision-making is still prevalent in Korean society, including the business sector. Such traditions have enabled Korean companies to develop their own management system, known by some as K-type management, which includes top-down decision making, paternalistic leadership, personal loyalty, and compensation based on a seniority and merit rating (Chen, 1995; Lee and Yoo, 1978). This kind of management system results in a higher dependency and stronger personal loyalty to CEOs. The CEO's influence on the organization is therefore seen as significant.

On the other hand, due to less advanced corporate governance in Korea, there may be a limitation in evaluating the effects of CEOs. For instance, despite the presence of professional CEOs in companies, there may be a tendency on the part of company owners with no formal position, to exert their control on the decision-making process. In this regard, CEOs are seen more as simply following the instructions of owners. However, due to the fact that owners usually participate actively in the management of most Korean companies, such a limitation will not critically affect the results of the study. Furthermore, since the financial crisis, there has been progress in improving corporate governance in Korean companies through government reform efforts. A good example is the commercial law amendment requiring major shareholders to register as board members if they wish to be involved in management. If this institutional change in management systems following the financial crisis has brought any changes to CEO effects, the difference is also an intriguing issue worth examining.

The distinctive features of this paper are as follows: This is the first study to empirically measure the impact of CEOs performance among firms in Korea. This study enters the leadership-performance research stream initiated by Lieberson and O'Connor (1972) and Thomas (1988) with evidence from Korea. It also employs methodology that has been widely used in the "industry vs. management" debate between IO (industrial organization) and SM (strategic management) researchers. By integrating these two research streams in terms of a conceptual framework and methodology, and examining the effects that influence performance differentials among Korean companies, empirical study will be a cornerstone on the effects of CEOs in Korea.

Second, this paper attempts to identify CEOs of publicly listed companies in Korea. Though awkward from a western perspective, identifying a CEO is very difficult due to less developed governance structures and business practices in Korea. Careful criteria and discretion are required in selecting a CEO who has overall

responsibility for the conduct and performance of an entire organization. Unlike U.S. companies, whose CEOs introduce their annual reports, Korean companies neither have only one CEO nor clarify their identity. Furthermore, there are a number of top executives who hold a representative position, such as representative chairman, representative vice chairman, representative president, and representative director. There is no distinction from one position to another in terms of legal accountability and job description. Hence, complicated selection criteria and procedures are required to identify CEOs of Korean companies among the representative directors. This paper attempts to establish "criteria" to select a CEO among CEO candidates holding the post of representative director. Even though the criteria and procedures may not completely solve the problems resulting from complicated corporate governance in Korea, the data of selected CEOs have their own significance.

Third, this study analyzes nine-year demographic data of CEO characteristics including age and educational background, which are in addition to Kim and Lee's study (2001). Kim and Lee's study was the seminal work to determine the demographic characteristics of CEOs in Korea. This study provides a more extensive and descriptive analysis of Korean CEOs over a nine-year period, helping understand "Who are the CEOs in Korea?" and "What kind of changes have taken place since the financial crisis?" Furthermore, this paper tries to integrate these demographic characteristics into analysis of leadership impact on performance.

The paper is organized as follows: The first section examines antecedent literature on CEOs related to leadership-performance studies, the 'industry vs. management debate,' a 'CEO succession study,' and several studies on CEOs in Korea. The second presents hypotheses to test, and the third explains methodology, a model to verify the hypotheses, the criteria for selecting a CEO, and issues of company performance data used in this paper. The fourth describes the demographic characteristics of CEOs based on age, educational background, and regional origin; and contains the average return of sub samples that are divided with certain criteria. The fifth section presents the results of descriptive as well as regression analysis on the relationship between CEOs characteristics and performances. The sixth section demonstrates the results of VARCOMP and ANOVA, and a comparison of the results of this paper with prior studies. The last section presents the conclusion, limitations, and future study directions.

Literature Review

II-1. Leadership-performance debate

In the leadership-performance debate, leaders took on various forms from church ministers (Smith, Carson, and Alexander, 1984), coaches of sports teams (Eitzen and Yetman, 1972; Allen, Panian, and Lotz, 1979), mayors of cities (Pfeffer and Salancik, 1977), and top company executives (Lieberson and O'Connor, 1972; Thomas, 1988). The conceptual framework and methodology of leadership studies has evolved from examining direct relationships between leadership and performance to measuring indirect relationships between leadership and strategic choice, and in turn, performance. Evaluating research on the impact of CEOs on firm performance should take Lieberson and O'Connor's path-breaking study (1972) as its starting point.

Before starting the review, let me briefly describe the theoretical background of the skeptical view of leadership impact. Some theorists have set forth arguments on the strict limits within which executives operate. And some empirical evidence has been presented which suggests that top executives have far less effect on organizations than other factors. Population ecologists have argued that organizations are largely inertial, hemmed in by environmental and organizational constraints (Hannan and Freeman, 1977). Institutional theorists have argued that legitimacy constraints on organizations are particularly confining. Under great pressure to appear "normal" and rational, organizations must adopt numerous conventions that pull them into conformity with external expectations. Moreover, in the face of uncertainty, managers may be compelled to conclude that the least risky course of action is to imitate the choices of their counterparts (DiMaggio and Powell 1983; Spender 1989; Hambrick, Geletkanyca, and Fredrickson 1993). March and March (1977) argued that managers as a group are exceedingly homogeneous. There is therefore not much variance in the independent variable. Industrial economists treated industry or the market as the unit of analysis, arguing that differences among firms were assumed as transitory or unimportant. Porter[6] (1980) also argued that average industry profitability is the most significant predictor of firm performance. That is, that industry analysis should play a vital role in strategy formation.

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[6] The debate between IO researchers including Porter and SM researchers including Rumelt and Roquebert et al. shall be reviewed in more detail later.

Thus, for reasons of substantive constraint, institutional pressures from conformity, and predominant market structure effects, and the extreme homogeneity of the top executive population, some have argued that managers do not matter. The most commonly cited evidence of minimal executive effects is Lieberson and O'Connor's (1972) study of top executives in large corporations. Based on sales, earnings, and profit margin data for 167 large corporations over twenty years (1946-1965), the authors compared the impact of leadership changes with yearly, industry, and company influences. Using the ANOVA procedure, they found that leadership explained only 6.5 to 15.5 percent of variance in the three performance measures examined. They concluded that the options of leaders are restricted by both the organization's internal structure and its social limits. However, the two- or three-year lag effects of leadership on profit margins accounted for around 32 percent.

Additional work supporting Lieberson and O'Connor's was Pfeffer and Salancik's (1978) study of city mayors. Examining data on thirty U.S. cities over a seventeen-year period, the authors sought to measure the relative effects of year, city, and mayor on city expenditures in eight different budget categories. They found that the mayor accounted for 5 to 10 percent of variance in expenditure categories. However, mayoral effects explained 24 percent of variance after controlling the size of the cities.

Although both empirical studies mentioned above have been cited as evidence of the minimal effects of leadership, they have also drawn criticism from studies by Thomas (1988); Day and Lord (1988); and Hambrick and Mason (1984). The most widely noted criticism of Lieberson and O'Connor deals with their choice of performance measures (Hambrick and Mason, 1984; Day and Lord, 1988). Two of three performance data - sales and earnings - are primarily indicators of the firm's size[7]. The problem of the order of entry of the independent variables having greatly influenced the results was criticized by succeeding studies.

When Weiner and Mahoney (1981) replicated Lieberson and O'Connor's study, they allowed the leadership variable to enter the analysis at the same stage as the other variables and found that leadership, or stewardship accounted for 44 percent of the variance in profitability of major firms. Day and Lord (1988) argued that leadership accounted for 20-45 percent of the performance differences after effectively controlling for size and order effects. In addition, they concluded that Lieberson and O'Connor's study should be interpreted to support the substantial existence of a leadership effect contrary to the previous interpretation. Thomas (1988) replicated Lieberson and O'Connor's methodology to measure the leadership effect of U.K. retail companies between 1965 and 1984, and found that the leadership effect accounted for

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[7] The methodological problems with Lieberson and O'Connor's study are reviewed in detail in the methodology section of Chapter III.

roughly 50 percent by correcting the methodological problems. Smith, Carson, & Alexander (1984) examined the relationship between leadership and organizational performance by using a sample of Methodist ministers and churches. The authors found that leaders who had been very effective in prior assignments tended to deliver higher performance in their current assignments (measured by church attendance and financial statistics) than leaders who had been previously less effective.

Additionally, an increasing number of studies have examined and found significant associations between executive attributes or succession and organizational performance. Thus, the individualist's perspective that emphasized the leadership effect has gained ground. Not all research on top executives has sought to examine the direct effects on organizational performance. Some studies have examined how top executive characteristics are associated with strategic choice and organizational structure. Some researchers have focused on the impact of CEO succession on strategic change and in turn, performance.

II-2. Studies on CEOs

The underlying theoretical background that contributed to the growing body of research on CEOs was the "upper echelons" theory (Hambrick and Mason, 1984). The theory, that top executives make strategic choices on the basis of their cognitions and values and that the organization becomes a reflection of its top managers, has gained wide recognition in the field of strategic management. As a result, CEO studies have increased with diverse methods and perspectives.

There are two means to study the personal characteristics of a CEO as individuals. The first focuses on psychological qualities such as values, a cognitive model, and other elements of personality. These qualities provide a basis for which executives filter and interpret stimuli and are then geared towards certain choices (March and Simon, 1958; Weick, 1979; Hage and Dewar, 1973; Hambrick and Brandon, 1988).

Weick (1979) holds that values affect selective perception in interpretation. The manager "sees what he wants to see, hears what she wants to hear." This process is called "perceptual screening" (England, 1967). Hage and Dewar (1973) found that executives tend to select strategies in line with their values. Hambrick and Brandon (1988) believe that executives tend to affect the structure of the organizations they head in accordance with their values.

Ever since March and Simon's (1958) introduction of bounded rationality, scholars have been interested in cognitive limits and biases in strategic decision making. In the 1990s, interest in managerial cognition grew rapidly, resulting in extensive literature on theory and research. Researchers suggested the concept that

every manager is endowed with a cognitive model that determines whether and how new stimuli will be noticed, encoded, and acted on. These cognitive models have been variously referred to as "cognitive maps" (Axelrod, 1976; Weick and Bougon 1986), "world views" (Starbuck and Hedberg, 1977; Mason and Mitroff, 1981), and "mindscapes" (Maruyama, 1982).

Reger and Huff (1993) examined how managers cognitively distinguished strategic groups in the Chicago banking market; Zahra and Chaples (1993) investigated how executives assess their competitors with their own cognition and persona experience. Evidence that executives' cognitive structures would be reflected in their strategic choices has been observed in some studies, though not in abundance. Fiol (1989) used textual analysis of CEO's letters to shareholders to investigate whether revealed beliefs about the strength of organizational boundaries were related to the company's joint venture activity. Narayanan and Fahey (1990) used content analysis of annual reports and trade journal articles to extract the causal maps of executives.

Although psychological constructs have the advantage of conceptual clarity and, perhaps are more important to provide a pointed causal link to executive behavior or choice, it also poses major limitations for researchers and senior executives (Finkelstein and Hambrick, 1996). Top executives are often reluctant to undergo psychological testing. This is the reason most studies on the psychological characteristics of top executives are based on samples from small and medium-sized firms or nonprofit organizations. Finkelstein and Hambrick (1996) were critical in that some psychological constructs have the disadvantage of doubtful soundness when applied to senior executives. In particular, recent debates have focused on whether the conventional scales for gauging personality dimensions are too general and detached from executive issues to be useful for studying top managers.

The second area of focus for studying personal characteristics is based on the observable variables of a person's experiences. Such variables as functional background, company tenure, tenure as CEO, and formal education have been prominent in studies of senior executives. (Gabarro, 1987; Baumrin, 1990; Hambrick and Fukutomi, 1991). As Barbosa (1985) described, an executives's tenure in a firm has a margin of error of zero; an executive's primary functional background is open to little error and can be coded reliably. Among observable characteristics, three variables such as the CEO's tenure, functional background, and education are extensively explored.

Executive tenure has been explored in diverse ways: tenure in the position (Hambrick and Fukutomi, 1991; Miller, 1991); tenure in the organization (Thomas, Litschert, and Ramaswamy 1991); and tenure in the industry (Hambrick, Geletkanycz, and Fredrickson 1993).

Hambrick and Fukutomi (1991) argued that during an executive's time in office, critical trends tend to occur on five fronts: 1) the executive's commitment to their paradigms increases, 2) the longer an executive's tenure, the narrower and fewer the sources of his or her information become, 3) the executive's task interest decreases and diminishes, 4) the power of the executive increases. The study by Wiersema and Bantel (1992) showed that a top executive's tenure was negatively associated with change in a company's diversification strategy over a subsequent three-year period. Norbun and Birley (1988) found that executive tenures were positively associated with company performance in stable industries but negatively associated with performance in volatile industries. The study by Finkelstein and Hambrick (1990) illustrates that executive tenure is positively associated with strategic conformity to average industry tendencies.

Barbosa (1985) found that business innovation is enhanced by certain functional capabilities among top executives. He found that the conversion of product innovation efforts (R&D spending and staffing levels) into actual product innovations (patents, sales from new products, and so on) was strongly related to the degree of marketing experience among the company's top executives. He concluded that a marketing orientation among top executives confers more of a customer-based, creative, expansionist capability in the firm, which serves to enhance the yield from innovation efforts. Among the studies dealing with a strategy of diversification, Song (1982) found that firms diversifying primarily through acquisitions were likely to have CEOs with financial and legal backgrounds, while companies diversifying through internal, organic extensions were more likely to have CEOs with core functional experiences (operations, R&D, and marketing and sales).

Researchers including Becker (1970), Kimberly and Evanisko (1981) found that the education level of top executives was positively associated with company growth. However, Hambrick and Mason (1984) cautioned that any observed associations between education and innovation may be due to an unobserved, spurious effect from executive age. They argued that there has been a marked and steady tendency towards increased education levels of executives over the past thirty or forty years, and young executives tend to be more highly educated than their older colleagues and predecessors.

As with variables of personal characteristics, observable characteristics also have problems. Demographic indicators may contain more noise than purer psychological measures. For example, a person's educational background may serve as a blurred indicator of their socioeconomic background, motivation, cognitive style, risk propensity, and other underlying traits. Beyond the demographic variables that have been the primary focus so far - executive tenure, functional background, and education - lies the need to examine other background characteristics that may have an

important bearing on organizational outcomes (Finkelstein and Hambrick, 1996).

Hambrick and Finkelstein (1987) introduced the concept of "executive discretion" to reflect the variation of CEO effects firm-by-firm, or industry-by-industry. They argued that a CEO's degree of discretion is derived from environmental, organizational, and individual managerial characteristics. Hambrick and Abrahamson (1995) listed 53 industries in rank of order of discretion, putting computer programming, perfumes, and motion picture production in a higher rank. Industries such as natural gas transmission, electrical services, and petroleum refining were rated as having very low discretion.

In addition to environmental factors, the organization may have characteristics that enhance or, conversely, limit the chief executive's discretion. These include inertial forces, such as organizational size, age, a vibrant corporate culture, and capital intensity, all of which limit executive latitude. The following are recognized as individual sources of discretion: aspiration level, tolerance of ambiguity, cognitive complexity, locus of control, power base, and political acumen (Hambrick and Finkelstein, 1987).

II-3. CEO change and succession studies

Succession studies that attempt to measure the impact of executive succession on organizational performance have mainly focused four topics; 1) determinants of top executive departure, 2) dynamics of the succession process, 3) characteristics of successors, and 4) the impact of characteristics of successors and the succession process (Finkelstein and Hambrick, 1996).

Although some researchers might include the leadership-performance debate from Lieberson and O'Connor, Salancik and Pfeffer, and Day and Lord, this paper excludes the debate from succession studies. The leadership-performance debate was employed because changes initiated by CEOs are observable events that enabled a separate understanding of leadership versus firm effects.

This paper confines concerns with the topic of the relationship between succession and organizational performance. Research on the performance implications of succession began with a series of studies on sports teams. This type of organization, while perhaps only marginally similar to other organizations, provides researchers with the important advantages of a well-controlled sampling procedure and, most importantly, undisputable performance measures (Finkelstein and Hambrick, 1996).

Grusky (1963) observed that the "rates of administrative succession of field managers and degree of organizational effectiveness are negatively correlated." Some researchers found that the impact of CEO succession on organizational performance can be different depending on the context including the length of time in which the

organization has been operational. Carroll (1984) argued that the departure of the company's first chief executive would be extremely disruptive; because of the fragility of relatively young organizations, the likelihood of company failure following the departure would increase. In a similar study of local telephone companies in the early twentieth century, Haveman (1993) found results in line with Carroll's: executive departure increased an organization's mortality. Literature on corporate turnarounds have consistently emphasized that new leadership is needed for a turnaround to be successful.

Bibeault (1982) found that about three-fourths of 82 turnaround cases he studied involved new CEOs. Virany, Tushman, and Romanelli (1992) found in their study with a sample of companies in the mini-computer industry (1968-1980) that CEO succession, in general, was associated with improvements in profits. The authors also found that performance improved the most through a combination of changes in CEOs, the top management team, and strategy.

Boeker (1997) suggested that the improvement of performance was positively associated with a new CEO from outside because new leaders were more likely to have more knowledge and competencies than insiders. This result was supported by several successive studies (Bantel and Jackson, 1989; Finkelstein and Hambrick, 1990; O'Reilly and Flatt, 1989). Zajac and Westphal (1996), however, were critical that the cause and effect of the relationship was not clear.

Khurana and Nohria (2002) argued that the degree of organizational disruption created by a CEO's departure (e.g. by force vs. natural turnover) and the potential for organizational change determined by the origin of the successor CEO (e.g. insider vs. outsider) are important factors affecting the firm's subsequent performance. They found that natural turnover followed by an outsider leads to declining organizational performance. They also found that strategic changes introduced by new CEOs were insufficient in triggering an effect on performance.

Bertrand and Schoar (2003) constructed a matching manager-firm panel data set that enabled them to track the top managers across different firms over time, and examined if and how individual managers affect corporate behavior and performance. They identified specific patterns in managerial decision-making that appear to indicate general differences in "style" across managers, and found that those with higher performance received higher compensation and are more likely to be found in better-governed firms. They also showed that executives from earlier birth cohorts appear on average to be more conservative; on the other hand, managers who hold an MBA degree on average, seem to follow more aggressive strategies.

The findings of Ahn et al. (2004) showed a contrast with the study by Bertrand and Schoar (2003), although they employed the same methodological and theoretical approach with Japanese data. They were unable to disentangle a shacho-

(CEO) fixed effect. However, they found a significantly positive response from capital markets on the day a shacho change was announced, particularly when the change was non-routine[8]. Their study, however, has limitations due to the lack of external mobility of Japanese CEOs - shachos - even in recent times. A more comprehensive discussion on the role of Japanese shachos as CEOs may be necessary to consider the idiosyncratic characteristics of the Japanese management system.

II-4. Market vs. Management?

Another research stream is the debate between an IO, which argued that the market is the most predominant predictor of performance differences, and an SM, which concluded that firm-specific resources account for the largest variance of profit. When the assumption of the largest effects of firm-specific resources could be accepted, CEOs should matter because they are presumed to have an overall responsibility for the firm's strategy and structure, and in turn, performance. In this context, resource-based theory that emphasized firm-specific resources could be interpreted as the basis of the "CEO effects (Khurana and Nohria, 2002)."

The reason researchers in this debate did not pay attention to prior leadership-performance debates (Lieberson and O'Connor, Day and Lord) is because their concerns lie only in "market vs. firm effects." Bowman and Helfat (2001), who reviewed both research streams; the leadership-performance debate and the debate between IO and SM, expressed surprise that none of the IO and SM researchers referred to the earlier leadership-performance debate.

The debate between IO and SM researchers was ignited by the studies of Schmalensee (1985) and Rumelt (1991). Schmalensee (1985) attempted to decompose the locus of profit variances into three variables: industry, market share, and firm. He aimed to empirically test three traditions, namely the classical, revisionist, and managerial views, and supported the classical view that industry primarily determined a firm's profitability. Using 1975 data from the Line of Business Program of the U.S. Federal Trade Commission (FTC) and the brand-new methodology VARCOMP, the author found support neither for the existence of firm effects nor for the importance of market share effects. However, he found that industry effects apparently exist and are important. The unexplained variances accounted for 80 percent of the total variance.

Rumelt (1991) partitioned the total variance in rates of return among FTC Line of Business reporting units into industry, time, corporate parent, and business-specific factors. In contrast to Schmalensee's study, he found negligible corporate

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[8] The term "non-routine" here means that the retired shacho (CEO) leaves the firm immediately without staying on as chairman. It is considered routine that the retired shacho hold the post of chairman after retiring.

effects, small stable industry effects, and very large stable business-unit effects. The term 'firm effects' that Schmalensee used was equivalent to the corporate effects of Rumelt's study. Thus, Schmalensee's conclusion, that "firm effects do not exist" refers to what Rumelt noted as "corporate effects." He found that there were significant business-unit effects in U.S. manufacturing activities that strongly outweigh industry and corporate membership as predictors of profitability. Business-unit effects were reported to account for 46 percent of total variance.

Roquebert et al. (1996) used COMPUSTAT data instead of FTC data employed by Schmalensee and Rumelt, extending the debate to longer and more recent time periods. The authors examined the proportion of the relative importance of time, industry, corporation, and business-unit effects in line with prior research in this stream. They found very large business-unit effects, and non-trivial corporate effects. They concluded that these findings provided additional evidence that strategic management theory has an important role to play, as even corporate managers in the general case may have a significant impact on business-unit profitability.

The study of McGahan and Porter (1997), extending the scope of analysis to sectors other than manufacturing, examined the importance of year, industry, corporate-parent, and business-specific effects on the profitability of U.S. public corporations within specific 4-digit SIC categories. Finding that year, industry, corporate-parent, and business-specific effects account for 2 percent, 19 percent, 4 percent, and 32 percent, respectively, of the aggregate variance in profitability, they also concluded that the importance of the effects differ substantially across broad economic sectors. Industry effects in particular, accounted for a smaller portion of profit variance in manufacturing but a larger portion in lodging/entertainment (64.3 percent), services (47.37 percent), wholesale/retail trade (41.79 percent), and transportation (39.5 percent).

Hawawini et al. (2003) supported the IO perspective with analysis that employed value-based measures of performance, a new data set and a different statistical approach. They found that only for a few dominant value creators (leaders) and destroyers (losers) do firm-specific assets seem to matter significantly more than industry factors. For most other firms, i.e., those that are not notable leaders or losers in their industry, the industry effect turns out to be more important for performance than firm-specific factors.

All the studies of this stream, regardless of what they emphasized as sources of firm profit differences, confirmed the dominance of firm-specific effects. With such robust support, it would be safe to conclude that industry membership does not matter much for a firm's performance (Hawawini, Subramanian and Verdin, 2003).

II-5. CEO studies in Korea

The little research available on top executives in Korea presents a striking contrast with the increasing body of research in the U.S. and Japan. Kim and Lee's study (2001), the seminal work building archival data on top executives in Korea, analyzed the demographic characteristics of CEOs of publicly listed companies between 1997 and 2000. The study of Kim and Park (2004), which analyzed the school- or regional-ties between owners and professional CEOs, found that preference for the same region and high school alumni influenced the selection of professional CEOs. In particular, the preference for the same regional-origin of Honam province is found to be stronger than other regions owing to the political and social context of the Honam-based government during the period (1997-2000).

Kim and Kim (2003) tried to identify the demographic characteristics and tenure of CEOs in the SI (software integration) industry, while Kim (2004) analyzed the relationship between tenure and the organization's performance. He suggested that performance tended to decline in the beginning stage of CEOs' tenure, and rebound in the third year in the case of owner CEOs, and the fifth year in the case of professional CEOs. However, it was reported that performance tended to decline again from the twentieth year in the case of owner CEOs and the tenth year in the case of professional CEOs.

Shin and Chang (2003a, b), and Park (1996) paid particular attention to the succession of CEOs. Park argued that the frequent change in CEOs in growing and declining industries is negatively associated with performance, with exception of matured industries. The study by Kang (1998) reported that a change of CEOs had a negative impact on performance for that year. Shin and Chang (2003b) found that the obvious improvement of performance occurred when the CEO was changed due to poor performance. It was argued that the proportion of ruling shareholders positively influenced the market value of the firm in changing CEOs with an unsatisfactory record. The proportion of institutional investors and foreign investors also positively influenced the possibility of changing CEOs with poor performance.

Kim and Park (2000) explained that the growth of firms rather than profit was more likely to be influenced by the characteristics of CEOs. CEOs in a higher discretionary context were more likely to have an influence performance.

Hypotheses

Hypothesis 1. CEOs have an impact on performance differences among firms in Korea.

"Do Korean CEOs matter?" As previously mentioned, studies on the relationship between leadership and a firms' performance are divided into the "supportive view" and "doubtful view" on the impact of CEOs.

Before detailing the supportive views, the doubtful views will be briefly reviewed. Doubtful views comprise several convincing theories such as population ecological theory, and institutional theory. Population ecologists have argued that organizations are largely inertial, hemmed in by environmental and organizational constraints (Hannan and Freeman, 1977). The options of organizational leaders are restricted by both the organization's internal structure and its social milieu (Lieberson and O'Connor, 1972). Freedman et al. (1956) explained, "The influence which any single individual may have upon the development of groups is not so great as we frequently imagine."

Institutional theorists have argued that legitimacy constraints on organizations are particularly confining. Under great pressure to appear "normal" and rational, organizations must adopt numerous conventions that align them with external expectations. Moreover, in the face of uncertainty, managers may be compelled to conclude that the least risky course of action is to imitate the choices of their counterparts (DiMaggio and Powell 1983; Spender 1989; Hambrick, Geletkanyca, and Fredrickson 1993).

In fact, some studies found that institutional factors strongly influenced the behavior of Korean firms. Song (1998) argued that the formation of business groups through diversified expansion has been influenced by institutional factors such as institutional isomorphism and efficiency-oriented strategic considerations to exploit existing resources. He pointed that the top four chaebols' entry into the semiconductor industry exemplifies herding behavior.

Additionally, March and March (1977) argued that managers as a group are exceedingly homogeneous. In this instance, there is not much variance in the independent variable. This argument can be applied to the Korean case. Top executives are vastly homogeneous in terms of age and educational background in Korea. In this

context, CEOs could be assumed to have a minimal impact on a firm's performance.

Although the doubtful view seems reasonable and convincing in theory, the reality is not so simple. Research on the cross-sectional determinants of strategic choices including capital structure, investment portfolio, and acquisition policy shows that a large amount of variation remains unexplained after controlling for firm-level characteristics (Bertrand and Schoar, 2003). This paper requires further analysis to understand the large heterogeneity in business practices that is left unexplained by more standard models that rely on firm- and industry-level factors.

From the supportive view, CEOs are strongly assumed to have a significant impact on performance differences among firms. The most widely recognized theory behind this 'individualist' view is the "upper echelons theory." Since Hambrick and Mason (1984) provided the theoretical framework, proposing that top executives make strategic choices on the basis of their cognitions and values and that the organization becomes a reflection of its top managers, a number of studies have focused on the CEO's impact on organizational performance (Gupta and Govindarajan, 1984; Snyder and Ickes, 1985; Hambrick and Brandon 1988).

Another theoretical background supporting leadership impact is "resource-based theory." The study by Rumelt (1991) and Roquebert et al. (1996) reported on the largest impact of "firm-specific resources" including management, capabilities, and strategic choices. Considering the fact that the CEO has overall responsibility for the conduct and behavior of the firm (Finkelstein and Hambrick, 1995), CEOs are presumed to have a significant impact on organizational performance.

Even though I admit to various limitations on the magnitude of the impact of CEOs, they are strongly expected to have a significant impact on performance differences in Korea.

Hypothesis 2. CEOs have a substantial impact on performance differences compared to industry and firm effects.

"If CEOs matter, then, how much do CEOs matter in Korea?" In order to compare the magnitude of CEO effects with other major effects, this paper tries to partition the performance variances into major effects such as year, industry, firm, and CEO.

From the leadership-performance debate, the assumption that leadership accounts for the largest portion of total variance is supported by three separate research results: 44 percent (Weiner and Mahoney, 1981), 50 percent (Thomas, 1988), and 20-45 percent (Day and Lord, 1988). After correcting the methodological

problems of previous studies by Lieberson and O'Connor (1972), Salancik and Pfeffer (1978) obtained the results. In this context, they are supportive of the view that the significance of CEO effects can be seen as 'conclusive.'

The 'IO vs. SM debate' provided this paper with supportive results that can be interpreted as a basis of significant CEO effects. A considerable amount of research found that 'management' explained the largest portion of profit variance of firms. Rumelt (1991) and Roquebert et al. (1996) found 44 percent and 55 percent of firm-specific effects, respectively. Even McGahan and Porter (1997), IO researchers who emphasized the effects of industry, found greater firm-specific effects (32 percent) than industry effects (19 percent). The largest portion of firm-specific or management effects in these studies implicated the 'significance of CEO effects.'

Furthermore, Korean CEOs are expected to have a significant impact on the performance of firms due to the idiosyncratic characteristics of the Korean management system. Most owners have often served as CEO and a chairman of the board concurrently. It is widely accepted that a CEO who is also chairman of the board has more discretion than a CEO who does not hold both positions (Hambrick and Finkelstein 1995).

Owing to the strong influence of family traditions, there is a tendency for Korean corporate leaders, especially founders, to manage on the basis of principles governing the family or clan system (Chen, 1995; Chang and Chang, 1994). The concentration of authority results partly from the fact that ownership and management are not separated in most Korean companies. In this context, CEOs of Korean firms are expected to have a stronger impact on performance be it in a positive or negative direction.

Additionally, Korean companies have developed their own management system, which includes top-down decision making, paternalistic leadership, personal loyalty, and compensation based on seniority and merit rating (Lee and Yoo, 1978). This kind of management system results in a higher dependency and stronger personal loyalty to CEOs. The CEO's influence on the organization can be seen as significant in Korea.

Hypothesis 3. The CEO effects of the post-financial crisis period are likely to be greater than the pre-financial crisis period.

"Have there been any changes in the magnitude of CEO effects from before and after the 1997 financial crisis?" The crisis was an unprecedented event that had a deep impact on Korea, resulting in very extensive changes in economic as well as social structures.

One of the most important changes for Korean companies was the 'integration' of the Korean economy into the global market. The financial crisis triggered the Korean economy to quickly open its market and liberalize its economic system. Korean companies were expected to face fiercer competition following the crisis, presenting increasing profit differentials between them, in particular, between the winners and losers. The differences between the market value of the top 30 and the lowest 30 companies increased from 7 trillion won in 1995 to 32 trillion won in 2000 (Korea Stock Exchange). Additionally, more than 50 percent of listed companies experienced a sharp one-tenth decrease in market value compared to the pre-crisis period. Increasing intra- rather than inter-industry differences can be interpreted as the result of firm specific resources and capabilities including management ability significantly affecting performance. Also worth considering is that CEOs made more of a difference following the crisis than in the pre-crisis period.

Corporate restructuring has been one of the key policy issues in Korea since the crisis (Kim, 2003). Weak corporate governance was widely accused as a main cause of the financial crisis (Park, 1998; Kim 2003). Thus, the focus of corporate restructuring lay in improving weak corporate governance including the disparity between control and ownership, and less developed legal rights or types of protection for minority shareholders. To enhance corporate transparency and accountability, the Korean government required disclosure of a firm's information, increased auditor independence, and developed an electronic system for easy access to this information. Firms are now required to provide more substantial information, including semi-annual financial statements, all capital losses, and combined financial statements (Joh, 1999).

In this context, it is clear that corporate governance of Korean firms has been improving since the crisis. It is believed that better corporate governance is more likely to result in a more 'suitable manager' for the firm. A number of research reports have assumed that better corporate governance is positively associated with the 'match between the CEO and firm' and in turn, with performance (Bertrand and Schoar, 2003). The authors found that managers with higher performance fixed effects also receive higher salaries and total compensation and that these managers are more likely to be found in better-governed firms.

