

# Asset Embezzlement and CEO Characteristics\*

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This study presents empirical evidence to answer the following question: "Which factors of CEO characteristics can affect the CEO's decision-making or actions on embezzlement?" CEOs may be the key wrongdoers of fraud in asset embezzlement, it is important to understand the relationship between embezzlement and the characteristics of the CEOs involved in it. We analyze the association between embezzlement by CEO and CEO characteristics, represented by ownership status and demographic variables (age and major), by examining cases of CEO embezzlement in the Korean capital market. Although previous accounting studies on fraud are rarely taken into consideration in embezzlement cases, this study focuses on this cases using a sample of 490 firm-year observations during the period from 2005 to 2012.

The major findings of this study are as follows. First, owner CEOs are less likely to commit embezzlement compared to non-owner CEOs. The incidence of CEO asset embezzlement tends to decrease when the CEO is a major shareholder of the company. Second, we find a significantly negative association between the CEO's age and embezzlement, suggesting that older CEOs are less likely to embezzle corporate assets. Meanwhile, no significant relationship is found between the CEO's major and asset embezzlement.

Therefore, this study suggest that CEOs' ownership status and demographic characteristics can systematically explain the occurrence of corporate fraud. Understanding the characteristics of the CEOs who are prone to embezzlement may help shareholders and boards of directors recognize red flags and guard against fraudulent CEOs in the market for corporate control.

Key words: Asset embezzlement, CEO characteristics

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## I. Introduction

Chief executive officers(CEOs) are often direct participants in embezzlement, defined as

the "crime of stealing the funds or property of an employer, company or government or misappropriating money or assets held in trust."<sup>1)</sup>

This study investigates the relationship between fraud and the characteristics of CEOs

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1) <http://www.legal-explanations.com/definitions/embezzlement.htm>.

by focusing on asset embezzlement cases in Korea. Although there are various types and classifications of fraud, the two major categories are asset embezzlement and false financial reporting(Korea Auditing Standards Board, 2007; Yi et al., 2010). Most accounting research related to fraud has focused on false financial reporting, which includes the omission and/or distortion of important facts and violations of generally accepted accounting principles(GAAP), often detected through inspection by regulatory bodies such as the SEC(Beasley, 1996; Choi and Paek, 1998; Choi and Choe, 2003; Beneish et al., 2008).

Yi and Kim(2011) argue that embezzlement is an important factor in unfaithful financial statements and analyze the empirical relationship between embezzlement and earnings management, confirming the association between embezzlement and unfaithful financial reporting. However, CEOs, who may be the key wrongdoers of fraud in asset embezzlement and unfaithful financial reporting, are rarely taken into consideration in previous studies on fraud. This study shows that CEOs are directly involved in 64% of all corporate embezzlement cases, a significant amount indicating an extremely high rate of CEO embezzlement.<sup>2)</sup> Considering that CEOs are involved in most corporate embezzlement cases,

it is important to understand the relationship between embezzlement and the characteristics of the CEOs involved in it.

In many instances, corporate asset embezzlement causes a wide range of problems, from decreased employee morale to tarnished brand image; companies involved in embezzlement can go bankrupt in the worst case. Embezzlement is thus an important business risk that companies should be concerned about(Jung, 2009). Embezzlement leads not only to explicit punitive costs, because it is a criminal offense, but also to high reputational costs, which may result in significantly lowered stock prices due to damaged reputation or, in extreme cases, bankruptcy. According to the sample used in this study, 60% of corporations filed for bankruptcy after suffering from embezzlement. Moreover, as a result of the 2008 financial crisis, the traditional paradigm of shareholder profit maximization has been replaced by the sustainable business paradigm that emphasizes “ethical management”. The main philosophy underlying the new sustainable business paradigm is the emphasis on comprehensive social responsibility beyond financial and legal responsibility. Therefore, while embezzlement was once considered an act of personal unethical fraud by an employee, in the new business environment,

2) As expected, embezzlement amounts are higher among the top level. The total embezzlement amount at the top level(e.g., CEO, largest shareholder) was 1.2571 trillion Korean won(KRW), while the embezzlement amount among the lower-level employees was 176.5 billion KRW(Yi et al., 2014).

such fraudulence can now be regarded as an issue with great ripple effects that could jeopardize the very existence of a company. In this regard, corporate corruption cases need to be reviewed from diverse perspectives. We focus on the characteristics of CEOs who commit asset embezzlement.

This study presents empirical evidence to answer the following question: "Which factors of CEO characteristics can affect the CEO's decision-making or actions on embezzlement?" The first factor that may affect the CEO's decision-making on embezzlement is the ownership status of the CEO: owner versus non-owner CEO. The ownership status of a CEO can work as an important economic motive in the CEO's decision-making. It is well known that the separation of management and ownership causes agency problems, one of which is embezzlement by the CEO. In addition to the ownership status of the CEO, we also consider demographic factors of CEOs. Hambrick and Mason(1984) state that idiosyncratic differences in CEOs' personal experiences are associated with important differences in personal values and cognitive styles, such as honesty and tolerance of ambiguity, which can lead CEOs to make different choices, particularly in complex situations of high uncertainty. Bamber et al. (2010) find a significant association between a firm's voluntary disclosures and the demographic-specific characteristics of its CEO, such as functional

career track, age cohort, military experience, and education. Following prior studies and subject to data availability, we investigate whether the CEO's personal demographic characteristics represented by age and major (i.e., Business or not) are associated with asset embezzlement.

The major findings of this study are as follows. First, the incidence of CEO asset embezzlement tends to decrease when the CEO is a major shareholder of the company. Moreover, asset embezzlement by the CEO is less likely to occur when the CEO is the largest shareholder or is related to the largest shareholder. This implies that owner-CEOs have a lower chance of committing embezzlement than non-owner CEOs. Second, we find a significantly negative association between the CEO's age and embezzlement, suggesting that older CEOs are less likely to embezzle corporate assets. This finding is consistent with Zemke et al.(2000), who report that members of the older generation tend to have conservative values due to their experience of war and that people with conservative propensities are less prone to crime, including asset embezzlement. Meanwhile, no significant relationship is found between the CEO's major and asset embezzlement.

Using a sample of 490 firm-year observations during the period from 2005 to 2012, this study contributes to the literature on corporate fraud as follows. First, we focus on CEOs,

who are often directly or indirectly involved in corporate fraud, and suggest that CEOs' ownership status and demographic characteristics can systematically explain the occurrence of corporate fraud. Second, whereas most studies in accounting area on corporate fraud are concerned with false financial statements, this study focuses on asset embezzlement, which can be considered an extreme case of corporate fraud committed by a CEO for private financial gain. In the current social paradigm of ever-increasing emphasis on corporate social responsibility, unethical management can threaten the very existence of a firm. This study attempts to explain the likelihood of asset embezzlement using the CEO's ownership status and demographic characteristics. Third, the finding of this study that a CEO's characteristics systematically explain corporate corruption can contribute to forming an efficient corporate control market. To regulate corporate frauds by unethical managers, a market for corporate control must implement management regulations that weed out unethical managers (Park et al., 2009). Therefore, understanding the characteristics of the CEOs who are prone to embezzlement may help shareholders and boards of directors recognize red flags and guard against fraudulent CEOs in the market for corporate control.

