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CEO Type and Earnings Management to Avoid Loss or Earnings Decreases: Evidence from South Korea

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Abstract: This study examines the relations between the CEO type (owner CEO vs. professional CEO) and earnings management over 9,266 firm-years from 2011 to 2020 in Korea. Two earnings management measures, accrual management and real activity management (abnormal cash flow from operations, abnormal production cost, and abnormal discretionary expense), are considered as means to avoid reporting losses or earnings decreases. We partition the sample into two groups based on the type of CEO (owner CEO vs. professional CEO) and investigate whether earnings management is used for achieving earnings targets (small profit or small earnings increases) for each group. We find all earnings management measures are significant at the 5% level or better in the direction of aggressive earnings management in the owner CEO sample, while all but one measure (abnormal production cost) are insignificant in the professional CEO sample. Our findings suggest that an owner CEO is more likely to manage earnings to achieve small profit or small earnings increases compared to a professional CEO.

Keywords: CEO type, owner CEO, professional CEO, earnings management, discretionary accruals, real activity management
JEL Classification: M19, M41

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Introduction

A classic assumption behind corporations is that the ownership of capital is spread amongst numerous shareholders, while the control of the business operations is left with the managers (Jensen & Meckling, 1976; Grossman & Hart, 1986). These managers are independent from the shareholders, i.e., they are hired professional CEOs. In the real world, the assumption of ownership dispersion tends to fail: ownership tends to concentrate on a handful of shareholders (Demsetz, 1986; Shleifer & Vishny, 1986; Morck et al., 1988). This phenomenon is especially prevalent in Southeast Asian and Korean firms (La Porta et al., 1999; Claessens et al., 2000). The major shareholders may then enlist an individual who is closer to them – for example, a family relative – as the CEO. This type of manager is referred to as an owner CEO: the majority shareholder (i.e. the "owner" of the firm) and the manager are either the same or closely affiliated. While the previous literature uses different criteria for the exact definition of an owner CEO, a recent paper by Ryu and Cho (2021) combines some of the more widely used criteria into a singular definition: an owner CEO is a CEO who is (1) the top shareholder or a related party to the top shareholder, (2) a member of the top five shareholders, or (3) the owner of over 2% of the firm's shares. A CEO who does not satisfy any of these criteria is defined as a professional CEO.

Previous literature finds that, due to the differing circumstances, owner and professional CEOs have different motivations and thus show contrasting behavior. On the one hand, owner CEOs want to bequeath their ownership to their descendants (Davis et al., 1997), and are more emotionally connected to their companies than professional CEOs (Gomez-Mejia et al., 2003). Such motivations incentivize the maximization of long-term firm value. On the other hand, professional CEOs are inclined to maximize short-term performance since risk-seeking behavior can lead to employment risk (Yang, 2010; Choi & Bae, 2011; Ryu & Cho, 2021). The difference in behavior occurs across a spectrum of business decisions. Many studies report that professional CEOs spend less on research and development than owner CEOs (Seo & Chang, 2010; Kim & Song, 2011; Shin & Lee, 2016; Ryu & Cho, 2021, etc.). The proportion of majority shareholder ownership influences the business diversification decisions in owner and professional-managed companies (Kim & Kim, 2010). Professional CEOs tend to smooth corporate taxes to increase dividends and hence their compensation (Bae & Kim, 2016), and improve CSR (Corporate Social Responsibility) to reduce corporate risk (Nam & Choi, 2016). Professional-managed companies are more likely to appoint a Big-4 or industry expert auditor in order to reduce agency costs (Kim & Cho, 2017; Oh et al., 2017).

It is difficult to provide a single, all-encompassing definition for earnings quality due to its multifaceted nature. However, previous accounting studies implicitly agree in general that earnings quality is a measure of how accurately reported earnings reflect the

actual financial performance of a firm (Dechow et al., 2010), i.e., earnings quality can erode if the reported earnings are distorted from the actual performance. One of the possible causes of this distortion is earnings management, where a firm manager may manipulate the reported earnings in order to achieve certain objectives (Dechow et al., 2010). According to the previous literature, a firm manager is likely to manage earnings opportunistically for a firm's financial incentives, such as external financing (Dechow et al., 1996; Teoh et al., 1998; Cohen & Zarowin, 2010, etc.) and contracts in which stakeholders assess a firm using reported earnings, or for personal incentives such as bonus maximization and retention of managerial position (Bergstresser & Philippon, 2006; Beaudoin et al., 2015, etc.).

Since earnings management can be an opportunistic decision, it is assumed to lower earnings quality (Dechow et al., 2010). For example, a loss or earnings decrease can signal poor performance by the management when reported. Such potential repercussions may motivate the management to inflate the reported earnings to achieve a certain target, such as zero earnings, earnings in the previous period, and analyst forecast consensus (Degeorge et al., 1999). Reported earnings can be manipulated through discretionary accruals (aptly named accrual management) (Dechow, 1994; Dechow et al., 1995; Dechow et al., 2003 etc.) or through real activities (real management) (Roychowdhury, 2006; Gunny, 2010), and each comes with its own set of advantages and disadvantages.

On the surface, opportunistic earnings management may seem like a problem that is exclusive to professional CEOs: since they tend to focus on maximizing short-term performance, professional CEOs may be willing to take actions that obscure the true performance of a firm. However, owner CEOs may also be motivated to manage earnings: Wang (2006) hypothesizes that for founding family ownership, the earnings quality may deteriorate due to the entrenchment effect (i.e, the family manages earnings for personal benefits). Furthermore, while the two types of CEOs have distinct incentives and exhibit different business practices, the difference is not so clear-cut for earnings management. Wang (2006) finds that earnings quality tends to be higher for family-owned businesses. Similarly, Yang (2010) reports that professional CEOs perform more earnings management since their compensation is dependent on the reported earnings. In contrast, Lim (2007) does not find a difference in earnings management levels between owner and professional CEOs for insolvent firms. Kim et al. (2015) document a negative relation between discretionary accruals and owner CEO, and claim that the incentive for earnings management decreases for owner CEOs since agency costs decrease with an increase in the owner's shares. Son and Park (2016) challenge this assertion, showing that owner CEOs have higher discretionary accruals based on the modified Jones model and that professional CEOs have lower discretionary accruals based on both the modified Jones model

and the performance controlled-discretionary accrual model.

Although the effect of the type of CEO on earnings management is mixed, it is still a crucial determinant of earnings management. However, there is little research that focuses on earnings management with specific objectives, such as avoiding loss or earnings decreases, in Korean firms by their CEO type. To address this gap, this paper looks at the effect of the CEO type on earnings management in Korean firms under circumstances which provide a greater incentive to manage earnings: to avoid losses and earnings declines.

Our major findings are as follows. First, we observe both aggressive accrual management and real activity management to achieve small profit or small earnings increases in the owner CEO sample. However, the professional CEO sample does not appear to exhibit any significant accrual management or real activity management to achieve target earnings. The main results remain when we use the Heckman two stage regression model (Heckman, 1979) to control for potential endogenous issues related to the CEO type.

This study makes three main contributions to the existing literature. First, it looks at both accrual and real earnings management rather than looking at a single method. By investigating both methods, the paper provides a holistic view of the earnings management behavior of firms by CEO type. Second, this paper addresses earnings management behavior when firms are likely to report losses or earnings declines, i.e., when the incentive to manage earnings is amplified. Third, it examines earnings management by CEO type using firms in Korea, a country in which many firms have unique ownership structures where an individual exercises control over a firm through both the direct ownership of shares and indirect ownership through affiliated entities (An et al., 2002; Lee et al., 2012; Kang & Kim, 2016). The previous literature finds owner CEOs with such characteristics, i.e., those with enough shares to influence business decisions or who are affiliated with the majority shareholder, show distinctive behavior which differs from that of professional CEOs, and we show that a difference also appears in their earnings management patterns.