In fact, Korean companies tend to have more professional CEOs after the crisis than before. This increase seems to reflect efforts to seek suitable managers who possess the wherewithal to deal effectively in very difficult circumstances. Furthermore, both domestic and foreign investors have been keen to evaluate firms based on more accurate information since the crisis. The market values of firms are

likely to be more sensitive to changes in CEOs following the crisis. Accordingly, Korean companies tend to be more aware of the market's attention, and in turn, try to meet expectations in selecting CEOs. This tendency can be construed as 'increasing CEO effects.'

Hypothesis 4. The CEO effects of non-chaebol firms are likely to be greater than those of chaebol affiliated firms.

The characteristics of the organization headed by CEOs may affect the amount of executive discretion (Hambrick and Finkelstein, 1987). The authors argued that an organization's inertial force, such as size, age, a vibrant corporate culture, and capital intensity, all work to limit executive latitude. Large, mature organizations with very entrenched cultures are not easily changed. Their top executives operate under severe constraints.

The amount of resources available to the organization and internal conditions determined by the distribution of ownership, board composition, and internal power concentration also affect the CEOs' discretion. McEachern (1975), and Hambrick and Finkelstein (1995) found that executives have far more discretion when ownership is widely dispersed than when one or a few owners own concentrated blocks of shares.

Considering the characteristics of chaebols or business groups, chaebol-affiliated companies are more likely to be influenced by group-based strategy and culture. They share managerial as well as technical resources among affiliated companies. Group-wide advertising generates considerable economies of scale and scope (Chang and Hong, 2000). Chang and Hong (2002) found substantial business group-specific effects in Korea. In this context, CEOs of chaebol-affiliated companies use less discretion than CEOs of non-chaebol companies.

Miller, Kets de Vries, and Toulouse (1982) found that CEOs locus of control was strongly associated with organizational strategy and structure in small firms but not so in large firms. Reinganum (1985) found evidence that the stock market distinguishes between high- and low- discretionary situations. On the announcement of CEO succession, stock prices rise abnormally, but only for small companies and when the CEO is totally departing the firm. These conditions set the stage in which a new CEO can have an enhanced effect.

From the perspective of executive discretion, CEOs leading relatively small, younger companies with weaker cultures are likely to have a stronger influence on performance. This is the case with non-chaebol firms, which tend to have more of a

concentrated ownership structure and a higher proportion of owner CEOs than chaebol affiliated firms. Thus, the CEO effects of non-chaebol firms are likely to be greater than those of chaebol firms.

Hypothesis 5. Owner CEO effects are likely to be greater than professional CEO effects.

It is widely accepted that owners tend to wield absolute influence in controlling firms in Korea, even though professional CEOs are formally in charge of overall responsibility. Furthermore, owners have often served not only as CEO but also as chairmen on corporate boards in Korea (CEO and chairman duality)[9]. According to one study, a CEO who is also chairman of the board was shown to have more discretion than a CEO who does not hold both positions (Hambrick and Finkelstein 1995).

Owing to the strong influence of family traditions, there is a tendency for Korean corporate owners to manage on the basis of principles governing the family or clan system (Chen, 1995; Chang and Chang, 1994). In addition, it is very common for a founder's son or daughter to succeed the founder. This kind of concentration of authority within a family results in an extreme disparity between an owner and a professional CEO. The predominant power of an owner relative to the minor influence of a professional CEO in a management team has long been an issue for both practitioners and researchers.

In this context, owner-CEOs of Korean firms are expected to have more of an impact on performance whether positive or negative.

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[9] Owner CEOs account for 70 percent of the sample used in this paper.

Methodology & Data Issues

IV-1. Model and Methodology

This paper aims to measure the relative importance of CEO effects on performance differences among firms compared to other major effects such as business cycle effects, industry effects, and firm-specific effects. The model that Rumelt (1991) introduced is as follows. (IV-1)

$$r_{ikt} = \mu + \alpha_i + \beta_k + \gamma_t + \delta_{it} + \phi_{ik} + \varepsilon_{ikt} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(IV\text{-}1)$$

r_{ikt} refers to the rate of return reported in time period t by the business-unit owned by corporation k and active in industry i. μ refers to mean, α refers to industry effects ($i = 1, \ldots, l_\alpha$), β refers to corporate effects ($k = 1, \ldots, l_\beta$), γ refers to business cycle or year effects ($t = 1, \ldots, l_\gamma$), δ_{it} refers to industry-year interaction effects, ϕ_{ik} refers to business-unit effects, and ε refers to residual effects.

The current model that modified Rumelt's is seen in IV-2. Reflecting the difficulty in distinguishing the business-unit from corporation in Korea, I drop corporate effects. Thus, firm effects are the combined 'corporate and business-unit' effects of Rumelt's model while on the other hand, I added CEO effects in the model. Thus, the corporate effects and business-unit effects of Rumelt's model are equivalent to the firm and CEO effects in the current model.

$$r_{ift} = \mu + \gamma_t + \delta_{it} + \alpha_i + \varphi_f + \lambda_{ceo} + \varepsilon_{ift} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(IV\text{-}2)$$

r_{ift} refers to performance such as ROIC and Tobin's q of the firm in i industry, t year, γ refers to year effects ($t = 1, \ldots \ell_\gamma$), δ refers to interaction of year and industry effects (ℓ_δ, distinct it combinations), α refers to industry effects ($\alpha = 1, \ldots, \ell_\alpha$), φ refers to firm-specific effects ($\varphi = 1, \ldots, \ell_\varphi$), λ refers to CEO effects ($\lambda = 1, \ldots, \ell_\lambda$), and ε refers to random disturbances (one for each of N observations). Firm-specific effects in this model are equivalent to the 'corporate effects and business-unit effects' in Rumelt's model. The chaebol variable is not included because of the negligible size of effects (almost zero). The most notable difference between the two models is the 'entry of CEO variable' of the current model. The CEO effects are expected to be

drawn from the mainly firm-specific effects, and partly separated from the industry and year effects.

The methodology that fits with this model is ANOVA (Analysis of variance) and VARCOMP (Variance decomposition), which contain continuous dependent variable and categorical independent variables. . I analyze this model in two ways, ANOVA (fixed-effects model) and VARCOMP (random-effects model).

ANOVA and VARCOMP have been used for both streams: the leadership-performance debate and the IO vs. SM debate. Bowman and Helfat (2001) have provided a comprehensive review of the relevant aspects of two major streams; 11 extant empirical studies between IO and SM that used mainly VARCOMP, and 4 empirical leadership-performance studies that used ANOVA. The most obvious criterion to choose a suitable methodology between ANOVA and VARCOMP is whether the independent variables are fixed effects or random effects (Searle, 1971). However, researchers used both to complement weaknesses of each method (Schmalensee, 1985; Rumelt, 1991; McGahan and Porter, 1997; Furman, 2004). To test the statistical significance of estimates, they used ANOVA by putting the nested variable last in the model (Rumelt, 1991). To compare the relative importance of estimates, they employed VARCOMP by assuming the independent variables are random (McGahan and Porter, 1997).

In an analysis of variance, a researcher typically estimates a null regression model of no effects on the dependent variable other than a constant term, and then progressively adds variables that represent each effect in the model. After adding each set of variables, the researcher calculates the increment to the adjusted R^2 of the regression, as an unbiased estimate of the fraction of variance 'explained' (Schmalensee, 1985).

The leadership-performance debate, an earlier and separate set of studies used ANOVA to estimate top management effects on profitability. The studies of Lieberson and O'Connor (1972), Salancik and Pfeffer (1978), and Thomas (1988) employed ANOVA (sequential analysis of variance), entering year first, and then industry, and then firm effects, and finally CEO effects. These firm and industry effects are fixed (or 'stable') effects that reflect differences between firms (or industries) in the average of each firm or industry's annual returns over the study period. The firm effects in particular capture differences in average profitability between firms due to corporate-level factors, and industry-level factors other than those associated with the primary industry. After estimating year, industry, and firm effects, the analysis then estimates the leadership effects. The latter reflects differences between CEOs in the average annual return per CEO during their term in office, once the mean effects of year, industry, and firm have been accounted for.

As in all hierarchical regression, the entry order of the sets of dummy variables

can have a large impact on the results. For example, the business-level dummy variables are completely collinear with corporate-level dummy variables. As a result, if a regression that includes both sets of dummy variables enters the business-level variables first, these variables will capture all of the corporate effect. In recognition of this fact, analysis of variance models that include both business and corporate-level dummy variables enter the corporate dummy variables prior to the business-level dummy variables (Bowman and Helfat, 2001; Brush and Bromiley, 1997). Bowman and Helfat (2001) pointed out that the latter approach also creates an opposite problem in that the corporate dummy variables may pick up some of the variability associated with the business dummy variables.

The alternative methodology of variance components estimation sometimes referred to as a 'random model' of variance analysis (Bowman and Fetter, 1967), utilizes statistical techniques for estimating random effects rather than fixed (or 'stable') effects estimated in standard variance analysis. Estimating random effects incorporates the assumption that each effect represents a random sample of the true population effect, and that each effect (whether a main or an interaction effect) is independent of the other effects in the model.

Since Schmalensee (1985) introduced this technique to decompose the variance of business profitability into separate classes of effects, a growing number of researchers have employed this technique (Rumelt, 1991; McGahan and Porter, 1997). They used both the ANOVA and VARCOMP techniques in their studies (Schmalensee, 1985; Rumelt, 1991; McGahan and Porter, 1997). Rumelt (1991) explained that he includes the ANOVA estimation because it has independent merit as a method for estimating the importance of effects.

The technique of VARCOMP or VCA (Variance Component Analysis) makes it possible to assess the relative importance of each effect. For example, each firm effect φ_f is seen as having been independently generated by a random process with variance σ_φ^2, and having once been set, remaining fixed thereafter. In this study, I extend Rumelt's argument to the CEO level from the business-unit level. The method is not without its problems. Rumelt (1991) explained that VARCOMP offers no causal or structural explanation for profitability differences across industries, years, corporations, or business units, it simply posits the existence of differences in return associated with these categories.

Brush and Bromiley (1997) identified three such problems: interpretation, power, and model specification. Using a Monte Carlo simulation, they found that the estimated variance components appeared to vary with the square of what they called 'importance,' or the relative size of simulated distributions of corporate and business unit effects, and so gave an unreasonably small estimate for smaller effects. If one effect were 0.2 and the other 0.8, squaring gives 0.04 and 0.64 making the first appear

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unimportant. This problem in interpretation can be readily fixed by appropriate transformation of the results by examining the square roots of variance components rather than the variance components directly.

Brush and Bromiley (1997) found that multiple runs of the same underlying model resulted in a wide variation in estimates, which means the method is not reliable in any single application. In particular, the method lacks the power to find smaller effects even when they exist by construction. By random sampling without replacement, Roquebert et al. (1996) divide their sample of 16,000 observations into 10 samples with an average size of approximately 1,600. Their estimates of the corporate effect range from 9 to 28 percent.

Finally, they questioned some of the structural assumptions of Rumelt's model. For ordinary least-square regression to be applicable, one must assume the error term has a zero correlation with the independent variables in order to identify the variance of the error term. Furthermore, multiple components VARCOMP impose the assumption that the implicit dummy variable parameters will be uncorrelated across effects. For example, the business unit effects and corporate effects are assumed to have no correlation. As equation IV-3 shows, 'VARCOMP' methodology is performed on the basis of the "no correlation" among independent variables assumption.

$$\sigma_r^2 = \sigma_\gamma^2 + \sigma_\delta^2 + \sigma_\alpha^2 + \sigma_\varphi^2 + \sigma_\lambda^2 + \sigma_\varepsilon^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..\ldots\ldots..(\text{IV-3})$$

The study uses SAS proc VARCOMP,[10] being careful to address some possible problems. First, we use the mixed method for both fixed effects and random effects simultaneously, breaking out the likelihood function into two parts, one involving the fixed effects and the other consisting of random effects, and then estimating both. To correct the possible noise from the nested structure among independent variables like industry, firm, and CEO, a proper method is needed. There are several methods in VARCOMP for nested structure including type1, mivque0, maximum likelihood (ML), and restricted maximum likelihood (REML). REML is preferred for the current model that contains nested and un-nested variables together and an unbalanced data structure (Chang and Hong 2002; Searls, Casella, and McCulloch, 1992).

Second, the SAS Proc Mixed Procedure calculates the F-statistic for the significance of each fixed effect, the value of the likelihood ratio of each model for the test of each random effect (Chang and Hong, 2002). To test the results of the random effect model, this paper employs the technique used by Chang and Hong (2002) in

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[10] This paper relies on Searl's (1971) treatment of the theory and practice of variance decomposition, following the study by Rumelt (1991). The procedure is explained in Appendix 1.

their study. For example, the hypothesis that industry effects are significantly from zero (H_α: $\sigma_\alpha^2 > 0$) can be tested against the null hypothesis that industry effects do not exist (H_0: $\sigma_\alpha^2 = 0$). It is possible to test the value of the likelihood functions for the complete model under the alternative hypothesis and for the restricted model under the null hypothesis. Suppose the likelihood function of complete model L (μ σ_α^2 σ_β^2 σ_γ^2 σ_φ^2 σ_λ^2 σ_δ^2 σ_ε^2) the asymptotic distribution of –2 log-likelihood ratio under H_0: $\sigma_\alpha^2 = 0$ is central chi-square with 1 degree of freedom:

$$-2 \log L (\mu\ \sigma_\beta^2\ \sigma_\gamma^2\ \sigma_\varphi^2\ \sigma_\lambda^2\ \sigma_\delta^2\ \sigma_\varepsilon^2) +$$
$$2 \log L (\mu\ \sigma_\alpha^2\ \sigma_\beta^2\ \sigma_\gamma^2\ \sigma_\varphi^2\ \sigma_\lambda^2\ \sigma_\delta^2\ \sigma_\varepsilon^2) \sim \chi^2(1) \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(IV-4)}$$

The decision rule is to reject H_0 if the –2 log-likelihood ratios are greater than $\chi^2(1)$.

Third, as Brush and Bromiley (1997) argued that comparing the square roots of the variance components rather than the variance components themselves might be a better gauge relative to another, this paper follows the square roots comparison to measure the relative importance. Chang and Hong (2002) used this method of interpretation in their study.

IV-2. Variables

Year effects; Year effects represent year-to-year fluctuations in macroeconomic conditions that equally influence all business-units (Rumelt, 1991). The effects reflect the impact on the business cycle from factors such as inflation and the exchange rate. The period of this study is from 1995 to 2003.

This observation period witnessed most Korean companies suffering a serious financial contraction from the crisis, some even filed for bankruptcy. In this context, year effects vary during the period. To capture transient effects, the model includes 'year and industry interaction effects.'

Industry effects; Industry effects represent all persistent industry-specific impacts on observed rates of return. Differences among industry effects reflect differing competitive behavior, entry conditions, growth rates, demand-capacity conditions, differing risk levels, differing asset utilization rates, differing accounting practices, and any other industry-specific impacts on performance (Rumelt, 1991).

Contrary to prior empirical studies that largely used the 4-digit industry code, this study uses the 2-digit Korea Standard Industry Classification (KSIC) code as a definition of industry. The reason why this study defines the industry code more broadly is because the data set is not large enough to apply the 4-digit classification. The screened data set has around 300 firms per year. The Tobin's q data set has fewer

than 300 firms per year. Table III-1 shows the industry classification and its observations.

Additionally, due to incomparability of accounting data with other industries, the financial industry is excluded. Single firm industries such as the tobacco industry are excluded. The industry code number was initially 37, decreased to 31 (ROIC sample) and to 30 (Tobin's q).

Most studies of the 'IO vs. SM' debate defined an industry based on the 4-digit Standard Industrial Classification (SIC) codes in the COMPUSTAT or FTC. Chang and Hong (2002) defined an industry based on the 4-digit KSIC due to the large sample that contains not only publicly listed companies but also statutory audited companies.

Chang and Singh (1997) and Bowman and Helfat (2002) pointed out that when a variance decomposition study defines industries and business broadly, some cross-business influences that occur within a broadly defined business will be attributed to business rather than corporate effects. When it comes to this paper, the chaebol and industry effects are expected to hold less importance than expected.

Firm effects: Firm effects represent persistent differences among firms' returns other than those due to industry and corporate membership.   This is due to the presence of business-specific skills, resources, reputations, learning, patents, and other intangible contributions to stable differences among firms' performances (Rumelt, 1991).

Firm effects in the current model are equivalent to "corporate effects plus business-unit effects" in Rumelt's model (1991) and Roquebert et al. (1996). The definition of firm effects is very similar to 'affiliates effects' in the Chang and Hong model (2002). The reason we cannot separate the business-unit from corporate effects is that Korean companies did not have to report an accounting performance on the basis of the business-unit.

For example, Samsung Electronics operates a number of business-units in different industries such as semi-conductors, home appliances, mobile phones, and an IT business-unit. Samsung Electronics is a corporation in terms of the organizational structure and diversity in businesses. As the practice of reporting listed companies has made substantial progress since the financial crisis, a growing number of Korean firms started reporting the accounting data for business-units. Business-unit level analysis will be performed sometime in the future. However, limitations of business-unit level analysis remain. Thus, this paper defines "firm effects" broadly ranging from the single business firm to corporations with diverse business-units.

From the previous research stream, it has been proven thatbusiness-unit or firm-specific effects are predominant determinants of a firm's profitability. In other

words, the strategy and management capabilities at the business-unit level have the largest impact on business-unit performance. In the Korean case, Chang and Hong (2002) found that the effect of affiliates accounted for the largest portion ranging from 20-30 percent.

CEO effects: CEO effects arise from differences in the quality of overall management and strategic choices of CEOs, and differences in the CEO's ability to effectively allocate resources and capabilities. It is used in this literature to refer to the influence on profitability owing to CEO change during the period.

All CEOs in the sample are coded with an identity number. When a CEO runs more than one company, he/she receives a single identity number. However, instances where CEOs manage more than one company are rare. In addition, a number of CEOs managed the company during all of the observed period (1934 observations- ROIC data, 1833 observations- Tobin's q data). It is not surprising that owners accounted for 93 percent of the "unchanged CEO group." Those who managed the company during the complete period are excluded, because the CEO effects cannot be separated from the firm effects.

Studies of the leadership-performance research stream attempted to measure the differences resulting from different CEOs during the period. Leadership, as defined by Lieberson and O'Connor, measures organizational performance that occurred during the term of each top executive, either a CEO or a chairman of a corporate board. Bertrand and Schoar (2003) defined a CEO who had experiences in other firms as CEO, CFO, and COO.

Chaebol Effects: Chaebol effects represent differences among chaebols in the quality of monitoring and control, differences in resource sharing among affiliate companies, and differences in 'group strategy' and brand reputation of the chaebol group. Chaebols are identified by the list of top 30 business groups of the Korean Fair Trade Commission (KFTC). The KFTC defines 'business group' as 'a group of companies, more than 30 percent of whose shares are owned by some individuals or by companies controlled by those individuals.'

As Table III-2 shows, the list of top 30 business groups contains privatized public corporations such as KOGAS in 2002 and 2003. Because the purpose of this paper is to measure the chaebol effects on performance, privatized corporations are excluded. While some business groups including Samsung, LG, Hyundai, Hanjin, and Lotte are included in the top 30 groups list during the period, some groups are included only in a certain year. The latter are identified only in the specific year.

Chaebol effects in the current model are similar to the corporate effects of Rumelt (1991) and Roquebert et al. (1996). In particular, the structure of having several firms (or business-units) across industries, are similar for both effects. Schmalensee (1985) found 'negligible corporate effects' without distinguishing the

corporation from the business unit. Rumelt (1991) concluded that the corporate effect accounted for between 11-17 percent. The studies of Roquebert et al. (1996) and Bowman and Helfat (2001) argued that significant corporate effects exist.

Bowman and Helfat (2001), in particular, revisited previous studies in terms of data and methodology, and proved that the corporate effect could be larger than the results of prior empirical studies after correcting the flaws. They concluded that the influence on profitability of corporate strategy stems from corporate management. Bowman and Helfat (2001) explained that the average incremental (transitory) corporate effect in McGahan and Porter (1997) and the CEO effects in the leadership-performance studies capture aspects of variation through time in the corporate effect.

McGahan and Porter show that a substantial fraction of corporate effects vary through time; the leadership studies show that transitory CEO effects comprise a non-negligible portion of the total variance of firm profitability. Taken together, this evidence suggests that transitory corporate effects matter, and that top management and thus corporate strategy contribute to these effects. Furthermore, given that the leadership studies provide evidence that CEOs matter, we can infer that stable corporate effects may also reflect the effects of CEOs and corporate strategy on average profitability over time.

The previous study that attempted to measure exact 'chaebol effects' by reflecting on its unique structure and management system was the study by Chang and Hong (2001). The authors called "business-group effects" and found that the effects are non-negligible. On the contrary, the current study has limitations on measuring chaebol effects because of its small sample size. As the number of listed companies is limited, the number of affiliated companies is also relatively small. It is expected to have difficulties in fully capturing the chaebol effects.

Financial crisis effects: The 1997 financial crisis had an unprecedented impact on the Korean economy in every aspect including the corporate sector. The economy experienced a drastic contraction of –8 percent. According to the IMF agreement, the Korean government made a great effort for a full-scale restructuring in the corporate and financial sector in addition to the labor and public sectors. In particular, as reckless investment and higher leverage were partly attributed to causing the financial crisis, corporate restructuring to enhance accountability, transparency and corporate governance were the key policies during the crisis (Park, 1998; Kim, 2003).

Furthermore, the corporate sector was forced to reform business practices such as the mismatch between controlling power and the amount of ownership. For example, it was possible for owners to control their firms without having a formal seat on the corporate board. However, owners who wished to engage in

management were forced to register as a director according to the amendment of the Commercial Law. It is believed that the financial crisis had an impact on the magnitude of CEO effects due to the progress in enhancing efficiency and transparency of corporate governance during the crisis.

To measure the impact of the financial crisis, I divide the period into two sub-periods: before and after the financial crisis. Prior studies concerning the impact of the financial crisis take 1997 or 1998 as a benchmark to divide the period into before and after the crisis. Considering the fact that drastic reform in the corporate sector already started, this paper takes 1998 as the benchmark. Accordingly, let the period from 1995 to 1997 be defined as "before the crisis" and the period from 1999 to 2003 defined as "after the crisis."

Owner effects: This paper classifies all CEOs as either owners or professionals. The information about owners is obtained from the website of the FSS's DART system. The DART system contains updated information about the change in shareholders. The family owner actively participates in the management of most Korean companies, as family or clan members together dominate and wield managerial power. Many Koreans value blood relationships so highly that they have an extended clan, which provides broad-based security for family members (Chen, 1995). Hence, whether or not CEOs are owners is likely to have an impact on performance.

Interaction: This paper includes the interaction between industry and year into the current model to capture transient industry effects that vary from year to year (Bowman and Helfat, 2001). McGahan and Porter (1997) note that some industries may have greater opportunities for corporate influence (chaebol effects in this paper) than others. McGahan and Porter (1997) suggest that the negative co-variance indicates that corporations have a more positive influence in less profitable industries, and by implication, a less positive influence in more profitable industries. The corporate-year interaction captures variation in corporate influence over time and the co-variance effect between industry and corporation may reflect the corporate choice of industries (Bowman and Helfat, 2001). However, this study only includes the interaction of industry and year in the model as random effects due to the limitation of the sample.

<Table IV-1> Number of observations by industry classification

Industry	ROIC sample	Tobin's q sample
Mining	50	50
Food & Beverages	387	338
Textiles	271	201
Apparel	131	89
Leather	54	51
Wood products	33	29
Pulp & paper	203	158
Publishing & printing	25	21
Refined petroleum	62	60
Chemicals	885	806
Rubber & plastics	152	134
Non-metalic mineral products	215	185
Basic metals	367	306
Fabricated metal products	107	76
Machinery	238	213
Computers	73	49
Electrical machinery	178	158
Electronic components	467	379
Precision & optical	69	59
Motor vehicles	268	236
Transport equipment	49	38
Furniture	61	45
Electricity, gas, & water	72	72
Construction	398	349
Retail trade	294	206
Wholesale trade	76	67
Transport	116	60
Auxiliary transport	18	14
Telecommunication	23	20
Computers & related	14	.
Technical services	18	18

<Table IV-2> The Top 30 Chaebols between 1995 and 2003

No	1995	1996	1997	1998	1999	2000	2001	2002	2003
1	Hyundai	Hyundai	Hyundai	Hyundai	Hyundai	Hyundai	Samsung	Samsung	Samsung
2	Samsung	Samsung	Samsung	Samsung	Daewoo	Samsung	Hyundai	LG	LG
3	LG	LG	Daewoo	Daewoo	Samsung	LG	LG	SK	SK
4	Daewoo	Daewoo	LG	LG	LG	SK	SK	HyundaiMotors	HyundaiMotors
5	SK	SK	SK	SK	SK	Hanjin	HyundaiMotors	KT	KT
6	Ssangyong	Ssangyong	Hanjin	Hanjin	Hanjin	Lotte	Hanjin	Hanjin	Hanjin
7	Hanjin	Hanjin	Ssangyong	Ssangyong	Ssangyong	DaewooInt'l	Posco	Posco	Lotte
8	Kia	Kia	Hanwha	Hanwha	Hanwha	Kumho	Lotte	Lotte	Posco
9	Hanwha	Hanwha	Kumho	Kumho	Kumho	Hanwha	Kumho	HyundaiMotors	Hanwha
10	Lotte	Lotte	Dongahh	Dongahh	Lotte	Ssangyong	Hanwha	Kumho	HyundaiHeavy
11	Kumho	Kumho	Lotte	Lotte	Dongahh	Hansol	Doosan	HyundaiHeavy	Hyundai
12	Doosan	Halla	Halla	Halla	Hansol	Doosan	Ssangyong	Hanwha	Kumho
13	Daelim	Dongahh	Daelim	Daelim	Doosan	HyundaiOil	HyundaiOil	Doosan	Doosan
14	Hanbo	Doosan	Doosan	Doosan	Daelim	Dongahh	Hansol	Dongbu	Dongbu
15	Dongahh	Daelim	Hansol	Hansol	Dongkuk	Dongkuk	Dongbu	HyundaiOil	Hyosung
16	Halla	Hansol	Hyosung	Hyosung	Dongbu	Hyosung	Daelim	Hyosung	Shinsegae
17	Hyosung	Hyosung	Kohap	Kohap	Halla	Daelim	Dongyang	Daelim	Daelim
18	Dongkuk	Dongkuk	Kolon	Kolon	Kohap	S-oil	Hyosung	Kolon	CJ
19	Jinro	Jinro	Dongkuk	Dongkuk	Hyosung	Dongbu	CJ	CJ	Dongyang
20	Kolon	Kolon	Dongbu	Dongbu	Kolon	Kolon	Kolon	Dongkuk	Kolon
21	Dongyang	Kohap	Anam	Anam	Dongyang	Dongyang	Dongkuk	Hanaro Telecom	Hanaro Telecom
22	Hansol	Dongbu	Jinro	Jinro	Jinro	Kohap	HyundaiDevelopment	Hansol	Dongkuk
23	Dongbu	Dongyang	Dongyang	Dongyang	Anam	CJ	Hanaro Telecom	Shinsegae	HDS
24	Kohap	Haitai	Haitai	Haitai	Haitai	DaewooElectronic	Shinsegae	Dongyang	Hansol
25	Haitai	Newcore	Shinho	Shinho	Saehan	HyundaiDevelopment	Youngpoong	HDS	DaewooShipbuilding
26	Sammi	Anam	Daisang	Daisang	Gangwon	Anam	HDS	HyundaiDevelopment	DaewooMotors
27	Hanil	Hanil	Newcore	Newcore	Daisang	Saehan	DongyangChemical	Youngpoong	HyundaiDevelopment
28	Kukdong	Geopyung	Geopyung	Geopyung	CJ	Jinro	DaewooElectronic	Daisang	Youngpoong
29	Newcore	Miwon	Gangwon	Gangwon	Shinho	Shinsegae	Taekwang	Dongwon	KCC
30	Byuksan	Shinho	Saehan	Saehan	Samyang	Youngpoong	Kohap	Taekwang	Daihan

IV-3. CEO Data

This data comes from the "Business Directory" produced by the Korea Listed Companies Association (KLCA) from 1995 to 2003. The "Business Directory" contains demographic characteristics of top management teams such as the chairman, president, representative director, executive director, managing director, auditor, and outside director of Korean listed firms. It is extended from the data constructed by Kim and Lee (2001). This data contains the demographic characteristics of executives including date and location of birth, and educational background. Incomplete or missing information of executives in the "Business Directory" can be found in the "who's who database" of media companies such as the Yonhap News Agency and Joongang Daily. Firm-matched panel data totalling 58,090 were recorded in the eight-year period.

To identify only one or two CEOs of each firm, executives who hold the position of "representative director" are first selected as the primary pool of data for this study. This is because in the case of Korean companies, there are several top executives who hold the position of representative director while U.S. companies clearly state their CEOs in corporate annual reports. Thus, it may be reasonable that in the case of Korea, the first criterion for selecting candidates suitable for CEO is based on the 'commercial law,' which specifies that members of the board of a company designate one or more representative directors among them. This member represents the company and delegates managerial duties related to corporate administration and operations (clause 389). A representative director is necessary as a standing/permanent and independent element within a corporation while officially representing the company and executing managerial duties (Kim, 1988).

Since there are no specific qualifications to become a representative director in the Commercial law, any member of the corporate board could be appointed as representative director regardless of their position. In other words, it is possible that anyone from chairman to vice-president to managing director could be a representative director (Cho, 1997). However, a common practice in Korea is to designate the president as a representative director. The post of president is widely believed to have "control" and "responsibility" for overall management although there are exceptions where individuals in positions either higher or lower than president are designated as representative director.

Other than the post of representative director, ownership is the other criterion to select a candidate as CEO. When there are major shareholders, founders, owners and their family members who participate in the business of their companies but are not representative directors, they are also considered candidates because they have enough power to influence high level managerial decisions.

Based on the first criterion mentioned above, CEO candidates whose positions are reported as representative directors are included in the data pool: candidates such as representative president, representative chairman, representative vice-president, and chairman are mostly seen on the representative director list . Representative managing director is also sometimes included. And in the case of people who are selected on the basis of the second criterion, only those who are "full-time" directors rather than "part-timers" are counted, which refer to those who are actively involved in the company's management. Therefore, the CEO-candidate pool contains 14,356 firm-manager matched observations and includes one or two CEO candidates per firm.

IV-4. How to choose the CEO

Careful and even discretionary criteria are necessary to identify the CEO of a firm out of several representative directors. Due to complicated corporate governance in Korea, it is not surprising that little research to identify a CEO has been made and hence there has only been a small portion of literature that deals with such matters: one is Kim and Lee (2001)'s attempt to develop five measurements to identify the CEO in order of importance; (1) representative directors who hold their positions either equal to or higher than that of president; (2) court-appointed managers in firms that go under court receivership; (3) bank president; (4) representative directors whose positions are lower than president if criterion (1) is not met;(5) one who holds the highest position in the case where firms have an absence of representative directors. They constructed a CEOs list that contains an average of 1.44 CEOs per firm between 1997 and 2000. However, they did not try to select only one CEO per firm due to the complexity and ambiguity of the procedure. A second attempt was made by Shin and Chang in 2003. They identified the CEO in line with the 'Business directory.' In other words, the CEO is selected if they are reported in the first rank of the "Business directory."

Thus, this paper is the first attempt to identify the CEO of listed firms and elaborate several criteria to cope with complicated and ambiguous corporate governance in Korea. However, it was difficult to completely solve the problems. Those that are raised in the selection procedure are as follows:

1) Knowing that owners in Korea have strong influence on the management of their company regardless of whether or not they hold a formal position, is it accurate to conclude that they do not affect the management of their company simply because they are not officially involved in it?

2) When an owner and professional executive are involved in management together, and the professional executive has a higher position

than the owner, is it reasonable to consider the professional executive as the CEO?

3) When the founder or owner of a business group or chaebol holds the position of representative chairman in several affiliated companies concurrently, is it correct to say that he is in charge of all these companies as a CEO? How many firms is it possible for a sole CEO to manage at the same time?