## II. Previous Research

The majority of accounting research on corporate fraud focuses on unfaithful financial statements such as omissions from and/or distortion of financial reports to manage earnings. Many studies have been conducted on firms whose financial statements are inspected("inspected firms") by regulatory institutes such as the Securities and Exchange Commission (SEC) and Korea's Financial Supervisory Service(FSS) to examine whether earnings management is observed for those companies (Choi and Paek, 1998; Beneish, 1999; Choi and Choe, 2003). Beneish(1999) finds a significant relationship between false financial statements and several accounting variables such as account receivables, gross profit, and financial leverage. Choi and Paek (1998) use Korean data to investigate whether there are differences in the items of financial statements between inspected firms and non-inspected firms, finding that interest expenses, accounts receivable, inventory, and prior-period adjustments differ significantly between the two groups. Choi and Choe(2003) extend Choi and Paek(1998) study by considering who performs the inspection of financial statements.<sup>3)</sup> According to Choi and Choe(2003), when firms are inspected by Korea FSS, there is a sig-

3) In Korea, the financial statements of public companies are inspected by Korea FSS, while those of non-public companies are inspected by the KICPA.

nificant difference in net income, cash flows, and financial expenses between inspected and non-inspected firms. However, when firms are inspected by the Korean Institute of Certified Public Accountants (KICPA) as a way of self-regulation, a significant difference is found only in cash flows.

Since sound corporate governance is likely to help prevent corporate fraud, including falsified financial statements, many studies in the accounting area explore whether a sound corporate governance structure can lower earnings management. Beasley(1996) finds that firms without frauds tend to have boards with significantly higher percentages of outside directors compared to firms with frauds. They also find that, as outside director ownership in the firm and outside director tenure on the board increase, the likelihood of financial statement fraud decreases. Chen et al.(2006) focus on Chinese corporations, operating in a relatively poor legal environment for civil rights protection and with ownership structures different from those of American corporations, and analyze whether there is an association between ownership structure/board characteristics and accounting fraud. The results indicate that higher outside director ratio, lower number of board meetings, and longer chairperson tenures are related to a lower incidence of fraud. Choi et al.(2008), using Korean data, confirm that outside director ratio, the participation rate

of outside directors, and the expertise of outside directors are negatively associated with accounting fraud.

Among studies on embezzlement in Korea, Yi et al.(2010) find that internal control weakness is positively associated with the likelihood of the misappropriation of corporate assets. On the other hand, the activity and financial expertise of outside directors are negatively associated with the likelihood of asset misappropriation. Yi and Kim(2011) predict that CEOs involved in asset misappropriation have incentives to manage reported earnings and analyze the relationship between embezzlement and earnings management. They find that misappropriation is positively associated with earnings management. Park et al.(2015) also focus on the relationship between CEO's asset embezzlements and earnings management. They find that CEOs who commit embezzlement manage earnings using discretionary accruals and abnormal operating cash flows for concealing their embezzlement. Moreover, Yi et al.(2014) empirically analyze the market's reactions to the reported income of corporations involved in embezzlement and report that the earnings response coefficients of corporations involved in embezzlement are significantly lower than those of corporations without embezzlement. However, studies on Korean embezzlement cases have limitations in that the occurrence date and disclosure date

of embezzlement are not clearly differentiated. Park et al.(2009) analyze whether the market for corporate control, as an external corporate governance mechanism, regulates the incompetence and immorality of executives using a sample of Korean companies experiencing embezzlement. The results of the study show that corporations with high manager turnover tend to have more cases of embezzlement, probably due to agency problems. Moreover, poor internal corporate governance, lower ownership of replaced executives, and lower profitability worsen such problems. Kim(2013) examines the pattern of return volatility of firms suffering from embezzlement to find that firm profitability deteriorates during the investigation of embezzlement.

This study differs from previous studies on asset embezzlement in that we try to see the relationship between asset embezzlement by CEOs and the characteristics of CEOs who commit the crime of asset embezzlement, which were rarely considered in previous studies.

### III. Hypothesis Development and Research Design

#### 3.1 Hypothesis Development

Although executives have the fiduciary re-

sponsibility to maximize the wealth of stockholders, they have the incentive and means to maximize their own private utility through privileged spending, overinvesting, and the initiation of personal pet projects. Embezzlement by a CEO can be considered an extreme act of opportunistic behavior in pursuit of private benefit. Embezzlement is defined as willfully taking, or converting to one's own use, another's money or assets of which the wrongdoer acquired possession lawfully, by reason of some office or employment or position of trust. For embezzlement to occur, the individual who steals the assets must have been entitled to possession of the property at the time of theft.<sup>4)</sup> The CEO who commits embezzlement obtains the wealth of stockholders illegally and this can be seen as an extreme form of agency problem, as it often poses a serious danger to the corporation's very existence.

According to the agency theory of Jensen and Meckling(1976), an increase in a CEO's ownership can achieve the alignment of interests between the CEO and stockholders, thus decreasing the agency cost and resulting in increased firm value. This implies that, when the CEO is an owner - manager, the CEO and outside stockholders have the aligned incentive of maximizing firm value. Thus, the owner - manager who is a long-term investor is less likely to make decisions that may

4) Possession does not necessarily mean legal ownership(Lindquist and Goldberg, 2009).

damage firm value in the long run. It can thus be inferred that the owner - manager who has the most power to make crucial decisions that can alter the future of the firm has a lower chance of committing embezzlement. On the other hand, Morck et al.(1988) empirically find that, when management ownership increases, the CEO can weaken the monitoring of the board of directors and make decisions that increase the CEO's private benefit at the expense of the firm value. In particular, La Porta et al.(1999) report many instances in which managers with ownership hold control rights in firms in excess of their cash flow rights through indirect ownership such as cross-shareholding and the pyramid form of firm ownership. This leads to a large wedge between control(voting rights) and ownership(cash flow rights). The owner - manager in this situation could extract wealth from the firm and receive the entire benefit but bear only a fraction of the cost (Fang and Wong, 2002; Ahn, 2004). Therefore, when there is a large wedge between the ownership and control of the owner - manager, there is a greater chance that the owner - manager will make decisions in pursuit of his/her own interests at the expense of firm value. This scenario implies that in pursuing private benefits, the owner - manager is more likely to make decisions that negatively affect outside stockholders' interests or firm value through embezzlement.

We try to determine whether Korean owner - managers have greater goal congruence with other shareholders than employed managers, restraining them from engaging in damaging activities such as embezzlement, or are more likely to commit embezzlement using their power to weaken the oversight function of the board of directors. Investigating the association between the ownership status of a CEO(owner versus non-owner) and embezzlement in the Korean market can provide insight into the embezzlement-related agency problem. Considering the potential negative or positive effects of manager type(i.e., non-owner versus owner) on the occurrence of embezzlement, the following null hypothesis is proposed:

*Hypothesis 1 : There is no association between the ownership status of CEO(owner versus non-owner) and CEO embezzlement.*

Hambrick and Mason(1984) state that idiosyncratic differences in managers' personal experiences cause differences in important personal values and cognitive styles, such as honesty and tolerance of ambiguity, and especially in complex management situations with high uncertainty, resulting in significant differences in their decision making. They also suggest that observable demographic characteristics reflecting the managers' backgrounds are associated with managers' unique cogni-

tive styles and values. Since we are focusing on embezzlements by CEOs in this study, embezzlements are likely to be related to CEOs' personal traits. By utilizing observable demographic characteristics as variables reflecting managers' unique cognitive styles and values, we investigate the association between CEOs' demographic characteristics and embezzlement. Due to data availability, we suggest two demographic characteristics of CEOs' personal backgrounds: age and major. To investigate the association between embezzlement and the CEO's demographic characteristics, the following null hypothesis is proposed:

*Hypothesis 2 : A CEO's demographic characteristics have no association with CEO embezzlement.*

### 3.1.1 Age

Hambrick and Mason(1984) state that the manager's age cohort can affect personal values and thus decision-making. They propose that managers born before World War II, fearing that disclosures may prove inaccurate ex post, may develop more conservative communication styles, such as revealing less about forward-looking statements. Zemke et al.(2000) also state that managers born before World War II hold more conservative views than managers born after World War II, as they

experienced the Great Depression and required great sacrifices. Malmendier and Nagel (2008) propose that members of this age group, who experienced lower stock returns during their investing lives, are conservative. Bertrand and Schoar(2003) find that older managers show the conservative tendencies to spend less, keep debt ratios low, and maintain high cash holdings. Based on prior research, we employ age as the proxy of managers' conservative tendencies to investigate any association with embezzlement. We predict that older CEOs are less likely to commit extreme benefit-pursuing activities such as embezzlement.

### 3.1.2 Major (Business versus non-Business)

As most people not only take their decisions about education seriously but also are influenced by the training in a specific major, education can serve as an indicator of a person's values and cognitive preferences. Prior studies show mixed results in this regard in that some studies suggest that educational background in business may cause a manager to have more conservative tendency while other studies show that managers with business education tend to aggressively pursue self-interest. Hambrick and Mason(1984), in their upper echelon perspective, suggest that educational backgrounds serve to some extent as an indicator of managers' values and

cognitive preferences. In other words, managers' educational backgrounds produce different management styles, such as risk propensity and other underlying traits. Since Hambrick and Mason(1984) proposed the upper echelon theory, CEO's demographic characteristics are considered in strategic choices.

Finkelstein and Hambrick(1996), in their strategic leadership theory, state that MBAs relate to business elites who value conformity and conventionality. They mention that MBA programs train students for risk-averse behavior by emphasizing methods of preventing possible losses. On the other hand, MBA programs accentuate neoclassical economics, which is based on managers' rational pursuit of their own self-interest(Ghoshal, 2005), so that CEOs with MBA degrees tend to produce a greater distortion of reported earnings (McCabe et al., 2006). If the curriculum places importance on conformity and conventionality as Finkelstein and Hambrick(1996) suggest, managers are less likely to commit extreme unethical behaviors such as embezzlement. On the other hand, if the business curriculum emphasizes the rational management notion of pursuing private benefit, managers are more likely to commit embezzlement if

they believe that the benefits of embezzlement are greater than the costs.<sup>5)</sup> Kimberly and Evanisko(1981) examine curriculum types and find no association with the adoption of organizational innovations. They find that executives with formal education in administration fields are hardly associated with organizational innovation than those educated in others. Education type (Business versus non-Business) provides us with some measure of an individual's knowledge and skill base(Hambrick and Mason, 1984; Hitt and Tyler, 1991). Due to the mixed results of previous studies on the educational background of CEO and their ethical behavior, the issue remains an empirical one especially in the Korean setting where to the best of our knowledge this study is the first that attempts to empirically test the association between CEOs demographic characteristics and embezzlement.

## 3.2 Research Design

### 3.2.1 Data and Sample

Embezzlement is committed by various members of an organization, from low-level employees to top managers.<sup>6)</sup> This study, how-

5) Rational managers will believe that the chances of getting caught embezzling assets are small if the internal control system is weak or if they believe they can negate the oversight function of the board.

6) Section 355 of the Criminal Code of Korea stipulates that one who embezzles assets in one's trust or refuses to return such assets is liable to a maximum of five years in prison or a fine of a maximum of 15 million Korean won.

ever, is limited to embezzlement committed by CEOs. We obtain embezzlement data from the Korea Investor's Network for Disclosure System(KIND) database covering the period from 2005 to 2012.<sup>7)</sup> This database files cases of embezzlement according to the date of disclosure, not the date of occurrence. The date of disclosure in general does not coincide with the actual date of occurrence, and a substantial timelag exists between the occurrence date of embezzlement and the public disclosure date. Based on the sample of this study, the average timelag between the embezzlement date and the disclosure date is 400days. Prior studies(Yi et al., 2010; Yi and Kim, 2011; Yi et al., 2014) using Korean samples do not address to this issue and simply use the disclosure date as the event date of embezzlement. Because we investigate the characteristics of managers who commit embezzlement, it is desirable to consider the occurrence date that precedes the disclosure date by more than one year, and tracking the

embezzlement occurrence date is crucial. We track the actual occurrence date of embezzlement using information in various media, such as newspaper articles. If the same case is disclosed more than once, only the last date is considered as one sample to prevent sample duplication. In addition, cases in which the last published information indicates that the court acquitted the CEO of embezzlement are excluded from the sample. Data on managers' characteristics are obtained as of the occurrence date of embezzlement.

〈Table 1〉 shows the frequency of embezzlement cases over time and the wrongdoers who committed the embezzlement. Of 284 embezzlement cases that occurred between 2005 and 2012, the CEO is involved in 181 cases. As the goal of this study is to investigate the characteristics of CEOs who commit embezzlement, we include only those cases in which the CEOs are the main wrongdoers in the final sample.<sup>8)</sup>

Characteristics of CEOs are measured by

〈Table 1〉 Frequency of embezzlement by year

| Year of occurrence | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total |
|--------------------|------|------|------|------|------|------|------|------|-------|
| Number of cases    | 23   | 33   | 51   | 74   | 39   | 25   | 19   | 20   | 284   |
| CEO cases          | 12   | 24   | 37   | 46   | 20   | 20   | 10   | 12   | 181   |

7) As official disclosures by the KIND of embezzlement cases began during the latter half of 2004, the research period for this study begins in 2005

8) Of 181 embezzlement cases in which the CEO is involved, 74 cases show the CEO's collusion with other employees. Since a CEO has dominant power to control employees, we include such cases in the sample as CEO-involved embezzlement cases.

both ownership status(non-owner versus owner) and demographic characteristic variables (age and major). To collect the data, we search the executive database on the KIS - LINE and the annual reports of the companies involved in embezzlement. Following Park et al.(2009), we classify CEOs who hold more than 5% of shares, are the largest shareholders, or are relatives of the largest shareholder as owner - managers. CEOs not classified as owner - managers are classified as non-owner - managers. Thus, non-owner - managers in this study hold less than 5% of shares, are not the largest shareholders, and have no relationship with the largest shareholder. Park et al.(2009) cites the 5% reporting system of the Korea Financial Investment Services and Capital Markets Act as the reason for choosing 5% of shares as the classification criterion. The 5% reporting rule is a system by which an individual who has more than 5% of shares of a firm reports to Korea Financial Supervisory Service(FSS) whether the purpose of ownership is to influence the firm's management in accordance with the Korea Financial Investment Services and Capital Markets Act. Meanwhile,

Faccio et al.(2001) state that, when a controlling shareholder holds a position such as CEO or chairman of the board, he or she has dominant decision-making power in the firm. We thus categorize owner - manager and non-owner - manager according to not only the manager's stock holding but also whether the manager is the largest shareholder or a relative of the largest shareholder.