The rest of this study is organized as follows. Section 2 provides the literature review and hypothesis development. Sections 3 and 4 present the research design and the results based on the research design. Section 5 concludes the study.

Literature Review

Manager Type

Jensen and Meckling (1976) develop the theory of firms based on the classic agency theory (Ross, 1973; Ross, 1974; Heckerman, 1975, etc.), which can help explain the behavior of the management of a firm. The agency theory explains the relationship be-

tween the principal, who hires an agent and delegates the power to make decisions for the principal to the agent, and the agent, who is assumed to perform or work on behalf of the principal. However, the agency relationship has a fundamental problem: the agent may pursue his/her own interests rather than work in the best interests of the principal. In a firm, the owner (or shareholder) is the principal and the manager is the agent. Due to an information asymmetry between the owner, who does not have information on the firm, and the manager, who has private information on the firm, the manager may prioritize personal gains using the private information (Jensen & Meckling, 1976) and this results in a moral hazard (Boučkovà, 2015).

Villalonga and Amit (2006) divide the agency problem into two types, Agency Problem I and Agency Problem II. The classic agency problem between owner and manager is defined as Agency Problem I, and it can be mitigated if the owner (or the large shareholder) closely monitors the manager. Agency Problem II occurs between the owner and small shareholders: the large shareholder can expropriate minority shareholders, pursuing his/her own interests over the small shareholders' interests. Agency Problem II can be particularly problematic if the owner or large shareholder is an individual or a family. Villalonga and Amit (2006) find that firms with the founder as the owner increase firm value (mitigating Agency Problem I) whereas firms with a descendant of the founder as the owner cause firm value to deteriorate (exacerbating Agency Problem II). In summary, a firm with a professional CEO faces the risk of Agency Problem I while one operated by the owner or someone affiliated with the owner can run into Agency Problem II.

Southeast Asian and Korean firms are known to have unique ownership structures (La Porta et al., 1999). For many Korean firms, an individual exercises control over the firm not only through direct ownership of equity, but also via indirect ownership through related entities such as affiliated persons or subsidiaries (An et al., 2002; Lee et al., 2012; Kang & Kim, 2016). The previous literature finds that owner CEOs with such characteristics, i.e., those with enough shares to influence business decisions or those affiliated with the majority shareholder, show distinctive behavior which differs from that of professional CEOs.

The previous literature uses different criteria for determining the type of CEO. Some use the ownership structure, such as the ownership ratio (Park et al., 2006; Lee, 2014) or belonging to the five (or three) largest shareholders (Lim, 2007). Others define the owner CEO as the person who is the largest shareholder, or is a related party to the largest shareholder (Shin & Chang, 2005), or a CEO of a firm that belongs to a Chaebol group (Song, 2018). A recent paper by Ryu and Cho (2021) combines several widely used criteria, defining an owner CEO as someone who (1) is the largest shareholder (i.e., the owner) or a related party to the largest shareholder; (2) belongs to the top five largest

shareholders; or (3) is the owner of over 2% of the firm's shares. A CEO who does not satisfy any of these criteria is defined as a professional CEO. This paper follows the last definition as it is the most comprehensive amongst all the available definitions of an owner CEO.

Owner CEOs are motivated to pass on their ownership to their descendants (Davis et al., 1997), and are more emotionally connected to their companies than professional CEOs (Gomez-Mejia et al., 2003). Thus, owner CEOs have a powerful incentive to maximize long-term firm value, in contrast to professional CEOs who tend to focus on short-term performance, since risk-seeking behavior can lead to employment risk (Yang, 2010; Choi & Bae, 2011; Ryu & Cho, 2021). Consequently, the type of CEO can influence a firm's investment decisions: for example, many studies report that professional CEOs spend less on research and development than owner CEOs (Seo & Chang, 2010; Kim & Song, 2011; Shin & Lee, 2016; Ryu & Cho, 2021, etc.).

The CEO type has been reported to affect other aspects of firm operations, including business diversification, tax policies, corporate social responsibility (CSR), the appointment of board members and auditors, and CEO turnover. Owner and professional-managed companies are found to make different business diversification decisions based on the proportion of the majority shareholder's ownership (Kim & Kim, 2010). Professional CEOs tend to smooth corporate taxes to increase dividends and hence their compensation (Bae & Kim, 2016), and reduce corporate risk by improving CSR (Nam & Choi, 2016). Owners are motivated to appoint family members to the board, to monitor the professional CEOs and keep them in check (Nam, 2017). This monitoring is also reflected in the appointment of auditors: previous studies find that professional-managed companies are more likely to appoint a Big-4 or industry expert auditor in order to reduce agency costs (Kim & Cho, 2017; Oh et al., 2017). Shin and Chang (2005) find that firm performance has a greater influence on CEO turnover for professional CEOs than for owner CEOs.

Earnings Management

The management of a firm has incentives to inflate earnings to achieve a certain target, such as making a profit or showing earnings growth, since reporting a loss or earnings decrease can be a signal of poor performance by the management. For example, Degeorge et al. (1999) argue that the management tends to manipulate earnings to meet or beat three earnings thresholds: zero earnings, earnings in the previous period, and analyst forecast consensus. An abnormally higher frequency of small positive earnings or small earnings increases being reported than small negative earnings or small earnings decreases (Burgstahler & Dichev, 1997) further implies that firms may try to avoid loss or earn-

ings declines.

Past literature on earnings management tends to discuss two major categories of earnings management methods: earnings management through (a) accruals and (b) real actions, also known as accrual management (AM) and real activity management (RM). Accruals are divided into non-discretionary and discretionary accruals. The latter type of accruals is easier for the management of a firm to manipulate, and is frequently used in earnings management (Dechow, 1994; Dechow et al., 1995; Dechow et al., 2003, etc.). However, accrual management affects only reported earnings and not the actual cash flow, and has several side-effects (i.e., accrual reversal) in the subsequent periods.

In contrast, real activity earnings management involves taking real action. Through a survey of firm executives, Graham et al. (2005) find that most managers would take real action to manage earnings, even if such action would sacrifice the long-term value of their firms. Roychowdhury (2006) endorses the survey results with empirical evidence, showing that firm managers are likely to manage earnings through real activities such as sales manipulation, overproduction, and reduction of discretionary expenses in order to avoid reporting losses. Gunny (2010) provides further evidence of firms' real activity management to avoid earnings underperformance, loss or earnings decreases.

Manager Type and Earnings Management

Despite the seemingly clear difference in motivation and resultant behavior between the CEO types, previous evidence on the effect of the type of CEO on earnings management is mixed. Wang (2006) hypothesizes that for founding family ownership, earnings quality may deteriorate due to the entrenchment effect (i.e, the founding family manages earnings in pursuit of personal benefits) or may improve due to the alignment effect (i.e., the founding family is motivated to report trustworthy earnings). Upon performing an empirical analysis, Wang (2006) documents that earnings quality – proxied by discretionary accruals, earnings response coefficients and transitory loss components – tends to be higher for family-owned businesses. Wang (2006) also notes that this relation is concave, where the earnings quality increases up to a point, before decreasing. After defining a family CEO (i.e., owner CEO) as a firm manager who is related to the majority shareholder, Yang (2010) find that non-family CEOs (i.e., professional CEOs) perform more earnings management, since their compensation is dependent on the reported earnings. Many other papers report that family-run firms tend to avoid earnings management, especially real earnings management, to retain future firm value (Achleitner et al., 2014; Chen et al., 2015; Martin et al., 2016; Ghaleb et al., 2020).