4) When an owner's family members, the father and son/daughter in particular, are involved in the management team together, how can we judge when they succeed their father and begin exerting more power? It is obvious that when both an owner and his child/children run their company together, they are in a succession process in regards to authority of ownership and management, but what is unclear is pinpointing the moment of succession;

5) When two owners or professionals hold the highest posts concurrently, who and how are we to select the CEO between them?

If able to thoroughly investigate the unique governance practices of each firm, is it possible to settle all of the problems raised above? The answer is "no." Most of all, it is too challenging to comprehend the idiosyncratic characteristics of corporate governance and the decision-making process of all listed firms. Considering the fact that accessibility to the "internal power structure" and "decision-making process" is strictly limited, it can hardly be a solution. Furthermore, it may lead to misinterpretation by considering each firm differently based on incomplete information. Thus, the criteria taken here is to emphasize the formal positions, the role and authority of owners, and common sense of the Korean management system. Information about the ownership structure is collected on the DART (data analysis, retrieval and transfer system) system of the Financial Supervisory Service)[11] website. The selection criteria to identify a CEO is the following:

1. The owners on the corporate board except the "non-standing" director are included in the "CEO candidate pool" regardless of their formal positions. This reflects the fact that owners in Korea have a strong influence on the management of their company regardless of whether they hold a formal position or not. In the case of non-standing directors, it is presumed that they are unwilling to meet the minimum legal requirement for managing the firm;

2. The professional executives are included in the pool only when they hold the

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[11] See the website of the Financial Supervisory Service data analysis, retrieval and transfer system. (http://dart.fss.or.kr/)

position of representative directors: most of them are Representative Presidents. But, other positions such as representative chairman, representative vice chairman, representative vice-president, and representative managing director are also included in the pool;

3. When there is either only one owner CEO or only one top professional executive who is singled out as a CEO candidate, that person is considered the CEO of the company; For example, when an owner of a firm holds the position of representative chairman or representative president and the firm does not have any professional executives whose position is higher than that of the owner, the owner should naturally be the CEO; when a firm has one professional top executive who holds one of the positions as representative director, and does not have any standing owner on the corporate board, the professional executive should be the CEO. The latter case mainly occurs in privatized corporations and foreign invested companies where foreign investors are not involved in management;

4. When the owner and professional CEOs are included together in the CEO candidate pool,
   A. If the owner has a higher position than the professional executive, the owner is selected as CEO
   B. If the professional executive has a higher position than the owner, the professional is selected as CEO (e.g. owner executive as representative vice-president vs. professional executive as representative president)
   C. However, if the owner has the position of representative president in a firm, the owner is selected as the CEO no matter what position the professional top executive holds: in this case, it is believed that unlike the owner vice-president or owner managing director, the owner representative president has a substantial responsibility and rights over the firm and can play a more critical role in directing management than the professional representative who has an even higher position such as chairman or vice-chairman;

5. When a firm has more than one owner, the CEO is selected according to the following order; the representative director; the person occupying a higher post; the person who is most senior in age. The last criterion stems from a seniority-based culture in Korea. Therefore, seniority is a minor standard in the condition of *ceteris paribus*. This criterion is also applied to a firm that has more than one professional executive;

6. When a firm has two professional CEOs in the exactly the same position, it is rare that they hold the same position for more than two years. In most cases, one of them is a newcomer for the first year while the other resigns in the

following year. This is considered "a process of CEO change." In this context, the incumbent professional CEO is selected as the CEO in the first year, and the newcomer is selected from the next year;

7. In the case of a company where ownership succession from father to son is in progress, at first, the father holds the position of chairman and designates his son as president. As the son becomes more involved in management and exercises more influence in decision-making, the father gradually prepares to retire by moving from chairman to honorary chairman and also leaves the board after a certain period of time to give his son full authority. When the father becomes honorary chairman, the son becomes CEO of the company. Otherwise, the father has to be selected as CEO considering his substantial influence as the company's founder;

   A. In the case of father-son succession, it is sometimes the case where a professional top executive holds a higher position than the successor-son. A transitory period is considered necessary for the successor to be fully trained to succeed to the authority and ownership of his father. In this context, when the professional top executive has the higher position than the successor for more than one year, the professional top executive is selected as the CEO. However, the professional does not stay for more than one year, and he is excluded from the pool. This is regarded as a "just complimentary position";

   B. In the case of father-son succession, even though the father still has not resigned from the position of chairman, the son who has the position of representative chairman, the highest position, is selected as the CEO. (e.g. Hite Brewery Co. which has two chairmen serving concurrently).

8. When a firm has a representative director and a court-appointed manager at the same time, the representative director is selected as CEO. When a firm has only a court-appointed manager, he/she is selected as CEO.

9. When a firm has more than one court-appointed manager, the one who has the post of representative director, who has seniority, in order of importance, is selected as the CEO.

Although the above selection criteria are applied, the ambiguity and complexity of corporate governance in Korea remains. For example, when the founder or the owner of a business group holds the position of representative chairman in several affiliated companies at the same time, the question "is it correct to say that he is in charge of all these companies as CEO?" remains unanswered. How many firms is it possible for a sole CEO to manage at the same time? For example, the Chairman of Hanjin Group, Cho Choong-Hoon was a representative chairman of all seven affiliated

companies of the group during the period but 2002 and 2003. Cho resigned in 2002, and was succeeded by his sons. In this context, Cho was an extreme case among chairmen of chaebol groups. The chairmen of a chaebol group who has the positions of a representative chairman of more than one affiliated company for more than three years are Lee Kun-Hee (Samsung, two companies), Koo Bon-Moo (LG, two companies), Chung Mong-Ku (Hyundai Motors, three companies), Park Yong-Oh (Doosan, three companies), Kim Seung-yeon (HanWha, four companies) and Kim Jun Ki (Dongbu, three companies). Since I cannot find suitable ways to compromise, this data includes these individuals regardless of the number of firms they manage.

The 8,818 firm-CEO matched panel data includes a large amount of detail. Companies that have an easily identified CEO are banks, privatized companies, and companies that have owner CEOs. However, the data contains the firms that have two CEO candidates. The number of firms that have two CEO candidates is 1,445. The final data on CEO per firm from the candidates includes 6,373 firm-CEO matched observations. The data still includes members of the banking and financial industry. However, the financial industry is excluded due to incomparability of accounting data with those of other industries. Firms that dropped reporting their financial statements are excluded. Industries that have only one firm are excluded.

The screened data set matched with ROIC includes 5,374 observations. After screening the firms that have only one CEO during the period, the data comprise 3,440 observations. The data set is divided into two groups: the first is "pooled data" or "full data" with all observations; the second is "changed data" with firms that experienced CEO change. TableIV-1 shows the description of the data set by screening step.

<Table IV-3> Description of data set by screening stage

		N	Criteria
STEP 1		14,356	- Owners who are registered as directors - Professionals who have the position of representative director
STEP 2		8,818	- When a firm has only the owners or the professionals who can be identified as a "CEO," the owner or the professional is selected as CEO. - When a firm has the owners and the professionals who can be identified as a CEO, the two top positions are included in the pool
STEP 3		6,373	- Using the selection criteria, only one CEO is finally selected
STEP4	ROIC	5,438	- Firm-manager matched panel data with ROIC performance (Financial industry excluded)
	Tobin's q	4,686	- Firm-manager matched panel data with Tobin's q (Financial industry excluded)
STEP 5	ROIC	5,374	- Industries that have only 1 firm are excluded
	Tobin's q	4,572	- Industries that have only 1 firm are excluded

IV-5. Performance Issues

Measuring the performance of organizations is another important issue. The most common way to measure profitability is to note the accounting data such as the rate of return in the financial statement. Tobin's Q, which reflects the market value of the firm, is sometimes used for measuring the comprehensive value of the firm. This paper aims to use both accounting profit and Tobin's q as performance data.

There is various performance data in the financial statement, such as the rate of return on sales (ROS) and rate of return on total assets (ROA). Among them, the rate of net income on total assets (ROA) is the final result after tax and interest payments. Thus, ROA is commonly used to measure accounting profitability. However, this paper uses the rate of return on invested capital (ROIC), which is defined as the sum of net income before tax plus interest payments, deflated by total assets. This measure of performance indicates operating efficiency without being biased by the relatively high debt/equity ratios common in Korea (Chang and Hong, 2002).

In fact, the ROA of Korean companies seriously fluctuated due to the excessive investment and higher debt/equity ratios during the financial crisis. For example, the ROA of financially distressed companies such as Candy Global Media and Korea Data System were 2357 percent, and 779 percent, respectively. Considering the fact that there were a considerable amount of companies that had financial contractions due to their highly leveraged financial structure, ROA has some bias problems to employ as performance data. In this context, the ROIC is expected to better reflect the efficiency of management, whether it improved or worsened as a result of the CEOs, in particular the newly selected CEOs following the financial crisis.

In spite of ROIC's merit, it also has certain limitations. In the case of highly leveraged firms, the ROIC may be seriously overestimated compared to the true performance of firms. To comprehend the firms' performance by both criteria, I include ROA in the data set for reference.

Tobin's q is defined as the ratio of the market value to the replacement cost of the firm. Tobin's intent was to examine a causal relationship between q and investment. However, Tobin's q has been sought as an indicator to measure the rent of a certain industry or firm. Additionally, it has been considered as comprehensive value of the firm rather than accounting data. This paper employs Tobin's q considering the fact that q reflects the expectation or disappointment of the market for the new CEO without a time lag. Additionally, q is assumed to valuate the comprehensive capabilities of the CEO rather than accounting profit such as ROA or ROIC.

Recent studies that used Tobin's q as performance data in Korea are Chang (2003), and Lee, Lee, and Hong (2003). They employed the procedure used by Hoshi and Kashyap (1990). The procedure is similar with that of Kim, Kim, Park, and Chang (1996), of which this paper also follows their calculating procedure.

The market value is the sum of the market value of stocks and the market value of debts. To calculate the firm's market value, the value of securities should be considered. The firm's securities fall into three broad groups: (1) common stock, (2) preferred stock, and (3) debt. The recorded market values of year-end common stock and preferred stock are assumed to represent the true market values (Lindenberg and Ross, 1981).

For the market value of debts, this paper distinguishes between long-term liabilities and current liabilities with maturities of less than one year. Furthermore, current liabilities are divided into two groups, one for interest paying liabilities and the other for non-interest paying liabilities. For non-interest paying current liabilities, the book value is regarded as the market value (Hoshi and Kashyap, 1990).

For interest paying liabilities, on the other hand, the market value depends on the maturity distribution of the firm's bond rate, their coupon rates and the current yield to maturity. However, it is not possible to know the exact interest rate of each company, because the interest and bond rates are not reported. In order to estimate the interest rate distribution of the firm's debt, the proportion of short-term debt, long-term domestic debt, and long-term foreign debt deflates the sum of interest payment for a year and the discounted amount. Thus, the market value of short-term debt is calculated by the sum of estimated interest payments and discounted present value. The market value of long-term debt is calculated in the same way. This paper uses the CD rate[12] for short-term debt, the lending interest rate of the bank for long-term domestic debt, euribor (libor) +1.5% for foreign debt, and the bond rate for bonds[13].

The measurement of the replacement cost is a more difficult matter because of the lack, in most cases, of active markets for old capital goods (Lindenberg and Ross, 1981). By definition, the replacement cost is the amount needed to purchase the current productive capacity of the firm at minimum cost and with the most modern technologies available. Replacement-cost estimates were required in the categories of (1) liquid assets (cash and securities), (2) intangible fixed assets, (3)

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[12] Ibid (http://www.bok.or.kr).

[13] The formula to calculate the market value of debt is available upon the request.

invested assets, (4) inventories, (5) plants and buildings, (6) other tangible fixed assets, and (7) land.

The categories of assets, liquid assets, intangible fixed assets, and invested assets are assumed to have replacement value approximately equal to book value. The replacement value of inventories is calculated by using the producer's price[14] and differences between the book value of t year and that of the basis year (in this case the first year of the observed period, 1995). The replacement value of the plant and building is calculated by using the average of the depreciation rate and book value of plants and buildings. The replacement value of other tangible fixed assets, machinery, is calculated by using the "capital goods producer's price." The replacement value of land[15] is calculated with the same formula by using the change rate of land price.[16]

Tobin's q of Korea's listed companies, however, includes some strange numbers such as larger than 10, and lower than 0. These numbers are mainly the result of financially distressed companies from the financial crisis. When a firm dropped reporting annual reports due to the financial distraction, Tobin's q of the firm tended to fluctuate, in particular, in the first year reporting resumed. Thus, firms that could not report their accounting results are excluded for the year and the first year reporting resumed. Firms that went bankrupt are also excluded. This screening procedure shows the gap between the number of 'ROIC sample' and 'Tobin's q sample.'

Tobin's q calculated in this paper has several characteristics compared to prior studies. First, most previous studies attempted to measure Tobin's q of the manufacturing industry. This paper, however, excludes only the financial industry, and includes the service, construction and transportation industries. Second, this paper uses financial statements from KLCA, while previous studies mainly used the data set of the Korea Investors Service.

Although data sets of the two institutions are constructed based on annual reports of companies, there are differences between the two data sets in terms of missing data, and the number of financial results. These problems should be solved to improve data credibility. Tobin's q constructed in this paper tends to be slightly lower than that of Lee, Lee, and Hong (2003), but shows very similar patterns. Slight

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[14] The price index including the producer's price comes from the website of the National Statistics Office (http://www. nso.go.kr)

[15] The change rates of land prices come from the Ministry of Construction and Transportation. (http://www.moct.go.kr)

[16] For further information, see the article of Kim, Kim, Park, and Chang (1996).

differences can be explained by the gap between two data sets.

When employing both accounting performance data and market value of the firm, some concerns arise from the difference between the two. Financial price data provide a viewing window into the firm through the market's valuation of the securities issued by the firm and the changes in these values over time. Accounting data, on the other hand, provide information on the resources used by the firms (Lindenberg and Ross, 1981).

A number of studies, both domestic and international, affirmed that accounting data such as ROA and ROIC have significant power as a predictor of the security rate of return. However, predictive power is limited because the rate of security return is determined by various sources of information including accounting profitability.

The values of Tobin's q that are calculated by "market value of the firm and its replacement cost" reflect the evaluation of the market on the firm's future profitability. Tobin's q, naturally, is a performance indicator that is more sensitive to the firm's "non-accounting information" including CEO change.

Furthermore, market value is determined by reflecting the firm's information without time lag. For example, CEO change of the firm can be reflected immediately unlike accounting data. Ahn et al. (2004) found that the stock market significantly responded to CEO change, while they did not find any significant relationship CEO effects and performance in Japan.

Kato, Kim, and Lee (2004) found that the compensation of Korean executives is statistically and significantly related to stock market performance. Moreover, accounting performance and sales are found to play a less important role in the determination of Korean executive compensation. With this in mind, a careful interpretation of the results of both performance data may be needed.

Results

V-1. Results of ANOVA

Schmalensee (1985) suggested that ANOVA results establish whether each set of effects is significant, and that VARCOMP results are preferable for evaluating the relative importance of each type of effect. Following this suggestion, ANOVA is run for estimating the importance of CEO effects. This paper employs 'ANOVA GLM nested' which is preferred for unbalanced data with a nested structure.

As Rumelt (1991) explained in his paper, it is important to note that with a fixed-effects estimation, strict tests for the presence of effects are possible only for the last effects fitted. Thus, the CEO variables enter the model last. Since the model contains variables with 'nested structure,' nest variables such as industry and firm effects cannot be the last put in the model. When the nest variables are last after the CEO effects, the estimates cannot be calculated.

In the pooled sample, the year, industry, firm and CEO effects are seen as 0.4 percent, 4.5 percent, 36.8 percent, and 19.8 percent, respectively. However, the changed sample obtains 5.4 percent of industry effects, 32.8 percent of firm effects, and 25.4 percent of CEO effects. The CEO effects increase from 9.9percent before the financial crisis to 20.9 percent after the crisis, while firm effects decrease from 61 percent to 43.7 percent. In case of the chaebol affiliated companies sample, the firm effects are 37 percent, presenting a similar size with non-chaebol companies. The CEO effects of both samples are 22.7 percent and 24.4 percent.

The industry, firm, and CEO effects in the owner CEO sample are 5.5 percent, 37.1 percent, and 11.8 percent, respectively. The unexplained variance accounts for 44.5 percent. On the other hand, the industry, firm, and CEO effects in the professional CEO sample are 9.5 percent, 43.7 percent, and 19.6 percent, respectively. To compare the size of impact of variables on performance, I put the variables in the model last. Then, all the variables except firm effects do not have significant amount of impact on performance. Even firm effects do not seem to have reasonable amount of estimate. Table V-1 shows the figures.

<div align="center"><Table V-1> Analysis of variance of ROIC of firms (nested model, GLM)</div>

		Owner	Chaebol	Year	Industry	Firm	CEO	Error	Firm[*]	N of Observ.
Pooled	R^2	0.4	1.1	1.7***	6.2***	42.9***	62.9***	100	0.023	5373
	(%)	0.4	0.7	0.6	4.5	36.7	20	37.1	0.03	
Changed	R^2	0.2	1.4	2.3***	7.7***	40.5***	66***	100	0.02	3439
	(%)	0.2	1.2	0.9	5.4	32.8	25.5	34	0.03	
Be-IMF	R^2	0	0.9	1.6***	9.8***	70.8***	80.7***	100	0.017	1150
	(%)	0	0.9	0.7	8.2	61	9.9	19.3	0.02	
Af-IMF	R^2	0.3	1.5	1.7***	8.4***	52.1***	73.1***	100	0.019	1900
	(%)	0.3	1.2	0.2	6.7	43.7	21	26.9	0.025	
Chaebol	R^2	0	-	2.8***	13.4***	50.5***	73.7***	100	0.067	930
	(%)	0	-	2.8	10.6	37.1	23.2	26.3	0.09	
N-chaebol	R^2	0.7	-	1.7***	8.2***	41.1***	65.5***	100	0.008	2509
	(%)	0.7	-	1.0	6.5	32.9	24.4	34.5	0.012	
Owner	R^2	-	0.3	1.1	6.6***	43.7***	55.5***	100	0.015	1929
	(%)	-	0.3	0.8	5.5	37.1	11.8	44.5	0.027	
Professional	R^2	-	2.4	4.1***	13.6***	57.3***	76.9***	100	0.0145	1510
	(%)	-	2.4	1.7	9.5	43.7	19.6	23.1	0.019	

* Increment R^2 when firm variable is included last. Other variables do not have R^2 when putting in the model last.

*** p<0.0001

The results of ANOVA of Tobin's q and the ROIC matched sample have much in common. For example, the CEO effects are quite significant, showing 21.54 percent of total variance in terms of incremental R^2. Like the ANOVA of ROIC sample, the CEO effects increase from 7.8 percent before the financial crisis to 16.6 percent after the crisis. Differences between the amount of CEO effects of the two groups, chaebol affiliated and non-chaebol companies are insignificant.

Differences of the magnitude of CEO effects between the owner and professional CEO group become more obvious. In the owner CEO sample, the CEO effects make up only 8.3 percent, while those of the professional CEO group is 21.7 percent. From the results of ANOVA of ROIC and Tobin's q data, hypothesis 1, that CEOs have a significant impact on performance differences in Korea, is supported.

<Table V-2> Analysis of variance of Tobin's q of firms (nested model, GLM)

		Owner	Chaebol	Year	Industry	Firm	CEO	Error	Firm[*]	N of Obs erv.
Pooled	R^2	2.4	3.8	15.65***	22.34***	63***	76.28***	100	0.023	4533
	(%)	2.4	1.4	11.85	6.69	40.66	13.28	23.72	0.03	
Changed	R^2	1.6	2.95	11.9***	21.83***	57.8***	79.34***	100	0.018	2719
	(%)	2.4	1.35	8.95	9.93	35.97	21.54	20.66	0.23	
Be-IMF	R^2	1.91	2.36	7***	21.24***	75.09***	82.89***	100	0.0132	946
	(%)	1.91	0.45	4.64	14.24	53.85	7.8	17.11	0.016	
Af-IMF	R^2	1.86	3.7	7.94***	19.25***	66.86***	83.46***	100	0.012	1773
	(%)	1.86	1.84	4.24	11.31	47.61	16.6	16.54	0.014	
Chaebol	R^2	0	-	6.5***	28.3***	60.2***	80.3***	100	0.049	829
	(%)	0	-	6.5	21.8	31.9	20.1	19.7	0.06	
N-chaebol	R^2	1.5	-	12.6***	22.8***	58.9***	80.2***	100	0.0123	1890
	(%)	1.5	-	11.1	10.2	36.1	21.3	19.8	0.015	
Owner	R^2	-	2.7	14.8***	27***	65.3***	73.6***	100	0.027	1605
	(%)	-	2.7	12.1	12.2	38.3	8.3	26.4	0.04	
Professio nal	R^2	-	0.5	7.1***	18.7***	63.5***	85.2***	100	0.008	1114
	(%)	-	0.5	6.6	11.6	44.8	21.7	14.8	0.01	

* Increment R^2 when firm variable is included last. Other variables do not have R^2 when putting in the model last.

*** p<0.0001

V-2. ROIC Sample VARCOMP Analysis

The next step is to assess the importance of nested CEO effects compared to firm and industry effects. Table V-3 summarizes the results of Variance Decomposition of the ROIC data. This data contains 'pooled data' and sub-samples of 'changed data,' Pooled data includes all observations regardless of existence of CEO change during the observed period. On the contrary, changed data includes the firms that experience CEO change during the period. In other words, changed data excludes the companies with only one CEO during the period. This is because I need to separate the CEO effects from the firm effects.

Using pooled data, the estimates are: year 1 percent, industry (industry plus interaction of industry and year) 6.13 percent, firm 24.5 percent and CEO effects 21.1 percent. Among fixed effects, the family dummy variable, which is defined by the criterion of owner or professional CEO, is statistically significant. The financial crisis dummy variable, "imf" also has a significant impact on performance differences. However, the chaebol group does not seem to have a significant impact on

performance. Between characteristics of CEOs, age turns out to be significant, while level of education does not.

Using "changed data," the estimates of major effects are 1.4 percent (year), 7.1 percent (industry), 25.5 percent (firm), and 14.7 percent (CEO effects). As with "pooled data," the 'imf' dummy and age dummy significantly affects performance differences.

In the ROIC matched data, hypothesis 2, the assumption that CEO effects are likely to have a significant impact on performance differences is supported.

By sub-samples, the estimates of major effects are quite different. Considering the impact of the financial crisis, differences were expected between the two periods of pre- and post-crisis. In the "pre-crisis" sample, industry, firm and CEO effects are 4.7 percent, 46.7 percent and 7.9 percent, respectively. The relative importance of CEO to firm effects is 0.41. On the other hand, in the "post-crisis" sample, firm effects decrease from 46.7 percent to 38.3 percent, and CEO effects increase from 7.9 percent to 20 percent. The relative importance increases to 0.68 compared to firm effects. Industry effects increase to 6.9 percent from 4.7 percent.

In the ROIC matched data, hypothesis 3, the assumption that CEO effects of the post- crisis period are likely to be greater than those of the pre-crisis period is supported.

The sample of top 30 chaebol-affiliated companies contains only 930 observations. The VARCOMP chaebol data obtains year, industry, firm and CEO effects of 1.7 percent, 5.1 percent, 32.4 percent, and 19.1 percent, respectively. In the sample of non-chaebol companies, the year, industry, firm and CEO effects are 1.6 percent, 6 percent, 23.6 percent, and 15.1 percent. Even though the magnitude of CEO effects for the two groups are different, the differences in relative importance of CEO to firm effects are not apparent. The relative importance of CEO in the chaebol-affiliated sample is lower than that of the non-chaebol sample, because the firm effects decrease from 32.4 percent to 23.6 percent. In terms of fixed effects, the non-chaebol sample indicates that the age of CEOs have a significant impact on performance differences.

In the ROIC data, hypothesis 4, the assumption that CEO effects of non-chaebol firms are likely to be greater than those of chaebol affiliated firms is supported.

In the sample of owner CEOs, the year, industry, firm, and CEO effects are 1.3 percent, 3.9 percent, 23.7 percent, and 10.5 percent, respectively. In the sample of professional CEOs, the year, industry, firm, and CEO effects are 0.7 percent, 10.2 percent, 39.2 percent, and 12.3 percent. Although the magnitude of CEO effects of both samples appears comparable, the relative importance of CEO of 0.67 in the owner CEO sample is higher than that of professional CEO of 0.56. In the owner CEO

sample, the IMF dummy has a significant impact. The greater size of interaction of industry and year in the professional CEO sample indicates that they experienced a more serious fluctuation of industry by year. On the other hand, age dummy variables turn out to be significant in the professional CEO sample.

In hypothesis 5, the owner CEO effects are likely to be greater than professional CEO effects, is supported. In summary, the hypotheses that build up in chapter III are all supported in the ROIC sample.

V-3. Tobin's q sample VARCOMP Analysis

Table V-4 presents the results of VARCOMP for the Tobin's q sample. Tobin's q is another performance indicator, reflecting the market's expectation and disappointment on the firm's future value. Market value is basically determined by accounting information and other important factors (Park and Kim, 1999). Prior studies supported the assumption that "accounting information plays a role as a predictor of security returns" (Ball and Brown, 1968). However, the consensus is that the accounting information is one of the important factors that determine stock returns. In other words, accounting numbers significantly influence stock returns with other important factors. It partly explains market values.

In this context, the results of VARCOMP of Tobin's q data are likely to be different from those of the ROIC sample. At first glance, all but firm effects tend to be greater than those of the ROIC samples. Most results by sub-samples tend to be similar in terms of relative importance with the exception of owner sub-samples and professional samples.

In the pooled sample, the year, industry, firm and CEO effects are 12 percent, 8 percent, 25.4 percent and 25.5 percent. Among fixed effects, the owner, the financial crisis, and age of the CEOs dummy have a significant impact on performance differences. In particular, the owner dummy is significantly affected at the 0.0001 level.

In the "changed sample," the year, industry, firm and CEO effects are 8.8 percent, 8.4 percent, 26.8 percent and 25 percent, respectively. The owner dummy is also significantly important in this sample. The CEO effects, 25 percent of Tobin's q sample, are greater than those of the ROIC sample. The relative importance of CEO effects compared to firm effects is 0.97, contrasting with 0.76 of the ROIC sample.

Therefore, hypothesis 2 is also strongly supported in the Tobin's q sample.

Before the financial crisis, the year, industry, firm and CEO effects were 7.6 percent, 15.3 percent, 34.9 percent, and 12.3 percent, respectively. This can be interpreted as industry having had a relatively larger impact on market value than accounting data before the crisis. It reflects that market values of firms tend to be

more strongly influenced by industry factors before the crisis. The CEO effects explain only 12.3 percent, less than industry effects. Owner, education, and age dummy variables of CEOs turn out to be insignificant.

Following the financial crisis, the results are quite different from those of the pre-crisis period. The year, industry, firm and CEO effects are 4.9 percent, 8.8 percent, 39 percent and 27.3 percent, respectively. The CEO effects increased substantially compared to the pre-crisis period. The relative importance of CEO effects to firm effects increased from 0.59 to 0.83 after the crisis. Among fixed effects, the owner dummy has a significant impact unlike in the previous period.

In hypothesis 3, the assumption that CEO effects of the post-financial crisis period are likely to be greater than that of the pre-financial crisis period, is also supported in Tobin's q sample.

In the chaebol affiliated companies' sample, the interaction of year and industry accounts for 5.7 percent and the industry accounts for 16.1 percent, recording the highest among sub-samples. The larger size of interaction of industry and year in the chaebol affiliated companies can be seen as a result of having experienced a more serious fluctuation of industry by year. Firm effects and CEO effects in the sample are 21.7 percent, and 27.4 percent.

In the sample of non-chaebol companies, year, industry, firm, and CEO effects are 10 percent, 7.1 percent, 25.3 percent, and 28.4 percent, respectively. Although the size of CEO effects seems to be comparable, the relative importance of the 'non-chaebol sample' is smaller than that of chaebol affiliated companies' sample. However, the difference of the relative importance between the two samples is not definitive.

In hypothesis 4, the assumption that CEO effects of non-chaebol firms are likely to be greater than those of chaebol-affiliated firms is not supported.

The results of both owner CEO and professional CEO samples are different from those of ROIC samples as well. In the owner CEO sample, year, industry, firm and CEO effects are 13.7 percent, 11.6 percent, 28.4 percent, and 12.6 percent. The relative importance of the owner CEO is 0.67, much smaller that that of a professional CEO.

On the contrary, year, industry, firm, and CEO effects in the professional CEO sample are 7.6 percent, 5.4 percent, 28.7 percent, and 30.3 percent, respectively. An obvious increase is seen in the amount of CEO effects. The relative importance of CEO to firm effects is 1.03. In hypothesis 5, the assumption of owner CEO effects likely to be greater than professional CEO effects is not supported.

In summary, the hypotheses 4~5 are rejected while hypotheses 1~3 are supported in the Tobin's q sample.

Why are the results of Tobin's q sample different from those of the ROIC sample? Considering the fact that hypothesis 5, in particular, seems too obvious to test,

the rejection of the hypothesis in the Tobin's q sample is surprising. How are professional CEO effects greater than owner CEO effects?

There are several possible explanations. First, determinants of the values of Tobin's q should be considered. As Tobin's q reflects not only accounting data but also non-accounting information including CEO change of the firm, the values tend to be more sensitive than accounting data. If CEO change occurs in a firm, markets respond to the change without a time lag in any direction.

Second, the variance of Tobin's q tends to be associated more with professional CEOs than owner CEOs. A change of owner CEOs has less of an impact on market value than a professional CEO change. This may be as a result of an owner CEO change occurring by 'blood succession.' In other words, the market does not seem to expect that blood succession will make much difference. On the contrary, professional CEO changes are accepted as having a closer association with performance.

Third, market tends to be more responsive to the change of CEOs of chaebol-affiliated companies than that of non-chaebol companies. As chaebol affiliated companies have been more heavily forced to enhance transparency and accountability since the financial crisis, they should open and report more information on their management. Thus, markets tend to pay more attention on CEO changes of chaebol-affiliated companies than non-chaebol companies. Those are why the values of Tobin's q are more responsive to the CEO change of 'chaebol affiliated companies' and 'professional CEOs' than accounting data.

