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Real Earnings Management, Firm Value, and Corporate Governance: Evidence from the Korean Market

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Abstract: In this study, we investigate whether effective corporate governance (CG) intervenes in the relationship between real earnings management (REM) and firm value (FV) by introducing Korean market data. We find that management's opportunistic REM behavior is no longer effective for firms characterized by strong CG. More importantly, our interaction and robustness analyses show evidence indicating that CG plays an effective monitoring role in preventing management from engaging in opportunistic REM activities, and FV ceases to experience the decrease associated with REM activities as a consequence.

Keywords: firm value; corporate governance; real earnings management; manager's opportunistic behavior

1. Introduction

Earnings management is defined as the "purposeful intervention in the external financial reporting process with the intent of obtaining some private gain" (Schipper 1989, p. 91). Earnings management influences stock market perceptions, modifies managers' rewards, reduces the probability of violating lending agreements, and/or decreases regulatory intervention (Healy and Wahlen 1999). Managers prefer to manipulate earnings through real earnings management (REM) because they are less dependent on voluminous controls and audits; external control by society, media, and political representatives; and pressure due to liability covenants (Cohen et al. 2008; Cohen and Zarowin 2010; Vakilifard and Mortazavi 2016; Graham et al. 2005). Furthermore, REM causes a conflict of interest between managers and shareholders because of the misalignment of incentives and their different interests. Therefore, managers might engage in earnings management via efficient or opportunistic mechanisms (Kuang 2021). In the first case, efficient earnings management increases the quality of the firm, creates a stable financial scenario, and reflects the fundamental value of the firm through improved information and enhanced private communication, which generate a positive relationship between REM and firm value (FV). However, if discretion is used opportunistically, it may deteriorate FV or modify resource allocation by reporting earnings to gain personal benefits. Moreover, the markets might not replicate the real value of the firm, given the distortion of financial information, which also engenders a negative relationship between REM and FV. Previous studies have provided evidence of both positive and negative relationships between REM and FV. The positive association between REM and FV is grounded in the signal theory, and it presents private financial information to investors to predict and increase the stability of the firm's future performance (Dye 1998; Susanto and Christiawan 2016). Conversely, the negative relationship between REM and FV is grounded in the opportunistic behavior of managers and their discretion, and they may manipulate accounting figures to show a better short-term firm performance, thereby sacrificing the long-term stability of the firm.

Management-wise, REM behavior is also associated with corporate governance (CG) from an agency theory perspective, and effective CG policies increase the financial and non-financial performance of firms, as well as introduce transparency and disclosure for all transactions because CG strategies reduce conflicts of interest between parties. Therefore, firms with strong CG may exhibit better performance, thus showing a positive relationship between CG and FV (Tulcanaza-Prieto et al. 2020c; Gompers et al. 2003; Brown and Caylor 2006). Depending on the degree of CG in a firm, managers choose the level of openness and willingness to disclose financial performance. Herein, we argue that the management behavior of engaging in REM can be affected by effective CG tools vis à vis implementing a monitoring mechanism. Appropriate corporate governance could be organized to generate an effective monitoring mechanism by increasing the independence of the board and committees, raising the access of transparent information and disclosure, and owning high-level audit committees. Therefore, effective CG improves transparency and reduces agency conflicts, which may prohibit the management from engaging in REM activities if they are viewed as opportunistic decisions. However, the CG mechanism would not be effective in reducing REM activities if they are viewed as efficient decisions. Moreover, effective CG may lessen the negative relationship between REM and FV.

Several studies have examined the relationship between REM and FV (Abbas and Ayub 2019; Darmanwan et al. 2019) or CG and FV (Black et al. 2006; Abdur Rouf 2011; Lei and Song 2012). However, this study extends this bilateral relationship to a simultaneous relationship among REM, CG, and FV. We conduct an interaction analysis to investigate whether CG might moderate the relationship between REM and FV. Furthermore, we study which characteristics of CG are more effective in influencing the relationship between REM activities and FV. For this purpose, we incorporate five CG characteristics, namely, shareholder rights, board structure, disclosure, audit organization, and management error, in our statistical analysis.