Data on managers' stock holdings and the relationship with the largest shareholder are collected from annual reports. Financial data are obtained from the KIS - VALUE database; we exclude firms in the financial industry and firms whose fiscal year end is not December. <Table 2> shows the selection procedure for the embezzlement sample used in this study. Of 284 embezzlement cases that occurred between 2005 and 2012, embezzlement cases without CEO involvement (103), or cases without related financial data (84) are excluded, resulting in 97 embezzlement cases in the final sample.

Within the sample period(2005 to 2012), we have 7,449 firm-year cases without embezzlement(control group), compared to 97

<Table 2> Sample selection procedure

| Procedure                                            | Number of firms |
|------------------------------------------------------|-----------------|
| <i>Firms with embezzlement between 2005 and 2012</i> | 284             |
| <i>Exclusion of firms without CEO Involvement</i>    | (103)           |
| <i>Exclusion of firms without financial data</i>     | (84)            |
| <i>Total firms in the final embezzlement sample</i>  | 97              |

embezzlement cases in the final sample. To overcome the estimation problem of biased coefficients, which may occur when the difference between the number of observations in the test sample and the control sample is large, we construct a matching sample. For the matching control sample, we choose 393 firms on the basis of firm size, industry membership and so on. We use propensity score matching(PSM) as a way to reduce selection bias problem. A total of 490 firms were included in the final sample, featuring 97 embezzlement cases and 393 cases without embezzlement.<sup>9)</sup>

〈Table 3〉 presents the distribution of the 97 embezzlement cases according to the ownership status of the CEO. It shows that em-

bezzlement by non-owner - managers is more frequent than that of owner - managers. Of 97 embezzlement cases, 56(57.7%) are committed by non-owner CEOs: they own less than 5% of shares<sup>10)</sup> and are neither the largest shareholder nor a relative of the largest share holder. A total of 41 embezzlement cases(42.3%) are committed by owner CEOs. 24 cases(24.74%) satisfy both conditions for owner - manager defined in this study : CEOs own more than 5% of outstanding shares, and are the largest shareholder or relatives of the largest shareholder.

〈Table 4〉 shows the distribution of the CEOs' ages as of the year of embezzlement occurrence and majors who commit embezzlement. Due to the limitation in data availability, age

〈Table 3〉 Categorization of ownership : CEO embezzlement sample

| Category                   |     | Largest shareholder or relative of largest shareholder |                                | Total          |
|----------------------------|-----|--------------------------------------------------------|--------------------------------|----------------|
|                            |     | No                                                     | Yes                            |                |
| Own more than 5% of shares | No  | 56(57.73%)<br><i>Non-owner CEO</i>                     | 6(6.19%)<br><i>Owner CEO</i>   | 62<br>(63.92%) |
|                            | Yes | 11(11.34%)<br><i>Owner CEO</i>                         | 24(24.74%)<br><i>Owner CEO</i> | 35<br>(36.08%) |
| Total                      |     | 67<br>(69.07%)                                         | 30<br>(30.93%)                 | 97<br>(100%)   |

9) Analysis results using 7,499 non-embezzlement samples without constructing a matching sample were presented consistent with the matching sample.

10) This study considers a major shareholder one whose ownership of shares exceeds 5%. Morck et al. (1988) reported that, for the relationship between Tobin's q and managerial stock ownership, it is positive(+) for managerial stock ownership of 0% to 5%, negative(-) for 5% to 25%, and positive(+) for ownership above 25%. Accordingly, this paper used 5% and 25% as standards and reported only the results of the 5%, as there is little difference between the two results.

〈Table 4〉 CEOs' age and major : Embezzlement sample

| Executive age as of embezzlement occurrence year |                  | Major               |                  |
|--------------------------------------------------|------------------|---------------------|------------------|
| <i>Born before 1950</i>                          | 6                | <i>Business</i>     | 18               |
| <i>Born in 1950s</i>                             | 23               |                     |                  |
| <i>Born in 1960s</i>                             | 37               | <i>Non-business</i> | 79               |
| <i>Born in 1970s</i>                             | 6                |                     |                  |
| Total                                            | 72 People (100%) | Total               | 97 People (100%) |

distribution is shown only for 72 cases out of 97 cases in the final sample.<sup>11)</sup> CEOs average age is 51, and about half were born in the 1960s. Out of 97 embezzlement cases, 18 CEOs had educational background in business as their (under)graduate major.

〈Table 5〉 shows the industry distribution of the embezzlement firms. Electronic parts, computer, video, audio, and other communications equipment manufacturing firms make up the largest percentage(30.93%, or 30 cases), followed by wholesale and product brokerage firms, with 24 cases(24.74%), and publishing firms, with 11 cases(11.34%). Other industries show relatively low frequencies.

### 3.2.2 Research Model

This study investigates the association between embezzlement and CEOs' characteristics such as ownership status and demographic characteristics. Using Equation (1), we test

whether the ownership status of a CEO is related with embezzlement. The dependent variable in Equation (1) is *Embezzle*, which takes the value of 1 if the manager commits embezzlement and 0 otherwise. The independent variable of interest is *Owner*; it takes the value of 1 if (1) the manager owns more than 5% of outstanding shares or (2) he is either the largest shareholder or is a relative of the largest shareholder. If owner - managers commit more embezzlement than non-owner - managers, the coefficient of the *Owner* in Equation (1) has a significant positive value. For robustness check, we include somewhat narrower definitions of owner-manager by using one of two conditions employed to define *Owner*. If the manager owns more than 5% of a firm's shares, *Stholding* is given the value of 1 and 0 otherwise. If the manager is the largest stockholder or a relative of the largest stockholder, *Relation* is given a value of 1 and 0 otherwise. *Stholding* and *Relation* are

11) We use 464 observations when we test for the association between CEO's age and embezzlement due to data collection limitations.

〈Table 5〉 Industry distribution of embezzlement sample

| Category      | Industry                                                                    | Frequency | Percentage(%) |
|---------------|-----------------------------------------------------------------------------|-----------|---------------|
| manufacturing | Food                                                                        | 1         | 1.03          |
|               | Pulp, Paper, and Paper Products                                             | 1         | 1.03          |
|               | Chemicals and Chemical Products                                             | 4         | 4.12          |
|               | Medical Substances and Medicine                                             | 3         | 3.09          |
|               | Rubber Products and Plastic Products                                        | 2         | 2.06          |
|               | Primary Metals                                                              | 3         | 3.09          |
|               | Electronic Parts, Computer, Video, Audio, and Other Communication Equipment | 30        | 30.93         |
|               | Electric Equipment                                                          | 4         | 4.12          |
|               | Other Machinery and Equipment                                               | 5         | 5.15          |
|               | Automobiles and Trailers                                                    | 1         | 1.03          |
|               | Other Transportation Equipment                                              | 1         | 1.03          |
| other         | Specialized Construction                                                    | 1         | 1.03          |
|               | Wholesale and Product Brokerage                                             | 24        | 24.74         |
|               | Retail(Excluding Automobiles)                                               | 1         | 1.03          |
|               | Publishing                                                                  | 11        | 11.34         |
|               | Audio, Video Record Production, and Distribution                            | 3         | 3.09          |
|               | Information Services                                                        | 1         | 1.03          |
|               | Business Support Services                                                   | 1         | 1.03          |
| Total         |                                                                             | 97        | 100           |

the independent variables of interest in Equations (1-1) and (1-2) respectively. If owner - managers commit more embezzlement than non-owner - managers, the coefficients of the *STholding* in Equation (1-1) and *Relation* in Equation (1-2) will have significant positive values.