\<Table V-3\> Variance decomposition of ROIC of firms

		Random effect						Total random effect	Fixed effect					N of observation	Relative importance of CEO to firm	Relative importance of CEO to industry
		Year	Year*indus	Industry	Firm	CEO	Error		Owner	IMF	Chaebol	Education	Age			
Pooled	Random model variance component	0.87	2.91***	2.3***	20.83***	17.93***	40.16	85						5374		
	%	1.02	3.42	2.71	24.51	21.09	47.25	100.00							0.93	1.85
	Mixed model variance component	0	2.87***	2.35***	19.91***	18.15***	40.14	83.42	8.06 (0.0045)	24.2 (<.0001)	1.55 (0.2133)	0.8 (0.492)	3.63 (<.0001)	4759		
	%	0.00	3.44	2.82	23.87	21.76	48.12	100.00							0.95	1.86
Changed	Random variance component	1.37	4.07***	3.01***	25.48***	14.74***	51.35	100.02						3440		
	%	1.37	4.07	3.01	25.47	14.74	51.34	100.00							0.76	1.44
	Mixed model variance component	0	4.03***	2.91***	24.27***	15.2***	51.26	97.67	3.44 (0.0638)	15.14 (<.0001)	3.32 (0.0687)	2.21 (0.086)	3.31 (<.0001)	3031		
	%	0.00	4.13	2.98	24.85	15.56	52.48	100.00							0.79	1.48
Be-IMF	Random variance component	0.27	1.07	0.81	18.67	3.16	16	39.98						1150		
	%	0.68	2.68	2.03	46.70	7.90	40.02	100.00							0.41	1.3
	Mixed model variance component	0.29	1.08	0.83	18.38	2.95	16.08	39.61	0.78 (0.379)		1.73 (0.1888)	1.51 (0.212)	1.87 (0.0006)	1141		
	%	0.73	2.73	2.10	46.40	7.45	40.60	100.00							0.40	1.24
Af-IMF	Random variance component	0.03	1.62	6.96	47.53	24.76	43.11	124.01						1901		
	%	0.02	1.3	5.61	38.33	19.97	34.77	100.00							0.68	1.42
	Mixed model variance component	0.02	1.56	6.66	46.03	25.27	43.19	122.73	0.69 (0.4074)		2.0 (0.1576)	1.3 (0.272)	2.83 (0.0001)	1890		
	%	0.02	1.27	5.43	37.5	20.59	35.19	100.00							0.70	1.46
Chaebol	Random variance component	0.76	1.97	0.38	14.81	8.74	19.12	45.78						930		
	%	1.66	4.30	0.83	32.35	19.09	41.76	100.00							0.77	1.93
	Mixed model variance component	0.18	1.8	0.51	15.19	8.99	19.06	45.73	1.33 (0.2496)	2.57 (0.1101)		0.06 (0.978)	1.3 (0.121)	795		
	%	0.39	3.94	1.12	33.22	19.66	41.68	100.00							0.77	1.97

		Random effect						Total random effect	Fixed effect					N of observation	Relative importance of CEO to firm	Relative importance of CEO to industry
		Year	Year*indus	Industry	Firm	CEO	Error		Owner	IMF	Chaebol	Education	Age			
N-chaebol	Random variance component	1.9	3.46	3.59	27.73	17.74	63.26	117.68						2510		
	%	1.61	2.94	3.05	23.56	15.07	53.76	100.00							0.8	1.59
	Mixed model variance component	0.19	3.35	3.74	26.96	18.02	63.19	115.45	5.65 (0.0176)	11.39 (0.0008)		2.57 (0.1101)	2.77 (<.0001)	2236		
	%	0.16	2.90	3.24	23.35	15.61	54.73	100.00							0.82	1.59
Owner	Random variance component	1.11	1.65***	1.8	20.98***	9.28***	53.75	88.57						1929		
	%	1.25	1.86	2.03	23.69	10.48	60.69	100.00							0.67	1.64
	Mixed model variance component	0	1.77**	1.77**	20.98***	9.65***	53.48	87.65		17.65 (<.0001)	0.00 (0.9923)	1.22 (0.301)	1.22 (0.1293)	1673		
	%	0.00	2.02	2.02	23.94	11.01	61.02	100.00							0.68	1.65
Professional	Random variance component	0.85	8.04***	3.9**	46.04***	14.43***	44.27	117.53						1511		
	%	0.72	6.84	3.32	39.17	12.28	37.67	100.00							0.56	1.1
	Mixed model variance component	0.17	7.88***	3.93***	41.93***	14.8***	44.57	113.28		2.28 (0.1316)	7.36 (0.0069)	3.51 (0.015)	5.68 (<.0001)	1358		
	%	0.15	6.96	3.47	37.01	13.06	39.34	100.00							0.59	1.12

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<Table V-4> Variance decomposition of Tobin's q of firms

		Random effect						Total random effect	Fixed effect					N of observation	Relative importance of CEO to firm	Relative importance of CEO to industry
		Year	Year*indus	Industry	Firm	CEO	Error		Owner	IMF	Chaebol	Education	Age			
Pooled	Random model variance component	0.014	0.0014	0.0079	0.0296	0.0297	0.034	0.1166						4533		
	%	12.01	1.20	6.78	25.39	25.47	29.16	100.00							1.00	1.79
	Mixed model variance component	0.007	0.0013	0.0059	0.0275	0.0287	0.034	0.1044	44.47 (<.0001)	11.5 (0.0007)	0.53 (0.4656)	0.31 (0.8213)	1.55 (0.0044)	4036		
	%	6.70	1.25	5.65	26.34	27.49	32.57	100.00							1.02	2.00
Changed	Random variance component	0.0098	0.0013	0.0081	0.03	0.028	0.034	0.112						2719		
	%	8.75	1.16	7.23	26.79	25.00	30.36	100.00							0.97	1.73
	Mixed model variance component	0.0058	0.0014	0.0069	0.029	0.028	0.034	0.1051	28.29 (<.0001)	7.72 (0.0055)	0.46 (0.4997)	1.08 (0.357)	1.4 (0.0259)	2719		
	%	5.52	1.33	6.57	27.59	26.64	32.35	100.00							0.98	1.84
Be-IMF	Random variance component	0.0057	0.0016	0.0098	0.026	0.0092	0.0223	0.0746						946		
	%	7.64	2.14	13.14	34.85	12.33	29.89	100.00							0.59	0.90
	Mixed model variance component	0.0058	0.0017	0.0073	0.0256	0.0086	0.0221	0.0711	7.74 (0.0057)		0.34 (0.5597)	0.1 (0.9617)	0.93 (0.6112)	937		
		8.16	2.39	10.27	36.01	12.10	31.08	100.00							0.58	0.98
Af-IMF	Random variance component	0.0067	0.0011	0.011	0.0538	0.0377	0.0277	0.138						1481		
	%	4.86	0.8	7.97	38.99	27.32	20.1	100.00							0.83	1.63
	Mixed model variance component	0.0069	0.0011	0.0092	0.0496	0.0381	0.0277	0.1326	14.21 (0.0002)		3.11 (0.0781)	0.77 (0.5117)	1.17 (0.1849)	1472		
	%	5.2	0.8	6.94	37.41	28.73	20.89	100.00							0.83	1.63

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| | | Random effect | | | | | | Total random effect | Fixed effect | | | | | N of observation | Relative importance of CEO to firm | Relative importance of CEO to industry |
		Year	Year*indus	Industry	Firm	CEO	Error		Owner	IMF	Chaebol	Education	Age			
Chaebol	Random variance component	0.0045	0.0044	0.009	0.017	0.0215	0.022	0.0784						829		
	%	5.74	5.61	11.48	21.68	27.42	28.06	100.00							1.12	1.27
	Mixed model variance component	0.0029	0.0044	0.0087	0.017	0.02156	0.0216	0.07616	5.41 (0.0208)	0.14 (0.7126)		0.78 (0.5084)	1.18 (0.2312)	716		
	%	3.81	5.78	11.42	22.32	28.31	28.36	100.00							1.13	1.28
N-chaebol	Random variance component	0.0126	0.0008	0.0082	0.032	0.036	0.037	0.1266						1890		
	%	9.95	0.63	6.48	25.28	28.44	29.23	100.00							1.06	2.00
	Mixed model variance component	0.0078	0.0009	0.0074	0.03	0.0344	0.037	0.1175	29.74 (<.0001)	7.39 (0.0067)		1.16 (0.3255)	1.26 (0.0977)	1693		
	%	6.64	0.77	6.30	25.53	29.28	31.49	100.00							1.07	2.04
Owner	Random variance component	0.013	0.002	0.009	0.027	0.012	0.032	0.095						1605		
	%	13.68	2.11	9.47	28.42	12.63	33.68	100.00							0.67	1.04
	Mixed model variance component	0.006	0.001	0.008	0.025	0.012	0.032	0.084		9.7 (0.0019)	6.1 (0.0137)	0.22 (0.8856)	1.65 (0.0019)	1403		
	%	7.14	1.19	9.52	29.76	14.29	38.10	100.00							0.69	1.15
Professional	Random variance component	0.0098	0.0023	0.0047	0.037	0.039	0.036	0.1288						1114		
	%	7.61	1.79	3.65	28.73	30.28	27.95	100.00							1.03	2.36
	Mixed model variance component	0.006	0.002	0.005	0.037	0.039	0.036	0.125		3.96 (0.0474)	0.94 (0.3318)	1.38 (0.2497)	1.03 (0.4265)	1006		
	%	4.80	1.60	4.00	29.60	31.20	28.80	100.00							1.03	2.36

V-4. Comparison with prior studies

Preceding studies are divided into two streams; the IO vs. SM debate and the leadership-performance debate. The former is the research stream between industrial organization and strategic management. They are categorized 'variance decomposition studies' by Bowman and Helfat (2001). Table V-5 provides the results of prior VARCOMP studies and the current study. The difference between this research stream and the current study is whether the model includes CEO effects or not.

Considering that firm effects in the current model are equivalent to the sum of firm effects (corporate effects) and business-unit effects, the amount of firm effects is relatively small. Firm effects of this study are 32.8-36 percent with ANOVA, 25.5-26.8 percent with VARCOMP, while Rumelt (1991) and Roquebert et al. (1996) reported 45 percent and 54 percent,[17] respectively. The difference between the results of past studies and current study in terms of firm effects is interpreted as CEO effects I try to separate from firm effects.

Industry effects in this study are also smaller than those of previous studies, in particular, the studies of Schmalensee (1985) and McGahan and Porter (1997). With the ANOVA method, industry effects are 5.4 percent and 9.9 percent, respectively. Industry effects with VARCOMP are 2.7 percent and 7.23 percent, respectively. The relatively smaller amount of industry effects in this study stems from the broader definition of industry classification. This study classifies industries with 2-digit KSIC, which is broader than that of previous studies (Chang and Hong, 2002), and, in turn, causes underestimation of the effects (Bowman and Helfat, 2001).

The greater size of year effects with Tobin's q sample indicates that firms' market values have been more heavily influenced by year-to-year fluctuations resulting from the financial crisis than ROIC accounting data.

The limitation of the current study is that chaebol effects are not drawn completely due to sample size. The data does not contain a sufficient number of chaebol-affiliated companies that are not listed, as only publicly listed companies are included. In fact, chaebol groups have a number of unlisted affiliated companies. Some chaebol groups have only 1-2 listed affiliated companies. Due to this sample constraint, this study cannot draw enough on the effects of chaebol.

The latter research stream is the leadership-performance debate performed by Lieberson and O'Connor (1972), and Thomas (1988). The leadership effects of the current study are relatively small compared to those of Weiner and Mahoney (43.9 percent), but are greater than those of Thomas (1988) and Salancik and Pfeffer (1978).

Table V-6 provides the results of previous studies and this study. The results of

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[17] The figures are the sum of firm effects (corporate effects) and business-unit effects in the studies of Rumelt and Roquebert et al.

ANOVA in this study also appear similar to those of preceding studies. The industry effects of this study are relatively small compared to previous studies because of a broadly defined industry classification.

<Table V-5> Comparison with VARCOMP studies

Study	Methodology	Firm effects	Business unit effects	Industry effects	Year effects	Year*industry
Schmalensee(1985)	ANOVA(sequential)	Zero	0.2-0.6%*	18.8-19.3%	Not included	Negative
	Variance components	Not included				covariance
Rumelt (1991)	ANOVA(sequential)	10.9-17.6%	33.9-41.4%	9.8-17.9%	Zero	7.1_9.8%
	Variance components	1.6%	44.2-47.2%	4-7.3%	Zero	5.3-8.9%
Roquebert et al. (1996)	Variance components	17.9%	37.1%	10.1%	0.4%	2.3%
McGahan and Porter (1997)	ANOVA(sequential)	9.1-11.9%	34.9-35.1%	6.8-9.4%	Not included	Not included
	Variance components	4.3%	31.7%	18.7%	0.2-1.1%	
Chang and Hong (2001)	Variance components	9.4%	20.8%	7.6%	2.5%	4.4%
Hawawini et al. (2003)	Variance components	Combined with business unit effects				
	Full sample		35.8%	8.1%	1.0%	3.1%
	Modified sample		16.7%	16%	1.1%	4.1%
Current study (ROIC)	ANOVA	Combined with business unit effects	32.8%	5.4%	0.9%	Not included
	Variance components		23.9%	2.7%	1.0%	3.4%
(Tobin's q)	ANOVA		**36%**	**9.9%**	8.9%	Not included
	Variance components		**26.8%**	**7.23%**	8.75%	1.16%

* Schmalensee does not distinguish between the business unit and corporate effect in his model. This figure is measured by market share.

<Table V-6> Comparison with Leadership-performance debate

Study	Dependent var.	Methodology	CEO effects	Firm effects	Industry effects	Year effects
Lieberson and O'Connor (1972)	Profit, sales, profit margin	Sequential analysis of variance	6.5%, 7.5%, 14.5%, 31.7%*	22.6%	28.5%	1.8%
Salancik and Pfeffer (1977)	City budgets	Sequential analysis of variance	5.6%	90.8%**		2.5%
Weiner (1978)	ROS	Sequential analysis of variance	16.1%, 19.0%, 8.7%	45.8%	20.5%	2.4%
Weiner and Mahoney (1981)	ROA	Regression combined with ANOVA (sequential)	43.9%		Not included	5.6%
Thomas (1988)	ROS	Sequential analysis of variance	5.7%	83.2%		
Current study	ROIC	ANOVA Variance Components	25.5% 14.7%	32.8% 23.9%	5.4% 6.1%	0.9% 1.0%
	Tobin's q	ANOVA Variance Components	21.5% 25.0%	36% 26.8%	9.9% 7.23%	8.9% 8.75%

* With a three-year lag, leadership accounts for 31.7 percent of the total variance.

** Salancik and Pfeffer calculate the cities' effects on the outcome of city budget instead of on corporations' effects on performance.

CHAPTER 6

Characteristics of Korean CEOs

This section presents a descriptive analysis about 6,373 CEOs selected based on the previously mentioned criteria and procedures. Reflecting the characteristics of the Korean management system, this paper analyzes the CEOs of Korea's listed companies with a classification of "owner CEO" and "professional CEO."

The overall description of the full data is as follows: By broader industry classification, CEOs of the manufacturing industry account for 70 percent (4,458), CEOs of the transportation, wholesale & retail industries 6.7 percent (425), CEOs of the construction industry 11.8 percent (756) and CEOs of the financial industry 11.5 percent (734). The number of listed companies increased until the financial crisis of 1997 to 762 from 699 in 1995, and decreased to 667 in 2002. Worth noting is that the number of companies in the construction and financial industries sharply decreased.

By classification of owner and professional CEO, owner and professional CEOs account for 62.6 percent (3,992) and 37.4 percent (2,381) of total CEOs, respectively. The proportion of professional CEOs increases over time. The proportion of professional CEOs in the manufacturing industry increased from 29.9 percent in 1995 to 35.7 percent, the construction industry from 28 percent to 43.6 percent, and transportation, wholesale & retail from 32.5 percent to 48.3 percent. Non-manufacturing industries such as construction and transportation, and the wholesale & retail industries witnessed a significant increase in number of professional CEOs. In the case of the financial industry, the proportion of owner CEOs was only 17 percent and stayed at that level due to the highly regulated nature of the industry.

The considerable increase in the number of professional CEOs since the financial crisis can be interpreted as a visible tendency on the part of owners turning over control to professional CEOs whether or not they were forced to do so. In the case of companies that underwent a court receivership program, the owners were forced to turn over their control to professional CEOs including court-appointed managers. Otherwise, some owners may have voluntarily turned over control to professional CEOs to cope with the hard times during the financial crisis.

<Table VI-1> Distribution of CEOs by Industry

		1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Manufacturing	Owner	335 (70.1)	361 (72.3)	377 (72.9)	385 (75.5)	364 (72.9)	350 (70.6)	337 (68.2)	313 (65.6)	314 (64.3)	3136 (70.3)
	Professional	143 (29.9)	138 (27.7)	140 (27.1)	125 (24.5)	135 (27.1)	146 (29.4)	157 (31.8)	164 (34.4)	174 (35.7)	1322 (29.7)
	Sub total	478	499	517	510	499	496	494	477	488	4458
Construction	Owner	36 (72.0)	38 (74.5)	40 (75.5)	37 (72.5)	30 (61.2)	30 (62.5)	27 (62.8)	23 (56.1)	22 (56.4)	283 (66.6)
	Professional	14 (28.0)	13 (25.5)	13 (24.5)	14 (27.5)	19 (38.8)	18 (37.5)	16 (37.2)	18 (43.9)	17 (43.6)	142 (33.4)
	Sub total	50	51	53	51	49	48	43	41	39	425
Transportation, wholesale & retail*	Owner	52 (67.5)	56 (69.1)	54 (63.5)	55 (61.8)	43 (52.4)	41 (48.8)	43 (51.2)	45 (52.9)	46 (51.7)	435 (57.5)
	Professional	25 (32.5)	25 (30.9)	31 (36.5)	34 (38.2)	39 (47.6)	43 (51.2)	41 (48.8)	40 (47.1)	43 (48.3)	321 (42.5)
	Sub total	77	81	85	89	82	84	84	85	89	756
Financial**	Owner	16 (17.0)	17 (17.3)	20 (18.7)	23 (25.0)	18 (23.4)	14 (18.9)	11 (16.4)	8 (12.5)	11 (18.0)	138 (18.8)
	Professional	78 (83.0)	81 (82.7)	87 (81.3)	69 (75.0)	59 (76.6)	60 (81.1)	56 (83.6)	56 (87.5)	50 (82.0)	596 (81.2)
	Sub total	94	98	107	92	77	74	67	64	61	734
Total	Owner	439 (62.8)	472 (64.7)	491 (64.4)	500 (67.4)	455 (64.4)	435 (62.0)	418 (60.8)	389 (58.3)	393 (58.1)	3992 (62.6)
	Professional	260 (37.2)	257 (35.3)	271 (35.6)	242 (32.6)	252 (35.6)	267 (38.0)	270 (39.2)	278 (41.7)	284 (41.9)	2381 (37.4)
	Total	699	729	762	742	707	702	688	667	677	6373

∗ Includes the transport, wholesale and retail trade industries.
∗∗ Includes the banking, security, leasing, and venture capital industries.

VI-1. Positions of CEOs

Positions of CEOs take various forms such as chairman, vice chairman, president, vice president, executive director, and managing director. The most frequent position is chairman (50 percent), followed by president (38.5 percent). The reason is that most owner CEOs (72.2 percent) hold the position of chairman. On the contrary, professional CEOs (61 percent) mainly hold the position of president rather than chairman. The proportion of professional chairman accounts for 12.8 percent followed by court-appointed manager at 7.5 percent.

The most frequent position following chairman and president is court-appointed managers (2.9 percent), reflecting the increasing number of distressed companies from the financial crisis. The number of court-appointed managers grew from only 2 in 1995 to 18 in 1998, and finally 39 (14.6 percent) and 40 (14.8 percent) in 2000 and 2001, respectively.

VI-2. Age and Regional Origin of CEOs

CEOs who are in their fifties account for 42.9 percent, followed by the CEOs in their sixties (26.4 percent), in their forties (14.7 percent), and in their seventies (10.8 percent). The average age of CEOs in the period is 57-58, which shows a higher bracket than in the study by Kim and Lee (2001).

The age distribution of owner CEOs is more likely to be spread out rather than that of professional CEOs. CEOs in their fifties account for 35.6 percent, followed by the sixties (27.2 percent), forties (18.1 percent), seventies (10.4 percent), eighties (6.4 percent) and thirties (2.3 percent). Owner CEOs are likely to be unconstrained from the pressure of departure by corporate boards regardless of the performance they achieve. CEOs in their thirties or forties are mainly owner CEOs because they may have succeeded their parents. On the other hand, professional CEOs in their fifties account for 60.2 percent, followed by sixties (26.5 percent), and forties (9.8 percent).

CEOs who are from Seoul and Gyeonggi Province account for 36.79 percent (2,330) of the total. In particular, the number of CEOs who are from Seoul is 1,902, making up more than 30 percent. Furthermore, owner CEOs who are from Seoul make up 65 percent of the total CEOs from Seoul. CEOsfrom Yeongnam or Gyeongsang Province account for 35.45 percent, followed by Honam or Jeonla Province (10.12 percent), and Chungcheong Province (8.92 percent).

Of owner CEOs, those from Seoul account for 31 percent (1,235) of the total, followed by Gyeongnam 441 (11.06 percent), Gyeongbuk 402 (10.08 percent), Busan 320 (8.02 percent), Daegu 235 (5.89 percent), Gyeonggi 204 (5.11 percent), Chungnam 191 (4.79 percent), Jeonbuk 130 (3.26 percent), and Jeonnam 128 (3.21 percent). Owner CEOs from Seoul increased from 33.94 percent in 1995 to 38 percent in 1999 and 42 percent in 2003. On the other hand, the proportion of CEOs from Yeongnam or Honam region tends to be stable as 35 percent and 8 percent, respectively.

The regions that have a relatively higher proportion of owner CEOs compared to that of professional CEOs is Hwanghae Province (91 percent), Pyeongan Province (90 percent). The proportion of owner CEOs is 89 percent (Daejeon), 86 percent (Incheon), 74 percent (Busan), and 73 percent (Daegu).

In the case of professional CEOs, the change in proportion looks obvious over time. The proportion of CEOs from Seoul decreased from 40 percent in 1995 to 30 percent in 2003. The proportion of CEOs from Yeongnam Province also decreased from 37-38 percent to 30 percent in 2001 and 34 percent in 2003, respectively. On the other hand, the proportion of CEOs from Honam Province was 8 percent in 1995, and increased to 13 percent in 1998 and 15 percent in 2003.

Table VI-5 shows the regional origin of CEOs by industry. The proportion of

CEOs from Seoul and Gyeonggi Province in the manufacturing industry increased from 34 percent to 38 percent. The proportion of CEOs from Yeongnam Province gradually decreased from 37 percent in 1995 to 32 percent in 2002, and picked up to 35 percent in 2003. The proportion of CEOs from Honam Province increased from 9 percent to 11 percent. The proportion of CEOs from the rest of the region is negligible.

The proportion of CEOs from Seoul in the construction industry slightly increased from 48 percent to 50 percent, the proportion of CEOs from Yeongnam and Honam Province increased from 18 percent to 25 percent, from 6 percent to 11 percent respectively.

The proportion of CEOs in the transportation, wholesale and retail industries from Seoul and Gyeonggi Province decreased from 40 percent to 33 percent, and picked up to 45 percent in 2003. The proportion of CEOs from Yeongnam Province remained between 40 and 45 percent of the total. The proportion of CEOs from Seoul and Gyeonggi Province in the financial industry decreased from 39 percent to 24 percent. On the contrary, CEOs from Yeongnam Province increased from 37 percent to 44 percent, while CEOs from Honam Province changed from 13 percent to 7 percent, 18 percent in 1999, and 20 percent in 2003.

VI-3. Educational Background of CEOs

Table VI-6 shows that most CEOs (96.4 percent) are reported to have earned a Bachelor of Arts degree or above. The number who earned a Bachelors degree was 3,529, accounting for 55.4 percent. The number of CEOs with a Masters degree was 2,130 (33.4 percent), while CEOs with a PhD degree numbered 483 (7.58 percent) and not more than high school were 231 (3.62 percent).

Owner CEOs tended to have higher educational levels than professional CEOs. The number of owner CEOs who earned a Bachelors degree was 1,851 (46.4 percent), followed by a Masters degree 1,549 (38.8%), and a PhD degree 345 (8.64 percent). On the other hand, the proportion of CEOs with education levels of high school or under was larger than that of professional CEOs. The proportion of professional CEOs with a Bachelors degree was 70.5 percent, followed by a Masters degree 24.4 percent, and a PhD degree 4.12 percent. Only 1 percent of professional CEOs are reported to have an educational background of high school or under.

Table VI-7 shows the distribution of high schools where CEOs graduated. The distribution of high schools attaches too much importance to certain high schools with a strong reputation before the equalization policy took effect in 1977. As the table shows, the proportion of CEOs who graduated from the top 5 high schools and top 30 high schools is 30.63 percent and 65 percent, respectively.

Among those who are reported to have graduated from high school, the

graduates of Gyeonggi, Seoul and Gyeongbok high schools are 763 (13.12 percent) and 344 (5.92 percent), and 311 (5.35 percent), respectively. The graduates of Gyeongnam and Joongang, Yongsan, Gyeongbuk high schools are 189 (3.25 percent), 174 (2.99percent), 160 (2.75 percent), and 156 (2.68 percent).

The rank of high schools from which owner CEOs graduated is (1) Gyeonggi High School 13.07 percent, (2) Seoul 6.9 percent, (3) Gyeongbok 6.7 percent, followed by Joongang 3.8 percent, Yongsan 3.4 percent, and Gyeongnam 2.5 percent. The proportions of owner CEOs of graduates of these high ranked schools are Gyeongbok 78.5 percent, Seoul 73.5 percent, Gyeonggi 62.8 percent, and Gyeongnam 48 percent. In this context, owner CEOs are likely to be graduates of private high schools in Seoul. On the other hand, the proportion of owner CEOs of graduates of public prestige schools in the province decrease to around 50 percent.

Professional CEOs from Gyeonggi High School accounted for the largest portion of the total at 13.2 percent (284). The following high schools are Gyeongnam 4.55 percent (98), and Seoul 3.1 percent (67). In the rank of professional CEO graduates, the top private school in Seoul such as Joongang and Yongsan exceed public schools in provinces such as Gyeongbuk, Busan, Jeonju, and Gwangjujeil High Schools.

Table VI-8 summarizes the top 10 universities, which CEOs graduated from. Graduates of Seoul National University account for 30.27 percent, the largest proportion of the total, followed by Yonsei 10.8 percent, Korea 10.07 percent, and Hanyang University 7.6 percent. Graduates of universities abroad such as the U.S. and Japan account for 6.26 percent and 4.12 percent, respectively. Even though graduates of U.S. and Japanese universities are excluded, the proportion of graduates of the top 8 domestic universities is 70 percent. The proportion of graduates of the top 3 universities such as Seoul, Yonsei, and Korea University is 51.14 percent.

As a whole, the proportion of graduates of Seoul University is 30 percent on average. As for owner CEOs, however, the proportion of graduates of Seoul National University is 22 percent. Professional CEOs from Seoul University account for 42.63 percent. On the contrary, graduates of Yonsei and Korea University showed a balanced distribution of 11 (owner) and 10 (professional) percent, and 10 and 9 percent. On the other hand, the proportion of owner graduates of private universities such as Hanyang, Joongang, and Dongguk Universities is higher than that of professional graduates. The proportion of owner graduates of U.S. and Japanese universities is absolutely higher that that of professional graduates.

<Table VI-2> Positions of CEOs

		Chairman	Vice-chairman	President	Vice-president	Executive director	Managing director	Bank President	Court-appointed manager	Director	Total
1995	Owner	331	10	94	0	0	0	0	2	2	439
	%	75.4	2.3	21.4	0.0	0.0	0.0	0.0	0.5	0.5	62.8
	Professional	56	7	151	12	6	1	22	2	3	260
	%	21.5	2.7	58.1	4.6	2.3	0.4	8.5	0.8	1.2	37.2
	Sub total	387	17	245	12	6	1	22	4	5	699
	%	55.4	2.4	35.1	1.7	0.9	0.1	3.1	0.6	0.7	11.0
1996	Owner	354	14	100	0	0	0	2	1	1	472
	%	75.0	3.0	21.2	0.0	0.0	0.0	0.4	0.2	0.2	64.7
	Professional	40	12	153	14	6	2	23	5	1	257
	%	15.6	4.7	59.5	5.4	2.3	0.8	8.9	1.9	0.4	35.3
	Sub total	394	26	253	14	6	2	25	6	2	729
	%	54.0	3.6	34.7	1.9	0.8	0.3	3.4	0.8	0.3	11.4
1997	Owner	369	10	110	0	0	0	2	0	0	491
	%	75.2	2.0	22.4	0.0	0.0	0.0	0.4	0.0	0.0	64.4
	Professional	42	13	156	16	9	4	23	8	0	271
	%	15.5	4.8	57.6	5.9	3.3	1.5	8.5	3.0	0.0	35.6
	Sub total	411	23	266	16	9	4	25	8	0	762
	%	53.9	3.0	34.9	2.1	1.2	0.5	3.3	1.0	0.0	12.0
1998	Owner	358	12	124	3	0	0	2	0	1	500
	%	71.6	2.4	24.8	0.6	0.0	0.0	0.4	0.0	0.2	67.4
	Professional	20	8	139	18	11	5	23	18	0	242
	%	8.3	3.3	57.4	7.4	4.5	2.1	9.5	7.4	0.0	32.6
	Sub total	378	20	263	21	11	5	25	18	1	742
	%	50.9	2.7	35.4	2.8	1.5	0.7	3.4	2.4	0.1	11.6
1999	Owner	316	10	126	1	0	0	1	1	0	455
	%	69.5	2.2	27.7	0.2	0.0	0.0	0.2	0.2	0.0	64.4
	Professional	20	12	149	12	12	5	14	28	0	252
	%	7.9	4.8	59.1	4.8	4.8	2.0	5.6	11.1	0.0	35.6
	Sub total	336	22	275	13	12	5	15	29	0	707
	%	47.5	3.1	38.9	1.8	1.7	0.7	2.1	4.1	0.0	11.1
2000	Owner	306	10	118	1	0	0	0	0	0	435
	%	70.3	2.3	27.1	0.2	0.0	0.0	0.0	0.0	0.0	62.0
	Professional	28	8	152	14	7	4	14	39	1	267
	%	10.5	3.0	56.9	5.2	2.6	1.5	5.2	14.6	0.4	38.0
	Sub total	334	18	270	15	7	4	14	39	1	702
	%	47.6	2.6	38.5	2.1	1.0	0.6	2.0	5.6	0.1	11.0
2001	Owner	296	10	111	1	0	0	0	0	0	418
	%	70.8	2.4	26.6	0.2	0.0	0.0	0.0	0.0	0.0	60.8
	Professional	27	7	157	9	10	3	16	40	1	270
	%	10.0	2.6	58.1	3.3	3.7	1.1	5.9	14.8	0.4	39.2
	Sub total	323	17	268	10	10	3	16	40	1	688
	%	46.9	2.5	39.0	1.5	1.5	0.4	2.3	5.8	0.1	10.8
2002	Owner	273	10	105	1	0	0	0	0	0	389
	%	70.2	2.6	27.0	0.3	0.0	0.0	0.0	0.0	0.0	58.3
	Professional	31	6	192	7	8	0	13	21	0	278

		Chairman	Vice-chairman	President	Vice-president	Executive director	Managing director	Bank President	Court-appointed manager	Director	Total
	%	11.2	2.2	69.1	2.5	2.9	0.0	4.7	7.6	0.0	41.7
	Sub total	304	16	297	8	8	0	13	21	0	667
	%	45.6	2.4	44.5	1.2	1.2	0.0	1.9	3.1	0.0	10.5
2003	Owner	279	15	98	0	1	0	0	0	0	393
	%	71.0	3.8	24.9	0.0	0.3	0.0	0.0	0.0	0.0	58.1
	Professional	39	5	204	5	3	1	10	17	0	284
	%	13.7	1.8	71.8	1.8	1.1	0.4	3.5	6.0	0.0	41.9
	Sub total	318	20	302	5	4	1	10	17	0	677
	%	47.0	3.0	44.6	0.7	0.6	0.1	1.5	2.5	0.0	10.6
Total	Owner	2882	101	986	7	1	0	7	4	4	3992
	%	72.2	2.5	24.7	0.2	0.0	0.0	0.2	0.1	0.1	62.6
	Professional	304	78	1453	107	72	25	158	178	6	2381
	%	12.8	3.3	61.0	4.5	3.0	1.0	6.6	7.5	0.3	37.4
	Total	3186	179	2439	114	73	25	165	182	10	6373
	%	50.0	2.8	38.3	1.8	1.1	0.4	2.6	2.9	0.2	100.0