In contrast, Lim (2007) does not find a difference in earnings management levels between owner CEOs and professional CEOs. This result must be interpreted with care,

as the sample consists of insolvent firms. Kim et al (2015), who report a negative relation between discretionary accruals from the modified Jones model and owner CEOs, suggest that the incentive for earnings management decreases for owner CEOs since agency costs decrease with an increase in the owner's shares. The evidence from Son and Park (2016) contradict this assertion, with owner CEOs having higher discretionary accruals based on the modified Jones model, and professional CEOs having lower discretionary accruals based on both the modified Jones model and performance controlled-discretionary accrual model. Other authors concur with this notion, implying that owner CEOs tend to manage earnings, especially through accrual management (Yang et al., 2008; Zouari et al., 2015; Razzaque et al., 2016; Eng et al., 2019; Alhebri & Al-Duais, 2020; Qawasmeh & Azzam, 2020). The mixed evidence seems to be the result of inconsistencies in the sample periods, as well as the definitions for owner and professional CEOs.

Based on the above discussion, it is clear that the type of CEO has a significant impact on the business decision-making process of a firm, but that the effect is not conclusive for earnings management. Thus, this paper reinvestigates the effect of the CEO type (professional CEO vs. owner CEO) on earnings management by focusing on losses and earnings declines (i.e., situations with greater incentives to manage earnings) and derives the following hypotheses. In this study, the CEO of each firm is the person labeled as the CEO and is positioned in the first rank of the management list. Among them, an owner CEO is defined as a CEO who is one of the five largest shareholders, owns 2% or more of the firm's shares[1] or is a related party to the owner of the firm, whereas a professional CEO is a CEO that does not satisfy any of these criteria (Ryu & Cho, 2021).

H1: The CEO type is likely to affect accruals management to avoid losses or earnings decreases.

H2: The CEO type is likely to affect real activity management to avoid losses or earnings decreases.

Research Method

Estimation Model for Earnings Management

Since this study investigates both accrual management (AM) and real activity management (RM), we use a separate estimation model for each earnings management method. AM is proxied by discretionary accruals computed through a model discussed in Dechow (1994) and Kothari et al. (2005), and RM is measured using the abnormal cash flow from operations, abnormal production costs, and abnormal discretionary expenses, all of which are calculated by following Roychowdhury (2006). The estimation model

[1]The 2% ownership threshold for defining an owner CEO in Korean firms is based on previous studies such as Park et al. 2006, Lee 2014, and Ryu and Cho 2021.

for each proxy is described below. Each equation is estimated cross-sectionally for each year-industry group between 2011 and 2020 where the number of observations is at least 10. All variables are winsorized at the top and bottom 1% of their respective distributions.

(1) Estimation of Performance-Adjusted Discretionary Accruals

The AM measure is estimated using the performance-adjusted modified Jones model (Dechow, 1994; Kothari et al., 2005) shown in Equation (1). The residuals represent the performance-adjusted discretionary accruals (denoted as *PADA*), which is used as the AM measure.

$$\frac{TACC_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{TA_{it-1}}\right) + \alpha_2\left(\frac{\Delta S_{it} - \Delta REC_{it}}{TA_{it-1}}\right) + \alpha_3\left(\frac{PPE_{it}}{TA_{it-1}}\right) + \alpha_4 ROA_{it} + \varepsilon_{it} \qquad (1)$$

where,

$TACC_{it}$: total accruals (net income - cash flow from operations)
TA_{it-1}: beginning total assets
ΔS_{it}: change in sales ($sales_{it}$ – $sales_{it-1}$)
ΔREC_{it-1}: change in receivables from trade ($receivable_{it}$ – $receivable_{it-1}$)
PPE_{it}: property, plant and equipment
ROA_{it}: return on assets (net income/beginning total assets)
ε_{it}: error

In Equation (1), firm and year are expressed as subscript i and t which are suppressed in the subsequent discussion to ease exposition.

(2) Estimation of Abnormal Cash Flow from Operations

Among the RM measures, abnormal cash flow from operations is estimated from Equation (2). The residuals represent the abnormal cash flow from operations (denoted as *Ab_CFO*).

$$\frac{CFO_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{TA_{it-1}}\right) + \alpha_2\left(\frac{S_{it}}{TA_{it-1}}\right) + \alpha_3\left(\frac{\Delta S_{it}}{TA_{it-1}}\right) + \varepsilon_{it} \qquad (2)$$

where,

CFO_{it}: cash flow from operations
S_{it}: sales

(3) Estimation of Abnormal Production Costs

The second RM measure, abnormal production costs, is estimated using Equation (3). The residuals represent abnormal production costs (denoted as *Ab_PROD*).

$$\frac{PROD_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{TA_{it-1}}\right) + \alpha_2\left(\frac{S_{it}}{TA_{it-1}}\right) + \alpha_3\left(\frac{\Delta S_{it}}{TA_{it-1}}\right) + \alpha_4\left(\frac{\Delta S_{it-1}}{TA_{it-1}}\right) + \varepsilon_{it} \quad (3)$$

where,

$PROD_{it}$: production costs (the sum of the cost of goods sold and the change in inventory)

(4) Estimation of Abnormal Discretionary Expenses

To calculate the final RM measure, abnormal discretionary expenses, we estimate Equation (4). The residuals represent abnormal discretionary expenses (denoted as *Ab_DISE*).

$$\frac{DISE_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1\frac{1}{TA_{it-1}} + \alpha_2\frac{S_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (4)$$

where,

$DISE_{it}$: discretionary expenses

Main Regression Model

To investigate the research questions of this study, the ordinary least squares (OLS) regression model in Equation (5) is constructed. Equation (5) is similar to those in Roychowdhury (2006), who finds that US firms tend to use aggressive real earnings management (abnormal cash flow from operations, abnormal production costs, and abnormal discretionary expenses) to avoid loss or earnings decreases. Since this paper focuses on whether similar findings are observed for two different types of earnings management – accrual and real earnings management – across firms based on different CEO types, we divide the sample into owner CEO and professional CEO subsamples and run Equation (5) over each subsample to see the difference in earnings management to avoid losses or earnings decreases between the subsamples.

$$EM_{it} = \beta_0 + \beta_1 Size_{it-1} + \beta_2 Growth_{it} + \beta_3 Leverage_{it-1} + \beta_4 ROA_{it} + \beta_5 ME_{it} + \beta_j IndustryDummy + \beta_t YearDummy + \varepsilon_{it} \quad (5)$$

where,

EM_{it}: each earnings management measure computed from Equations (1) – (4), i.e., residuals from each estimation model (discretionary accruals, abnormal cash flow from operations, abnormal production costs, and abnormal discretionary expenses).

$Size_{it-1}$: natural log of beginning total assets

$Growth_{it}$: sales growth rate [$(sales_{it} - sales_{it-1})/sales_{it-1}$]

$Leverage_{it-1}$: leverage (beginning total assets/beginning liabilities)

ROA_{it}: return on assets (net income/beginning total assets)

ME_{it}: an indicator variable that equals one if net income/beginning total assets or Δnet income/beginning total assets is greater than 0 but less than 0.005, and zero otherwise

IndustryDummy: industry dummies

YearDummy: year dummies

In Equation (5), the dependent variable is *EM*, which represents each earnings management measure, while the test variable is *ME*, which represents observations meeting the earnings target, specifically zero earnings and the previous period's earnings. Since firms have strong incentives to avoid losses or decreases in earnings, earnings management behavior would be more likely to appear for *ME* due to how small their earnings or earnings increases are (Roychowdhury, 2006; Gunny, 2010; Na & Hong, 2017). If firms are likely to use aggressive earnings management to avoid losses or earnings decreases, *ME* would have positive coefficient estimates when the dependent variable is either discretionary accruals or abnormal production costs and negative coefficient estimates when the dependent variable is either abnormal cash flow from operations or abnormal discretionary expenses.