Equations (2) and Equations (3) test whether there is an association between the executive's demographic characteristics (i.e., age and major) and embezzlement. *Age* in Equation (2) is the manager's age in the year of em-

bezzlement occurrence, and *Major* in Equation (3) is a dummy variable equal to 1 if the manager's (under)graduate major is business and 0 otherwise. The *Age* variable in Equation (2) will have a negative and significant coefficient if older managers have a more conservative style and thus are less likely to commit embezzlement. We expect a positive and significant coefficient of the *Major* variable in Equation (3) if the manager with a business degree is more likely to commit embezzlement.

Equations (1)

$$\begin{aligned} Embezzle = & \beta_0 + \beta_1 Owner + \beta_2 Size + \beta_3 Loss \\ & + \beta_4 Debratio + \beta_5 AR + \beta_6 CFO \\ & + \beta_7 Foreign + \beta_8 Big4 \\ & + \beta_9 Committee + \beta_{10} Beta + \epsilon \end{aligned}$$

Equations (1-1)

$$\begin{aligned} Embezzle = & \beta_0 + \beta_1 STholding + \beta_2 Size + \beta_3 Loss \\ & + \beta_4 Debratio + \beta_5 AR + \beta_6 CFO \\ & + \beta_7 Foreign + \beta_8 Big4 \\ & + \beta_9 Committee + \beta_{10} Beta + \epsilon \end{aligned}$$

Equations (1-2)

$$\begin{aligned} Embezzle = & \beta_0 + \beta_1 Relation + \beta_2 Size + \beta_3 Loss \\ & + \beta_4 Debratio + \beta_5 AR + \beta_6 CFO \\ & + \beta_7 Foreign + \beta_8 Big4 \\ & + \beta_9 Committee + \beta_{10} Beta + \epsilon \end{aligned}$$

Equations (2)

$$\begin{aligned} Embezzle = & \beta_0 + \beta_1 Age + \beta_2 Size + \beta_3 Loss \\ & + \beta_4 Debratio + \beta_5 AR + \beta_6 CFO \\ & + \beta_7 Foreign + \beta_8 Big4 \\ & + \beta_9 Committee + \beta_{10} Beta + \epsilon \end{aligned}$$

Equations (3)

$$\begin{aligned} Embezzle = & \beta_0 + \beta_1 Business + \beta_2 Size + \beta_3 Loss \\ & + \beta_4 Debratio + \beta_5 AR + \beta_6 CFO \\ & + \beta_7 Foreign + \beta_8 Big4 \\ & + \beta_9 Committee + \beta_{10} Beta + \epsilon \end{aligned}$$

where,

*Embezzle* : if the manager committed embezzlement, 1; otherwise 0

*Owner* : if the manager owns more than 5% of shares or is either the largest shareholder or a relative of the largest shareholder, 1; otherwise 0

*Relative* : if the manager owns more than 5% of shares, 1; otherwise 0

*STholding* : if the manager is the largest shareholder or is a relative of the largest shareholder 1; otherwise 0

*Age* : age of manager in the year of embezzlement occurrence

*Business* : if the manager has a undergraduate or graduate business degree, 1; otherwise 0

*Size* : natural logarithm of the book value of total assets

*Loss* : if the firm's net income is negative, 1; otherwise 0

*Debratio* : ratio of firm's total liabilities to total assets

*AR* : ratio of firm's accounts receivable to sales

*CFO* : ratio of firm's cash flows from operating activities to sales

*Foreign* : proportion of shares held by foreign investors

*BIG4* : if the auditor of firm is a Big 4 auditor, 1; otherwise 0

*Committee*: committee score evaluated from KCGS<sup>12)</sup>

*Beta* : firm's beta

12) KCGS(Korea Corporate Governance Service) evaluate the corporate governance of all listed firms. The evaluation model is designed to improve the transparency of corporate governance. We use the committee score evaluation of KCGS's evaluation model.

We include the following additional control variables : *Size*, *Loss*, *Debt ratio*, *AR*, *CFO*, *Foreign*, *Committee*, *Big4*, and *Beta*. *Size* is used as a proxy variable for many omitted variables in prior studies. Since large firms are exposed to more public scrutiny and have better internal control systems, CEOs of larger firms are less likely to commit opportunistic embezzlement. The relatively small size of fraud-affected companies suggests that the inability or even unwillingness to implement cost-effective internal control systems may be a factor affecting the likelihood of financial statement fraud(Beasley et al., 1999).

Choi and Choe(2003) report that, when firm performance is unsatisfactory, the likelihood of manipulating accounting numbers increases. They find that loss firms are more likely to be investigated by the FSS for having issued false financial statements. In a similar vein, it is expected that poor performance of a firm will increase the likelihood of embezzlement. To control for firm performance, *Loss* is included in the model. *Debt ratio* variable is included to control for the corporation's financial structure. Firms in financial distress may provide incentives for managers to manipulate financial reports in order to prevent firm value reductions arising from negative risk ratings. When a firm is in financial distress, the CEO is more likely to commit extreme acts such as embezzlement. For firms with frequent credit transactions,

account receivables (*AR*), highly liquid assets, can take up a large portion of the corporation's assets, and can be used as a means of earnings management or embezzlement by the manager. In studies on accounting fraud, operating cash flows (*CFO*) is included as a control variable because decreased operating cash flows may increase executives' incentive to manipulate earnings. Choi and Choe(2003) investigate the characteristics of firms affected by accounting fraud using various corporate characteristic variables and find that the cash flow variable shows significant differences between the affected firms and control firms. Prior research also shows that foreign investors play a positive role in enhancing the transparency of corporate governance structures(Park and Lee, 2006; Ko et al., 2012), thus, we expect more executive embezzlement when the corporate governance structure is weak. We include variable to control for foreign ownership and expect a negative coefficient for *Foreign*. As auditors affiliated with the major (*Big 4*) accounting firms are known to have more expertise in detecting accounting fraud, the *Big4* variable can provide evidence of high-quality auditing(Francis, 1984; Palmrose, 1986) and be expected to increase detection of corporate fraud committed by CEOs. Through continuous monitoring of internal control by a highly qualified auditor, the early detection of corporate fraud is possible; when signs of corporate fraud ap-

pear, the scope of year-end auditing may be expanded to decrease the detection risk. Such strict auditing processes are expected to prevent executives' opportunistic acts. We thus expect a negative relationship between *Big4* and embezzlement.<sup>13)</sup> The audit committee support the board's oversight of the transparency of firm's financial statements and the firm's compliance with legal requirements, so we consider the effect of *committee* variable. *Beta* represents market risks, and is expected to have a positive relationship with embezzlement.

## IV. Empirical Results

### 4.1 Descriptive Statistics

〈Table 6〉 presents the descriptive statistics of the variables used in this study. The mean of *Embezzle* is 0.20, which means that approximately 20% of the sample observations are embezzlement cases.<sup>14)</sup> The mean of

*STholding* shows that 68% of CEOs own more than 5% of the firm's total shares outstanding. In addition, the mean of *Relation* shows that most (63%) CEOs are the largest shareholder or are related to the largest shareholder. The mean CEO *Age* is 50.45, with the minimum of 31 and the maximum of 80. Only 13% of CEOs possess business degrees.