<Table VI-3> Age of CEOs

		30s	40s	50s	60s	70s	80s	Total
1995	Owner	8	78	143	95	102	11	437
	%	1.8	17.8	32.7	21.7	23.3	2.5	62.7
	Professional	2	26	153	70	9	0	260
	%	0.8	10.0	58.8	26.9	3.5	0.0	37.3
	Sub total	10	104	296	165	111	11	697
		1.4	14.9	42.5	23.7	15.9	1.6	10.9
1996	Owner	14	88	148	112	97	13	472
	%	3.0	18.6	31.4	23.7	20.6	2.8	64.7
	Professional	0	26	150	72	9	0	257
	%	0.0	10.1	58.4	28.0	3.5	0.0	35.3
	Sub total	14	114	298	184	106	13	729
	%	1.9	15.6	40.9	25.2	14.5	1.8	11.4
1997	Owner	9	89	156	133	90	14	491
	%	1.8	18.1	31.8	27.1	18.3	2.9	64.4
	Professional	3	17	154	86	11	0	271
	%	1.1	6.3	56.8	31.7	4.1	0.0	35.6
	Sub total	12	106	310	219	101	14	762
	%	1.6	13.9	40.7	28.7	13.3	1.8	12.0
1998	Owner	16	77	168	131	85	23	500
	%	3.2	15.4	33.6	26.2	17.0	4.6	67.4
	Professional	3	11	156	68	4	0	242
	%	1.2	4.5	64.5	28.1	1.7	0.0	32.6
	Sub total	19	88	324	199	89	23	742
	%	2.6	11.9	43.7	26.8	12.0	3.1	11.7
1999	Owner	17	78	148	117	71	24	455
	%	3.7	17.1	32.5	25.7	15.6	5.3	64.4
	Professional	1	22	163	61	5	0	252
	%	0.4	8.7	64.7	24.2	2.0	0.0	35.6
	Sub total	18	100	311	178	76	24	707
	%	2.5	14.1	44.0	25.2	10.7	3.4	11.1
2000	Owner	13	74	148	119	52	29	435
	%	3.0	17.0	34.0	27.4	12.0	6.7	62.1
	Professional	4	25	172	62	3	0	266
	%	1.5	9.4	64.7	23.3	1.1	0.0	37.9
	Sub total	17	99	320	181	55	29	701
	%	2.4	14.1	45.6	25.8	7.8	4.1	11.0
2001	Owner	14	74	129	127	53	21	418
	%	3.3	17.7	30.9	30.4	12.7	5.0	60.9
	Professional	3	32	170	61	2	0	268
	%	3.2	13.3	55.4	27.0	1.1	0.0	39.1
	Sub total	17	106	299	188	55	21	686
	%	2.5	15.5	43.6	27.4	8.0	3.1	10.8
2002	Owner	9	74	124	113	47	22	389
	%	2.3	19.0	31.9	29.0	12.1	5.7	58.3

	Professional	9	37	154	75	3	0	278
	%	3.2	13.3	55.4	27.0	1.1	0.0	41.7
	Sub total	18	111	278	188	50	22	667
	%	2.7	16.6	41.7	28.2	7.5	3.3	10.5
2003	Owner	9	71	140	107	41	25	393
	%	2.3	18.1	35.6	27.2	10.4	6.4	58.1
	Professional	10	37	159	74	4	0	284
	%	3.5	13.0	56.0	26.1	1.4	0.0	41.9
	Sub total	19	108	299	181	45	25	677
	%	2.8	16.0	44.2	26.7	6.6	3.7	10.6
Total	Owner	109	703	1304	1054	638	182	3990
	%	2.7	17.6	32.7	26.4	16.0	4.6	62.7
	Professional	35	233	1431	629	50	0	2378
	%	1.5	9.8	60.2	26.5	2.1	0.0	37.3
	Total	144	936	2735	1683	688	182	6368
	%	2.3	14.7	42.9	26.4	10.8	2.9	100.0

<Table VI-4> Regional Origin of CEOs

		1995			1996			1997			1998			1999		
		Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total
Seoul		119 (27.11)	92 (35.66)	211 (30.27)	133 (28.18)	92 (36.22)	225 (30.99)	146 (29.74)	87 (32.71)	233 (30.78)	147 (29.4)	74 (30.96)	221 (29.91)	141 (30.99)	62 (24.7)	203 (28.75)
Incheon		9 (2.05)	1 (0.39)	10 (1.43)	8 (1.69)	1 (0.39)	9 (1.24)	11 (2.24)	3 (1.13)	14 (1.85)	12 (2.4)	1 (0.42)	13 (1.76)	11 (2.42)	3 (1.2)	14 (1.98)
Gyeonggi		21 (4.78)	11 (4.26)	32 (4.59)	23 (4.87)	7 (2.76)	30 (4.13)	26 (5.3)	10 (3.76)	36 (4.76)	25 (5)	12 (5.02)	37 (5.01)	21 (4.62)	18 (7.17)	39 (5.52)
Sub total		149 (33.94)	104 (40.31)	253 (36.3)	164 (34.75)	100 (39.37)	264 (36.36)	183 (37.27)	100 (37.59)	283 (37.38)	184 (36.8)	87 (36.4)	271 (36.67)	173 (38.02)	83 (33.07)	256 (36.26)
Yeong nam	Daegu	25 (5.69)	12 (4.65)	37 (5.31)	30 (6.36)	15 (5.91)	45 (6.2)	26 (5.3)	14 (5.26)	40 (5.28)	31 (6.2)	8 (3.35)	39 (5.28)	27 (5.93)	6 (2.39)	33 (4.67)
	Busan	34 (7.74)	6 (2.33)	40 (5.74)	35 (7.42)	12 (4.72)	47 (6.47)	33 (6.72)	11 (4.14)	44 (5.81)	38 (7.6)	12 (5.02)	50 (6.77)	35 (7.69)	12 (4.78)	47 (6.66)
	Ulsan	4 (0.91)	2 (0.78)	6 (0.86)	3 (0.64)	4 (1.57)	7 (0.96)	4 (0.81)	4 (1.5)	8 (1.06)	5 (1)	4 (1.67)	9 (1.22)	4 (0.88)	2 (0.8)	6 (0.85)
	Gyeongnam	46 (10.48)	43 (16.67)	89 (12.77)	52 (11.02)	41 (16.14)	93 (12.81)	56 (11.41)	44 (16.54)	100 (13.21)	58 (11.6)	33 (13.81)	91 (12.31)	53 (11.65)	37 (14.74)	90 (12.75)
	Gyeongbuk	49 (11.16)	32 (12.4)	81 (11.62)	50 (10.59)	27 (10.63)	77 (10.61)	49 (9.98)	32 (12.03)	81 (10.7)	51 (10.2)	23 (9.62)	74 (10.01)	47 (10.33)	28 (11.16)	75 (10.62)
Sub total		158 (35.99)	95 (36.82)	253 (36.3)	170 (36.02)	99 (38.98)	269 (37.05)	168 (34.22)	105 (39.47)	273 (36.06)	183 (36.6)	80 (33.47)	263 (35.59)	166 (36.48)	85 (33.86)	251 (35.55)
Ho Nam	Gwangju	7 (1.59)	1 (0.39)	8 (1.15)	6 (1.27)	2 (0.79)	8 (1.1)	6 (1.22)	4 (1.5)	10 (1.32)	7 (1.4)	6 (2.51)	13 (1.76)	7 (1.54)	6 (2.39)	13 (1.84)
	Jeonnam	19 (4.33)	9 (3.49)	28 (4.02)	20 (4.24)	10 (3.94)	30 (4.13)	20 (4.07)	9 (3.38)	29 (3.83)	17 (3.4)	13 (5.44)	30 (4.06)	15 (3.3)	20 (7.97)	35 (4.96)
	Jeonbuk	16 (3.64)	12 (4.65)	28 (4.02)	16 (3.39)	8 (3.15)	24 (3.31)	17 (3.46)	12 (4.51)	29 (3.83)	15 (3)	13 (5.44)	28 (3.79)	15 (3.3)	15 (5.98)	30 (4.25)
Sub total		42 (9.57)	22 (8.53)	64 (9.18)	42 (8.9)	20 (7.87)	62 (8.54)	43 (8.76)	25 (9.4)	68 (8.98)	39 (7.8)	32 (13.39)	71 (9.61)	37 (8.13)	41 (16.33)	78 (11.05)

		1995			1996			1997			1998			1999		
		Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total
Chung Cheong	Daejeon	6 (1.37)	0 (0)	6 (0.86)	6 (1.27)	1 (0.39)	7 (0.96)	6 (1.22)	0 (0)	6 (0.79)	6 (1.2)	0 (0)	6 (0.81)	3 (0.66)	1 (0.4)	4 (0.57)
	Chungnam	22 (5.01)	17 (6.59)	39 (5.6)	25 (5.3)	15 (5.91)	40 (5.51)	25 (5.09)	20 (7.52)	45 (5.94)	25 (5)	19 (7.95)	44 (5.95)	23 (5.05)	17 (6.77)	40 (5.67)
	Chungbuk	7 (1.59)	7 (2.71)	14 (2.01)	8 (1.69)	7 (2.76)	15 (2.07)	8 (1.63)	8 (3.01)	16 (2.11)	7 (1.4)	11 (4.6)	18 (2.44)	9 (1.98)	12 (4.78)	21 (2.97)
Sub total		35 (7.97)	24 (9.3)	59 (8.46)	39 (8.26)	23 (9.06)	62 (8.54)	39 (7.94)	28 (10.53)	67 (8.85)	38 (7.6)	30 (12.55)	68 (9.2)	35 (7.69)	30 (11.95)	65 (9.21)
Gangwon		15 (3.42)	4 (1.55)	19 (2.73)	14 (2.97)	5 (1.97)	19 (2.62)	11 (2.24)	3 (1.13)	14 (1.85)	10 (2)	4 (1.67)	14 (1.89)	8 (1.76)	4 (1.59)	12 (1.7)
Jeju		1 (0.23)	0 (0)	1 (0.14)	2 (0.42)	0 (0)	2 (0.28)	2 (0.41)	0 (0)	2 (0.26)	2 (0.4)	1 (0.42)	3 (0.41)	1 (0.22)	2 (0.8)	3 (0.42)
Pyeongan		13 (2.96)	1 (0.39)	14 (2.01)	14 (2.97)	2 (0.79)	16 (2.2)	17 (3.46)	1 (0.38)	18 (2.38)	15 (3)	3 (1.26)	18 (2.44)	13 (2.86)	2 (0.8)	15 (2.12)
HamGyeong		8 (1.82)	6 (2.33)	14 (2.01)	9 (1.91)	2 (0.79)	11 (1.52)	9 (1.83)	2 (0.75)	11 (1.45)	10 (2)	1 (0.42)	11 (1.49)	4 (0.88)	1 (0.4)	5 (0.71)
Hwanghae		16 (3.64)	0 (0)	16 (2.3)	15 (3.18)	1 (0.39)	16 (2.2)	14 (2.85)	1 (0.38)	15 (1.98)	12 (2.4)	0 (0)	12 (1.62)	12 (2.64)	2 (0.8)	14 (1.98)
Others		2 (0.46)	2 (0.78)	4 (0.57)	3 (0.64)	2 (0.79)	5 (0.69)	5 (1.02)	1 (0.38)	6 (0.79)	7 (1.4)	1 (0.42)	8 (1.08)	6 (1.32)	1 (0.4)	7 (0.99)
Sub total		40 (9.11)	9 (3.49)	49 (7.03)	43 (9.11)	7 (2.76)	50 (6.89)	47 (9.57)	5 (1.88)	52 (6.87)	46 (9.2)	6 (2.51)	52 (7.04)	36 (7.91)	8 (3.19)	44 (6.23)
Total		439 (62.98)	258 (37.02)	697 (11.01)	472 (65.01)	254 (34.99)	726 (11.46)	491 (64.86)	266 (35.14)	757 (11.95)	500 (67.66)	239 (32.34)	739 (11.67)	455 (64.45)	251 (35.55)	706 (11.15)

(Table VI-4 continued)

		2000			2001			2002			2003			Total		
		Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Total
Seoul		138 (31.72)	60 (22.73)	198 (28.33)	141 (33.73)	65 (24.62)	206 (30.21)	133 (34.28)	71 (25.91)	204 (30.82)	137 (35.04)	64 (23.36)	201 (30.23)	1235 (30.96)	667 (28.46)	1902 (30.03)
Incheon		8 (1.84)	1 (0.38)	9 (1.29)	8 (1.91)	1 (0.38)	9 (1.32)	8 (2.06)	1 (0.36)	9 (1.36)	9 (2.3)	2 (0.73)	11 (1.65)	84 (2.11)	14 (0.6)	98 (1.55)
Gyeonggi		23 (5.29)	17 (6.44)	40 (5.72)	22 (5.26)	16 (6.06)	38 (5.57)	22 (5.67)	19 (6.93)	41 (6.19)	21 (5.37)	16 (5.84)	37 (5.56)	204 (5.11)	126 (5.38)	330 (5.21)
Sub total		169 (38.85)	78 (29.55)	247 (35.34)	171 (40.91)	82 (31.06)	253 (37.1)	163 (42.01)	91 (33.21)	254 (38.37)	167 (42.71)	82 (29.93)	249 (37.44)	1523 (38.18)	807 (34.43)	2330 (36.79)
Yeong Nam	Daegu	28 (6.44)	7 (2.65)	35 (5.01)	25 (5.98)	7 (2.65)	32 (4.69)	21 (5.41)	8 (2.92)	29 (4.38)	22 (5.63)	9 (3.28)	31 (4.66)	235 (5.89)	86 (3.67)	321 (5.07)
	Busan	35 (8.05)	14 (5.3)	49 (7.01)	36 (8.61)	12 (4.55)	48 (7.04)	36 (9.28)	16 (5.84)	52 (7.85)	38 (9.72)	19 (6.93)	57 (8.57)	320 (8.02)	114 (4.86)	434 (6.85)
	Ulsan	4 (0.92)	2 (0.76)	6 (0.86)	3 (0.72)	2 (0.76)	5 (0.73)	3 (0.77)	2 (0.73)	5 (0.76)	2 (0.51)	2 (0.73)	4 (0.6)	32 (0.8)	24 (1.02)	56 (0.88)
	Gyeongnam	47 (10.8)	41 (15.53)	88 (12.59)	45 (10.77)	34 (12.88)	79 (11.58)	41 (10.57)	30 (10.95)	71 (10.73)	43 (11)	36 (13.14)	79 (11.88)	441 (11.06)	339 (14.46)	780 (12.32)
	Gyeongbuk	44 (10.11)	29 (10.98)	73 (10.44)	39 (9.33)	25 (9.47)	64 (9.38)	37 (9.54)	29 (10.58)	66 (9.97)	36 (9.21)	27 (9.85)	63 (9.47)	402 (10.08)	252 (10.75)	654 (10.33)
Sub total		158 (36.32)	93 (35.23)	251 (35.91)	148 (35.41)	80 (30.3)	228 (33.43)	138 (35.57)	85 (31.02)	223 (33.69)	141 (36.06)	93 (33.94)	234 (35.19)	1430 (35.85)	815 (34.77)	2245 (35.45)
Ho Nam	Gwangju	7 (1.61)	5 (1.89)	12 (1.72)	7 (1.67)	6 (2.27)	13 (1.91)	7 (1.8)	5 (1.82)	12 (1.81)	8 (2.05)	7 (2.55)	15 (2.26)	62 (1.55)	42 (1.79)	104 (1.64)
	Jeonnam	11 (2.53)	23 (8.71)	34 (4.86)	11 (2.63)	21 (7.95)	32 (4.69)	8 (2.06)	19 (6.93)	27 (4.08)	7 (1.79)	17 (6.2)	24 (3.61)	128 (3.21)	141 (6.02)	269 (4.25)
	Jeonbuk	15 (3.45)	17 (6.44)	32 (4.58)	15 (3.59)	19 (7.2)	34 (4.99)	10 (2.58)	23 (8.39)	33 (4.98)	11 (2.81)	19 (6.93)	30 (4.51)	130 (3.26)	138 (5.89)	268 (4.23)
Sub total		33 (7.59)	45 (17.05)	78 (11.16)	33 (7.89)	46 (17.42)	79 (11.58)	25 (6.44)	47 (17.15)	72 (10.88)	26 (6.65)	43 (15.69)	69 (10.38)	320 (8.02)	321 (13.69)	641 (10.12)

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		2000			2001			2002			2003			Total		
		Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Sub total	Owner	Professional	Total
Chung Cheong	Daejeon	3 (0.69)	2 (0.76)	5 (0.72)	3 (0.72)	1 (0.38)	4 (0.59)	3 (0.77)	0 (0)	3 (0.45)	3 (0.77)	0 (0)	3 (0.45)	39 (0.98)	5 (0.21)	44 (0.69)
	Chungnam	22 (5.06)	25 (9.47)	47 (6.72)	18 (4.31)	24 (9.09)	42 (6.16)	17 (4.38)	24 (8.76)	41 (6.19)	14 (3.58)	22 (8.03)	36 (5.41)	191 (4.79)	183 (7.81)	374 (5.91)
	Chungbuk	6 (1.38)	8 (3.03)	14 (2)	5 (1.2)	12 (4.55)	17 (2.49)	6 (1.55)	8 (2.92)	14 (2.11)	6 (1.53)	12 (4.38)	18 (2.71)	62 (1.55)	85 (3.63)	147 (2.32)
Sub total		31 (7.13)	35 (13.26)	66 (9.44)	26 (6.22)	37 (14.02)	63 (9.24)	26 (6.7)	32 (11.68)	58 (8.76)	23 (5.88)	34 (12.41)	57 (8.57)	292 (7.32)	273 (11.65)	565 (8.92)
Gangwon		8 (1.84)	4 (1.52)	12 (1.72)	9 (2.15)	5 (1.89)	14 (2.05)	10 (2.58)	8 (2.92)	18 (2.72)	12 (3.07)	10 (3.65)	22 (3.31)	97 (2.43)	47 (2.01)	144 (2.27)
Jeju		1 (0.23)	1 (0.38)	2 (0.29)	1 (0.24)	3 (1.14)	4 (0.59)	1 (0.26)	3 (1.09)	4 (0.6)	1 (0.26)	3 (1.09)	4 (0.6)	12 (0.3)	13 (0.55)	25 (0.39)
Pyeongan		14 (3.22)	1 (0.38)	15 (2.15)	12 (2.87)	2 (0.76)	14 (2.05)	10 (2.58)	1 (0.36)	11 (1.66)	9 (2.3)	0 (0)	9 (1.35)	117 (2.93)	13 (0.55)	130 (2.05)
Hamgyeong		4 (0.92)	1 (0.38)	5 (0.72)	2 (0.48)	0 (0)	2 (0.29)	2 (0.52)	1 (0.36)	3 (0.45)	2 (0.51)	1 (0.36)	3 (0.45)	50 (1.25)	15 (0.64)	65 (1.03)
Hwanghae		11 (2.53)	2 (0.76)	13 (1.86)	11 (2.63)	2 (0.76)	13 (1.91)	9 (2.32)	1 (0.36)	10 (1.51)	6 (1.53)	2 (0.73)	8 (1.2)	106 (2.66)	11 (0.47)	117 (1.85)
Others		6 (1.38)	4 (1.52)	10 (1.43)	5 (1.2)	7 (2.65)	12 (1.76)	4 (1.03)	5 (1.82)	9 (1.36)	4 (1.02)	6 (2.19)	10 (1.5)	42 (1.05)	29 (1.24)	71 (1.12)
Sub total		36 (8.28)	9 (3.41)	45 (6.44)	31 (7.42)	14 (5.3)	45 (6.6)	26 (6.7)	11 (4.01)	37 (5.59)	22 (5.63)	12 (4.38)	34 (5.11)	327 (8.2)	81 (3.46)	408 (6.44)
Total		435 (62.23)	264 (37.77)	699 (11.04)	418 (61.29)	264 (38.71)	682 (10.77)	388 (58.61)	274 (41.39)	662 (10.45)	391 (58.80)	274 (41.20)	665 (10.50)	3989 (62.99)	2344 (37.01)	6333 (100.00)

<Table VI-5> Regional Origin of CEOs by Industry

		Seoul Gyeonggi	Yeongnam	Honam	Chungcheong	Gangwon	Others	Total
Manufacturing	1995	162 (33.96)	178 (37.32)	44 (9.22)	38 (7.97)	12 (2.52)	43 (9.01)	477 (7.54)
	1996	169 (34.00)	190 (38.23)	44 (8.85)	41 (8.25)	11 (2.21)	42 (8.45)	497 (7.86)
	1997	182 (35.41)	187 (36.38)	52 (10.12)	44 (8.56)	7 (1.36)	42 (8.17)	514 (8.13)
	1998	178 (35.04)	188 (37.01)	52 (10.24)	43 (8.46)	4 (0.79)	43 (8.46)	508 (8.03)
	1999	180 (36.07)	175 (35.07)	54 (10.82)	45 (9.02)	6 (1.20)	39 (7.82)	499 (7.89)
	2000	174 (35.08)	174 (35.08)	52 (10.48)	49 (9.88)	8 (1.61)	39 (7.86)	496 (7.84)
	2001	188 (38.37)	159 (32.45)	51 (10.41)	46 (9.39)	10 (2.04)	36 (7.35)	490 (7.75)
	2002	183 (38.69)	152 (32.14)	48 (10.15)	43 (9.09)	15 (3.17)	32 (6.77)	473 (7.48)
	2003	180 (37.58)	166 (34.66)	45 (9.39)	40 (8.35)	18 (3.76)	30 (6.26)	479 (7.58)
Construction	1995	24 (48.00)	9 (18.00)	3 (6.00)	8 (16.00)	2 (4.00)	4 (8.00)	50 (0.79)
	1996	25 (49.02)	12 (23.53)	2 (3.92)	7 (13.73)	2 (3.92)	3 (5.88)	51 (0.81)
	1997	26 (50.00)	13 (25.00)	2 (3.85)	6 (11.54)	2 (3.85)	3 (5.77)	52 (0.82)
	1998	25 (49.02)	11 (21.57)	4 (7.84)	6 (11.76)	3 (5.88)	2 (3.92)	51 (0.81)
	1999	22 (45.83)	14 (29.17)	4 (8.33)	4 (8.33)	4 (8.33)	0 0.00	48 (0.76)
	2000	22 (46.81)	13 (27.66)	5 (10.64)	4 (8.51)	3 (6.38)	0 0.00	47 (0.74)
	2001	20 (48.78)	12 (29.27)	4 (9.76)	3 (7.32)	2 (4.88)	0 0.00	41 (0.65)
	2002	20 (50.00)	10 (25.00)	4 (10.00)	4 (10.00)	2 (5.00)	0 0.00	40 (0.63)
	2003	15 (41.67)	9 (25.00)	4 (11.11)	5 (13.89)	2 (5.56)	1 (2.78)	36 (0.57)
Transportation Wholesale & Retail	1995	31 (40.26)	32 (41.56)	5 (6.49)	4 (5.19)	3 (3.90)	2 (2.60)	77 (1.22)
	1996	33 (40.74)	32 (39.51)	5 (6.17)	5 (6.17)	4 (4.94)	2 (2.47)	81 (1.28)
	1997	34 (40.96)	36 (43.37)	6 (7.23)	3 (3.61)	2 (2.41)	2 (2.41)	83 (1.31)
	1998	31 (35.23)	36 (40.91)	7 (7.95)	7 (7.95)	5 (5.68)	2 (2.27)	88 (1.39)
	1999	28 (34.57)	36 (44.44)	6 (7.41)	7 (8.64)	2 (2.47)	2 (2.47)	81 (1.28)
	2000	28 (33.73)	38 (45.78)	7 (8.43)	8 (9.64)	1 (1.20)	1 (1.20)	83 (1.31)
	2001	31 (37.35)	35 (42.17)	7 (8.43)	8 (9.64)	1 (1.20)	1 (1.20)	83 (1.31)

	2002	35 (41.67)	35 (41.67)	6 (7.14)	6 (7.14)	1 (1.19)	1 (1.19)	84 (1.33)
	2003	40 (44.94)	34 (38.20)	5 (5.62)	8 (8.99)	2 (2.25)	0 0.00	89 (1.41)
	1995	36 (38.71)	34 (36.56)	12 (12.90)	9 (9.68)	2 (2.15)	0 0.00	93 (1.47)
	1996	37 (38.14)	35 (36.08)	11 (11.34)	9 (9.28)	2 (2.06)	3 (3.09)	97 (1.53)
	1997	41 (38.68)	37 (34.91)	7 (6.60)	14 (13.21)	3 (2.83)	4 (3.77)	106 (1.68)
	1998	37 (40.22)	28 (30.43)	8 (8.70)	12 (13.04)	2 (2.17)	5 (5.43)	92 (1.46)
Financial	1999	26 (33.77)	26 (33.77)	14 (18.18)	9 (11.69)	0 0.00	2 (2.60)	77 (1.22)
	2000	23 (31.94)	26 (36.11)	14 (19.44)	5 (6.94)	0 0.00	4 (5.56)	72 (1.14)
	2001	14 (20.90)	22 (32.84)	17 (25.37)	7 (10.45)	1 (1.49)	6 (8.96)	67 (1.06)
	2002	16 (25.00)	26 (40.63)	14 (21.88)	5 (7.81)	0 0.00	3 (4.69)	64 (1.01)
	2003	14	25	11	4	0	3	57
Total		2,330 (36.85)	2,245 (35.51)	636 (10.06)	566 (8.95)	144 (2.28)	402 (6.36)	6,323 (100.00)

<Table VI-6> Educational Background of CEOs

		Doctorate	Masters	Bachelors	High School or Under	Total
1995	Owner	42 (9.57)	149 (33.94)	195 (44.42)	53 (12.07)	439 (62.80)
	Professional	14 (5.38)	58 (22.31)	185 (71.15)	3 (1.15)	260 (37.20)
	Sub total	56 (8.01)	207 (29.61)	380 (54.36)	56 (8.01)	699 (10.97)
1996	Owner	40 (8.47)	173 (36.65)	203 (43.01)	56 (11.86)	472 (64.75)
	Professional	11 (4.28)	56 (21.79)	187 (72.76)	3 (1.17)	257 (35.25)
	Sub total	51 (7.68)	229 (34.49)	390 (58.73)	59 (8.89)	729 (11.44)
1997	Owner	40 (8.15)	185 (37.68)	218 (44.40)	48 (9.78)	491 (64.44)
	Professional	15 (5.54)	67 (24.72)	186 (68.63)	3 (1.11)	271 (35.56)
	Sub total	55 (7.22)	252 (33.07)	404 (53.02)	51 (6.69)	762 (11.96)
1998	Owner	41 (8.20)	186 (37.20)	233 (46.60)	40 (8.00)	500 (67.39)
	Professional	10 (4.13)	59 (24.38)	170 (70.25)	3 (1.24)	242 (32.61)
	Sub total	51 (6.87)	245 (33.02)	403 (54.31)	43 (5.80)	742 (11.64)
1999	Owner	37 (8.13)	179 (39.34)	215 (47.25)	24 (5.27)	455 (64.36)
	Professional	7 (2.78)	62 (24.60)	177 (70.24)	6 (2.38)	252 (35.64)
	Sub total	44 (6.22)	241 (34.09)	392 (55.45)	30 (4.24)	707 (11.09)
2000	Owner	35 (8.05)	178 (40.92)	209 (48.05)	13 (2.99)	435 (61.97)
	Professional	9 (3.37)	66 (24.72)	189 (70.79)	3 (1.12)	267 (38.03)
	Sub total	44 (6.27)	244 (34.76)	398 (56.70)	16 (2.28)	702 (11.02)
2001	Owner	41 (9.81)	171 (40.91)	201 (48.09)	5 (1.20)	418 (60.76)
	Professional	11 (2.63)	71 (16.99)	185 (44.26)	3 (0.72)	270 (39.24)
	Sub total	52 (7.56)	242 (35.17)	386 (56.10)	8 (1.16)	688 (10.80)
2002	Owner	36 (9.25)	164 (42.16)	186 (47.81)	3 (0.77)	389 (58.32)
	Professional	12 (4.32)	75 (26.98)	191 (68.71)	0 0.00	278 (41.68)
	Sub total	48 (7.20)	239 (35.83)	377 (56.52)	3 (0.45)	667 (10.47)

2003	Owner	33 (8.40)	164 (41.73)	191 (48.60)	5 (1.27)	393 (58.05)
	Professional	9 (3.17)	67 (23.59)	208 (73.24)	0 0.00	284 (41.95)
Sub total		42 (6.20)	231 (34.12)	399 (58.94)	5 (0.74)	677 (10.62)
Total	Owner	345 (8.64)	1,549 (38.80)	1,851 (46.37)	247 (6.19)	3,992 (62.64)
	Professional	98 (4.12)	581 (24.40)	1,678 (70.47)	24 (1.01)	2,381 (37.36)
Total		443 (6.95)	2,130 (33.42)	3,529 (55.37)	271 (4.25)	6,373 (100.00)

<Table VI-7> CEOs – High Schools (Graduated)

	1995			1996			1997			1998			1999		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Gyeonggi	53 (13.7)	34 (16.92)	87 (14.8)	55 (9.35)	41 (18.47)	96 (14.86)	58 (12.83)	41 (16.02)	99 (13.98)	59 (12.72)	25 (10.78)	84 (12.07)	52 (12.35)	26 (10.97)	78 (11.85)
Seoul	30 (7.75)	6 (2.99)	36 (6.12)	28 (4.76)	6 (2.7)	34 (5.26)	32 (7.08)	8 (3.13)	40 (5.65)	33 (7.11)	11 (4.74)	44 (6.32)	27 (6.41)	10 (4.22)	37 (5.62)
Gyeongbok	23 (5.94)	6 (2.99)	29 (4.93)	29 (4.93)	9 (4.05)	38 (5.88)	30 (6.64)	7 (2.73)	37 (5.23)	30 (6.47)	4 (1.72)	34 (4.89)	26 (6.18)	5 (2.11)	31 (4.71)
Gyeongnam	7 (1.81)	9 (4.48)	16 (2.72)	8 (1.36)	17 (7.66)	25 (3.87)	8 (1.77)	14 (5.47)	22 (3.11)	13 (2.8)	11 (4.74)	24 (3.45)	11 (2.61)	8 (3.38)	19 (2.89)
Joongang	12 (3.1)	3 (1.49)	15 (2.55)	23 (3.91)	4 (1.8)	17 (2.63)	15 (3.32)	6 (2.34)	21 (2.97)	18 (3.88)	5 (2.16)	23 (3.3)	19 (4.51)	2 (0.84)	21 (3.19)
Yongsan	14 (3.62)	1 (0.5)	15 (2.55)	15 (2.55)	3 (1.35)	18 (2.79)	17 (3.76)	2 (0.78)	19 (2.68)	14 (3.02)	2 (0.86)	16 (2.3)	14 (3.33)	4 (1.69)	18 (2.74)
Gyeongbuk	6 (1.55)	9 (4.48)	15 (2.55)	8 (1.36)	12 (5.41)	20 (3.1)	9 (1.99)	13 (5.08)	22 (3.11)	12 (2.59)	8 (3.45)	20 (2.87)	11 (2.61)	5 (2.11)	16 (2.43)
Bosung	7 (1.81)	5 (2.49)	12 (2.04)	8 (1.36)	5 (2.25)	13 (2.01)	12 (2.65)	5 (1.95)	17 (2.4)	12 (2.59)	6 (2.59)	18 (2.59)	10 (2.38)	3 (1.27)	13 (1.98)
Busan	5 (1.29)	4 (1.99)	9 (1.53)	6 (1.02)	7 (3.15)	13 (2.01)	8 (1.77)	6 (2.34)	14 (1.98)	8 (1.72)	5 (2.16)	13 (1.87)	7 (1.66)	5 (2.11)	12 (1.82)
Seoul sadaebugo	4 (1.03)	4 (1.99)	8 (1.36)	8 (1.36)	5 (2.25)	13 (2.01)	7 (1.55)	6 (2.34)	13 (1.84)	6 (1.29)	7 (3.02)	13 (1.87)	6 (1.43)	4 (1.69)	10 (1.52)
Jeonju	2 (0.52)	2 (1)	4 (0.68)	2 (0.34)	2 (0.9)	4 (0.62)	3 (0.66)	6 (2.34)	9 (1.27)	5 (1.08)	7 (3.02)	12 (1.72)	4 (0.95)	8 (3.38)	12 (1.82)
Daejeon	5 (1.29)	2 (1)	7 (1.19)	5 (0.85)	4 (1.8)	9 (1.39)	5 (1.11)	5 (1.95)	10 (1.41)	5 (1.08)	7 (3.02)	12 (1.72)	5 (1.19)	5 (2.11)	10 (1.52)
Dongsung	9 (2.33)	1 (0.5)	10 (1.7)	11 (1.87)	0 (0)	11 (1.7)	9 (1.99)	1 (0.39)	10 (1.41)	9 (1.94)	2 (0.86)	11 (1.58)	8 (1.9)	1 (0.42)	9 (1.37)
Gwangjujeil	2 (0.52)	2 (1)	4 (0.68)	1 (0.17)	3 (1.35)	4 (0.62)	1 (0.22)	4 (1.56)	5 (0.71)	2 (0.43)	7 (3.02)	9 (1.29)	2 (0.48)	10 (4.22)	12 (1.82)