Equation (5) includes several control variables similar to those in Roychowdhury (2006), including firm size, growth, leverage, and ROA as well as industry and year dummies in order to control for industry and year effects.

Results

Sample selection

The initial sample is collected from the KISVALUE database and consists of 21,440 firm-year observations from non-financial industries. From this sample, 400 observations with fiscal year-end other than December, along with 1,683 observations with an audit opinion other than "unqualified," and 109 observations with impaired capital are deleted

to obtain a homogeneous sample. The initial sample period starts from 2010 in order to calculate variables that require one-year lag data, making the final sample period 2011 to 2020.

CEO-related data are collected from the KISLINE database between 2011 and 2020. The CEO for each company is identified as the person who is labeled as the CEO and/or is positioned in the first rank of the management list. If the first rank of the list includes "Honorary Chairman," "Group Chairman," or "Advisor," then the next rank is classified as the CEO since "Honorary Chairman," "Group Chairman" and "Advisor" are not considered to actually be managing their firm's business (Lee et al., 2007). Among them, a professional CEO is defined as a CEO who is not included in the top five major shareholders, owns less than 2% of the firm's total shares and is not a related party to the owner of the firm, while an owner CEO is defined as a CEO who is one of top five major shareholders, owns 2% or more of the firm's shares, or is a related party to the owner of the firm (Ryu & Cho, 2021). Data on the type of CEO are mostly hand collected.

Then, the data on the CEOs are merged with the financial data from the KISVALUE database. Excluding missing values in the CEO data and the data required for calculating the necessary variables, the final sample consists of 9,266 observations. The sample filtering process is summarized in Panel A of Table 1.

Panel B presents the sample distribution by CEO type (Owner CEO vs. Professional CEO), ME firms (firms meeting earnings target) vs. non-ME firms by CEO type, and industry by CEO type. About two-thirds of the total sample has owner CEOs and the rest has professional CEOs (see Panel B-1). As shown in Panel B-2, 822 observations (8.87% of the total sample) are firms with small earnings or small earnings increases. By the CEO type, 9.45% of firms with a professional CEO and 8.58% of those with an owner CEO fall into this category by meeting either zero earnings or previous period's earnings. Panel B-3 depicts the industrial distribution of firms by the CEO type. Firms with owner CEOs are more focused in the manufacturing industry (77.24%) compared to those with professional CEOs (65.70%), while the wholesale & retail or service industries tend to prefer professional CEOs (10.23% and 13.74% for firms with a professional CEO vs. 8.31% and 10.16% for those with an owner CEO).

Table 1. Sample

Panel A: Sample Selection	
Filtering Process	Observations
Initial sample (non-financial industry from 2011 to 2020)	21,440
Less: observations with fiscal year-end other than December	(400)
Less: observations with an audit opinion other than "unqualified"	(1,683)
Less: observations with impaired capital	(109)

Less: observations missing CEO data	(3,823)
Less: observations missing data for necessary variables	(6,159)
Final sample	9,266

Panel B: Sample Distribution (2011–2020: N = 9,266 observations)

Panel B-1: CEO Type

CEO Type	N	%
Owner CEO	6,188	66.78%
Professional CEO	3,078	33.22%
Total	9,266	100.00%

Panel B-2: ME (meeting earnings target) firms vs. Non-ME firms by CEO Type

CEO Type	ME	Non-ME	Total
Owner CEO (%)	531 (8.58%)	5,657 (91.42%)	6,188 (100.00%)
Professional CEO (%)	291 (9.45%)	2,787 (90.55%)	3,078 (100.00%)
Total (%)	822 (8.87%)	8,444 (91.13%)	9,266 (100.00%)

Panel B-3: Industry by CEO Type

Industry	Owner CEO		Professional CEO		Total	
	N	%	N	%	N	%
Manufacturing	4,779	77.24%	2,022	65.70%	6,801	73.40%
Construction	116	1.87%	102	3.31%	218	2.35%
Wholesale & Retail	514	8.31%	315	10.23%	829	8.95%
Services	629	10.16%	423	13.74%	1,052	11.35%
Other	150	2.42%	216	7.02%	366	3.95%
Total	6,188	100.00%	3,078	100.00%	9,266	100.00%

Descriptive Statistics

Table 2 reports the descriptive statistics of the variables in the main regression model (Equation 5). The means and medians of earnings management measures are -0.007 and -0.008 for *PADA*, -0.002 and -0.001 for *Ab_CFO*, 0.004 and 0.010 for *Ab_PROD*, and -0.004 and -0.020 for *Ab_DISE*. Since all earnings management measures are residuals from the regression for estimating each measure, the mean value is close to zero. Only 8.9% of the observations are those that have small earnings or small earnings increases (*ME*) while the mean and median of firm size (*Size*) is 25.903 and 25.657. The average sales growth rate (*Growth*) and average debt-to-asset ratio (*Leverage*) of the sample firms are 6.4% and 39.7%. On average, the return on assets (*ROA*) of the current fiscal year is 1.1%.

Table 2. Descriptive Statistics **(2011–2020: N = 9,266 observations)**

Variable	Mean	Std Dev	Min	1Q	Median	3Q	Max
PADA	-0.007	0.075	-0.472	-0.045	-0.008	0.031	0.352
Ab_CFO	-0.002	0.083	-0.434	-0.045	-0.001	0.044	0.372
Ab_PROD	0.004	0.140	-1.920	-0.046	0.010	0.064	1.925
Ab_DISE	-0.004	0.141	-0.666	-0.076	-0.020	0.040	0.947
Size	25.903	1.401	23.367	24.950	25.657	26.596	30.638
Growth	0.064	0.333	-0.656	-0.086	0.028	0.145	1.882
Leverage	0.397	0.197	0.045	0.236	0.396	0.542	0.873
ROA	0.011	0.112	-0.438	-0.017	0.024	0.062	0.322
ME	0.089	0.284	0.000	0.000	0.000	0.000	1.000

Notes:
All continuous independent variables are winsorized at the top and bottom 1% of their respective distributions.

Correlation

Table 3 presents Pearson correlations between variable pairs of the owner CEO sample and those of the professional CEO sample, except for industry and year dummies in Panel A and Panel B, respectively. Based on Panel A of Table 3, ME firms in the owner CEO sample have positive correlations with *PADA* (0.022), *Ab_PROD* (0.032), and *Size* (0.087), but a negative correlation with *Ab_DISE* (-0.040), and *Growth* (-0.026), all significant at the 10% level or better. On the other hand, ME firms in the professional CEO sample do not have significant correlations with any of the earnings management measures, and positive correlations with the control variables *Size* (0.111), *Leverage* (0.053), and *ROA* (0.059) at the 1% level. While there are no recent papers that analyze ME firms by CEO type, the signs on the correlation match that of prior studies that look at earnings management and the determinants of loss avoidance (Kim et al., 2009; Jung & Kim, 2014; Park et al., 2015).