By analyzing Korean non-financial firms between 2003 and 2011, we found a negative relationship between REM metrics and FV, which denotes the opportunistic view of management-related REM activities. More importantly, the opportunistic view of REM weakens for firms characterized by strong CG. This result implies that the CG variable plays a moderating role in the negative relationship between REM and FV. By employing a multivariate regression model, we also find that REM activities are negatively associated with the level of CG, which implies that a strong CG mechanism may prevent the management from engaging in REM activities. Moreover, our data analysis indicates that a statistically significant negative relationship between REM activities and FV disappears for firms with strong CG, which implies that the management's opportunistic behavior regarding REM activities is no longer prevalent in a strong CG environment. From these findings, we may conclude that an effective CG mechanism prevents management from engaging in the opportunistic behavior of REM activities, and firms with strong CG do not necessarily experience the FV deterioration associated with REM activities as a consequence. The contribution of our paper to finance and accounting fields includes the adoption of CG policies as a key player in a better financial firm's performance. Our findings provide a useful argument for promoting the benefits of CG adoption. Moreover, we showed that firms with strong CG have higher earnings quality compared with firms with low CG. CG policies increase the transparency and credibility of the firm and their managers.

The remainder of this paper is organized as follows: Section 2 presents the literature review and describes the hypothesis development, Section 3 focuses on the empirical design, and Section 4 defines the data collection procedure and presents empirical findings. Finally, Section 5 discusses the results and highlights the conclusions.

2. Literature Review

2.1. FV and REM

Agency theory studies the contract between two parties, the principal or owner, and the agent or manager (Jensen et al. 1976). Both parties show a conflict of interest because the

principal desires to increase the firm's performance, whereas the agent needs to increase his wealth. Therefore, firms should design compensation systems to align their interests and provide equality to owners and managers (Jensen and Murphy 1990). For instance, the conflict of interest might arise in the presence of (i) promise or prospect of future employment with a person or organization that the employee interacts with as a part of the public duties, (ii) access to privileged or confidential information in another public sector role, (iii) holding two or more public sector roles with conflicting accountabilities, and (iv) family and personal relationships including obligations to family or friends, and competition with another person or group. These examples of conflicts of interest occur in all firm's areas and might be prevented by developing business standards, introducing business ethics training, and including formal reporting procedures.

Previous studies have shown that managers make decisions based on their managerial discretion and private information. This discretion might improve earnings quality and reflect the fundamental value of a firm (Subramanyam 1996; Siregar and Utama 2008). However, accounting flexibility in financial reporting standards might increase managers' opportunistic behavior by distorting reported earnings, which also raises the misalignment of incentives between managers and shareholders (Burgstahler and Dichev 1997; Dechow et al. 1995). Thus, managers recur to REM activities given the low regulatory scrutiny to conserve their business position and reputation, thereby making earnings more predictable and less volatile, which is evidence of their opportunistic behavior (Grabiński and Wójtowicz 2021). Internal managers might manipulate financial statements by exaggerating current period earnings on the income statement, artificially inflating revenue and gains, or deflating current period expenses, which provide a better look of the firm to meet established expectations. Moreover, some specific ways to manipulate financial statements might include recording revenue prematurely, recording fictitious revenue, increasing income with one-time gains, shifting current expenses to an earlier or later period, failing to record or improperly reducing liabilities, shifting current revenue to a later period, and shifting future expenses to the current period as a special charge.

(Ronen and Yaari 2008) define the concept of efficient and opportunistic earnings management. On the one hand, efficient earnings management adds value to the firm, and thus, there is a positive relationship between FV and REM, as grounded in signal theory. Managers provide private financial information to investors who can easily predict the firm's future performance. Moreover, managers take advantage of the flexibility of accounting choices using conservative accounting policies to increase profits and influence future cash flow (Dye 1998). (Suffian et al. 2015; Susanto and Christiawan 2016) show that in the presence of information asymmetry, managers recur to REM activities to mislead the market and increase FV. On the other hand, opportunistic earnings management deteriorates FV, and thus, there is a negative relationship between FV and REM because managers only focus on their utility maximization using their discretion, which generates the misalignment of incentives between managers and shareholders, FV deterioration or incorrect assessment of the firm, and distortion in the reported earnings (Roychowdhury 2006; Abbas and Ayub 2019), thereby implying that REM activities can be considered as a detrimental financial tool to the market in the short- and long-term because when managers have access to private information, they may manipulate accounting figures in the current period, which affects the financial results in the next period. Therefore, our first hypothesis is presented as follows:

Hypothesis 1. *FV is negatively affected by REM activities, thereby showing the prevalence of opportunistic earnings management in firms.*

2.2. FV and CG

Notably, CG includes a set of internal and external mechanisms to balance the potential conflict of interest between insiders (i.e., managers, boards of directors, and majority of shareholders) and outsiders (i.e., minority shareholders and creditors of the firm). The

World Bank defines CG as a group of laws, regulations, and norms that may influence a firm's performance by introducing the efficient use of resources to sustain the FV in the long term. Meanwhile, the Organization for Economic Co-operation and Development includes four criteria as components of CG—fairness, accountability, transparency, and corporate responsibility. However, the authors added other principles, including integrity, disclosure, and independence. Moreover, the mechanism of CG is divided into internal factors, such as the composition of board directors, managerial ownership, and executive compensation, and external factors, such as the quality of auditing and level of debt financing by the market (Barnhart and Rosenstein 1998).

The degree of CG might be differentiated into high- and low-levels, depending on the information strategies and policies. The presence of a strong CG induces higher transparency in a firm through public information disclosure. It also decreases the agency costs, asymmetric information, and opportunistic behavior of managers. Moreover, the financial performance of a firm is affected by CG strategies. Shareholders and stakeholders believe and exude confidence when a firm guarantees transparency in all procedures, which increases the quality of CG and improves the value and reliability of firms (Yoon et al. 2006; Saona et al. 2020; Black et al. 2006).

Previous studies have constructed and adapted special CG metrics according to legal, accounting, and firm-level financial information, showing that a higher CG score (CGS) might positively influence FV. (Gompers et al. 2003) showed a positive relationship between CG (measured by CG index [CGI] using 24 governance rules) and FV in large American firms. Similarly, (Brown and Caylor 2006) showed a positive association between seven factors of CG and FV, as measured by Tobin's Q. (Klapper and Love 2004) found a higher correlation between the better CG, operating performance, and market valuation of firms from emerging markets. (Black et al. 2006) constructed a CGI for the South Korean market, showing that CG policies and practices positively influence FV. (Patel and Dallas 2002) mentioned that transparency, as a proxy of CGI, contains important FV information related to the aggregation of publicly disclosed governance.

Empirical evidence shows that CG strategies are independent of the local legal environment. In particular, CG plays a crucial role in countries with weak legal protection because it can circumvent the inefficiencies and difficulties of the country's legal system (Durnev and Kim 2005; Klapper and Love 2004). Moreover, CG positively influences FV, as grounded in higher investor confidence, the agency model of dividend payout, and low cost of capital (Porta et al. 2002). Therefore, our third hypothesis is presented as follows:

Hypothesis 2. *FV is positively affected by CG practices.*

2.3. FV, REM, and CG

The conflict of interest between agents and principals arises in the presence of incentives for each party. The position, function, and interests of principals and agents are mutually exclusive, but both parties need each other. Principals have the right to access the firm's internal information, whereas agents have access to real information about the operation and performance of the firm; however, they do not have complete authority to make decisions. Moreover, the asymmetry of information between parties increases the difficulties associated with monitoring and controlling the agent's actions (Jensen et al. 1976). Therefore, CG is an effective corporate tool to suppress the concurrence of agency conflicts, and it increases FV (Subanidja et al. 2016).

Generally, FV is measured by Tobin's Q ratio, suggesting that the current financial market might be estimated by the value of the returns of investment, which expresses the decision of investment and diversification, as well as the relationship between share ownership and corporate value management (Subanidja et al. 2016). A high value of Tobin's Q ratio shows a strong brand image, and the firm has more growth opportunities. Conversely, a firm with a low Tobin's Q ratio shows a scenario of a very competitive industry or an industry that begins to shrink.

Prior studies have shown a negative relationship between firms with strong CG and the conduct of REM activities (Byard et al. 2006; Jianga et al. 2008). Furthermore, REM activities are avoided given the decrease in the opportunistic behavior of managers and the increase in the supervisory role of the majority owner (Enomoto et al. 2018). (He et al. 2009) show that American firms with strong CG introduce the accounting–monitoring process, improve the quality of financial reporting, increase shareholder confidence, and thus reduce REM activities. Similarly, (García-Osma and Noguer 2007; Alves 2012; Hashim and Devi 2012) mentioned that firms with strong CG are characterized by the existence of independent directors, managerial ownership, and ownership concentration. These factors of well-governed firms and the adoption of the International Financial Reporting Standards (IFRS) reduce the possibility of managers to engage in REM practices, accounting violations, and frauds (Xie et al. 2003; Lee et al. 2015). Tulcanaza-Prieto et al. (2020c) showed that managers' opportunistic behaviors decrease when Korean firms adopt CG strategies grounded in transparency and disclosure (Tulcanaza-Prieto et al. 2020b).