	1995			1996			1997			1998			1999		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Jinju	3 (0.78)	3 (1.49)	6 (1.02)	4 (0.68)	3 (1.35)	7 (1.08)	6 (1.33)	3 (1.17)	9 (1.27)	4 (0.86)	5 (2.16)	9 (1.29)	4 (0.95)	5 (2.11)	9 (1.37)
Gyeongdong	1 (0.26)	5 (2.49)	6 (1.02)	1 (0.17)	5 (2.25)	6 (0.93)	3 (0.66)	5 (1.95)	8 (1.13)	2 (0.43)	3 (1.29)	5 (0.72)	3 (0.71)	10 (4.22)	13 (1.98)
Gwangju	1 (0.26)	2 (1)	3 (0.51)	4 (0.68)	2 (0.9)	6 (0.93)	4 (0.88)	3 (1.17)	7 (0.99)	4 (0.86)	4 (1.72)	8 (1.15)	4 (0.95)	7 (2.95)	11 (1.67)
Daegusango	5 (1.29)	6 (2.99)	11 (1.87)	7 (1.19)	5 (2.25)	12 (1.86)	6 (1.33)	7 (2.73)	13 (1.84)	6 (1.29)	3 (1.29)	9 (1.29)	6 (1.43)	3 (1.27)	9 (1.37)
Gyeongbuk sadaebugo	4 (1.03)	4 (1.99)	8 (1.36)	3 (0.51)	3 (1.35)	6 (0.93)	3 (0.66)	4 (1.56)	7 (0.99)	5 (1.08)	4 (1.72)	9 (1.29)	3 (0.71)	6 (2.53)	9 (1.37)
Busansanggo	7 (1.81)	2 (1)	9 (1.53)	5 (0.85)	2 (0.9)	7 (1.08)	4 (0.88)	4 (1.56)	8 (1.13)	4 (0.86)	6 (2.59)	10 (1.44)	4 (0.95)	5 (2.11)	9 (1.37)
Masan	3 (0.78)	2 (1)	5 (0.85)	3 (0.51)	2 (0.9)	5 (0.77)	3 (0.66)	6 (2.34)	9 (1.27)	3 (0.65)	2 (0.86)	5 (0.72)	5 (1.19)	4 (1.69)	9 (1.37)
Dongrae	2 (0.52)	1 (0.5)	3 (0.51)	4 (0.68)	2 (0.9)	6 (0.93)	6 (1.33)	3 (1.17)	9 (1.27)	7 (1.51)	1 (0.43)	8 (1.15)	7 (1.66)	1 (0.42)	8 (1.22)
Joongdong	4 (1.03)	0 (0)	4 (0.68)	5 (0.85)	0 (0)	5 (0.77)	4 (0.88)	1 (0.39)	5 (0.71)	5 (1.08)	0 (0)	5 (0.72)	5 (1.19)	0 (0)	5 (0.76)
Baejae	1 (0.26)	1 (0.5)	2 (0.34)	2 (0.34)	0 (0)	2 (0.31)	2 (0.44)	2 (0.78)	4 (0.56)	4 (0.86)	3 (1.29)	7 (1.01)	6 (1.43)	1 (0.42)	7 (1.06)
Seonlinsanggo	2 (0.52)	4 (1.99)	6 (1.02)	2 (0.34)	4 (1.8)	6 (0.93)	4 (0.88)	3 (1.17)	7 (0.99)	3 (0.65)	3 (1.29)	6 (0.86)	3 (0.71)	3 (1.27)	6 (0.91)
Shinil	1 (0.26)	0 (0)	1 (0.17)	5 (0.85)	0 (0)	5 (0.77)	5 (1.11)	0 (0)	5 (0.71)	6 (1.29)	0 (0)	6 (0.86)	5 (1.19)	0 (0)	5 (0.76)
Masansanggo	2 (0.52)	3 (1.49)	5 (0.85)	2 (0.34)	2 (0.9)	4 (0.62)	3 (0.66)	4 (1.56)	7 (0.99)	3 (0.65)	6 (2.59)	9 (1.29)	3 (0.71)	5 (2.11)	8 (1.22)
Yangjeong	3 (0.78)	2 (1)	5 (0.85)	3 (0.51)	3 (1.35)	6 (0.93)	3 (0.66)	3 (1.17)	6 (0.85)	4 (0.86)	1 (0.43)	5 (0.72)	4 (0.95)	1 (0.42)	5 (0.76)
Gyeonggi Gonggo	5 (1.29)	1 (0.5)	6 (1.02)	4 (0.68)	1 (0.45)	5 (0.77)	3 (0.66)	1 (0.39)	4 (0.56)	3 (0.65)	3 (1.29)	6 (0.86)	3 (0.71)	4 (1.69)	7 (1.06)

	1995			1996			1997			1998			1999		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Hwimun	2 (0.52)	2 (1)	4 (0.68)	2 (0.34)	1 (0.45)	3 (0.46)	2 (0.44)	1 (0.39)	3 (0.42)	3 (0.65)	2 (0.86)	5 (0.72)	4 (0.95)	2 (0.84)	6 (0.91)
Sub total	225 (58.14)	126 (62.69)	351 (59.69)	263 (44.73)	153 (68.92)	406 (62.85)	275 (60.84)	174 (67.97)	449 (63.42)	292 (62.93)	153 (65.95)	445 (63.94)	271 (64.37)	153 (64.56)	424 (64.44)
Others	162 (41.86)	75 (37.31)	237 (40.31)	161 (27.38)	69 (31.08)	240 (37.15)	177 (39.16)	82 (32.03)	259 (36.58)	172 (37.07)	79 (34.05)	251 (36.06)	150 (35.63)	84 (35.44)	234 (35.56)
Total	387 (65.82)	201 (34.18)	588 (10.11)	424 (65.63)	222 (34.37)	646 (11.11)	452 (63.84)	256 (36.16)	708 (12.18)	464 (66.67)	232 (33.33)	696 (11.97)	421 (63.98)	237 (36.02)	658 (11.32)

(Table VI-7 continued)

	2000			2001			2002			2003			Total		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Gyeonggi	48 (11.94)	29 (11.69)	77 (11.85)	51 (13.11)	29 (11.79)	80 (12.6)	51 (14.17)	31 (12.25)	82 (13.38)	52 (14.29)	28 (10.94)	80 (12.9)	479 (13.08)	284 (13.2)	763 (13.12)
Seoul	30 (7.46)	14 (5.65)	44 (6.77)	29 (7.46)	10 (4.07)	39 (6.14)	23 (6.39)	13 (5.14)	36 (5.87)	21 (5.77)	13 (5.08)	34 (5.48)	253 (6.91)	91 (4.23)	344 (5.92)
Gyeongbok	25 (6.22)	6 (2.42)	31 (4.77)	26 (6.68)	5 (2.03)	31 (4.88)	26 (7.22)	11 (4.35)	37 (6.04)	29 (7.97)	14 (5.47)	43 (6.94)	244 (6.66)	67 (3.11)	311 (5.35)
Gyeongnam	13 (3.23)	10 (4.03)	23 (3.54)	11 (2.83)	11 (4.47)	22 (3.46)	9 (2.5)	8 (3.16)	17 (2.77)	11 (3.02)	10 (3.91)	21 (3.39)	91 (2.48)	98 (4.56)	189 (3.25)
Joongang	18 (4.48)	3 (1.21)	21 (3.23)	16 (4.11)	4 (1.63)	20 (3.15)	14 (3.89)	4 (1.58)	18 (2.94)	15 (4.12)	3 (1.17)	18 (2.9)	140 (3.82)	34 (1.58)	174 (2.99)
Yongsan	14 (3.48)	6 (2.42)	20 (3.08)	13 (3.34)	8 (3.25)	21 (3.31)	11 (3.06)	7 (2.77)	18 (2.94)	11 (3.02)	4 (1.56)	15 (2.42)	123 (3.36)	37 (1.72)	160 (2.75)
Gyeongbuk	10 (2.49)	9 (3.63)	19 (2.92)	9 (2.31)	7 (2.85)	16 (2.52)	7 (1.94)	6 (2.37)	13 (2.12)	10 (2.75)	5 (1.95)	15 (2.42)	82 (2.24)	74 (3.44)	156 (2.68)
Bosung	11 (2.74)	4 (1.61)	15 (2.31)	9 (2.31)	7 (2.85)	16 (2.52)	10 (2.78)	7 (2.77)	17 (2.77)	9 (2.47)	7 (2.73)	16 (2.58)	88 (2.4)	49 (2.28)	137 (2.36)

	2000			2001			2002			2003			Total		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Busan	6 (1.49)	8 (3.23)	14 (2.15)	5 (1.29)	13 (5.28)	18 (2.83)	6 (1.67)	10 (3.95)	16 (2.61)	7 (1.92)	12 (4.69)	19 (3.06)	58 (1.58)	70 (3.25)	128 (2.2)
Seoul Sadaebugo	7 (1.74)	4 (1.61)	11 (1.69)	7 (1.8)	2 (0.81)	9 (1.42)	8 (2.22)	1 (0.4)	9 (1.47)	9 (2.47)	2 (0.78)	11 (1.77)	62 (1.69)	35 (1.63)	97 (1.67)
Jeonju	4 (1)	10 (4.03)	14 (2.15)	4 (1.03)	10 (4.07)	14 (2.2)	2 (0.56)	11 (4.35)	13 (2.12)	1 (0.27)	10 (3.91)	11 (1.77)	27 (0.74)	66 (3.07)	93 (1.6)
Daejeon	5 (1.24)	7 (2.82)	12 (1.85)	5 (1.29)	7 (2.85)	12 (1.89)	4 (1.11)	4 (1.58)	8 (1.31)	4 (1.1)	1 (0.39)	5 (0.81)	43 (1.17)	42 (1.95)	85 (1.46)
Dongsung	8 (1.99)	1 (0.4)	9 (1.38)	6 (1.54)	0 (0)	6 (0.94)	7 (1.94)	1 (0.4)	8 (1.31)	6 (1.65)	5 (1.95)	11 (1.77)	73 (1.99)	12 (0.56)	85 (1.46)
Gwangjujeil	1 (0.25)	7 (2.82)	8 (1.23)	2 (0.51)	12 (4.88)	14 (2.2)	3 (0.83)	6 (2.37)	9 (1.47)	4 (1.1)	8 (3.13)	12 (1.94)	18 (0.49)	59 (2.74)	77 (1.32)
Jinju	5 (1.24)	6 (2.42)	11 (1.69)	4 (1.03)	4 (1.63)	8 (1.26)	2 (0.56)	6 (2.37)	8 (1.31)	2 (0.55)	8 (3.13)	10 (1.61)	34 (0.93)	43 (2)	77 (1.32)
Gyeongdong	3 (0.75)	4 (1.61)	7 (1.08)	3 (0.77)	6 (2.44)	9 (1.42)	3 (0.83)	7 (2.77)	10 (1.63)	3 (0.82)	9 (3.52)	12 (1.94)	22 (0.6)	54 (2.51)	76 (1.31)
Gwangju	5 (1.24)	12 (4.84)	17 (2.62)	4 (1.03)	8 (3.25)	12 (1.89)	3 (0.83)	4 (1.58)	7 (1.14)	2 (0.55)	3 (1.17)	5 (0.81)	31 (0.85)	45 (2.09)	76 (1.31)
Daegusanggo	7 (1.74)	1 (0.4)	8 (1.23)	3 (0.77)	1 (0.41)	4 (0.63)	3 (0.83)	1 (0.4)	4 (0.65)	3 (0.82)	2 (0.78)	5 (0.81)	46 (1.26)	29 (1.35)	75 (1.29)
Gyeongbuk Sadaebugo	4 (1)	5 (2.02)	9 (1.38)	6 (1.54)	4 (1.63)	10 (1.57)	6 (1.67)	3 (1.19)	9 (1.47)	6 (1.65)	1 (0.39)	7 (1.13)	40 (1.09)	34 (1.58)	74 (1.27)
Busansanggo	4 (1)	4 (1.61)	8 (1.23)	4 (1.03)	3 (1.22)	7 (1.1)	3 (0.83)	3 (1.19)	6 (0.98)	2 (0.55)	4 (1.56)	6 (0.97)	37 (1.01)	33 (1.53)	70 (1.2)
Masan	5 (1.24)	4 (1.61)	9 (1.38)	5 (1.29)	3 (1.22)	8 (1.26)	5 (1.39)	1 (0.4)	6 (0.98)	5 (1.37)	2 (0.78)	7 (1.13)	37 (1.01)	26 (1.21)	63 (1.08)
Dongrae	5 (1.24)	3 (1.21)	8 (1.23)	5 (1.29)	2 (0.81)	7 (1.1)	5 (1.39)	2 (0.79)	7 (1.14)	5 (1.37)	1 (0.39)	6 (0.97)	46 (1.26)	16 (0.74)	62 (1.07)
Joongdong	6 (1.49)	2 (0.81)	8 (1.23)	5 (1.29)	3 (1.22)	8 (1.26)	5 (1.39)	4 (1.58)	9 (1.47)	5 (1.37)	5 (1.95)	10 (1.61)	44 (1.2)	15 (0.7)	59 (1.01)

	2000			2001			2002			2003			Total		
	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal	Owner	Professional	Subtotal
Baejae	5 (1.24)	3 (1.21)	8 (1.23)	5 (1.29)	3 (1.22)	8 (1.26)	5 (1.39)	3 (1.19)	8 (1.31)	4 (1.1)	2 (0.78)	6 (0.97)	34 (0.93)	18 (0.84)	52 (0.89)
Seonlinsanggo	3 (0.75)	0 (0)	3 (0.46)	3 (0.77)	2 (0.81)	5 (0.79)	3 (0.83)	4 (1.58)	7 (1.14)	3 (0.82)	2 (0.78)	5 (0.81)	26 (0.71)	25 (1.16)	51 (0.88)
Shinil	6 (1.49)	0 (0)	6 (0.92)	6 (1.54)	0 (0)	6 (0.94)	7 (1.94)	0 (0)	7 (1.14)	9 (2.47)	0 (0)	9 (1.45)	50 (1.37)	0 (0)	50 (0.86)
Masansanggo	3 (0.75)	4 (1.61)	7 (1.08)	2 (0.51)	2 (0.81)	4 (0.63)	1 (0.28)	1 (0.4)	2 (0.33)	1 (0.27)	1 (0.39)	2 (0.32)	20 (0.55)	28 (1.3)	48 (0.83)
Yangjung	3 (0.75)	2 (0.81)	5 (0.77)	4 (1.03)	3 (1.22)	7 (1.1)	4 (1.11)	2 (0.79)	6 (0.98)	2 (0.55)	1 (0.39)	3 (0.48)	30 (0.82)	18 (0.84)	48 (0.83)
Gyeonggi Gonggo	3 (0.75)	4 (1.61)	7 (1.08)	3 (0.77)	2 (0.81)	5 (0.79)	3 (0.83)	1 (0.4)	4 (0.65)	2 (0.55)	1 (0.39)	3 (0.48)	29 (0.79)	18 (0.84)	47 (0.81)
Hwimun	3 (0.75)	2 (0.81)	5 (0.77)	2 (0.51)	3 (1.22)	5 (0.79)	2 (0.56)	4 (1.58)	6 (0.98)	2 (0.55)	4 (1.56)	6 (0.97)	22 (0.6)	21 (0.98)	43 (0.74)
Subtotal	270 (67.16)	174 (70.16)	444 (68.31)	257 (66.07)	174 (70.73)	431 (67.87)	241 (66.94)	166 (65.61)	407 (66.39)	245 (67.31)	168 (65.63)	413 (66.61)	2329 (63.58)	1441 (66.99)	3770 (64.84)
Others	132 (32.84)	74 (29.84)	206 (31.69)	132 (33.93)	72 (29.27)	204 (32.13)	119 (33.06)	87 (34.39)	206 (33.61)	119 (32.69)	88 (34.38)	207 (33.39)	1334 (36.42)	710 (33.01)	2044 (35.16)
Total	402 (61.85)	248 (38.15)	650 (11.18)	389 (61.26)	246 (38.74)	635 (10.92)	360 (58.73)	253 (41.27)	613 (10.54)	364 (58.71)	256 (41.29)	620 (10.66)	3663 (63)	2151 (37)	5814 (100)

<Table VI-8> CEOs – Universities (Graduated)

		Seoul National	Yonsei	Korea	Hanyang	U. S.	Japan	Sungkyunkwan	Joongang	Dongguk	Busan	Sub total	Others	Total
1995	Owner	84 (24.42)	28 (8.14)	31 (9.01)	29 (8.43)	36 (10.47)	31 (9.01)	10 (2.91)	11 (3.20)	10 (2.91)	7 (2.03)	277 (80.52)	67 (19.48)	344 (58.60)
	Professional	123 (50.62)	24 (9.88)	17 (7.00)	14 (5.76)	5 (2.06)	1 (0.41)	6 (2.47)	6 (2.47)	6 (2.47)	1 (0.41)	203 (83.54)	40 (16.46)	243 (41.40)
	Sub total	207 (35.26)	52 (8.86)	48 (8.18)	43 (7.33)	41 (6.98)	32 (5.45)	16 (2.73)	17 (2.90)	16 (2.73)	8 (1.36)	480 (81.77)	107 (18.23)	587 (10.37)
1996	Owner	93 (24.73)	36 (9.57)	42 (11.17)	30 (7.98)	34 (9.04)	30 (7.98)	10 (2.66)	11 (2.93)	11 (2.93)	7 (1.86)	304 (80.85)	72 (19.15)	376 (60.74)
	Professional	123 (50.62)	21 (8.64)	18 (7.41)	16 (6.58)	4 (1.65)	2 (0.82)	7 (2.88)	8 (3.29)	4 (1.65)	3 (1.23)	206 (84.77)	37 (15.23)	243 (39.26)
	Sub total	216 (34.89)	57 (9.21)	60 (9.69)	46 (7.43)	38 (6.14)	32 (5.17)	17 (2.75)	19 (3.07)	15 (2.42)	10 (1.62)	510 (82.39)	109 (17.61)	619 (10.94)
1997	Owner	99 (24.57)	38 (9.43)	43 (10.67)	34 (8.44)	39 (9.68)	26 (6.45)	11 (2.73)	11 (2.73)	12 (2.98)	8 (1.99)	321 (79.65)	82 (20.35)	403 (61.43)
	Professional	127 (50.20)	22 (8.70)	21 (8.30)	11 (4.35)	4 (1.58)	2 (0.79)	8 (3.16)	5 (1.98)	4 (1.58)	5 (1.98)	209 (82.61)	44 (17.39)	253 (38.57)
	Sub total	226 (34.45)	60 (9.15)	64 (9.76)	45 (6.86)	43 (6.55)	28 (4.27)	19 (2.90)	16 (2.44)	16 (2.44)	13 (1.98)	530 (80.79)	126 (19.21)	656 (11.59)
1998	Owner	96 (22.91)	46 (10.98)	40 (9.55)	35 (8.35)	40 (9.55)	32 (7.64)	16 (3.82)	12 (2.86)	14 (3.34)	8 (1.91)	339 (80.91)	80 (19.09)	419 (64.66)
	Professional	105 (45.85)	18 (7.86)	17 (7.42)	11 (4.80)	5 (2.18)	0 0.00	14 (6.11)	5 (2.18)	5 (2.18)	8 (3.49)	188 (82.10)	41 (17.90)	229 (35.34)
	Sub total	201 (31.02)	64 (9.88)	57 (8.80)	46 (7.10)	45 (6.94)	32 (4.94)	30 (4.63)	17 (2.62)	19 (2.93)	16 (2.47)	527 (81.33)	121 (18.67)	648 (11.45)
1999	Owner	84 (21.32)	46 (11.68)	37 (9.39)	31 (7.87)	31 (7.87)	28 (7.11)	14 (3.55)	13 (3.30)	13 (3.30)	8 (2.03)	305 (77.41)	89 (22.59)	394 (62.24)
	Professional	101 (42.26)	21 (8.79)	21 (8.79)	12 (5.02)	8 (3.35)	0 0.00	19 (7.95)	5 (2.09)	5 (2.09)	12 (5.02)	204 (85.36)	35 (14.64)	239 (37.76)
	Sub total	185 (29.23)	67 (10.58)	58 (9.16)	43 (6.79)	39 (6.16)	28 (4.42)	33 (5.21)	18 (2.84)	18 (2.84)	20 (3.16)	509 (80.41)	124 (19.59)	633 (11.19)
2000	Owner	79 (20.41)	48 (12.40)	42 (10.85)	34 (8.79)	29 (7.49)	27 (6.98)	14 (3.62)	14 (3.62)	11 (2.84)	7 (1.81)	305 (78.81)	82 (21.19)	387 (60.28)

		Seoul National	Yonsei	Korea	Hanyang	U. S.	Japan	Sungkyunkwan	Joongang	Dongguk	Busan	Sub total	Others	Total
	Professional	105 (41.18)	28 (10.98)	28 (10.98)	15 (5.88)	11 (4.31)	1 (0.39)	12 (4.71)	6 (2.35)	4 (1.57)	10 (3.92)	220 (86.27)	35 (13.73)	255 (39.72)
	Sub total	184 (28.66)	76 (11.84)	70 (10.90)	49 (7.63)	40 (6.23)	28 (4.36)	26 (4.05)	20 (3.12)	15 (2.34)	17 (2.65)	525 (81.78)	117 (18.22)	642 (11.34)
2001	Owner	81 (21.77)	46 (12.37)	38 (10.22)	36 (9.68)	29 (7.80)	17 (4.57)	13 (3.49)	15 (4.03)	10 (2.69)	8 (2.15)	293 (78.76)	79 (21.24)	372 (59.24)
	Professional	103 (40.23)	28 (10.94)	24 (9.38)	14 (5.47)	8 (3.13)	1 (0.39)	11 (4.30)	6 (2.34)	3 (1.17)	9 (3.52)	207 (80.86)	49 (19.14)	256 (40.76)
	Sub total	184 (29.30)	74 (11.78)	62 (9.87)	50 (7.96)	37 (5.89)	18 (2.87)	24 (3.82)	21 (3.34)	13 (2.07)	17 (2.71)	500 (79.62)	128 (20.38)	628 (11.10)
2002	Owner	67 (19.14)	45 (12.86)	40 (11.43)	36 (10.29)	29 (8.29)	15 (4.29)	14 (4.00)	15 (4.29)	10 (2.86)	7 (2.00)	278 (79.43)	72 (20.57)	350 (56.82)
	Professional	91 (34.21)	33 (12.41)	35 (13.16)	16 (6.02)	4 (1.50)	2 (0.75)	14 (5.26)	6 (2.26)	3 (1.13)	10 (3.76)	214 (80.45)	52 (19.55)	266 (43.18)
	Sub total	158 (25.65)	78 (12.66)	75 (12.18)	52 (8.44)	33 (5.36)	17 (2.76)	28 (4.55)	21 (3.41)	13 (2.11)	17 (2.76)	492 (79.87)	124 (20.13)	616 (10.89)
2003	Owner	67 (18.87)	44 (12.39)	43 (12.11)	36 (10.14)	34 (9.58)	15 (4.23)	16 (4.51)	14 (3.94)	11 (3.10)	6 (1.69)	286 (80.56)	69 (19.44)	355 (56.35)
	Professional	85 (30.91)	39 (14.18)	33 (12.00)	20 (7.27)	4 (1.45)	3 (1.09)	11 (4.00)	7 (2.55)	5 (1.82)	12 (4.36)	219 (79.64)	56 (20.36)	275 (43.65)
	Sub total	152 (24.13)	83 (13.17)	76 (12.06)	56 (8.89)	38 (6.03)	18 (2.86)	27 (4.29)	21 (3.33)	16 (2.54)	18 (2.86)	505 (80.16)	125 (19.84)	630 (11.13)
Total	Owner	750 (22.06)	377 (11.09)	356 (10.47)	301 (8.85)	301 (8.85)	221 (6.50)	118 (3.47)	116 (3.41)	102 (3.00)	66 (1.94)	2,708 (79.65)	692 (20.35)	3,400 (60.08)
	Professional	963 (42.63)	234 (10.36)	214 (9.47)	129 (5.71)	53 (2.35)	12 (0.53)	102 (4.52)	54 (2.39)	39 (1.73)	70 (3.10)	1,870 (82.78)	389 (17.22)	2,259 (39.92)
	Total	1,713 (30.27)	611 (10.80)	570 (10.07)	430 (7.60)	354 (6.26)	233 (4.12)	220 (3.89)	170 (3.00)	141 (2.49)	136 (2.40)	4,578 (80.90)	1,081 (19.10)	5,659 (100.00)

VI-4. Do CEOs' Characteristics Make a Difference?

Korean CEOs' demographic characteristics including age, educational background, and regional origin have so far been examined. The question that arises from this chapter is, "How do CEOs characteristics affect the performance of firms?" This section aims to briefly examine the relationship between CEOs' demographic characteristics and performances.

As reviewed in chapter II, demographic characteristics of CEOs have been investigated as determinants of strategic choice as well as profitability of firms. While the impact of some characteristics such as age, educational background on performance have not been concluded definitely, experience and tenure of CEOs have been widely accepted to have an impact on performance (Hambrick and Fukutomi, 1991; Miller, 1991; Barbosa 1985).

CEO data for this paper include demographic characteristics such as age, educational background (high school, university, and major), and regional origin. How much do demographic characteristics represent CEOs management capabilities? The model to measure the impact of each characteristic on performance is as follows:

$$P_{it} = \alpha + \beta_1 \, Age + \beta_2 \, Regn + \beta_3 Owner + \beta_4 Maj + \beta_5 Turn + \beta_6 \, MBA + \beta_7 \, Univ + \varepsilon_{it}$$

where p_{it} is performance of firm i in year t, age is categorical dummy from 30s to 80s of the CEOs age, reg is the regional origin of the CEO, maj is the major of the CEO in university, and turn is dummy to indicate whether the CEO is an incumbent or a newcomer. Besides these variables, I include an MBA dummy that indicates whether the CEO of the firm earned an MBA degree abroad, and a university dummy that defines the university where the CEO graduated.

Table VI-37 and VI-38 present the results of a regression analysis of both samples, ROIC and Tobin's q. Two characteristics including age and turnover of CEOs turn out to be significant in affecting performance in most ROIC sub-samples. In the pooled sample, the characteristics of CEOs that are defined to have an impact on performance are 'age' and 'turnover.' As to the age of CEOs, the performance of CEOs in their 30s seems to be significantly lower than for CEOs in their 40s to 70s. Among CEOs in this age bracket, the differences are not obvious. New CEOs are negatively associated with accounting data. Is this interpreted that new CEOs are

likely to have a negative impact on performance? It seems to be proper to interpret that underperforming firms are more likely to change their CEOs.

By sub-samples, differences among age of CEOs tend to be greater in the post-crisis period than the pre-crisis period. R^2 of the model of the post-crisis period becomes greater than that of the pre-crisis period. It indicates that the CEOs characteristics tend to explain firms' performance in the post-crisis period rather than the pre-crisis period. Turnover in CEOs is negatively associated with performance in both samples.

In chaebol sample, a significant difference is seen in the major selected by CEOs. Those who majored in engineering at universities are likely to be more profitable than CEOs who majored in management and law. Unlike other samples, the age of CEOs does not matter. Turnover of CEOs are also negatively related with performance. In non-chaebol sample, age, owner, and turnover dummy variables are seen as significant.

The characteristics that are statistically significant in owner sample are age, regional origin, university, and turnover of CEO variables. An interesting finding is that owner CEOs from Jeolla province are negatively associated with performance during the period. Owner CEOs who graduated from Sungkyunkwan University registered greater performance during the period. In professional CEO sample, CEOs from Chungcheong province and abroad (e.g. the U.S. or Europe) are likely to outperform CEOs from Seoul and Gyeonggi province. Turnover of CEOs association with performance is similar to that of other samples.

In Tobin's q sample, t values of variables tend to increase compared to those in the ROIC sample. In pooled sample, the differences among major variables seem to be clear. There are several statistically significant variables including age, university, major, regional origin, MBA degree, owner dummy, and turnover of CEO dummy. For example, CEOs in their 70s are obviously associated with a low value of Tobin's q. Furthermore, this tendency is seen in all Tobin's q sub-samples but 'the pre-crisis sample' and 'chaebol sample.' The results are not consistent with those of the ROIC pooled sample.

The results show that CEOs university majors can make a difference in terms of Tobin's q. CEOs majoring in law and social studies tended to outperform CEOs with a major in management and economics. This interesting tendency is also seen in the non-chaebol and owner samples. However, in the professional sample, the major makes no difference.

Compared to CEOs from Seoul and Gyeonggi province, CEOs from

Gyeongsang and Jeolla province tend to under perform in the pooled sample. This tendency is also seen in the post-crisis and non-chaebol sample. CEOs from abroad are negatively associated with performance in the pooled, pre-crisis, non-chaebol, and owner samples.

Universities where CEOs graduated turn out to be significant in affecting performances in the Tobin's q sample. Interestingly, CEOs from Korea and Yonsei University under perform CEOs from Seoul National University in the pooled, the post-crisis, non-chaebol, owner, and professional CEO samples. CEOs from local universities except the top five under perform CEOs from Seoul National University in the pooled, post-crisis, chaebol, non-chaebol, and professional CEO samples.

The result of turnover of CEOs being positively associated with Tobin's q is inconsistent with those of the ROIC sample. Turnover of CEOs is positive with the performance in the pooled, post-crisis, non-chaebol, owner CEO samples. CEOs who earned an MBA degree seem to have a negative impact on performance in the pooled, chaebol, and non-chaebol samples. The owner dummy also turn out to have a negative impact on performance in the pooled, pre-crisis, post-crisis, and non-chaebol samples.

The results indicate that the demographic CEO characteristics have limitations on representing their management capabilities. Furthermore, the fact that Korean CEOs tend to be homogeneous in both educational background and age also confines the amount of influence of CEO characteristics. The results of the two samples are mixed, and are not easy to properly explain the implications. This is consistent with the mixed results of previous studies.

However, some intriguing findings are seen in this analysis. First, some characteristics including age, universities where CEOs graduated from, and regional origin are proved to have an important impact on performance. However, the directional impact on performance is inconsistent. For example, the age of CEOs seems to have a positive impact on performance in the ROIC sample. In the Tobin's q sample, the tendency is conversed. Second, that university CEOs graduated from can be a predictor of performance would be interesting. In Tobin's q sample, graduate CEOs from Seoul National University significantly outperform. In particular, the CEOs from Seoul National University record significantly better performance in the professional CEO sample. Third, turnover of CEOs has different impact depending on performance indicators. In terms of accounting data, turnover of CEOs has a negative impact on performance, while it has a positive impact on Tobin's q. This result supports the argument of Ahn et al. (2004) that the market is

likely to immediately respond to CEO change.

In this context, further information and various research methodologies are needed to explore the 'black box' of 'how CEOs influence both the organization itself and performance' such as a cognitive and decision-making process for strategic choice. Among demographic characteristics, data on the tenure and functional experiences of CEOs should be examined to systematically explore the 'black box.'