Table 3. Correlations Matrix for Main Regression

Panel A: Owner CEO Sample (2011–2020: N = 6,188 observations)

	PADA	*Ab_CFO*	*Ab_PROD*	*Ab_DISE*	*Size*	*Growth*	*Leverage*	*ROA*	*ME*
PADA	1								
Ab_CFO	-0.782***	1							
Ab_PROD	0.231***	-0.350***	1						
Ab_DISE	0.012	-0.033**	-0.606***	1					
Size	-0.043***	-0.003	0.023*	-0.011	1				
Growth	0.134***	-0.055***	0.001	0.146***	-0.093***	1			
Leverage	0.079***	-0.181***	0.102***	0.016	0.174***	0.048***	1		
ROA	0.001	0.353***	-0.204***	-0.001	0.140***	0.205***	-0.165***	1	
ME	0.022*	-0.019	0.032**	-0.040***	0.087***	-0.026**	0.020	0.020	1

Panel B: Professional CEO Sample (2011–2020: N = 3,078 observations)

	PADA	*Ab_CFO*	*Ab_PROD*	*Ab_DISE*	*Size*	*Growth*	*Leverage*	*ROA*	*ME*
PADA	1								
Ab_CFO	-0.748***	1							
Ab_PROD	0.235***	-0.367***	1						
Ab_DISE	-0.057**	0.068***	-0.676***	1					
Size	-0.041**	0.094***	-0.053***	0.015	1				
Growth	0.104***	0.007	0.016	0.093***	-0.055***	1			
Leverage	0.065***	-0.142***	0.107***	-0.044**	0.159***	-0.044**	1		
ROA	0.041**	0.407***	-0.211***	-0.009	0.221***	0.220***	-0.148***	1	
ME	0.006	0.011	0.004	-0.008	0.111***	0.003	0.053***	0.059***	1

Notes:
Pearson correlation coefficients are reported. The corresponding p-values appear below the correlation coefficients. *, **, and ***indicate the significance based on p-value of less than the 10% level, 5% level and the 1% level (two-tailed), respectively.

Main Results

The main regression is run separately over the two CEO type subsamples for each earnings management measure, and the results are presented in Panels A – D of Table 4. Specifically, Panels A – D report the results by dependent variable (*PADA, Ab_CFO, Ab_PROD,* and *Ab_DISE*), with columns (1) and (2) of each panel showing results based on firms with owner CEOs and those with professional CEOs, respectively. The test variable of each panel across the subsamples is *ME*. In Panel A, the coefficient of *ME* is 0.0064 for firms with an owner CEO, significant at the 5% level, and 0.0009 for firms with a professional CEO, which is statistically insignificant. The coefficients implied that while an owner CEO tend to manage discretionary accruals to avoid zero earnings or earnings decreases, there is no evidence of such behavior with a professional CEO.

The results for real activity earnings management are similar. In Panels B-D, the coefficients of *ME* over firms with owner CEOs when the dependent variable is A*b_CFO, Ab_PROD,* and *Ab_DISE* are -0.0063, 0.0127, and -0.0147, respectively, all significant at least at the 5% level. On the other hand, the coefficients of *ME* for firms with professional CEOs are marginally significant when the dependent variable is *Ab_PROD*, and insignificant in other cases. In other words, while owner CEOs use all three forms of real earnings management, the professional CEO manages only abnormal production costs. Combined with the results for accrual management, owner CEOs tend to exhibit far more opportunistic behavior compared to their professional counterparts.

Table 4. Main Regression Result - Owner CEO vs. Professional CEO

Panel A: Dependent Variable = *PADA*

	(1) Owner CEO sample			(2) Professional CEO sample		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	0.0947	2.94	0.0033	0.0004	0.01	0.9893
Size	-0.0043	-4.50	<0.0001	-0.0035	-3.29	0.0010
Growth	0.0277	6.38	<0.0001	0.0195	2.90	0.0038
Leverage	0.0306	5.02	<0.0001	0.0200	2.48	0.0133
ROA	-0.0025	-0.17	0.8628	0.0353	1.83	0.0682
ME	0.0064	2.24	0.0250	0.0009	0.24	0.8071
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	3.74%			4.71%		
N	6,188			3,078		

Panel B: Dependent Variable = *Ab_CFO*

	(1) Owner CEO sample			(2) Professional CEO sample		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	0.0875	2.62	0.0089	0.0749	2.30	0.0216
Size	-0.0028	-2.31	0.0213	0.0010	0.82	0.4108
Growth	-0.0331	-7.83	<0.0001	-0.0205	-3.25	0.0012
Leverage	-0.0446	-6.48	<0.0001	-0.0325	-3.60	0.0003
ROA	0.2986	19.98	<0.0001	0.2851	13.64	<0.0001
ME	-0.0063	-2.04	0.0413	-0.0034	-0.87	0.3856
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	17.50%			20.17%		
N	6,188			3,078		

Panel C: Dependent Variable = *Ab_PROD*

	(1) Owner CEO sample			(2) Professional CEO sample		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	-0.0136	-0.15	0.8834	-0.4740	-5.71	<0.0001
Size	0.0023	0.66	0.5081	-0.0007	-0.23	0.8207
Growth	0.0209	3.12	0.0019	0.0271	2.46	0.0142
Leverage	0.0375	2.15	0.0320	0.0506	2.45	0.0143
ROA	-0.2749	-9.31	<0.0001	-0.2348	-6.30	<0.0001
ME	0.0127	2.70	0.0071	0.0128	1.70	0.0891
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		

Adj. R^2	12.01%	15.71%
N	6,188	3,078

Panel D: Dependent Variable = *Ab_DISE*

	(1) Owner CEO sample			(2) Professional CEO sample		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	-0.1926	-1.95	0.0514	0.3966	4.11	<0.0001
Size	0.0041	1.09	0.2742	0.0036	1.02	0.3084
Growth	0.0639	8.85	<0.0001	0.0473	5.11	<0.0001
Leverage	0.0036	0.20	0.8382	-0.0378	-1.74	0.0817
ROA	-0.0580	-1.83	0.0670	-0.0754	-1.91	0.0570
ME	-0.0147	-2.86	0.0043	-0.0108	-1.46	0.1454
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	10.49%			13.33%		
N	6,188			3,078		

Notes: Equation (5) is run separately for firms operated by owner CEO and those by professional CEO. The results for firms with owner CEO and those with professional CEO are reported in columns (1) and (2) of each panel. Panels A-D present results by dependent variable: performance-adjusted discretionary accrual (*PADA*), abnormal cash flow from operations (*Ab_CFO*), abnormal production costs (*Ab_PROD*), and abnormal discretionary expenses (*Ab_DISE*), respectively. All t-values are calculated using robust standard errors to correct for any heteroskedasticity problem and firm clustering effect (Peterson, 2009).

Additional Test Results

Since a firm's decision to recruit a particular CEO can be affected by the firm's characteristics, it could cause an endogenous problem and sample selection bias. To control for these problems, we use the Heckman two-stage least square (2SLS) regression model (Heckman, 1979) as an additional test. Na & Hong (2017) use a similar research design (Equations 6 & 7) but a different setting; firms in the USA, and the CEO gender rather than the CEO type on earnings management. They split their sample into two groups, firms with female CEOs and firms with male CEOs, and uses the Heckman two-stage model. They find that firms with a male CEO tend to use aggressive earnings management (both accrual management and real activities management) while they do not observe aggressive earnings management in firms with a female CEO. We use similar approach to Na & Hong (2017) in the additional test. In the first stage, the probit regression shown in Equation (6) is estimated, where a dummy for CEO type is regressed on factors that can affect CEO type. These factors are firm characteristics and CEO characteristics, such as firm size, growth, leverage, performance (ROA), quick ratio, percentage of ownership by foreign shareholders, operating cycle, belonging to Chaebol (a type of large business group in Korea), firm age, and the CEO age (Kwak & Choi, 2011; Badertscher et al., 2013).