Moreover, on the one hand, previous studies have shown that FV is negatively affected by REM activities because REM persists over time and influences cash flow (Roychowdhury 2006; Abbas and Ayub 2019). On the other hand, (Klapper and Love 2004) found a positive relationship between FV and CG, showing that firms with strong CG increase their benefits in the short- and long-term. We explore individual CG characteristics and find that higher auditing quality may entail lower REM; moreover, shareholder rights and audit organizations are the prominent CG features influencing REM (Tulcanaza-Prieto et al. 2020b). Christensen et al. (2015) mentioned that the audit committee is a crucial CG characteristic that improves the earnings quality of small and large firms.

In this context, strong CG may induce REM to have a positive effect rather than a negative one on FV because CG characteristics introduce control, confidence, and transparency in the firm's processes, which reflect the fundamental value of the firm to investors, who prefer stable income and low risk.

Hypothesis 3. *Effective CG mechanisms moderate the negative relationship between FV and REM.*

3. Empirical Design
3.1. Detecting REM

We employ Roychowdhury's (Roychowdhury 2006) model to assess modifications in REM, as it is the most recurrent and suitable method applied in several REM studies (Anagnostopoulou and Tsekrekos 2017; Zamri et al. 2013; Tulcanaza-Prieto et al. 2020a; Cohen et al. 2008). We examine the pattern in the separate and aggregate values of cash flow from operations (CFO); selling, general, and administrative (SG&A) expenses; and production costs for firms near the zero earnings benchmark to perceive real manipulation to avoid losses.

The abnormal aggregate REM (ABN_REM) is calculated by the accumulation of the abnormal CFO (ABN_CFO), abnormal SG&A expenses (ABN_SG&A), and abnormal production costs (ABN_PROD). ABN_CFO is calculated as the difference between the actual and the normal CFO by estimated coefficients from the corresponding industry-year model and the firm-year sales and lagged assets, with similar interpretations for the rest of the REM metrics. For a better understanding, we show the opposite sign for the variables, ABN_CFO and ABN_SG&A, given that both measurements present negative residuals when firms conduct REM activities. We estimate Equation (1) using annual information; therefore, high residuals correspond to high levels of REM, resulting in positive ABN_REM when a firm manages earnings through REM initiatives.

$$ABN\_REM_{i,t} = ABN\_CFO_{i,t} * (-1) + ABN\_SG\&A_{i,t} * (-1) + ABN\_PROD_{i,t}, \quad (1)$$

where $ABN\_REM_{i,t}$ is the abnormal aggregate REM, $ABN\_CFO_{i,t}$ is the abnormal CFO, $ABN\_SG\&A_{i,t}$ is the abnormal SG&A expenses, and $ABN\_PROD_{i,t}$ is the abnormal pro-

duction costs. The subscripts i and t denote the firm and fiscal year, respectively. ABN_CFO is estimated as follows:

$$ABN_{CFOi,t} = \alpha_0 + \alpha_1 \frac{1}{A_{i,\,t-1}} + \alpha_2 \frac{S_{i,t}}{A_{i,\,t-1}} + \alpha_3 \frac{\Delta S_{i,t}}{A_{i,\,t-1}} + \varepsilon_{i,t}, \tag{2}$$

where $ABN\_CFO_{i,t}$ is measured by $ABN_{CFOi,t} = \frac{CFO_{i,\,t}}{A_{i,\,t-1}}$; $CFO_{i,\,t}$ is the CFO, $A_{i,t-1}$ denotes the total assets of a firm; and $\Delta S_{i,t}$ is the change in sales of the firm, measured as $\Delta S_{i,t} = \frac{S_{i,t}-S_{i,t-1}}{S_{i,t-1}}$, where $S_{i,t}$ and $S_{i,t-1}$ are the total sales of firm i in the years t and $t-1$, respectively. α_0 is the intercept term and $\varepsilon_{i,t}$ is the error term.