The mean of *Size* is 24.65. The mean of *Loss* shows that 56% of sample firms have had losses. The mean of *DebtRatio* is 0.45, with the minimum value of 0.10 and the maximum of 0.72. The mean of *AR* shows that the account receivables of the sample corporations are 19% of total sales. The mean of *CFO* is -0.02, with the minimum value of -0.18 and the maximum value of 0.26. The mean of *Foreign* shows that the stockholdings of foreign investors is 4% on average. The mean of *Big4* shows that 34% of sample firms are audited by a Big 4 accounting firm. Finally, *Beta* has a mean value of 0.89.

〈Table 7〉 reports the correlations among variables. The correlations between *Embezzle*

13) The Big 4 are Korea's large accounting firms, which are in alliance with the four largest foreign accounting firms: Samil Price waterhouse Coopers, Samjong KPMG, Ernst&Young Hanyoung, and Deloitte Anjin.

14) This result derives from the research design of matching 97 embezzlement firms with 393 non-embezzlement firms using PSM (Propensity Score Matching) to control measurement bias when the test sample represents extremely small proportion of the population. The actual embezzlement firms represent 1% of the total firm-year sample. For the univariate tests, we compare the variables of interest and control variables between the embezzlement sample and the non-embezzlement (control) sample to see if there are significant differences. We employ t-test to check for significant differences in means. We find the lack of significant difference in *Size* means that the matching control sample is appropriately composed of firms with no embezzlement to match firms with embezzlement firms in the test sample based on size. All the control variables except *CFO*, and *Big4* are not significantly different at the significance level between the two groups.

and the interest variables of this study, *Owner*, *Relation* and *STholding*, are -0.34, -0.39, and -0.44, respectively and are all significant at 1% level. This implies that

CEOs with owner - manager status are less likely to commit embezzlement. For CEOs' demographic characteristics, *Age* and *Business*, *Age* is negatively correlated with *Embezzle*,

〈Table 6〉 Descriptive statistics of variables (N=490)<sup>15)</sup>

| Variable          | Mean  | Median | Std.Dev. | Min   | Max   |
|-------------------|-------|--------|----------|-------|-------|
| <i>Embezzle</i>   | 0.20  | 0.00   | 0.43     | 0.00  | 1.00  |
| <i>Owner</i>      | 0.71  | 1.00   | 0.45     | 0.00  | 1.00  |
| <i>STholding</i>  | 0.68  | 1.00   | 0.46     | 0.00  | 1.00  |
| <i>Relation</i>   | 0.63  | 1.00   | 0.48     | 0.00  | 1.00  |
| <i>Age</i>        | 50.45 | 50     | 9.18     | 31    | 80    |
| <i>Business</i>   | 0.13  | 0.00   | 0.39     | 0.00  | 1.00  |
| <i>Size</i>       | 24.65 | 24.34  | 1.01     | 23.83 | 28.69 |
| <i>Loss</i>       | 0.56  | 1.00   | 0.49     | 0.00  | 1.00  |
| <i>Debt ratio</i> | 0.45  | 0.46   | 0.19     | 0.10  | 0.72  |
| <i>AR</i>         | 0.19  | 0.17   | 0.11     | 0.04  | 0.46  |
| <i>CFO</i>        | -0.02 | -0.02  | 0.13     | -0.18 | 0.26  |
| <i>Foreign</i>    | 0.04  | 0.00   | 0.07     | 0.00  | 0.31  |
| <i>Big4</i>       | 0.34  | 0.00   | 0.47     | 0.00  | 1.00  |
| <i>Committee</i>  | 10.82 | 9.00   | 5.17     | 9.00  | 39.00 |
| <i>Beta</i>       | 0.89  | 0.83   | 0.36     | 0.27  | 1.6   |

1) We winsorize the variables at 5% level.

2) We use 464 observations for the *Age* variable due to data collection limitations.

where,

*Embezzle* : if the manager committed embezzlement, 1: otherwise 0

*Owner* : if the manager owns more than 5% of shares or is either the largest shareholder or a relative of the largest shareholder, 1: otherwise 0

*Relative* : if the manager owns more than 5% of shares, 1: otherwise 0

*STholding* : if the manager is the largest shareholder or is a relative of the largest shareholder 1: otherwise 0

*Age*<sup>16)</sup> : age of manager in the year of embezzlement occurrence

*Business* : if the manager has a undergraduate or graduate business degree, 1: otherwise 0

*Size* : natural logarithm of the book value of total assets

*Loss* : if the firm's net income is negative, 1: otherwise 0

*Debt ratio* : ratio of firm's total liabilities to total assets

*AR* : ratio of firm's accounts receivable to sales

*CFO* : ratio of firm's cash flows from operating activities to sales

*Foreign* : proportion of shares held by foreign investors

*BIG4* : if the auditor of firm is a Big 4 auditor, 1: otherwise 0

*Committee* : committee score evaluated from KCGS

*Beta* : firm's beta

15) Due to the variable's extreme value, the top and bottom 5% were winsorized to control data distortion.

16) Due to data collection limitations, analysis using the *Age* variable was conducted with the sample size of 464.

(Table 7) Correlation between variables

|                  | <i>Embezzle</i> | <i>Owner</i> | <i>Relation</i> | <i>STholding</i> | <i>Age</i> | <i>MBA</i> | <i>Size</i> | <i>Loss</i> | <i>DebtRatio</i> | <i>AR</i> | <i>CFO</i> | <i>Foreign</i> | <i>Big4</i> | <i>Committee</i> | <i>Beta</i> |
|------------------|-----------------|--------------|-----------------|------------------|------------|------------|-------------|-------------|------------------|-----------|------------|----------------|-------------|------------------|-------------|
| <i>Embezzle</i>  | 1               |              |                 |                  |            |            |             |             |                  |           |            |                |             |                  |             |
| <i>Owner</i>     | -0.34***        | 1            |                 |                  |            |            |             |             |                  |           |            |                |             |                  |             |
| <i>Relation</i>  | -0.39***        | 0.92***      | 1               |                  |            |            |             |             |                  |           |            |                |             |                  |             |
| <i>STholding</i> | -0.44***        | 0.83***      | 0.75***         | 1                |            |            |             |             |                  |           |            |                |             |                  |             |
| <i>Age</i>       | -0.14***        | 0.21*        | 0.25***         | 0.22***          | 1          |            |             |             |                  |           |            |                |             |                  |             |
| <i>Business</i>  | -0.16           | 0.12         | 0.12*           | 0.22*            | -0.03      | 1          |             |             |                  |           |            |                |             |                  |             |
| <i>Size</i>      | -0.14           | 0.08*        | 0.10**          | 0.11**           | 0.28***    | -0.08*     | 1           |             |                  |           |            |                |             |                  |             |
| <i>Loss</i>      | 0.33***         | -0.14***     | -0.16***        | -0.19***         | -0.20***   | 0.07       | -0.33***    | 1           |                  |           |            |                |             |                  |             |
| <i>DebtRatio</i> | 0.19*           | 0.03         | -0.00           | 0.21             | -0.04      | 0.08*      | -0.11***    | 0.27***     | 1                |           |            |                |             |                  |             |
| <i>AR</i>        | 0.32            | -0.09**      | -0.05           | -0.08**          | -0.05      | -0.00      | -0.13***    | 0.03        | 0.14***          | 1         |            |                |             |                  |             |
| <i>CFO</i>       | -0.34***        | 0.24***      | 0.27***         | 0.21***          | 0.23***    | -0.00      | 0.23***     | -0.52***    | -0.24***         | -0.18***  | 1          |                |             |                  |             |
| <i>Foreign</i>   | -0.16*          | 0.10**       | 0.14***         | 0.12***          | 0.10**     | 0.01       | 0.52***     | -0.27***    | -0.19***         | -0.15***  | 0.17***    | 1              |             |                  |             |
| <i>Big4</i>      | -0.03           | 0.09**       | 0.08*           | 0.10**           | 0.04       | -0.02      | 0.26***     | -0.18***    | -0.04            | -0.09*    | 0.17***    | 0.19***        | 1           |                  |             |
| <i>Committee</i> | 0.09            | 0.08*        | 0.08*           | 0.09**           | 0.19***    | -0.08*     | 0.74***     | -0.16***    | -0.01            | -0.07     | 0.11***    | 0.36***        | 0.23***     | 1                |             |
| <i>Beta</i>      | -0.16*          | -0.01        | 0.00            | -0.01            | -0.13***   | 0.05       | 0.07*       | -0.07*      | -0.04            | -0.01     | 0.07*      | -0.04          | 0.06        | -0.03            | 1           |