In the first stage, the inverse Mills ratio (*IMR*) is calculated, which is used as a control variable in the second stage.

$$Owner\_CEO_{it} = \alpha_0 + \alpha_1 Size_{it-1} + \alpha_2 Growth_{it} + \alpha_3 Leverage_{it-1} + \alpha_4 ROA_{it} + \alpha_5 Q\_ratio_{it} + \alpha_6 For\_ownership_{it} + \alpha_7 OPcycle_{it} + \alpha_8 Chaebol_{it} + \alpha_9 Firm\_age_{it} + \alpha_{10} CEO\_age_{it} + \alpha_j IndustryDummy + \alpha_t YearDummy + \varepsilon_{it} \quad (6)$$

where,

$Owner\_CEO_{it}$: an indicator variable which equals one for a firm with an owner CEO and zero for a firm with a professional CEO

Q_ratio_{it}: quick ratio [(current asset – inventory)/current liability]

$For\_ownership_{it}$: percentage of ownership by foreign shareholders

$OPcycle_{it}$: natural logarithm of operating cycle

$Chaebol_{it}$: an indicator variable which equals one if a firm belongs to a big business group known as Chaebol in Korea

$Firm\_age_{it}$: natural logarithm of firm age

CEO_age_{it}: natural logarithm of CEO age

In the second stage, the ordinary least square (OLS) regression model in Equation (7) is used. Equation (7) is similar to Equation (1) except *IMR* calculated in the first stage is included as a control variable. All the other variables are identical to those in Equation (1). The second stage model is the main regression model for the additional test.

$$EM_{it} = \beta_0 + \beta_1 Size_{it-1} + \beta_2 Growth_{it} + \beta_3 Leverage_{it-1} + \beta_4 ROA_{it} + \beta_5 ME_{it} + \beta_6 IMR_{it} + \beta_j IndustryDummy + \beta_t YearDummy + \varepsilon_{it} \quad (7)$$

where,

IMR_{it}: inverse Mills ratio calculated from the first stage probit regression (Equation 6)

The results, based on the first stage probit model, are reported in Table 5. Most explanatory variables (except for *Leverage* and *For_ownership*) are significant at the 10% level or better.

Table 5. First Stage Regression Results (Heckman 2 SLS)

Dependent Variable: Owner_CEO			
	Coefficient	***t*-stat**	***p-value***
Intercept	-0.5353	-0.52	0.6061

Size	-0.1004	-2.98	0.0029
Growth	0.0897	1.81	0.0701
Leverage	-0.2368	-1.56	0.1190
ROA	0.9938	5.11	<0.0001
Q_ratio	0.0205	2.18	0.0291
For_ownership	-0.6882	-1.45	0.1479
OPcycle	0.1650	3.73	0.0002
Chaebol	-0.7148	-7.15	<0.0001
Firm_age	0.1000	2.00	0.0457
CEO_age	0.6869	4.10	<0.0001
YearDummy	Yes		
IndustryDummy	Yes		
Pseudo R^2	16.10%		
N	9,266		

Notes: In the first stage of the Heckman two-stage model (Heckman, 1979), the probit regression (Equation 6) is run over the full sample and the inverse Mills ratio (*IMR*) is calculated. All *t*-values are calculated using robust standard errors to correct for heteroskedasticity problem and firm clustering effect (Peterson, 2009).

The second stage regression, Equation (7), is run separately over the two subsamples by CEO type for each earnings management measure and the results are presented in Panels A – D of Table 6. Specifically, Panels A – D report the results by dependent variable (*PADA, Ab_CFO, Ab_PROD,* and *Ab_DISE*) with columns (1) and (2) of each panel showing results based on firms with an owner CEO and those with a professional CEO, respectively. In Panel A, the coefficient of *ME* is 0.0057 (0.0008), significant at the 5% level (insignificant) for firms with an owner CEO (a professional CEO). The results for real activity earnings management are similar. In Panels B-D, the coefficients of *ME* for firms with an owner CEO when the dependent variable is *Ab_CFO, Ab_PROD,* and *Ab_DISE* are -0.0054 (significant at the 10% level), 0.0124 (significant at the 5% level), and -0.0142 (significant at the 1% level), respectively. On the other hand, the coefficients of *ME* for firms with a professional CEO are marginally significant when the dependent variable is *Ab_PROD* and insignificant in most other cases. These results prove to be qualitatively identical to the main results, showing that the main results are robust.

Table 6. Second Stage Regression Results (Heckman 2 SLS)

Panel A: Dependent Variable = *PADA*

	(1) Owner CEO sample			**(2) Professional CEO sample**		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	0.0495	1.38	0.1684	0.0082	0.27	0.7856
Size	-0.0015	-1.10	0.2703	-0.0025	-1.62	0.1051
Growth	0.0276	6.37	<0.0001	0.0194	2.90	0.0039
Leverage	0.0358	5.68	<0.0001	0.0214	2.66	0.0079

ROA	-0.0154	-1.00	0.3176	0.0309	1.56	0.1186
ME	0.0057	2.01	0.0451	0.0008	0.21	0.8304
IMR	-0.0259	-3.44	0.0006	-0.0072	-1.08	0.2798
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	3.91%			4.71%		
N	6,188			3,078		

Panel B: Dependent Variable = *Ab_CFO*

	(1) Owner CEO sample			**(2) Professional CEO sample**		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	0.1515	4.16	<0.0001	0.0778	2.37	0.0181
Size	-0.0068	-4.37	<0.0001	0.0014	0.81	0.4197
Growth	-0.0330	-7.82	<0.0001	-0.0205	-3.25	0.0012
Leverage	-0.0520	-7.29	<0.0001	-0.0320	-3.53	0.0004
ROA	0.3169	20.37	<0.0001	0.2834	13.19	<0.0001
ME	-0.0054	-1.74	0.0820	-0.0034	-0.88	0.3802
IMR	0.0366	4.41	<0.0001	-0.0027	-0.36	0.7202
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	17.79%			20.15%		
N	6,188			3,078		

Panel C: Dependent Variable = *Ab_PROD*

	(1) Owner CEO sample			**(2) Professional CEO sample**		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	-0.0349	-0.42	0.6724	-0.4649	-5.14	<0.0001
Size	0.0036	1.04	0.2981	0.0005	0.13	0.8951
Growth	0.0208	3.11	0.0019	0.0271	2.45	0.0146
Leverage	0.0399	2.07	0.0386	0.0522	2.40	0.0168
ROA	-0.2809	-8.10	<0.0001	-0.2399	-6.19	<0.0001
ME	0.0124	2.55	0.0109	0.0127	1.69	0.0911
IMR	-0.0122	-0.40	0.6890	-0.0084	-0.37	0.7136
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	12.01%			15.69%		
N	6,188			3,078		

Panel D: Dependent Variable = *Ab_DISE*

	(1) Owner CEO sample			(2) Professional CEO sample		
	Coefficient	***t*-stat**	***p-value***	**Coefficient**	***t*-stat**	***p-value***
Intercept	-0.1577	-1.73	0.0841	0.4024	4.01	<0.0001
Size	0.0019	0.49	0.6224	0.0043	0.87	0.3865
Growth	0.0639	8.85	<0.0001	0.0473	5.10	<0.0001
Leverage	-0.0005	-0.03	0.9787	-0.0368	-1.66	0.0968
ROA	-0.0480	-1.29	0.1976	-0.0786	-1.90	0.0578
ME	-0.0142	-2.67	0.0076	-0.0109	-1.47	0.1409
IMR	0.0200	0.64	0.5250	-0.0053	-0.22	0.8283
YearDummy	Yes			Yes		
IndustryDummy	Yes			Yes		
Adj. R^2	10.51%			13.31%		
N	6,188			3,078		

Notes: Equation (7) is run separately for firms operated by owner CEO and those by professional CEO. The results for firms with owner CEO and those with professional CEO are reported in the columns (1) and (2) of each panel. Panels A-D present results by dependent variable: performance-adjusted discretionary accrual (*PADA*), abnormal cash flow from operations (*Ab_CFO*), abnormal production costs (*Ab_PROD*), and abnormal discretionary expenses (*Ab_DISE*), respectively. All *t*-values are calculated using robust standard errors to correct for heteroskedasticity problem and firm clustering effect (Peterson, 2009).