We estimate the ABN_SG&A expenses as in Equation (3):

$$ABN\_SG\&A_{i,t} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,\,t-1}} \right) + \alpha_4 \left(\frac{S_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t}, \tag{3}$$

where $ABN\_SG\&A_{i,t}$ is measured by $ABN\_SG\&A_{i,t} = \frac{SG\&A_{i,t}}{A_{i,t-1}}$, and $SG\&A_{i,t}$ is the SG&A expenses of firm i in year t. ABN_PROD is estimated as (Equation (4)):

$$ABN\_PROD_{i,t} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{S_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{\Delta S_{i,t}}{A_{i,t-1}} \right) + \alpha_5 \left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}} \right) + \varepsilon_{i,t}, \tag{4}$$

where $ABN\_PROD_{i,t}$ is measured by $ABN\_PROD_{i,t} = \frac{PROD_{i,t}}{A_{i,t-1}}$. $PROD_{i,t}$ is the production cost measured by $PROD_{i,t} = COGS_{i,t} + \Delta INV_{i,t}$, where $COGS_{i,t}$ is the sum of the costs of goods sold by firm i in year t, and $\Delta INV_{i,t}$ is the change in inventory measured by $\Delta INV_{i,t} = \frac{INV_t - INV_{t-1}}{INV_{t-1}}$, where $INV_{i,t}$ and $INV_{i,t-1}$ are the total inventories for firm i in the years t and $t-1$, respectively. $\Delta S_{i,t-1}$ is the change in sales measured by $\Delta S_{i,t-1} = \frac{S_{i,t-1}-S_{i,t-2}}{S_{i,t-2}}$.

3.2. CG Metrics

Standard and Poor's (S&P) calculates the CGS by aggregating the scores of five CG characteristics—shareholder rights (CG1, over 90 points), board structure (CG2, over 90 points), disclosure (CG3, over 60 points), audit organization (CG4, over 50 points), and error management (CG5, over 10 points). The maximum value of the CGS is 300. A higher CGS suggests better CG implementation and higher transparency. Based on the Korean Commercial Code, all listed firms need to disclose public information, establish an audit committee, elect outside directors, and issue securities. Moreover, the CGS allows for the comparison of individual firms in the national and international context because Korean firms adopt the IFRS, which improves accounting quality and the legal regimen, and reduces the possibility of directly manipulating transactions in financial statements (Ferentinou and Anagnostopoulou 2016; Standard & Poor's Governance Services 2004).

3.3. Research Model

We use ordinary least squares panel data regression models with fixed effects (Nwakuya and Ijomah 2017) to investigate the relationship between FV, REM, and CG in Korean non-financial firms. Our independent variables are ABN_REM, ABN_CFO, ABN_SG&A, ABN_PROD, and CGS, and our dependent variable is Tobin's Q. Moreover, our control variables are leverage, asset tangibility, size, firm liquidity, and net interest payment (Jelinek 2007; Vakilifard and Mortazavi 2016).

3.3.1. FV and REM

In Equation (5), coefficient β_1. measures the relationship between REM activities and FV. If β_1 is negative, REM will negatively affect FV, showing opportunistic earnings management. Therefore, we expect a negative value for β_1.

$$Tobin's\ Q_{i,t} = \beta_0 + \beta_1 ABN\_REM_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Tang_{i,t} + \beta_4 Size_{i,t} + \beta_5 Liq_{i,t} + \beta_6 NetIntPay_{i,t} + \sum_{j=1}^{n} \beta_j\ Industry_{i,t} + \sum_{k=11}^{f} \beta_k\ Year_{i,t} + \varepsilon_{i,t}, \tag{5}$$