<Table VI-9> Results of Regression Analysis (ROIC sample)

Variable	Pooled	Be-Crisis	Af-Crisis	Chaebol	N-Chaebol	Owner	Professional
Age (40s)	7.5816***	2.3029	8.7174***	-0.7701	8.025***	5.7481***	15.71***
	(8.57)	(1.96)	(7.01)	(-0.36)	(8.09)	(6.04)	(7.3)
Age (50s)	8.4341***	2.2378	10.1624***	-1.2127	8.8042***	5.5356***	19.93***
	(9.75)	(1.91)	(8.46)	(-0.56)	(9.09)	(5.85)	(9.8)
Age (60s)	8.8421***	2.9917*	10.2267***	-1.2198	9.2371***	5.9785***	19.9718***
	(9.78)	(2.49)	(8.34)	(-0.56)	(9.29)	(6.19)	(9.64)
Age (70s)	8.8793***	2.1279	10.7025***	-1.646	9.2646***	6.1698***	-
	(8.92)	(1.62)	(7.68)	(-0.61)	(8.43)	(5.82)	
Major 1	8.8793***	1.5297	12.2314***	8.0423	9.0489***	6.6778***	21.011***
	(5.4)	(0.7)	(5.22)	(1.22)	(5.05)	(4.02)	(7.94)
Major 2	0.384	-0.3942	0.5063	-0.2565	0.8239	2.2706 (0.5)	0.6627
	(0.89)	(-0.78)	(0.8)	(-0.37)	(1.59)		(0.93)
Major 3	0.5595	1.5323***	-0.136	1.2892*	0.4868	0.5786	0.2028
	(1.51)	(3.4)	(-0.26)	(2.25)	(1.08)	(1.25)	(0.93)
Region 1	0.37782	1.1322***	-0.1928	-0.1078	0.7179	0.5986	-0.0117
	(1.08)	(2.68)	(-0.38)	(-0.18)	(1.72)	(1.46)	(-0.02)
Region 2	0.1277	0.2369	-0.056	1.85***	-0.3525	-0.2749	0.9365
	(0.41)	(0.65)	(-0.13)	(3.71)	(-0.95)	(-0.76)	(1.64)
Region 3	0.9772*	1.3961**	0.7987	0.8711	0.9847	0.7472	1.7616*
	(2.06)	(2.43)	(1.17)	(1.21)	(1.71)	(1.25)	(2.25)
Region 4	-0.9787	0.1996	-0.8767	-0.3802	-0.8063	-1.5216*	-0.0497
	(-1.87)	(0.3)	(-1.18)	(-0.48)	(-1.25)	(-2.04)	(-0.07)
Region 5	0.4458	1.3966	-0.564	2.5079**	-1.5519	2.1364*	-1.9459
	(0.53)	(1.4)	(-0.48)	(2.61)	(-1.16)	(2.04)	(-1.35)
Region 6	1.2511	1.343	0.9449	0.8563	1.3908	1.1322	1.5639
	(1.67)	(1.67)	(0.82)	(0.53)	(1.64)	(1.41)	(0.84)
Univ 1	2.0719	-0.4692	2.1629	-0.699	3.8388*	-0.5463	8.0542***
	(1.64)	(-0.26)	(1.25)	(-0.45)	(2.3)	(-0.38)	(3.14)
Univ 2	-0.5365	0.9337	-0.5015	-0.1602	-0.9584	-0.765	-1.0637
	(-1.08)	(1.52)	(-0.7)	(-0.22)	(-1.53)	(-1.26)	(-1.2)
Univ 3	-0.0774	0.1605	-0.0322	0.2891	-0.0575	-0.1427	0.0852
	(-0.17)	(0.27)	(-0.05)	(0.43)	(-0.1)	(-0.25)	(0.11)
Univ 4	-0.6215	0.0117	-0.1631	0.6344	-0.8797	-0.4922	-0.4626
	(-1.18)	(0.02)	(-0.22)	(0.73)	(-1.38)	(-0.79)	(-0.47)
Univ 5	1.2605**	2.8824***	0.9091	-1.2933	1.935**	2.4896***	-0.2855
	(1.78)	(3.01)	(0.92)	(-0.76)	(2.43)	(2.65)	(-0.26)
Univ 6	0.2913	0.7498	0.7134	0.4296	0.3885	0.1022	2.1322
	(0.59)	(1.36)	(0.95)	(0.54)	(0.64)	(0.19)	(1.51)

MBA Degree	1.2296 (0.61)	0.9388* (2.09)	0.4877 (0.88)	-0.2353 (-0.37)	0.4877 (1.09)	0.4187 (0.88)	0.0721 (0.11)
Owner	0.4067 (0.92)	0.5259 (0.98)	0.2162 (0.34)	0.38 (0.46)	0.2257 (0.42)	0.7022 (1.41)	-0.9167 (-0.82)
Turnover	0.4433 (1.41)	-0.4703 (-1.2)	0.63 (1.4)	-0.9897 (-1.57)	1.1596*** (2.94)	-3.7207*** (-6.64)	-1.5999*** (-3.17)
Intercept	-2.4824*** (-6.67)	-1.6459*** (-3.61)	-3.0717*** (-5.63)	-1.2354** (-2.59)	-3.0857*** (-6.44)	-0.7412*** (-0.64)	-15.956*** (-6.77)
N of Obser.	4491	1416	2585	1021	3469	2991	1499
R^2 (Adj R^2)	0.0424 (0.037)	0.0555 (0.0386)	0.0511 (0.0418)	0.0499 (0.026)	0.0577 (0.0508)	0.0388 (0.03)	0.1061 (0.0922)

\<Table VI-10\> Results of Regression Analysis (Tobin's q sample)

Variable	Pooled	Be-Crisis	Af-Crisis	Chaebol	N-Chaebol	Owner	Professional
Age (40s)	0.0313 (0.99)	0.0396 (0.85)	-0.015 (-0.34)	0.121 (1.33)	-0.013 (-0.39)	0.046 (1.44)	0 (0)
Age (50s)	0.0067 (0.22)	0.0091 (0.2)	-0.02 (-0.48)	0.048 (0.53)	-0.0298 (-0.9)	0.021 (0.66)	-0.0175 (-0.19)
Age (60s)	-0.027 (-0.88)	0.0039 (0.08)	-0.0577 (-1.37)	0.0595 (0.65)	-0.077** (-2.3)	-0.029 (-0.9)	-0.003 (-0.04)
Age (70s)	-0.1015*** (-2.92)	-0.051 (-0.99)	-0.127** (-2.65)	0.1872 (1.6)	-0.153*** (-4.11)	-0.0107*** (-3.04)	-0.0349 (-0.31)
Major 1	0.0375* (2.22)	0.0455** (2.01)	0.004 (0.16)	-0.032 (-0.98)	0.0686*** (3.47)	0.0782*** (3.89)	-0.029 (-0.93)
Major 2	-0.0333* (-2.24)	0 (0.03)	-0.0564*** (-2.75)	-0.091*** (-3.42)	-0.001 (-0.1)	-0.0226 (-1.26)	-0.031 (-1.15)
Major 3	0.0304* (2.15)	0.0177 (0.89)	0.0193 (0.99)	-0.0191 (-0.69)	0.0483*** (2.97)	0.06*** (3.76)	-0.0267 (-0.92)
Region 1	-0.0409*** (-3.32)	-0.0369*** (-2.19)	-0.0395* (-2.28)	0.0281 (1.21)	-0.0605*** (-4.22)	-0.06*** (-4.3)	0.0268 (1.07)
Region 2	0 (0.02)	-0.0382 (-1.4)	0.033 (1.23)	0.0158 (0.46)	-0.0134 (-0.58)	-0.027 (-1.13)	0.0547 (1.59)
Region 3	-0.067*** (-3.07)	-0.0444 (-1.43)	-0.0668* (-2.28)	-0.113*** (-3.02)	-0.0599* (-2.31)	-0.035 (-1.18)	-0.0806** (-2.46)
Region 4	-0.06 (-1.8)	-0.0449 (-0.99)	-0.0672 (-1.47)	-0.0767 (-1.76)	-0.141** (-2.52)	0.0389 (0.96)	-0.284*** (-4.62)
Region 5	0.007 (0.25)	-0.0239 (-0.66)	-0.0128 (-0.3)	0.0429 (0.53)	0.0164 (0.53)	-0.0184 (-0.62)	0.1397 (1.8)
Region 6	-0.1168* (-2.52)	-0.221 (-2.8)	-0.0696 (-1.15)	-0.0126 (-0.18)	-0.1676*** (-2.83)	-0.1439*** (-2.77)	-0.0265 (-0.27)
Univ 1	0.043* (-2.14)	-0.0491 (-1.74)	-0.022 (-0.79)	-0.0556 (-1.59)	-0.0574** (-2.34)	0.0118 (0.5)	-0.1487*** (-3.92)
Univ 2	-0.077*** (-4.08)	-0.006 (-0.21)	-0.0757*** (-2.95)	0 (0.02)	-0.1114*** (-4.85)	-0.07*** (-3.12)	-0.0893*** (-2.61)
Univ 3	0.025 (1.17)	0.0318 (1.04)	0.062** (2.11)	0.005 (0.14)	0.0167** (0.66)	0.0679*** (2.76)	-0.0953* (-2.24)
Univ 4	-0.0164 (-0.57)	0.0147 (0.31)	0.002 (0.04)	-0.1128 (-1.5)	0.0099 (0.31)	-0.006 (-0.16)	0.0126 (0.26)
Univ 5	-0.003	-0.0254	0.014	0.02	-0.0448	0.0363	-0.1578***

	(-0.16)	(-1.02)	(0.51)	(0.56)	(-1.94)	(1.77)	(-2.66)
Univ 6	-0.0697***	-0.02	-0.0812***	-0.1251***	-0.0534***	-0.0357**	-0.1153***
	(-4.61)	(-0.97)	(-3.79)	(-4.16)	(-3.06)	(-1.96)	(-4.17)
MBA Degree	-0.0479***	-0.0412	-0.0427	-0.1028**	-0.081***	-0.0479**	-0.004
	(-2.77)	(-1.7)	(-1.78)	(-2.63)	(-4)	(-2.52)	(-0.1)
Owner	-0.0839***	-0.0442**	-0.1236***	-0.0568	-0.0606***	0.0754***	0.0389
	(-6.53)	(-2.43)	(-6.95)	(-1.93)	(-3.76)	(3.35)	(1.77)
Turnover	0.0624***	0.0127	0.082***	0.002	0.0847***	0.0754***	0.0389
	(4.03)	(0.6)	(3.63)	(0.08)	(4.27)	(3.35)	(1.77)
Intercept	1.1344***	1.172***	1.111***	1.133***	1.165***	1.01***	1.1***
	(28.32)	(20.13)	(20.25)	(11.75)	(24.42)	(23.83)	(10.44)
N of Obser.	3759	1236	2133	922	2836	2619	1139
R^2 (Adj R^2)	0.0559	0.0453	0.075	0.069	0.0655	0.0588	0.0706
	(0.0499)	(0.0264)	(0.0642)	(0.044)	(0.0575)	(0.0504)	(0.0515)

Variables of Regression

Age dummy: categorized CEOs age into 7 groups from 30s to 80s (in the Tobin's q sample, CEOs in 80s are excluded by screening stages)

Major dummy; CEOs major in universities are categorized into 4 groups; 'management and economics,'

'law and administration' 'engineering,' and 'social science and others'

Region dummy; Regional origin of CEOs is categorized into 7 groups; 'Seoul and Gyeonggi' 'Gyeongsang' 'Chungcheong' 'Jeolla' 'Gangwon and Jeju' 'Hwanghae, Hamgyeong, and Pyeongan' and 'from abroad (foreign countries)'

Univ dummy: Universities are categorized into 7 groups; top 5 local universities (Seoul National, Yonsei, Korea, Hanyang, and Sungkyunkwan University), overseas universities, and other local universities.

MBA dummy: when the CEO earned MBA degree from abroad, then dummy=1, otherwise 0.

Owner dummy; when the CEO is owner dummy =1 otherwise 0

Turnover dummy; when the CEO is newcomer then dummy=1, otherwise=0

VI-5. Performance of Sub-samples

VI-5-1. ROIC Sample

Table VI-14-27 demonstrate descriptive results including ROIC and ROA averages, the proportion of owner CEOs, and turnover rate of CEOs of full and sub-samples. Besides ROIC, another accounting data, ROA, which is defined as the rate of return on total assets after paying tax and interest payments, is presented in the tables. While this paper uses ROIC as accounting profitability for analysis due to its consistent tendency compared to ROA, it needs to be complemented by ROA. Despite ROA tending to seriously fluctuate particularly during the financial crisis owing to excessive leverage of Korean firms, ROA can offer complementary information about a firms' profitability. Thus, ROA is provided to consider the final profitability of firms after interest payment.

The values of Tobin's q in the tables are not comparable with the values of ROIC and ROA. The average values of ROIC and ROA in the tables are calculated by all observations available. However, the values of Tobin's q are calculated by screened observations. Thus, ROIC matched data does not completely fit with the "Tobin's q" data in terms of number of observations. The values of Tobin's q are shown for reference.

The average ROIC and ROA of the pooled sample is 4.18 percent, and –0.59 percent, respectively. The proportion of owner CEOs is 69.46 percent, and the CEO turnover rate is 15.53 percent on average. ROIC values decreased to around 3.7 percent in 2003 from 5.6 percent in 1995. While ROIC values do not seem to have recovered, the values of ROA decreased to 6.88 percent in 1998 and increased to 2.45 percent in 2003.

The proportion of owner CEOs decreased from 71 percent in 1995, and 75.6 percent in 1998, to 63 percent in 2003. The average age of CEOs remained stable. The turnover rate of CEOs increased from 13 percent in 1995 to 20 percent in 1998, and to 18.4 percent in 2003.

In comparison with chaebol and non-chaebol companies, average ROIC values of chaebol-affiliated companies are likely to be higher than those of non-chaebol companies. However, average ROA values of both samples do not seem to be significantly different. The proportion of owner CEOs of chaebol-affiliated companies is 49.6 percent on average, decreased from 48 percent in 1996 to 42 percent in 2003. On the contrary, the proportion of owner CEOs of non-chaebol companies tended to be significantly greater than that of chaebol affiliated companies. It decreased from 80 percent in 1995 to 67 percent in 2003.

The performance differences between the top 5 chaebols and the ensuing 6-30 chaebol-affiliated companies become apparent. The top 5 show greater ROIC and ROA on average than the remaining 25 chaebol-affiliated companies. In this context, the inter-performance differences, in particular between the top 5 and the rest is likely to be greater than that 'between the top 30 chaebol and non-chaebol companies.' The turnover rate of the top 5 chaebol companies sample is relatively high, 30 percent on average. In particular, the sample turnover rate reaches around 46 percent in 1998. The proportion of owner CEOs is the lowest among the samples, at 38 percent on average.

When divided by owner and professional CEO samples, the ROIC and ROA average of owner CEO group are 4.56 percent and –0.37 percent, respectively. Those are greater than the professional CEO group. It is natural that the age of owner CEOs is higher than that of professional CEOs, on average. The turnover rate of professional CEOs is expectedly higher than that of owner CEOs. Table VI-6-7 show the results, average age, and turnover rate of both samples.

How different are the performance and turnover rates of the samples for chaebol owner CEOs and non-chaebol owner CEOs? Table VI-8-9 show the differences between the two samples. Although the results of the chaebol owner CEOs sample are greater than those of non-chaebol owner CEOs sample, the difference is largely insignificant. The difference between chaebol owner CEOs and non-chaebol owner CEOs is distinguishable in terms of age and turnover rate rather than performance. Chaebol owner CEOs are likely to be younger and more likely to turn over to a successor during the period than non-chaebol owner CEOs. The sample turnover rate of non-chaebol owner CEOs is only 8.94 percent, relatively lower than the 16 percent sample of chaebol owner CEOs.

Professional CEOs in both samples, chaebol affiliated and non-chaebol companies, show differences in performances. The average ROIC and ROA values of the chaebol professional CEOs sample are greater than those of non-chaebol professional CEOs, as seen in table VI-10-11. The differences in results between two professional CEO samples (chaebol and non-chaebol samples) are greater than those between two owner CEO samples. Chaebol affiliated companies are more likely to attract and build up human resources capabilities than non-chaebol companies.

The comparison between 'changed' and 'unchanged' samples is demonstrated in table VI-25-26. The changed sample contains firms that experience a change in CEOs during the period. The unchanged sample contains firms that do not experience a change in CEOs during the period. The unchanged sample shows relatively stable results than the changed sample. The ROIC and ROA of the 'changed sample' are 3.6 percent and –1.44 percent on average, respectively, while those of the 'unchanged sample' are 5.22 percent and 0.95 percent, respectively. The age of CEOs of the changed sample rapidly decreases to 54 in 2003 from 60 in 1995.

Finally, table VI-27 shows the descriptive analysis of two samples, the pre-crisis and the post-crisis. The financial crisis, as mentioned previously, is expected to have an impact on the financial performance of observed companies. The average ROIC is 5.06 percent, the proportion of owner CEOs is 72 percent, and the CEO turnover rate is 16.1 percent before the financial crisis. However, the average ROIC declines to 3.75 percent, the proportion of owner CEOs also decreases to 68 percent from 72 percent. The average age of CEOs after the crisis tends to be younger than before the crisis period.

In detail, the average ROIC values of four samples range from 4.8 percent (professional) to 5.7 percent (chaebol affiliated), largely similar numbers. After the financial crisis, however, performance differences among categories increased compared to those of the period prior to the crisis. As for ROA, the average values of samples are not consistent with ROIC values.

The turnover rate of professional CEOs is higher than that of owner CEOs as expected. The turnover rate of owner CEOs slightly increased from 8 percent before the crisis to 9.4 percent after the crisis.

VI-5-2. Tobin's q Sample

The figures in parentheses in table VI-14-27 show the average Tobin's q, ROIC, and ROA, the proportion of owner CEOs, age, and CEO turnover rate of Tobin's q samples. As explained above, Tobin's q samples have a smaller number of observations than ROIC samples. The accounting data in Tobin's q matched samples is higher than that of the ROIC samples, because outliers resulting from financially distressed companies are excluded. Considering that the values of ROA are more likely to be influenced by 'financial contraction' due to the overly leveraged capital structure of Korean firms, the ROA values of two samples (ROIC matched and Tobin's q matched data) are expected to be more different than the values of ROIC.

The values of Tobin's q of four categories dropped over time without exception. The decrease was more pronounced in the "owner CEO group" and "non-chaebol group" rather than the "professional CEO group" and "chaebol group." The values of Tobin's q of non-chaebol groups decreased to 0.78 and 0.75 in 2002 and 2003 from 1.08, and 1.11 in 1995 and 1996. The values of Tobin's q of the "owner CEO group" also decreased to 0.74 in 2003 from 1.07 in 1995.

On the other hand, the values of Tobin's q in the "professional CEO group" remained relatively stable from 1.16 in 1995 to 0.9 in 2003. The values of Tobin's q in the chaebol-affiliated companies group also remained steady between 1.13 in 1995 and 0.98 in 2003. In detail, the values of Tobin's q of the top 5 chaebol sample ranged from 1.15 in 1995 to 1.05 in 2003. The stability of Tobin's q of chaebol-

affiliated companies stems mainly from the consistency of the top 5 chaebol companies rather than the remaining chaebols. Table VI-19-20 show the differences between owner and professional CEOs.

On the contrary, the values of Tobin's q of the non-chaebol companies drop to 0.75 in 2003 from 1.08 in 1995. In particular, the values of the non-chaebol owner CEO sample decrease from 1.06 in 1995 to 0.72 in 2003. The values of the chaebol-affiliated companies' professional CEO sample are relatively stable. Table VI-21-24 show the differences among the sub-samples.

After the crisis, the average Tobin's q declined from 1.064 in the pre-crisis period to 0.885. As table VI-27 shows, the values of Tobin's q declined in the post-crisis period.

<Table VI-11> Description of Pooled Sample

	POOLED SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	5,373 (4,533[*])	4.18 (5.34)	-0.59 (1.84)	0.98 (0.95)	69.46	58.47	15.53
1995	582 (510)	5.57 (5.91)	1.17 (1.9)	1.1 (1.09)	71.48	58.79	13.23
1996	604 (531)	4.91 (5.34)	0.22 (1.06)	1.13 (1.12)	73	58.74	16.23
1997	602 (526)	4.71 (5.5)	-1.67 (0.25)	1.0 (0.99)	72.76	59.04	18.77
1998	594 (479)	3.41 (5.63)	-6.88 (0.16)	1.01 (0.98)	75.6	58.76	20
1999	603 (467)	3.49 (4.99)	-0.99 (2.15)	1.08 (0.98)	70.65	58.36	17.4
2000	607 (485)	3.87 (5.56)	-0.74 (1.92)	0.89 (0.87)	68.2	58.22	17.96
2001	598 (491)	3.72 (4.97)	-0.45 (1.76)	0.94 (0.9)	66.72	58.45	18.39
2002	592 (519)	4.28 (5.25)	1.53 (3.24)	0.85 (0.81)	63.57	57.85	17.53
2003	591 (525)	3.72 (4.79)	2.45 (4.05)	0.8 (0.8)	63.1	58.05	-

* Results of Tobin's q sample are presented in parantheses.

<Table VI-12> Description of Chaebol Sample

	CHAEBOL SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	1,079 (973)	5.25 (5.98)	-0.6 (1.0)	1.07 (1.05)	46.15	56.76	22.8

1995	127 (118)	6.0 (6.19)	0.87 (1.0)	1.13 (1.13)	49.6	56.63	20.47
1996	129 (119)	5.59 (5.76)	0.3 (0.46)	1.12 (1.12)	46.5	55.4	23.26
1997	144 (129)	5.6 (6.44)	-2.02 (-0.6)	1.08 (1.08)	48.6	56.4	27.08
1998	138 (115)	3.62 (5.44)	-5.31 (-0.46)	1.12 (1.08)	47.8	56.99	36.23
1999	123 (100)	3.73 (5.01)	-2.32 (2.1)	1.22 (1.07)	43.9	57.3	23.58
2000	105 (94)	5.61 (6.46)	1.14 (1.14)	0.97 (0.97)	44.76	56.73	20.95
2001	102 (98)	4.99 (5.12)	-0.85 (-0.06)	1.0 (1.0)	47.1	57.42	19.6
2002	105 (101)	6.21 (6.52)	2.14 (2.9)	0.91 (0.91)	42.86	56.93	28.57
2003	106 (99)	6.27 (6.89)	2.43 (3.33)	0.98 (0.98)	42.45	57.03	-

<Table VI-13> Description of Non-Chaebol Sample

	NON-CHAEBOL SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	4,294 (3,551)	3.92 (5.17)	-0.64 (2.07)	0.95 (0.92)	75.32	58.93	13.71
1995	455 (391)	5.45 (5.82)	1.26 (2.17)	1.09 (1.08)	77.58	59.4	11.21
1996	475 (412)	4.72 (5.21)	0.2 (1.24)	1.14 (1.11)	80.21	59.65	14.32
1997	458 (397)	4.43 (5.2)	-1.56 (0.53)	0.97 (0.95)	80.35	59.88	16.16
1998	456 (363)	3.35 (5.69)	-7.35 (0.36)	0.98 (0.95)	83.99	59.3	15.13
1999	480 (367)	3.43 (4.99)	-0.65 (2.16)	1.04 (0.96)	77.5	58.63	15.83
2000	502 (390)	3.51 (5.34)	-1.14 (2.11)	0.87 (0.84)	73.1	58.53	17.33
2001	496 (389)	3.46 (4.93)	-0.37 (2.22)	0.92 (0.87)	70.77	58.66	18.15
2002	487 (417)	3.87 (5.14)	1.4 (3.33)	0.84 (0.78)	68	58.05	15.16
2003	485 (425)	3.16 (4.3)	2.46 (4.21)	0.75 (0.75)	67.62	58.27	-

<Table VI-14> Description of Top 5 Chaebol Sample

	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
			TOP 5 CHAEBOL SAMPLE				
Total	396 (361)	6.37 (6.95)	1.2 (2.17)	1.13 (1.11)	38.1	57.60	30.1
1995	37 (35)	6.97 (6.95)	1.78 (1.75)	1.15 (1.15)	35.1	57.51	21.6
1996	41 (38)	6.04 (6.35)	0.41 (0.74)	1.15 (1.15)	43.9	56	19.5
1997	48 (50)	7.36 (7.96)	-0,52 (0.23)	1.15 (1.15)	43.7	57.71	39.6
1998	57 (50)	5.06 (6.72)	-1.96 (0.64)	1.25 (1.16)	38.6	59.07	45.6
1999	48 (38)	2.53 (4.39)	-4.03 (1.47)	1.27 (1.16)	33.3	57.58	35.4
2000	42 (39)	7.62 (7.91)	1.65 (2.87)	1.01 (1.12)	40.5	58.36	35.7
2001	43 (41)	6.56 (6.78)	1.26 (2.0)	1.12 (1.12)	30.2	56.37	20.9
2002	40 (39)	7.66 (7.8)	4.94 (5.19)	1.0 (1.0)	40	58.57	22.5
2003	40 (38)	7.49 (7.66)	5.25 (4.61)	1.05 (1.05)	37.5	57.27	-

<Table VI-15> Description of Top 6-30 Chaebol Sample

	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Age average	Turnover (%)
			TOP 6-30 CHAEBOL SAMPLE				
Total	683 (612)	4.64 (5.37)	-1.27 (0.39)	1.0 (1.0)	50.7	56.26	21.7
1995	90 (83)	5.6 (5.84)	0.49 (0.69)	1.13 (1.12)	55.6	56.3	20
1996	88 (81)	5.38 (5.48)	0.24 (0.32)	1.11 (1.11)	47.7	55.1	25
1997	96 (86)	4.72 (5.68)	-2.77 (-1.03)	1.05 (1.05)	51	55.7	20.8
1998	81 (65)	2.61 (4.46)	-7.67 (-1.32)	1.02 (1.02)	54.3	55.5	29.6
1999	75 (62)	4.5 (5.39)	-1.23 (2.49)	1.18 (1.02)	50.7	57.1	16
2000	63 (55)	4.27 (5.43)	0.8 (-0.09)	0.94 (0.94)	47.6	55.65	11.1
2001	59 (57)	3.84 (3.93)	-2.39 (-1.54)	0.92 (0.92)	59.3	58.2	18.6
2002	65 (62)	5.31 (5.71)	0.42 (1.46)	0.86 (0.86)	44.6	55.9	32.3

2003	66 (61)	5.53 (6.42)	0.72 (2.54)	0.94 (0.94)	45.4	56.88	-

<Table VI-16> Sample-Description of Owner CEOs

	OWNER CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	3,733 (3,292)	4.56 (5.43)	-0.37 (1.74)	0.94 (0.92)	100	59.42	8.95
1995	416 (368)	5.75 (5.83)	1.57 (1.96)	1.07 (1.07)	100	59.66	6.97
1996	441 (391)	4.85 (5.32)	0.42 (1.16)	1.12 (1.11)	100	59.55	8.16
1997	438 (392)	4.87 (5.4)	-0.83 (0.55)	0.97 (0.96)	100	59.78	9.13
1998	449 (377)	4.06 (5.47)	-5.24 (0.09)	0.97 (0.96)	100	59.41	13.8
1999	426 (355)	3.71 (5.18)	-0.96 (2.61)	1.03 (0.95)	100	59.28	10.8
2000	414 (359)	4.17 (5.57)	-1.38 (1.95)	0.83 (0.83)	100	59.16	9.18
2001	399 (353)	4.11 (5.32)	0.12 (2.17)	0.88 (0.84)	100	59.42	11.78
2002	377 (348)	4.79 (5.52)	1.37 (2.43)	0.76 (0.75)	100	59.11	9.55
2003	373 (349)	4.82 (5.2)	2.42 (3.02)	0.74 (0.74)	100	59.38	-

<Table VI-17> Sample-Description of Professional CEOs

	PROFESSIONAL CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family(%)	Average age	Turnover (%)
Total	1,641 (1,232)	3.32 (5.13)	-1.53 (2.13)	1.09 (1.03)	0	56.36	30.53
1995	166 (141)	5.11 (6.1)	0.19 (1.76)	1.17 (1.16)	0	56.63	28.9
1996	163 (140)	5.07 (5.4)	-0.34 (0.8)	1.17 (1.14)	0	56.55	38
1997	164 (134)	4.3 (5.78)	-3.9 (-0.62)	1.07 (1.05)	0	57.04	44.5
1998	145 (101)	1.4 (6.23)	-11.94 (0.42)	1.16 (1.06)	0	56.74	39.3
1999	177 (112)	2.97 (4.42)	-1.07 (0.69)	1.23 (1.08)	0	56.14	33.3
2000	193 (125)	3.22 (5.52)	0.62 (1.84)	1.05 (0.97)	0	56.2	36.8
2001	199 (134)	2.94 (4.04)	-1.6 (0.69)	1.09 (1.03)	0	56.48	31.7

	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
2002	215 (170)	3.4 (5.17)	1.81 (4.9)	1.04 (0.92)	0	55.67	31.5
2003	218 (175)	1.83 (3.95)	2.5 (6.09)	0.91 (0.9)	0	55.77	-

<Table VI-18> Sample-Description of Chaebol*Owners

	CHAEBOL*OWNER CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	498 (458)	5.17 (5.7)	0.02 (1.03)	1.04 (1.04)	100	56.49	16.03
1995	63 (58)	5.56 (5.81)	0.52 (0.64)	1.1 (1.1)	100	56.44	17.46
1996	60 (54)	5.43 (5.6)	0.27 (0.24)	1.12 (1.12)	100	54.7	10
1997	70 (62)	5.33 (6.02)	-0.89 (-0.01)	1.08 (1.08)	100	55.87	14.29
1998	66 (59)	4.0 (4.8)	-2.54 (-0.83)	1.08 (1.08)	100	56.73	24.24
1999	54 (46)	3.82 (5.64)	-1.64 (3.77)	1.18 (1.08)	100	57.8	14.81
2000	47 (45)	5.15 (5.45)	-2.38 (-0.75)	0.97 (0.97)	100	56.64	12.77
2001	48 (48)	5.06 (5.06)	0.02 (0.02)	0.98 (0.98)	100	57.4	12.5
2002	45 (44)	5.76 (6.34)	2.85 (3.3)	0.91 (0.91)	100	56.4	22.22
2003	45 (42)	6.44 (6.92)	3.98 (4.38)	0.93 (0.93)	100	56.4	-

<Table VI-19> Sample-Description of Non-Chaebol*Owner CEOs

	NON-CHAEBOL*OWNER CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	3235 (2,838)	4.49 (5.38)	-0.32 (1.85)	0.91 (0.9)	100	59.88	8.94
1995	353 (311)	5.79 (5.84)	1.75 (2.2)	1.07 (1.06)	100	60.23	5.1
1996	381 (337)	4.75 (5.27)	0.45 (1.3)	1.12 (1.1)	100	60.31	7.87
1997	368 (330)	4.78 (5.29)	-0.82 (0.65)	0.95 (0.94)	100	60.53	8.15
1998	383 (318)	4.07 (5.59)	-5.7 (0.26)	0.95 (0.94)	100	59.87	12
1999	372 (309)	3.7 (5.11)	-0.86 (2.44)	1.01 (0.93)	100	59.5	10.2
2000	367 (314)	4.05 (5.59)	-1.25 (2.33)	0.81 (0.81)	100	59.5	8.72

2001	351 (306)	3.98 (5.36)	0.14 (2.51)	0.86 (0.82)	100	59.7	11.68
2002	332 (305)	4.66 (5.4)	1.17 (2.31)	0.73 (0.73)	100	59.5	7.83
2003	328 (308)	4.59 (4.97)	2.21 (2.84)	0.72 (0.72)	100	59.8	-

<Table VI-20> Sample-Description of Chaebol*Professional CEOs

	CHAEBOL*PROFESSIONAL CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	581 (516)	5.39 (6.23)	-0.78 (0.98)	1.08 (1.05)	0	56.99	32.73
1995	64 (60)	6.43 (6.55)	1.2 (1.35)	1.16 (1.16)	0	56.81	23.4
1996	69 (65)	5.73 (5.89)	0.32 (0.63)	1.13 (1.13)	0	56	34.78
1997	74 (67)	5.86 (6.83)	-3.08 (-1.14)	1.09 (1.09)	0	56.82	39.19
1998	72 (57)	3.27 (6.12)	-7.85 (-0.07)	1.17 (1.07)	0	57.22	47.22
1999	69 (54)	3.66 (4.48)	-2.85 (0.68)	1.24 (1.06)	0	56.91	30.4
2000	58 (49)	5.99 (7.38)	3.99 (2.88)	0.97 (0.97)	0	56.81	27.59
2001	54 (50)	4.92 (5.18)	-1.62 (-0.13)	1.02 (1.02)	0	57.46	25.93
2002	60 (57)	6.54 (6.65)	1.61 (2.59)	0.92 (0.92)	0	57.33	33.33
2003	61 (57)	6.14 (6.88)	1.28 (2.56)	1.03 (1.02)	0	57.52	-