Discussion

This study examines whether firms operated by owner CEOs and those by professional CEOs show any difference in their earnings management to report small positive earnings or small positive earnings growth. The results indicate that firms with owner CEOs have significantly positive coefficients on the test variable for both accrual and real earnings management proxies, while those with professional CEOs do not. This difference suggests that firms with owner CEOs are likely to manage earnings through performance-adjusted discretionary accruals or real earnings management, but such behavior is not observed for firms with professional CEOs. This result seems to support Agency Problem II – the conflict between owners and external shareholders – but not Agency Problem I – the conflict between owners and managers. Owner CEOs, who have strong ties to the owners, are willing to obscure the true performance of the firm for the owners' private benefit, while professional CEOs avoid such actions despite the potential for personal gains in order to reduce the risks associated with the detection of earnings management. The conclusions from Kang and Kim (2016) indirectly support this interpretation. Kang and Kim (2016) find that (a) firms with declining performance change from family to non-family CEOs, which is followed by an improvement in performance, (b) the opposite direction does not see significant changes in performance and (c) firms that change from non-family to family CEOs tend to be the "central" firms of family-owned conglomerates,

and performance is not the sole reason for the replacement. The first two, (a) and (b), imply that professional CEOs are generally more positively associated with firm performance, which is in turn indirectly indicative of higher earnings quality. The third, (c), is more direct: since the appointment of CEOs for "central" firms is not performance-driven, it is likely that the appointed family CEOs would act for the entrenched goals of the owners, and be willing to take opportunistic actions like earnings management.

Conclusion

Owner and professional CEOs have different objectives. The former is interested in the survival of the firm while the latter is interested in the sustainability of his/her compensation and reputation, which leads to differing business decisions. It follows that the two types of CEOs would make different choices on earnings management, which is one of the prevalent opportunistic choices that can be made by the management. However, the previous literature on the relation between the type of CEO and earnings management provides mixed results. The goal of this paper is to reinvestigate the effect of the type of CEO on earnings management to avoid losses or earnings decreases in Korean firms. Using a sample of 9,266 firm years over a 10-year period between 2011 and 2020, we partition the sample into two groups based on the CEO type, owner CEO sample and professional CEO sample, and compare the earnings management for meeting earnings target in these two groups. Earnings management is measured using widely-used proxies: performance-adjusted discretionary accruals for accrual management and abnormal cash flows from operations, abnormal production costs, and abnormal discretionary expenses for real management.

Results based on the OLS regression model reveal that firms in the owner CEO sample tend to manage earnings to avoid zero earnings or earnings decreases, both in terms of accruals and real activities. In contrast, firms in the professional CEO sample do not exhibit a significant level of this opportunistic behavior: the coefficients are only marginally significant when abnormal production costs are used as the dependent variable, and are insignificant otherwise. These results stay qualitatively the same in the robustness test, where the Heckman two-stage regression model (Heckman, 1979) is used to control for potential endogenous issues for the CEO type. Our findings suggest that owner CEOs are more likely to use aggressive earnings management, whether it be through accruals or real activities, to attain an earnings target compared to professional CEOs.

The results of this study contribute to the current accounting literature by providing empirical evidence on the relations between the type of CEO and earnings management to avoid reporting losses or earnings decreases. In particular, by approaching

earnings management from both accrual and real management, rather than from a single perspective, the results provide a general view of earnings management behavior by each type of CEO. Furthermore, by using a sample of firms that are likely to report losses or earnings declines, the evidence indicates the actions that Korean firms with different types of CEOs could take under scenarios that may encourage earnings management.

Limitation

There are two limitations to this research. Firstly, the models may have omitted some variables. However, this issue is not restricted to this paper, but is applicable to empirical research as a whole. Secondly, the sample is limited to Korean firms. While this limitation is part of the design, it also means that the outcomes may not apply to other countries with firms that have similar ownership structures, such as Southeast Asian firms. This research may be extended by expanding the sample to include a broader market. It may be also worthwhile to examine the effect of the type of CEO on other opportunistic choices available to a CEO – for example, corporate tax avoidance.

References

Achleitner, A.K., Gunther, N., Kaserer, C., & Siciliano, G. (2014). Real earnings management and accrual-based earnings management in family firms. *European Accounting Review*, 23 (3), 431–461.

Alhebri, A.A.,& Al-Duais, S.D.(2020). Family businesses restrict accrual and real earnings management: Case study in Saudi Arabia. *Cogent Business & Management*, 7 (1), 1–15.

An, H.B., Choi, K.D., & Song, J.H. (2002). Ownership structure and the informativeness of accounting earnings. *Korean Accounting Review*, 27 (4), 1–30.

Badertscher, B.A., Katz, S.P., & Rego, S.O. (2013). The separation of ownership and control and corporate tax avoidance. *Journal of Accounting and Economics*, 56 (2–3), 228–250.

Bae, H.J., & Kim, W.S. (2016). A study on the effect of CEO types on income tax smoothing. *Accounting Information Review*, 34 (1), 203–227.

Beaudoin, C.A., Cianci, A.M., & Tsakumis, G.T. (2015). The impact of CFOs' incentives and earnings management ethics on their financial reporting decisions: The mediating role of moral disengagement. *Journal of Business Ethics*, 128 (3), 505-518.

Bergstresser, D., & Philippon, T. (2006). CEO incentives and earnings management. *Journal of Finance Economics*, 80 (3), 511–529.

Boučkovà, M. (2015). Management accounting and agency theory. *Procedia Economics and Finance* 25, 5–13.

Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24 (1), 99–126.

Chen, T-Y., Gu, Z., Kubota, K., & Takehara, H.(2015). Accrual-based and real activities based earnings management behavior of family firms in Japan. *The Japanese Accounting Review*, 5, 21–47.

Choi, U.Y., & Bae, H.J. (2011). A study on the effect of the separation of ownership and management on manager's risk preference. *Korean Accounting Journal*, 20 (3), 213–230.

Claessens, S., Djankov, S., & Lang, L.H.P. (2000). The separation of ownership and control in east asian corporations. *Journal of Financial Economics*, 58, 81–112.

Cohen, D.A., & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics*, 50 (1), 2–19.

Davis, J.H., Schoorman, F.D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22 (1), 20–47.

Dechow, P.M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics*, 18 (1), 3–42.

Dechow, P.M., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50 (2–3), 344–401.

Dechow, P.M., Richardson, S.A., & Tuna, R. (2003). Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Studies*, 8, 355–384.

Dechow, P.M., Sloan, R., & Sweeney, A. (1995). Detecting earnings management. *The Accounting Review*, 70 (2), 193–225.

Dechow, P.M., Sloan, R., & Sweeny, A. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13 (1), 1–36.

Degeorge, F., Patel, J., & Zeckhauser, R. (1999). Earnings management to exceed thresholds. *Journal of Business*, 72 (1), 1–33.

Demsetz, H. (1986). Corporate control, insider trading, and rates of return. *The American Economic Review*, 76 (2), 313–316.