where $Tobin's\ Q_{i,t}$ is the market value of equity plus book value of short-term liabilities net of short-term assets, plus book value of long-term debt, divided by the book value of total assets for firm i in year t. $ABN\_REM_{i,t}$ is the abnormal aggregate REM, and it is composed of the abnormal CFO $ABN\_CFO_{i,t}$, abnormal SG&A expenses $ABN\_SG\&A_{i,t}$, and abnormal production cost $ABN\_PROD_{i,t}$. $Lev_{i,t} = \left(\frac{Current\ liabilities + Non-current\ liabilities}{Total\ assets} \right)_{i,t}$ is the debt ratio, $Tang_{i,t} = \left(\frac{Net\ fixed\ assets}{Total\ assets} \right)_{i,t}$ is the asset tangibility, $Size_{i,t} = Log\ (Total\ assets)_{i,t}$ is the size of the firm represented by natural logarithm of total assets, $Liq_{i,t} = \left(\frac{Current\ assets}{Current\ liabilities} \right)_{i,t}$ is the firm liquidity, $NetIntPay_{i,t} = \left(\frac{Interest\ income - Interest\ expenses}{Total\ assets} \right)_{i,t}$ is the net interest payment. The dummy terms $Industry_{i,t}$ and $Year_{i,t}$ represent a firm's industry (there are eleven non-financial industries listed on the Korean Composite Stock Price Index [KOSPI]) and the year of information, respectively, and $\varepsilon_{i,t}$ is the error term. The subscripts i and t denote the firm and fiscal year, respectively.

3.3.2. REM, CG, and Size

In Equation (6), coefficients β_1 and β_2 measure the relationship between REM activities and CG, and REM and size of the firm, respectively. We expect negative coefficients for both β_1 and β_2, thus showing opportunistic earnings management. Moreover, large firms tend to exhibit low REM activities because they adopt strong CG strategies, which prohibit the management from engaging in opportunistic behavior.

$$ABN\_REM_{i,t} = \beta_0 + \beta_1 CGS_{i,t} + \beta_2 Size_{i,t} + \varepsilon_{i,t}, \tag{6}$$

where $CGS_{i,t}$ is the CGS of firm i in year t. It is composed of shareholder rights $CG1_{i,t}$, board structure $CG2_{i,t}$, disclosure $CG3_{i,t}$, audit organization $CG4_{i,t}$, and error management $CG5_{i,t}$, and thus, $CGS_{i,t} = Log\ (CG1 + CG2 + CG3 + CG4 + CG5)_{i,t}$ for firm i in year t.

3.3.3. FV and CG

In Equation (7), coefficient β_1 measures the relationship between CG and FV. If β_1 is positive, CG will positively affect FV, showing that effective corporate control and confidence may increase FV. Therefore, we expect a positive value for β_1.

$$Tobin's\ Q_{i,t} = \beta_0 + \beta_1 CGS_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Tang_{i,t} + \beta_4 Size_{i,t} + \beta_5 Liq_{i,t} + \beta_6 NetIntPay_{i,t} + \sum_{j=1}^{n} \beta_j\ Industry_{i,t} + \sum_{k=11}^{f} \beta_k\ Year_{i,t} + \varepsilon_{i,t}. \tag{7}$$

3.3.4. FV, REM, and CG

In Equation (8), coefficient β_1 measures the relationship between REM and FV, whereas coefficient β_2 measures the relationship between CG and FV. We introduce the interaction term $ABN\_REM * CGS$ in our model. The coefficient β_3. is the result of our fourth hypothesis, which shows the interaction effect of CG on the relationship between REM and FV. If β_3 is positive, CG provides more incremental information than the information provided by the individual relationship between REM and FV, as well as CG and FV. We expect positive values for coefficients β_2 and β_3, and negative values for coefficient β_1.

$$Tobin's\ Q_{i,t} = \beta_0 + \beta_1 ABN\_REM_{i,t} + \beta_2 CGS_{i,t} + \beta_3 ABN\_REM * CGS_{i,t} + \beta_4 Lev_{i,t} + \beta_5 Tang_{i,t} + \beta_6 Size_{i,t} +$$
$$\beta_7 Liq_{i,t} + \beta_8 NetIntPay_{i,t} + \sum_{j=1}^{n} \beta_j\ Industry_{i,t} + \sum_{k=11}^{f} \beta_k\ Year_{i,t} + \varepsilon_{i,t},$$

(8)

where $ABN\_REM * CGS_{i,t}$ is the interaction term between REM and CG of firm i in year t.