1) \*, \*\*, and \*\*\* indicate 10%, 5%, and 1% levels of significance, respectively.

2) Definitions of variables are shown in (Table 6).

but there is no significant correlation between *Business* and *Embezzle*.

Moreover, there is a significant correlation of 0.75 between *Relation* and *STholding*. *CFO* and *Foreign* have significant and negative correlations with *Embezzle*, indicating that firms with lower cash flows or foreign investors tend to have more embezzlement. Meanwhile, *Loss* and *DebtRatio* show significant positive correlations with *Embezzle*, meaning that companies with losses or high debt ratios are associated with embezzlement.

#### 4.2 Results of logit Analysis<sup>17)</sup>

Panel A of (Table 8) reports the results of the logit analysis of CEO embezzlement on the ownership status of a CEO (non-owner versus owner) and all control variables.<sup>18)</sup> The dependent variable is *Embezzle*, a dummy variable that takes the value of 1 if the CEO committed embezzlement and 0 otherwise. The coefficient of *Owner* is negative and significant at less than a 1% significance level. This suggests that the owner-CEO who either

17) We opted for logit regression because the dependent variable used is a binary variable, with the notation 1 for embezzlement and 0 for others.

18) Logit analysis using the full sample instead of the matching sample yielded the same results.

owns more than 5% of outstanding shares, or is the largest shareholder or a relative of the largest shareholder is less likely to commit embezzlement, thus rejecting the null hypothesis 1.

With respect to the control variables, the coefficients on *Loss* and *Debt ratio* are positive and significant at less than a 1% significance level, suggesting that firms reporting losses or with large debt are more likely to be involved in embezzlement committed by

CEOs.

〈Table 8〉 also shows the result of the logit analysis to test whether CEO age and major (Business or non-Business) are associated with embezzlement. *AGE* in Panel B is a variable that presents the CEO's age in the year of embezzlement; the coefficient of *AGE* is  $-0.02$  and is negative and significant at 1% significance level. This result suggests that older CEOs are less likely to commit embezzlement. Considering that generations

〈Table 8〉 Logit analysis results

| Dependent variable: Embezzle |                    |                 |                    |                 |                    |                 |                    |                 |
|------------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|
|                              | Panel A(H1)        |                 | Panel B(H2-1)      |                 | Panel C(H2-2)      |                 | Panel D            |                 |
| Variable                     | Parameter Estimate | Wald Chi-Square | Parameter Estimate | Wald Chi-Square | Parameter Estimate | Wald Chi-Square | Parameter Estimate | Wald Chi-Square |
| <i>Intercept</i>             | -5.38              | 0.95            | -14.42             | 3.65*           | -11.37             | 2.51            | -15.91             | 3.82*           |
| <i>Owner</i>                 | -1.63              | 34.33***        |                    |                 |                    |                 | -1.05              | 7.67***         |
| <i>AGE</i>                   |                    |                 | -0.02              | 10.62***        |                    |                 | -0.03              | 7.39***         |
| <i>Business</i>              |                    |                 |                    |                 | -2.20              | 0.90            | -1.90              | 1.64            |
| <i>Size</i>                  | 0.09               | 0.15            | 0.53               | 2.77*           | 0.39               | 1.70            | 0.63               | 3.31*           |
| <i>Loss</i>                  | 1.24               | 10.67***        | 0.93               | 3.13*           | 1.26               | 6.00**          | 1.12               | 3.86**          |
| <i>Debt ratio</i>            | 2.80               | 14.80***        | 2.75               | 9.30***         | 2.38               | 8.05**          | 3.47               | 12.25***        |
| <i>AR</i>                    | 0.02               | 0.00            | 1.14               | 0.66            | -0.09              | 0.00            | 1.17               | 0.64            |
| <i>CFO</i>                   | -1.39              | 1.25            | -2.25              | 1.83            | -1.23              | 0.56            | -1.11              | 0.40            |
| <i>Foreign</i>               | 0.83               | 0.12            | -0.56              | 0.04            | -1.04              | 0.16            | 0.49               | 0.02            |
| <i>Big4</i>                  | -0.41              | 1.69            | -0.30              | 0.59            | -0.37              | 0.91            | -0.30              | 0.49            |
| <i>Committee</i>             | 0.04               | 1.64            | 0.01               | 0.06            | 0.02               | 0.15            | -0.00              | 0.01            |
| <i>Beta</i>                  | 0.26               | 0.52            | -0.23              | 0.23            | -0.26              | 0.32            | -0.16              | 0.10            |
| Likelihood Ratio             | 102.05***          |                 | 67.33***           |                 | 89.64***           |                 | 115.88***          |                 |
| N                            | 490                |                 | 464                |                 | 490                |                 | 490                |                 |

1) \*, \*\*, and \*\*\* indicate 10%, 5%, and 1% levels of significance, respectively.

2) The likelihood ratio of the model is the chi-square statistic.

3) Definitions of variables are shown in 〈Table 6〉.

who experienced war tend to form conservative values (Zemke et al., 2000), we may infer that the conservative tendency of CEOs decreases the occurrence of extreme unethical behavior such as embezzlement.

In Panel C of <Table 8>, *Business* is a dummy variable that takes the value of 1 if the executive has a (under)graduate business degree and 0 otherwise. Although the coefficient on *Business* is negative, it is insignificant. Thus, we cannot reject the null hypothesis that a CEO's major is associated with embezzlement.

Panel D of <Table 8> is the result of the analysis using all explanatory variables (*Owner*, *AGE*, *Business*) is carried out. As seen in Panel D, the result is consistent with findings of Panel A, B, and C. Furthermore, it is found that *Owner* and *AGE* variables significantly affect CEO's behavior. For the control variables, the coefficients on *Loss* and *Debt ratio* show significantly positive values respectively, suggesting that the embezzlement firms are more likely to report losses and tend to use more debts.

#### 4.3 Additional test

For robustness check, we employ narrower definitions of owner CEO: we define an owner CEO as a manager who satisfies one of two conditions: 1) he/she owns more than 5% of outstanding shares (*STholding*), or 2) is the largest shareholder or a relative of the larg-

est shareholder (*Relation*). <Table 9> reports the results of the logit analysis of embezzlement on each type of CEO.