Eng, L.L., Fang, H., Tian, X., Yu, T.R., & Zhang, H. (2019). Financial crisis and real earnings management in family firms: A comparison between China and the United States. *Journal of International Financial Markets, Institutions & Money*, 59, 184–201.

Ghaleb, B.A., Kamardin, H., & Tabash, M.I. (2020). Family ownership concentration and real earnings management: Empirical evidence from an emerging market. *Cogent Economics & Finance*, 8 (1), 1–17.

Gomez-Mejia, L.R., Larraza-Kintana, M., & Makri, M. (2003). The determinants of executive compensation in family-controlled public corporations. *Academy of Management Journal*, 46 (2), 226–237.

Graham, J.R., Harvey, C.R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40 (1–3), 3–73.

Grossman, S.J., & Hart, O.D. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy*, 94 (4), 691–719.

Gunny, K.A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, 27 (3), 855–888.

Heckerman, D.G. (1975). Motivating managers to make investment decisions. *Journal of Financial Economics*, 2 (3), 273–292.

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 47 (1), 153–161.

Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360.

Jung, J.E., & Kim, H.S. (2014). The impact of K-IFRS adoption and motivation to avoid losses on the earnings management. *Korea International Accounting Review*, 54, 60–81.

Kang, H.C., & Kim, J.M. (2016). Why do family firms switch between family CEOs and non-family professional CEO? Evidence from Korean Chaebols. *Review of Accounting and Finance*, 15 (1), 45–64.

Kim, B.G., & Kim, D.W. (2010). Major shareholder ownership and business diversification: The consequences of owner-managed and agent-led firm. *The Journal of Korean Financial Engineering*, 9 (2), 103–127.

Kim, H.S., & Song, J.Y. (2011). The impact of corporate ownership structure on R&D investment in Korea. *Journal of Strategic Management*, 14 (2), 93–112.

Kim, H.Y., Kim, H.S., & Seo, J.G. (2015). A study on owner-manager, earning management and dividend. *Review of Accounting and Policy Studies*, 20 (4), 85–110.

Kim, J.B., Baik, S.M., & Choi, J.M. (2009). Earnings management through real operational activities manipulation and market response. *Korean Management Review*, 38 (5), 1185–1211.

Kim, T.S., & Cho, H.K. (2017). A study on the influence of electing industry specialist auditors based on CEO's types. *The Journal of Korean Management Practice Association*, 3 (1), 5–17.

Kothari, S.P., Leone, A.J., & Wasley, C.E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39 (1), 163–197.

Kwak, Y.M., & Choi, J.S. (2011). Earnings management associated with types of CEO turnover. *Korean Accounting Review*, 36 (2), 129–184.

La Porta, R., Lopez-De-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *The Journal of Finance*, 54 (2), 471–517.

Lee, A.Y., Chun, S.B., & Kim, S.H. (2012). Controlling shareholders' ownership structure and real earnings management. *Korean Accounting Review*, 37 (1), 157–189.

Lee, A.Y., Chun, S.B., & Park, S.S. (2007). CEO turnover and earnings management. *Korean Accounting Review*, 32 (2), 117–150.

Lee, S.C. (2014). Relationship between characteristics of managers and corporate governance system and cost stickiness. *Korean Accounting Research*, 23 (2), 251–282.

Lim, J.O. (2007). The relationship between types of manager and earnings management. *Journal of Industrial Economics and Business*, 20 (1), 257–275.

Martin, G., Campbell, J.T., & Gomez-Mejia, L.(2016). Family control, socioemotional wealth and earnings management in publicly traded firms. *Journal of Business Ethics*, 133 (3), 453-469.

Morck, R., Shleifer, A., & Vishny, R.W. (1988). Management ownership and market valuation. *Journal of Financial Economics*, 20, 293–315.

Na, K., & Hong, J.Y. (2017). CEO gender and earnings management. *The Journal of Applied Business Research*, 33 (2), 297–308.

Nam, Y.S. (2017). An exploratory study on the influence of CEO type, outside director, and firm performance on the appointment of family member in BOD. *Journal of Human Resource Management Research*, 24 (5), 75–86.

Nam, Y.S., & Choi, W.Y. (2016). The effects of CEO type and corporate governance mechanisms on corporate social responsibility. *The Journal of Professional Management*, 19 (2), 209–222.

Oh, S.Y., Kim, Y.J., Ahn, S.H., & Hwang, M.H. (2017). The effect of firm's manager types on auditor selection. *Accounting Information Review*, 35 (4), 155–180.

Park, A.Y., Lee, K.T., & Lee, C.S. (2006). The effect of executive stock options compensation and ownership structure on R&D investment. *Korean Accounting Review*, 31 (2), 89–126.

Park, J.I., Paik, H.W., & Jung, S.H. (2015). Accrual-based and real earnings management activities to avoid losses: Empirical evidence on KOSPI and KOSDAQ listed firms. *Korean Management Review*, 44 (6), 1539–1574.

Qawasmeh, S.Y.,& Azzam, M.J.(2020). CEO characteristics and earnings management. *Accounting*, 6, 1403–1410.

Razzaque, R.M.,Ali, M.J., & Mather, P.R. (2016). Real earnings management in family firms: Evidence from an emerging economy. *Pacific-Basin Finance Journal*, 40, 237–250.

Ross, S.A. (1973). The economics theory of agency: The principal's problem. *The American Economic Review*, 63 (2), 134–139.

Ross, S.A. (1974). On the economic theory of agency and the principle of similarity, in: M.D. Balch et al., eds., Essays on economic behavior under uncertainty (North-Holland, Amsterdam).

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370.

Ryu, J.H., & Cho, S.P. (2021). The effects of CEO type and ownership structure of the Chaebol on the behavior of R&D expenditures. *Korean Accounting Review*, 46 (1), 41–82.

Seo, J.I., & Chang, H.W. (2010). CEO characteristics and firm R&D investment: The mod-

erating role of TMT characteristics and ownership structure. *Journal of strategic management*, 13 (1), 29–49.

Shin, H.H., & Chang, J.H. (2005). An analysis of the determinants of CEO turnover: Firm performance, professional CEO, and business group. *Korean Management Review*, 34 (1), 289–311.

Shin, S.H., & Lee, S.C. (2016). The characteristics of the accounting treatment of R&D costs by the type of CEO. *Accounting and Auditing Research*, 58 (3), pp.73–96.

Shleifer, A., & Vishny, R.W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94 (3), 461–488.

Son, H.C., & Park, S.K. (2016). The influence of the owners management participation level on earnings management. *Korean Journal of Management Accounting Research*, 16 (2), 107–137.

Song, E.J. (2018). The impact of the difference between cash flow rights and voting rights on R&D investments: Connected to the level of cash flow rights. *Korean management review*, 47 (2), 425–449.

Teoh, S.H., Welch, I., & Wong, T.J. (1998). Earnings management and the underperformance of seasoned equity offerings. *Journal of Finance Economics*, 50, 63–99.

Villalonga, B., & Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 80 (2), 385–417.

Wang, D. (2006). Founding family ownership and earnings quality. *Journal of Accounting Research*, 44 (3), 619–656.

Yang, C.Y., Lai, H.N., & Tan, B.L. (2008). Managerial ownership structure and earnings management. *Journal of Financial Reporting & Accounting*, 6 (1), 35–53.

Yang, M.L. (2010). The impact of controlling families and family CEOs on earnings management. *Family Business Review*, 23 (3), 266–279.

Zouari, Z., Lakhal, F.,&Nekhili, M. (2015). Do CEO characteristics affect earnings management? Evidence from France. *International Journal of Innovation and Applied Studies*, 12 (4), 801–819.