3.4. Sample

Our initial sample consists of 556 Korean non-financial firms listed on the KOSPI (Fama and French 1992), with 3725 firm-year observations during the 2003–2011 period. To be considered in the final sample, the firms must have shown completed financial statements and reported sales over three consecutive years. Therefore, the final sample contains 3590 firm-year observations. The information of firms is obtained from the webpage of S&P and KisValue version 3.2 using CGS, cash flow statement, income statement, and statement of financial position. KisValue version 3.2 is a financial database of Korean firms, and its version depends on the actualization of the software to download the financial statements. Current CG information is difficult to collect given the stealth of information of each firm; therefore, we use the available CG data. We accessed the CG dataset only from 2003 to 2011 because the firms protect their internal data and inform about the CG status in their reports; however, S&P collects, processes, and standardizes all information, thus allowing for comparison to make financial decisions. The latest available CG dataset included the period of 2003 to 2011; thus, it is the selected period for the study. We cannot access to recent data because we need to merge two databases (financial and CG reports) and we found more coincidences in firms in the period of 2003 to 2011, showing a higher representativity for the sample.

We focus on Korean evidence because of the available dataset. Korean listed firms first mandatorily adopted IFRS, and its influence changed the accounting standards, which increased the attention from business and academia alike. Moreover, the results can be generalized for firms with similar characteristics of our sample disaggregation depending on the national accounting and financial regulations.

4. Results

4.1. Descriptive Statistics

The descriptive statistics for all variables are presented in Table 1. The mean value of Tobin's Q is close to zero, showing that the cost of replacing a firm's assets is greater than the value of its stocks. This affirmation implies that the stocks are undervalued. Moreover, the mean of all the abnormal REM measures (ABN_REM, ABN_CFO, ABN_SG&A, and ABN_PROD) is positive, meaning that most of the managers engage in REM activities. These two results might be considered as evidence of our first hypothesis, suggesting the presence of opportunistic behavior using REM activities. Finally, the prominent determinant of CG is shareholder rights, given that it exhibits the highest mean value.

4.2. Correlation Analysis

Table 2 shows that Tobin's Q had a significant positive correlation with all REM metrics (except with ABN_PROD), CGS, board structure, and audit organization. On the contrary, Tobin's Q showed a significant negative correlation with shareholder rights and error management at the 1% level. Moreover, ABN_REM showed a significant negative at least 5% level correlation with CGS, CG1, and CG3. The correlation values themselves were not enough to increase the multi-collinearity problem.

Table 1. Descriptive statistics.

Variables	Mean	Std. Dev.	Min	Lower Quartile (Q1)	Median	Upper Quartile (Q3)	Max
			Dependent variables				
Tobin's Q	0.028	0.095	−0.915	0.008	0.036	0.068	0.657
			Independent variables				
ABN_REM	0.017	0.376	−2.775	−0.150	0.006	0.244	1.305
ABN_CFO	0.001	0.095	−0.617	−0.049	0.002	0.047	0.948
ABN_SG&A	0.003	0.129	−0.912	−0.022	0.004	0.0.75	0.258
ABN_PROD	0.017	0.262	−3.132	−0.113	0.040	0.177	0.983
CGS	1.990	0.116	1.580	1.764	1.996	1.919	2.415
CG1	1.661	0.087	1.301	1.429	1.672	1.724	1.857
CG2	1.167	0.273	0.000	1.041	1.230	1.522	1.903
CG3	1.194	0.196	0.477	0.804	1.204	1.421	1.724
CG4	1.143	0.316	0.000	0.954	1.176	1.337	1.699
CG5	0.545	0.243	0.000	0.238	0.477	0.699	1.000
			Control variables				
Lev	0.454	0.190	0.045	0.312	0.453	0.587	1.181
Tang	0.349	0.174	0.001	0.227	0.340	0.465	0.923
Size	26.325	1.442	22.591	25.331	26.068	26.981	32.182
Liq	1.811	1.485	0.146	0.971	1.382	2.089	14.751
NetIntPay	0.149	0.133	0.000	0.048	0.122	0.214	0.963

Note: The dependent variable is Tobin's Q. The independent variables are (1) abnormal aggregate real earnings management (ABN_REM), (2) abnormal cash flow from operations (ABN_CFO), (3) abnormal selling, general, and administrative expenses (ABN_SG&A), (4) abnormal production costs (ABN_PROD), (5) corporate governance score (CGS), (6) shareholder rights (CG1), (7) board structure (CG2), (8) disclosure (CG3), (9) audit organization (CG4), and (10) error management (CG5). All the CG metrics are calculated using their natural logarithms. The control variables are (1) total debt ratio (Lev), (2) asset tangibility (Tang), (3) size (Size), (4) firm liquidity (Liq), and (5) net interest payment (NetIntPay). The statistical terms standard deviation, minimum, and maximum are denoted as Std. Dev., Min., and Max., respectively.