<Table VI-21> Sample-Description of Non-Chaebol*Professional CEOs

	NON-CHAEBOL*PROFESSIONAL CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	1060 (721)	2.28 (4.54)	-2.15 (2.32)	1.11 (1.02)	0	56.08	36.71
1995	102 (81)	4.28 (5.76)	-0.44 (2.07)	1.18 (1.16)	0	56.51	32.4
1996	94 (75)	4.59 (4.96)	-0.82 (1.15)	1.2 (1.15)	0	56.95	40.4
1997	90 (67)	3.01 (4.74)	-4.58 (-0.09)	1.05 (1.02)	0	57.22	48.9
1998	73 (45)	-0.45 (6.36)	-15.98 (1.04)	1.15 (1.04)	0	56.26	31.5
1999	108 (58)	2.52 (4.36)	0.06 (0.69)	1.21 (1.1)	0	55.65	35.2

	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
2000	135 (77)	2.04 (4.32)	-0.82 (1.18)	1.1 (0.97)	0	55.93	40.7
2001	145 (87)	2.2 (3.36)	-1.59 (1.19)	1.13 (1.03)	0	56.12	33.8
2002	155 (113)	2.19 (4.42)	1.89 (6.07)	1.1 (0.91)	0	55.03	30.8
2003	157 (118)	0.16 (2.54)	2.97 (7.79)	0.85 (0.84)	0	55.08	-

<Table VI-22> Description of Changed Sample

	CHANGED CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	3439 (2712)	3.6 (5.05)	-1.44 (1.55)	1.02 (0.98)	55.96	57.31	27.1
1995	376 (306)	5.42 (5.78)	0.95 (1.73)	1.13 (1.12)	61.2	60.07	20.5
1996	387 (320)	4.7 (5.19)	-0.24 (0.71)	1.14 (1.11)	62.3	59.26	25.3
1997	387 (320)	4.28 (5.2)	-2.99 (-0.44)	1.01 (1.0)	61	59.07	29.2
1998	389 (291)	2.42 (5.34)	-9.78 (-0.44)	1.06 (1.0)	64.5	58.24	30.6
1999	396 (281)	2.83 (4.58)	-1.4 (1.67)	1.14 (1.02)	57.3	57.13	26.5
2000	394 (285)	3.37 (5.5)	-1.57 (1.39)	0.94 (0.9)	53	56.48	27.7
2001	383 (288)	3.05 (4.63)	-1.38 (1.35)	1.0 (0.95)	50.9	56.26	28.7
2002	371 (311)	3.72 (5.08)	1.29 (3.51)	0.94 (0.86)	46.8	54.72	28
2003	356 (310)	2.64 (4.17)	2.17 (4.47)	0.84 (0.84)	46.6	54.52	-

<Table VI-23> Description of Unchanged Sample

	UNCHANGED CEO SAMPLE						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	1934 (1812)	5.22 (5.78)	0.95 (2.27)	0.91 (0.91)	93.37	60.45	0
1995	206 (203)	5.84 (6.1)	1.58 (2.16)	1.05 (1.06)	90.3	56.47	0
1996	217 (211)	5.28 (5.55)	1.04 (1.6)	1.13 (1.12)	92.2	57.81	0
1997	215 (206)	5.49 (5.97)	0.71 (1.34)	0.98 (0.96)	94	59	0
1998	205	5.29	-1.36	0.95	96.6	59.73	0

	(187)	(6.08)	(1.09)	(0.94)		
1999	207 (186)	4.75 (5.63)	-0.21 (2.88)	0.98 (0.94)	96.1	60.72	0
2000	213 (199)	4.8 (5.63)	0.79 (2.68)	0.81 (0.93)	96.2	61.43	0
2001	215 (199)	4.91 (5.45)	1.21 (2.36)	0.85 (0.81)	94.9	62.33	0
2002	221 (207)	5.23 (5.9)	1.94 (2.85)	0.71 (0.72)	91.9	63.13	0
2003	235 (214)	5.35 (5.67)	2.87 (3.44)	0.73 (0.73)	88.1	63.4	-

<Table VI-24> Comparison of Pre-and Post-Crisis

	ROIC SAMPLE					
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Turnover (%)
Pre-crisis	1,788	5.056	-0.105	1.076	72.42	16.1
Owner	1,295	5.143	0.366	1.054	100	8.1
Professional	493	4.826	-1.345	1.137	0	37.12
Chaebol	400	5.723	-0.357	1.112	48.25	23.75
Non-chaebol	1,388	4.864	-0.034	1.065	79.39	13.9
Post-crisis	3,586	3.748	-0.192	0.924	67.98	15.25
Owner	2,438	4.255	-0.763	0.87	100	9.39
Professional	1,148	2.672	0.54	1.062	0	27.7
Chaebol	679	4.968	-0.74	1.039	44.91	22.24
Non-chaebol	2,907	3.463	-0.063	0.894	73.37	13.62
	TOBIN'S Q SAMPLE					
Pre-crisis	1,567	1.064	5.577	1.064	73.51	16.02
Owner	1,152	1.044	5.512	1.206	100	8.42
Professional	415	1.12	5.758	0.67	0	37.1
Chaebol	366	1.112	6.137	0.261	47.54	24.32
Non-chaebol	1,201	1.049	5.407	1.309	81.43	13.49
Post-crisis	2,966	0.885	5.22	2.254	72.28	13.01
Owner	2,144	0.847	5.378	2.021	100	8.16
Professional	822	0.981	4.805	2.865	0	25.67
Chaebol	608	1.006	5.893	1.451	46.71	20.07
Non-chaebol	2,358	0.853	5.046	2.462	78.88	11.19

VI-6. Analysis by Educational Background

A descriptive analysis based on the universities in which CEOs graduated is presented in Table VI-28-34. The top five local universities are Seoul National, Yonsei, Korea, Hanyang, and Seongkyunkwan University. There exist differences among the samples. However, it is not easy to determine if the differences are statistically significant. Further regression analysis on the relationship of CEO characteristics and performance is provided in the following part of this chapter.

The sub-samples that record relatively greater accounting profitability are "Seoul National University," "Studying Abroad CEOs," and "local universities except the top five universities."

<Table VI-25> Results of Seoul National University Graduates CEO

	Seoul National University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	1327	4.30	-0.55	1.02	52.77	58.54	21.7
1995	158	5.12	0.35	1.12	51.2	56.9	17.1
1996	161	4.95	0.31	1.15	54.7	57.4	17.4
1997	160	4.71	-1.01	1.01	55.6	58.6	26.9
1998	141	4.91	-6.0	1.08	60.9	58.7	23.4
1999	143	3.12	0.05	1.11	55.2	58.6	18.9
2000	147	3.09	-2.54	0.88	51.0	58.8	21.8
2001	156	3.55	-0.68	1.0	48.1	58.9	26.3
2002	136	4.79	2.87	0.97	47.8	58.8	22.1
2003	125	4.47	1.69	0.87	50.4	60.2	-

<Table VI-26> Results of Yonsei University Graduates CEO

	Yonsei University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	533	4.15	1.10	0.96	67.91	54.84	14.46

1995	41	5.23	1.42	1.1	65.8	53.7	8.3
1996	48	4.27	0.22	1.2	70.8	53.6	14.6
1997	52	3.99	-1.63	1.05	71.2	55.1	20.5
1998	54	4.77	-1.38	0.98	77.8	55.2	28.2
1999	59	3.98	-1.62	0.99	71.2	56.1	15
2000	68	3.69	-1.75	0.85	67.6	54.9	6.8
2001	67	3.74	0.5	0.89	65.7	55.1	8.3
2002	69	4.42	2.52	0.77	63.8	55.6	14
2003	75	3.26	11.6	0.83	57.3	54.3	-

<Table VI-27> Results of Korea University Graduates CEO

	Korea University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	462	3.34	-2.76	1.00	71.82	54.24	21.74
1995	40	5.5	0.01	1.07	75	55.9	22.5
1996	47	6.1	0.09	1.09	82.9	53.8	19.1
1997	50	3.5	-6.0	0.95	78	53.2	20
1998	48	0.6	-8.47	1.06	79.2	54.4	16.7
1999	45	0.31	-2.3	1.29	73.3	54.1	8.9
2000	57	3.4	-3.79	1.0	64.9	53.9	21.0
2001	50	3.72	-2.97	0.91	70	54.7	20
2002	62	3.8	-0.71	0.85	59.6	53.85	12.9
2003	63	3.1	-0.66	0.8	63.5	54.3	-

<Table VI-28> Results of Hanyang University Graduates CEO

	Hanyang University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	390	3.95	-0.40	1.04	73.44	54.76	14.46
1995	36	6.04	0.66	1.2	75	53.5	8.3

1996	41	5.1	0.12	1.2	70.7	54	14.6
1997	39	4.45	-1.42	1.01	76.9	54.7	20.5
1998	39	1.93	-8.85	1.02	79.5	53.8	28.2
1999	40	3.62	0.41	1.11	75	54.2	15
2000	44	3.17	-2.3	0.99	75	54.6	6.8
2001	48	3.4	-0.11	1.06	72.9	55.9	8.3
2002	50	4.99	5.63	0.9	70	56.2	14
2003	53	2.86	2.3	0.84	66	55.9	-

<Table VI-29> Results of Sungkyunkwan University Graduates CEO

	Seongkyunkwan University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	199	5.24	-3.52	1.09	59.76	54.93	19.04
1995	15	7.18	2.4	1.2	66.7	52.4	20
1996	16	7.4	-2.11	1.48	62.5	54.6	12.5
1997	17	7.1	-15.1	1.33	64.7	53.5	0
1998	25	5.8	-17.1	1.23	64	53.6	28
1999	30	2.94	-5.44	1.2	46.7	54.4	30
2000	24	4.43	4.42	0.87	58.3	56	29.2
2001	21	3.95	-0.05	0.89	57.1	56.1	9.5
2002	26	3.15	-1.23	0.8	53.8	56.4	23.1
2003	25	5.18	2.54	0.85	64	57.4	-

<Table VI-30> Results of Studying Abroad CEO

	Korea University Graduates						
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	595	4.41	-0.81	0.95	89.99	57.46	14.3
1995	75	6.1	1.06	1.1	89.3	55.7	14.7

1996	70	5.28	0.43	1.08	90	59.4	10
1997	68	5.0	-1.32	0.94	92.6	59.3	16.2
1998	74	3.62	-6.79	0.95	93.2	57.7	16.2
1999	71	5.14	-0.25	1.04	90.1	56.9	9.8
2000	67	4.97	-0.64	0.91	88.1	57.9	20.9
2001	57	2.1	-3.13	0.95	91.2	56.1	17.54
2002	54	3.25	1.28	0.84	90.7	56.9	9.3
2003	59	4.25	2.07	0.78	84.7	57.2	-

<Table VI-31> Results of Local Universities Graduates CEO*

| | Korea University Graduates | | | | | | |
	N	ROIC average (%)	ROA average (%)	Tobin's q	Family (%)	Average age	Turnover (%)
Total	1235	4.38	-0.26	0.93	69.84	57.68	15.48
1995	117	6.1	2.4	1.1	74.4	57.9	9.4
1996	124	4.9	0.57	1.14	73.4	57.9	19.4
1997	129	5.4	-0.29	0.98	72.1	58.3	12.4
1998	135	2.0	-7.9	0.97	71.1	57.8	16.3
1999	149	3.8	-1.69	1.1	72.5	57.2	17.45
2000	145	4.2	2.1	0.87	71	57.4	16.5
2001	143	4.8	1.13	0.93	69.9	58.1	13.9
2002	146	4.9	0.85	0.78	64.4	57.2	18.5
2003	147	3.35	0.53	0.53	59.8	57.3	-

*This sample includes CEOs that graduated from local universities except Seoul, Yonsei, Korea, Hanyang, and Sungkyunkwan Universities.

VI-7. Analysis by Industry

After excluding industries that have only one firm, the data contains 27 industries. The ROIC values by industry range from 0.55 percent (precision & optical) to 9.72 percent (publishing and print). Industries that have relatively higher ROIC on average are food and beverages (6.58 percent), apparel (7.54 percent), rubber and plastics (7.06 percent), fabricated metal products (8.26 percent), retail trade (7.9 percent), wholesale trade (8.01 percent), and technical services (7.38 percent). As to ROA, the industry with the highest record is technical services (6.16 percent), followed by wholesale trade (5.65 percent), fabricated metal products (4.99 percent), publishing and printing (4.95 percent), and retail trade (4.64 percent). There are three industries that record ROA below zero, mining (-1.15 percent), wood products (-2.31), and precision and optical (-2.11 percent) during the period.

The industry with the highest turnover rate is transport equipment (24.5 percent), followed by electricity, gas, and water (22.2 percent), construction (20.4 percent), and publishing and printing (20.0 percent). The lowest is wood products (3.0 percent), followed by mining (6 percent), and leather (7.4 percent).

<Table VI-32> Results by Industry

Industry	N	ROIC	ROA	Tobin's q	Turnover rate
Mining	23	2.59	-1.15	0.89	6
Food & Beverages	135	6.58	1.93	0.92	13.2
Textiles	91	4.47	1.64	0.82	15.5
Sewn wearing apparel	67	7.54	3.37	0.86	13.7
Leather	36	5.98	0.65	0.86	7.4
Wood products	29	3.09	-2.31	0.93	3.0
Pulp & paper	73	5.12	1.64	0.87	15.3
Publishing & printing	9	9.72	4.95	1.12	20.0
Refined petroleum	10	4.42	2.5	0.68	16.1
Chemical	348	7.5	2.73	0.87	13.7
Rubber & plastics	79	7.06	5.0	0.79	8.6
Non-metallic mineral products	79	6.3	2.46	0.88	15.4
Basic metals	153	5.47	2.51	0.83	15.0
Fabricated metal products	32	8.26	4.99	0.87	12.2
Machinery	82	3.91	1.13	0.96	15.1
Computers	12	3.32	0.27	1.13	151
Electrical machinery	45	5.46	1.28	0.98	16.3
Electronic components	121	3.89	1.82	0.94	18.8
Precision & optical	22	0.55	-2.11	1.15	18.8
Transport equipment	135	3.7	2.56	0.91	24.5
Furniture	12	6.01	2.67	0.97	19.7
Electricity, gas, & water	9	4.8	3.5	0.71	22.2
Construction	68	5.3	1.07	1.06	20.4
Retail trade	80	7.9	4.64	0.89	18.7
Wholesale trade	11	8.01	5.65	0.94	22.4
Transport	45	4.39	0.02	1.03	13.8
Technical services	6	7.38	6.16	0.96	11.1

CHAPTER 7

Conclusion and Limitations

VII-1. Conclusions

First, CEOs have a significant impact on performance in Korea. The variance of firm profitability owing to a change in CEOs during the period explains a "significant amount of total variance of the firms." In the results of ANOVA from ROIC data, the CEO effects are 20 percent and 25.5 percent in the pooled and changed samples. In the results of Tobin's q data, the CEO effects are seen as 13.3 percent, and 21.5 percent in the pooled and changed samples. The CEO effects are statistically significant.

The relative importance of CEO effects compared with other major effects is measured by VARCOMP analysis. As for ROIC, the CEO effects account for 14.7 percent of total variance in the 'changed' sample. By sub-samples, CEOs account for 21.1 percent (pooled sample), 7.9 percent (before the crisis), 20 percent (after the crisis), 19.1 percent (chaebol companies), 15.1 percent (non-chaebol companies), 10.5 percent (owner sample), and 12.3 percent (professional CEO sample).

In Tobin's q data, the CEO effects account for 25.5 percent (pooled data), 25 percent (changed sample), 12.3 percent (before the crisis), 27.3 percent (after the crisis), 27.4 percent (chaebol companies), 28.4 percent (non-chaebol companies), 12.6 percent (owner CEO sample) and 30 percent (professional CEO sample).

The evidence of significant leadership effects from the Korean data is in line with studies of the 'individualists' view' including Thomas (1988), and Day and Lord (1988). As in western countries, Korean CEOs account for a significant amount of profitability variance.

From the VARCOMP analysis of both ROIC and Tobin's q sample, a noticeable finding should be mentioned. The finding, is that CEOs tend to have a greater impact on market value, Tobin's q, than accounting data, ROIC. As previously presented, the CEO effects make up 14.7 percent of total variance of ROIC and 25 percent of total variance of Tobin's q. The results mean that CEO changes in listed companies have a greater association with the market's valuation. This affirms the results of the study of Ahn et al. (2003), which reported that Japanese CEO changes have an impact on the market's valuation of firms in spite of an absence of CEO effects on performance.

Second, the CEO effects tend to be more pronounced after the financial crisis than the pre-crisis period. The increase in CEO effects through the crisis can be seen in both performance samples. From the ROIC sample, CEO effects increase to 20 percent

after the crisis from 7.9 percent before the crisis. Firm effects decrease to 38.3 percent after the crisis from 46.7 percent before the crisis. The relative importance of CEO to the firm effects increases to 0.68 after the crisis from 0.41 before the crisis. From the Tobin's q sample, CEO effects show a sharp increase from 12.3 percent before the crisis to 27.3 percent after the crisis. The relative importance of CEO to firm effects increases from 0.59 to 0.83.

In addition, the fixed effects of the financial crisis dummy variable are statistically significant in the samples of "changed data," "non-chaebol companies," and "owner CEO group."

The results indicate that: (1) reform of the corporate sector to enhance the accountability and transparency of Korean firms since the financial crisis is likely to have a strong association with firm performance differences, in turn, (2) the changes in business practices and environment make CEOs more influential, and (3) there is significant change in performance differences among firms between the periods of pre- and post-the crisis.

Third, considering the characteristics of chaebols or business groups, CEOs of chaebol-affiliated companies are more likely to be influenced by group-based strategy and culture. Besides, several studies proved that CEO locus of control was strongly associated with organizational strategy and structure in small but not in large firms. In this context, CEOs in non-chaebol companies are likely to have a greater impact on performance differences than professional CEOs. Furthermore, non-chaebol companies tend to have more owner CEOs than chaebol-affiliated companies, and in turn, they are more likely to wield influence on performance than CEOs of chaebol-affiliated companies.

Expectedly, CEOs of non-chaebol companies have a greater impact on performance than those of chaebol-affiliated companies in the ROIC data. The CEO effects of chaebol-affiliated companies make up 19.1 percent, and the relative importance of CEO to firm effects is roughly 0.77. However, the CEO effects of non-chaebol companies make up 17.7 percent, the relative importance is around 0.8 in the ROIC sample.

On the contrary, the results of Tobin's q data do not support the hypothesis 4. The proportions of CEO effects of chaebol and non-chaebol samples are 27.4 percent, and 28.4 percent, respectively. The relative importance of CEO effects compared to firm effects is 1.12 in chaebol sample and 1.06 in non-chaebol sample.

Fourth, is related with the comparison of CEO effects between owner CEOs and professional CEOs. Similar to the results of 'chaebol and non-chaebol samples,' the results of the two samples are inconsistent. The professional CEOs impact on Tobin's q is greater than that of owner CEOs, while the results are converse in terms of ROIC. In the ROIC sample, the CEO effects of owner and professional CEO group are

10.5 percent and 12.3 percent of total variance, respectively. The relative importance to the firm effect is 0.67 and 0.56, respectively. However, in the Tobin's q sample, the CEO effects in the owner and professional CEO group make up 12.6 percent and 30.1 percent, respectively. The relative importance to the firm effects is 0.67 and 1.03, respectively. The relative importance of the post-crisis period turns to be remarkably greater than that of the pre-crisis period.

From these results, it can be construed that market values, which reflect expectations of a firms' future value, are more likely to associate with the chaebol affiliated companies and professional CEO change than non-chaebol companies and owner CEO change. The possible reason is that chaebol affiliated companies were forced to improve their business practices during the crisis, and in turn, they are more market-oriented and predictable due to strengthened transparency than smaller non-chaebol companies. The explanation for inconsistency of 'owner and professional samples' is that owner CEO changes mainly occur by 'blood succession' except for financially distressed or insolvent companies. The market tends to expect blood succession as less disruptive than a professional CEO change.

Additionally, what is noticeable is that the fixed effects of "owner" dummy (family), the financial crisis dummy (imf), and chaebol dummy (group) account for a different level of significance depending on sub-samples. In summary, companies that never experienced a CEO change tend to have insignificant fixed effects of any dummy variable. This is likely because companies that never experienced a CEO change tend to be less influenced by both internal and external factors such as the financial crisis. However, companies that experienced CEO change have a significant 'imf' dummy fixed effect. By sub-samples, non-chaebol companies tend to be more influenced by the financial crisis.

Finally, the results of regression analysis on CEOs characteristics' impact on performance demonstrate some interesting findings. CEOs demographic characteristics including age, educational background, regional origins seem to have a significant impact on performance. The CEOs in their 40s~70s are likely to have a positive impact on ROIC, while the CEOs in their 70s, sometimes in their 60s seem to have a negative impact on Tobin's q. Universities CEOs graduated from can be a predictor of profitability, particularly of Tobin's q. In the ROIC sample, turnover of CEOs has a negative impact on performance, while it has a positive impact on performance in the Tobin's q sample.

VII-2. Limitations

This data includes nine years of information from Korea's listed companies, a relatively shorter observed period than the previous studies. The studies of Lieberson

and O'Connor (1972) and Thomas (1988) used 20-year data. In addition to the shorter period, this data should exclude companies that do not experience "CEO change" during the period. Thus, the observations of the data decrease from 8,800 to 5,374 and finally to 3,440. Tobin's q matched data contains 2,754 observations after screening.

The relatively small amount of data constrains the power of analysis. This study should define the industry classification more broadly due to the small number of observations, thus unable to fully capture the industry effects and even CEO effects. When the data includes KOSDAQ listed companies and statutory audited companies, it is possible to capture each effect more accurately.

For example, a chaebol has more non-listed than listed affiliated companies. If the data includes all affiliated companies of chaebols, the chaebol effects are expected to be greater than those in this study. This explains the difference between this study and that of Chang and Hong.

If the sample size expands enough to use time-lag, the CEO effects can be explored more comprehensively. This paper does not use time-lag, because the CEO data was collected in the first half of the year while the accounting data was collected in the subsequent year. However, if the sample size expands enough, time-lag can be employed for a more accurate investigation.

The data used for this study lacks very important information for research. For example, the most commonly explored demographic characteristics of CEOs are tenure and experience. The KLCA data does not contain information on tenure in the firm or industry. Neither is the information on career and experiences of CEOs included in the data. Thus, this study cannot investigate the relationship between the most intensively investigated characteristics of CEOs such as tenure, experience and performance.

Most of all, the limitation of this study is "Korea's restricted CEO market." It is rare to see CEOs who move from one company to another in Korea. In the U.S., the CEO market is well developed, and thus, the mobility of CEOs is relatively high. The mobility of CEOs is a pre-requisite condition for researchers to capture the CEO effects. CEOs in Korea and Japan are mainly raised as a CEO within the company. The sample is hardly established when the data includes only CEOs with experiences in different companies. In this context, the data excludes the companies that experienced "no CEO change."

As mentioned in chapter III, data from Korea does not report the financial performance of business units. Their financial performance can be constructed in the future, because some companies have reported business unit data since the financial crisis. Thus, the firm effects of this data are combining one of the corporate effects and business unit effects in the study of Rumelt and Roquebert et al.

VII-3. Future Research

Studies on CEOs in Korea are at an initial stage, marking a contrast with the rich body of research available in the west. In particular, empirical studies based on archival data are difficult to find. The priority should be on the development of archival data and suitable methodology. The expansion of data should include KOSDAQ listed companies as well. This expansion of data will assist in better analyzing industry and chaebol effects by more narrowly defining industry, and by including more affiliated companies under the chaebol's umbrella.

In addition, it is needed in terms of content analysis. The study confines the scope of analysis to the relative importance of industry, firm, and CEO effects due to the limitation of methodology. The impact of demographic characteristics including tenure, and functional background of CEOs should be examined beyond this study's brief investigation of chapter VI.

Beyond exploring the direct relationship between CEOs and performance, CEO succession followed by strategic change and in turn, changes in performance are also important issues worth exploring.

The management team including top executives and outside directors shall be more seriously investigated. The composition of the top management team, their decision-making process, and diversification of the team should be the primary focus to comprehend the relationship between management and performance.

Appendix 1

Following Schmalensee (1985) and Rumelt (1991), this paper relies on Searl's (1971) treatment of the theory and practice of VARCOMP. The basic method draws on the fact that any quadratic form in observations is a linear combination of the variance components.

I therefore begin by considering the expected value of the general quadratic form $y^{'}QY$ according to Searle (1971; 422). The general linear model is taken to be

y=Xb+e

……………………………………………………………………...……………(1)

where y is N*1 (N observations) and for the sake of generality,

var(y)=V.

Then, the expected value of the quadratic form $y^{'}QY$ is

$$E(y^{'}QY) = tr(QV) + E(y^{'})QE(y).$$ …………………………………..…..(2)

I look at this in terms of the model (1) being successively a fixed effects model, and a mixed model that I used.

In every case b represents all the effects in the model, be they fixed, random or mixed. Also, in each model I take E(e)=0, sothat var(e) is $E(ee^{'}) = \sigma^2_{\varphi}I$. Furthermore, when b is a vector of fixed effects, $E(be^{'}) = bE(e^{'})=0$; and when b includes elements that are random effects we assume they have zero means, and zero covariance with the elements in e; thus at all times $E(be^{'}) = bE(e^{'})=0$.

1) Fixed effects models

In the usual fixed effects model b is a vector of fixed effects with E(y)=Xb and $V= \sigma^2_{\varepsilon}I_N$. Then becomes

$$E(y^{'}QY) = b^{'}X^{'}QXb + \sigma^2_{\varepsilon}tr(Q)$$ …………………………………………..(3)

2) Mixed models

In a mixed model we partition $b^{'}$ as

$$b^{'}=[\ b^{'}_1\ \ b^{'}_A\ b^{'}_B\ \ … \ b^{'}_K]$$ …………………………………………..……..(4)

where b_1 contains all the fixed effects of the model (including the mean μ) and where the other b's each represent a set of random effects for the factors A, B, C….K respectively. Although only single subscripts are used, interaction effects and/or nested-factor effects are not excluded by this notation. The mixed models that Searle suggested with nested factor effects are the models this paper employs. They are considered merely as factors, each identified by a single subscript rather than the letters of the corresponding main effects. For example, the A B-interactioneffects might be in the vector b_G.

The model (1) is written in terms of (4) as

$y = X_1 \, b_1 + X_A \, b_A + X_B \, b_B + \cdots + X_K \, b_K + e;$

i.e., as $\quad y = X_1 \, b_1 + \displaystyle\sum_{\theta=A}^{K} X_\theta b_\theta + e$ ……………………………………………………(5)

where X has been partitioned conformably for the product Xb and where θ in the summation takes the values A, B, …, K. For the random effects we make the two initial assumptions: that they have zero menas and that the effects of each random factor have zero covariance with those of every other factor. Thus I write $E(b_\theta) = 0$ and from (5) obtain

$$E(y) \qquad\qquad\qquad = \qquad\qquad\qquad X_1$$
$$b_1 \text{…………………………………………………………………………..…(6)}$$

And $\quad V = var(y) = \displaystyle\sum_{\theta=A}^{K} X_\theta \, var(b_\theta) X_\theta' + \sigma^2_\varepsilon I_N$ ……………………………………(7)

Where I_N is an identity matrix of order N, and $var(b_\theta)$ is the covariance matrix of the random effects of the θ-factor. These effects are usually assumed to be uncorrelated, with uniform variance σ^2_θ, so that

$$\text{Var}(b_\theta) = \sigma^2_\theta I_{N\theta} \quad \text{for } \theta = A, B, \ldots, K, \text{……………………………………..(8)}$$

There being N_θ different effects of the θ-factor in the data, i.e., N_θ levels of that factor. Thus in (7)

$$V = \sum_{\theta=A}^{K} X_\theta X_\theta' \sigma^2_\theta + \sigma^2_\varepsilon I_N \quad \text{……………………………………..…(9)}$$

Hence from (6) and (9) the expected value of the quadratic form in (2) is

$$E(y' QY) = (X_1 \, b_1)' Q X_1 \, b_1 + \sum_{\theta=A}^{K} \sigma^2_\theta tr \, (QX_\theta' X_\theta) + \sigma^2_\varepsilon \, tr(Q) \text{……………..…(10)}$$

In addition to the Searl's explanation, I would like to define further according to the suggestion of Rumelt (1991). Suppose the model has a simple nested structure. There are industry effects, firm effects within industries and errors in the observation of each firm return over time, omitting the year effects, year and industry interaction, and CEO effects.

$$r_{ift} = \mu + \alpha_i + \varphi_{if} + \varepsilon_{ift} \text{………………………………………………………….(11)}$$

Estimates of the unknown variances σ_α^2, σ_φ^2, and σ_ε^2 can be obtained by

working with any set of three independent quadratic forms. Defining $n_{ift} = 1$ if industry i has a firm f in year t, and 0 otherwise, I adopt the notation that a 'dot' represents summation over the subscript normally in that position. For example, $n_{if.}$ is the total number of observations $N = n \ldots$. Define the average return y_i of industry i as the arithmetic average of all observations in industry i. Thus, $y_i = r_i \ldots / n_i \ldots$, and using the equation 1,

$$y_i = \mu + \alpha_i + \sum_f \frac{n_{if.}}{n_{i..}}\varphi_{if} + \sum_{ft} \frac{n_{ift}}{n_{i..}}\varepsilon_{ift} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(12)$$

That is, the observed average industry return is the sum of μ, the industry effects α_I, and weighted averages of the firm effects and errors within that industry. The variance among industry returns will be σ_α^2 plus σ_φ^2 and σ_ε^2. That means industry returns vary from one another because of industry effects and because of the random impact of firm-specific effects and errors on computed industry returns. Following Rumelt (1991), let

$$s_y^2 = \frac{\sum_i y_i^2 - y_\bullet^2/\ell_\alpha}{\ell_\alpha - 1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(13)$$

Now consider $E\sum_i y_i^2$. The independence assumptions assure that the expectations of cross-products are zero, and that within families of effects, expectations of products are zero unless the subscripts are identical (e.g., $E(\alpha_i\alpha_j) = \sigma_\alpha^2$ if I=j, and 0 otherwise.) Squaring (2) and taking the expectation, yields

$$Ey_i^2 = \mu^2 + \sigma_\alpha^2 + \sum_f \frac{n_{if\bullet}^2}{n_{i\bullet\bullet}^2}\sigma_\varphi^2 + \frac{1}{n_{i\bullet\bullet}}\sigma_\varepsilon^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(14)$$

so that

$$E\sum_i y_i^2 = \ell_\alpha\mu^2 + \ell_\alpha\sigma_\alpha^2 + \sum_{if} \frac{n_{if\bullet}^2}{n_{i\bullet\bullet}^2}\sigma_\varphi^2 + \sum_i \frac{1}{n_{i\bullet\bullet}}\sigma_\varepsilon^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(15)$$

Developing the corresponding expression for $Ey_\bullet^2$ and substituting into (13) gives

$$Es_y^2 = \alpha_\alpha^2 + \left(\sum_{if} \frac{n_{if\bullet}^2}{\ell_\alpha n_{i\bullet\bullet}^2}\right)\sigma_\varphi^2 + \left(\sum_i \frac{1}{\ell_\alpha n_{i\bullet\bullet}}\right)\sigma_\varepsilon^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(16)$$

This equation is linear in the three unknown variance components and describes the precise relationship between the observed variance among industry returns and σ_α^2, σ_φ^2, and σ_ε^2.

Using steps parallel to those taken above, the variance of firm-specific return is calculated. That is, the variance among firm-specific returns is expected to be the true variance among firm-specific effects, plus the variance in industry effects, plus the error variance.

On the other hand, ANOVA estimates models of the following form:

$$Y_{ift} = \alpha_0 + \alpha_1 M1_1 + \alpha_2 M1_2 + \cdots + \alpha_{\ell\alpha} M1_{\ell\alpha} + \varphi_1 M2_1 + \varphi_2 M2_2 + \cdots + \varphi_{\ell\varphi} M2_{\ell\varphi} + \varepsilon_{ift}$$

where $M1_1$ to $M1_{\ell\alpha}$ are dummy variables corresponding to the ℓ_α classes of the industry and $M2_1$ and $M2_{\ell\varphi}$ are dummy variables corresponding to the ℓ_φ classes of the firm. The error term is assumed to be normally distributed $(0, \sigma^2)$. The importance of an explanatory factor is associated with the variance explained by the set of dummy variables for that factor.

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