In Panel A, we include the *STholding* as the variable of interest, representing CEOs' 5% share ownership. Panel B shows the result when independent variable is *Relation*, meaning the CEO is largest shareholder or a relative of the largest shareholder. First, the coefficient of *STholding* in Panel A is negative and significant at less than a 1% significance level. This result confirms the argument the owner-CEOs with more than 5% of shares of a firm are less likely to commit embezzlement, thereby rejecting the null hypothesis 1.

The coefficient of *Relation* in Panel B is also negative (-1.73) and significant, indicating that owner-CEOs defined as the largest shareholder or a relative of the largest shareholder are less likely to commit embezzlement. This result is consistent with the goal-congruence view of Fama and Jensen(1983) that, since owner CEOs have high investment shares in their corporations, they have a greater tendency to avoid risks, and thus owner CEOs are less likely to commit unethical acts that may damage the corporation's image and survival, such as embezzlement. This result remains robust regardless of diverse definitions of owner-manager.

〈Table 9〉 Logit analysis results on CEO ownership status

| Dependent variable: Embezzle |                    |                 |                        |                    |                 |
|------------------------------|--------------------|-----------------|------------------------|--------------------|-----------------|
| Panel A                      |                    |                 | Panel B                |                    |                 |
| Variable                     | Parameter Estimate | Wald Chi-Square | Variable               | Parameter Estimate | Wald Chi-Square |
| <i>Intercept</i>             | -4.75              | 0.73            | <i>Intercept</i>       | -6.52              | 1.39            |
| <b><i>STholding</i></b>      | <b>-1.66</b>       | <b>35.81***</b> | <b><i>Relation</i></b> | <b>-1.73</b>       | <b>39.45***</b> |
| <i>Size</i>                  | 0.05               | 0.06            | <i>Size</i>            | 0.13               | 0.34            |
| <i>Loss</i>                  | 1.18               | 9.54***         | <i>Loss</i>            | 1.21               | 10.12***        |
| <i>DebtRatio</i>             | 2.65               | 13.50***        | <i>DebtRatio</i>       | 2.78               | 14.97***        |
| <i>AR</i>                    | 0.41               | 0.16            | <i>AR</i>              | -0.02              | 0.00            |
| <i>CFO</i>                   | -1.24              | 0.97            | <i>CFO</i>             | -1.75              | 2.02            |
| <i>Foreign</i>               | 1.73               | 0.55            | <i>Foreign</i>         | 0.91               | 0.15            |
| <i>Big4</i>                  | -0.52              | 2.64            | <i>Big4</i>            | -0.35              | 1.28            |
| <i>Committee</i>             | 0.04               | 1.71            | <i>Committee</i>       | 0.04               | 1.31            |
| <i>Beta</i>                  | 0.33               | 0.85            | <i>Beta</i>            | 0.26               | 0.54            |
| Likelihood Ratio             | 107.07***          |                 | Likelihood Ratio       | 105.43***          |                 |
| N                            | 490                |                 | N                      | 490                |                 |

1) \*, \*\*, and \*\*\* indicate 10%, 5%, and 1% levels of significance, respectively.

2) The likelihood ratio of the model is the chi-square statistic.

3) Definitions of variables are shown in 〈Table 6〉.

## V. Conclusion

This study investigates the association between CEO embezzlement and CEO characteristics in the Korean capital market. This issue was not addressed in previous studies, although CEOs can be the key players in corporate embezzlement. We analyze the association between embezzlement by CEO and CEO characteristics, represented by ownership status and demographic variables (age and major), by examining cases of CEO em-

bezzlement disclosed on the KIND database from 2005 to 2012.

The main results of this study are as follows. First, owner CEOs are less likely to commit embezzlement compared to non-owner CEOs, confirming goal congruence between owner-managers and other shareholders as suggested by Jensen and Meckling(1976). Next, older CEOs are less likely to commit asset embezzlement, but there is no significant association between embezzlement and business degree acquisition. This result remains robust over various definitions of owner-CEO and

different sets of logit models.

This study contributes to studies on corporate fraud in accounting area as follows. First, this study confirms that ownership status of a CEO and some demographic variable such as age can explain embezzlement committed by CEOs systematically. Second, while previous studies on corporate fraud mostly have focused on unfaithful financial statements, this study focuses on firms' embezzlement cases. Third, this study tries to overcome the limitations of earlier studies by using the occurrence date of embezzlement, not the disclosure date. Finally, by confirming that CEOs' unique characteristics can be utilized as variables to explain firm embezzlement systematically, the results of this study present a meaningful way to improve the transparency of corporate governance.

Many prior studies focus on the financial statement fraud, expanding this paper, we suggest for future research examining CEO's characteristics of the regulatory reviewed firms.

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## 자산횡령과 경영자 특성\*

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### 요 약

본 연구는 기업부정(fraud)과 기업부정의 직접적인 관여자라고 할 수 있는 경영자 특성간의 관계를 기업횡령 사건을 중심으로 살펴보고자 한다. 기업부정은 개인의 부를 증진시키기 위하여 자신의 직위를 이용함으로써 기업의 자원 및 자산을 의도적으로 오용하거나 유용하는 것을 말한다(ACFE, 2009). 그동안의 기업부정 사건과 관련한 선행연구는 다양하게 진행되어 왔지만 기업부정의 핵심적 주체가 될 수 있는 경영자에 대한 고려가 없으며, 본 연구는 기업부정관련 사건 중 2005년에서 2012년 사이에 발생한 자산횡령을 중심으로 살펴보고자 한다. 기업 횡령사건의 상당부분을 경영자가 관여하고 있다는 점에서 횡령의 주체인 경영자와 횡령의 관련성을 살펴 볼 필요가 있다.

그렇다면 경영자의 의사결정이나 행위에 영향을 줄 수 있는 요인이 무엇이며, 이러한 요인들이 횡령을 체계적으로 설명할 수 있는가?라는 문제에 본 연구는 실증적 증거를 제시하고자 한다.

본 연구의 실증결과, 먼저, 소유경영자가 전문경영자들에 비해 횡령을 저지를 가능성이 낮은 것으로 나타났다. 다음으로, 경영자의 나이와 자산횡령과 관련이 있는지를 분석한 결과, 경영자의 나이가 많을수록 자산횡령을 덜 하는 것으로 나타났다. 한편 경영자가 경영학을 전공했는지의 여부와 자산횡령 간에는 유의한 관계를 발견하지 못하였다.

학문적으로 본 연구는 기업부정의 핵심적 주체가 될 수 있는 경영자에 중점을 두고, 경영자의 경제적 유인과 관련이 있는 소유·전문 경영자 여부와 경영자 개인의 특유(idiosyncratic)하고 비경제적인(noneconomic) 인구통계학적 변수가 기업부정을 체계적으로 설명할 수 있는 변수가 될 수 있는지를 파악했다는 점에서 의미가 있을 것이다. 횡령의 발생가능성과 관련이 있는 경영자의 특성을 관찰하는 것은 실무적으로도 기업경영권 시장에 도움이 될 수 있을 것으로 기대한다.

주제어: 자산횡령, 경영자 특성

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- 저자 박하연은 현재 서강대학교 경영대학 대우교수이다. 서강대학교에서 수학/경영을 전공하였으며, 동 대학의 경영전문대학원에서 석사(금융전공) 및 박사(회계학 전공)를 취득하였다. 주요연구분야는 기업부정, 기업 공시, 회계투명성, 이익조정, 기업지배구조 등이다.
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