4.3. Regression Analysis

4.3.1. Relationship between FV and REM

Table 3 shows the results of four multiple linear regressions to describe the relationship between FV and REM activities measured by ABN_REM, ABN_CFO, ABN_SG&A, and ABN_PROD, by employing a sample of 3590 firm-year observations of non-financial firms listed on the KOSPI. We confirm a significant negative relationship between the FV and REM measures at the 1% level. These results also imply that the FV is significantly negatively affected by REM activities using price discounts, tolerant credit terms, cutting SG&A expenses, and overproduction (Tulcanaza-Prieto et al. 2019). F-statistics are significantly higher for all models, showing that the linear regression models fit the data better than the intercept-only model. Furthermore, the Durbin Watson statistics range from 1.874 to 1.969 (values close to 2.0), indicating that autocorrelation is not detected in the sample.

Table 2. Pearson Correlation Matrix.

Variables	Tobin's Q	ABN_REM	ABN_CFO	ABN_SG&A	ABN_PROD	CGS	CG1	CG2	CG3	CG4	CG5	Lev	Tang	Size	Liq	NetIntPay
Tobin's Q	1															
ABN_REM	0.031 ***	1														
ABN_CFO	0.086 ***	0.334 ***	1													
ABN_SG&A	0.131 ***	0.685 ***	−0.069 ***	1												
ABN_PROD	0.010	0.523 ***	0.071 ***	0.597 ***	1											
CGS	0.026 ***	−0.064 ***	−0.012	−0.090 ***	−0.024	1										
CG1	−0.112 ***	−0.112 ***	−0.008	−0.153 ***	−0.071 ***	0.631 ***	1									
CG2	0.067 ***	0.014	0.035 **	−0.017	0.024	0.588 ***	0.318 ***	1								
CG3	0.011	−0.044 **	−0.043 ***	−0.081 ***	−0.002	0.585 ***	0.112 ***	0.328 ***	1							
CG4	0.067 ***	−0.018	0.041 **	−0.028	−0.017	0.595 ***	0.351 ***	0.569 ***	0.304 ***	1						
CG5	−0.086 ***	−0.028	−0.059 ***	0.013	−0.024	0.001	0.001	−0.085 ***	−0.003	−0.142 ***	1					
Lev	−0.042 **	0.202 ***	0.227 ***	0.078 ***	0.168 ***	−0.032	−0.149 ***	0.058 ***	0.029	0.040 **	−0.125 ***	1				
Tang	0.616 ***	0.063 ***	−0.110 ***	0.065 ***	0.098 ***	−0.037 **	0.054 ***	−0.047 ***	−0.112 ***	−0.048 ***	−0.002	0.083 ***	1			
Size	0.243 ***	0.083 ***	0.024	0.057 ***	0.078 ***	0.508 ***	0.035 **	0.414 ***	0.490 ***	0.430 ***	−0.116 ***	0.154 ***	0.071 ***	1		
Liq	−0.296 ***	−0.115 ***	−0.081 ***	−0.062 ***	−0.106 ***	−0.011	0.135 ***	−0.072 ***	−0.047 ***	−0.070 ***	0.041 **	−0.609 ***	−0.247 ***	−0.167 ***	1	
NetIntPay	0.032	0.121 ***	0.225 ***	0.070 ***	0.055 ***	−0.196 ***	−0.200 ***	−0.054 ***	−0.103 ***	−0.099 ***	−0.106 ***	0.616 ***	0.094 ***	−0.049 ***	−0.365 ***	1

Note: *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

Table 3. Relationship between FV and REM.

Variables	Tobin's Q			
ABN_REM	−0.014 *** (−3.037) [1.401]			
ABN_CFO		−0.146 *** (−9.222) [1.110]		
ABN_SG&A			−0.030 *** (−2.926) [1.490]	
ABN_PROD				−0.027 *** (−2.943) [1.270]
Lev	−0.012 *** (−2.810) [1.445]	−0.021 ** (−2.494) [1.352]	−0.031 ** (−2.228) [1.328]	−0.479 *** (−2.613) [1.567]
Tang	0.003 *** (3.359) [1.168]	0.004 *** (3.432) [1.191]	0.007 *** (3.741) [1.175]	0.509 *** (3.390) [1.175]
Size	0.012 *** (10.739) [1.219]	0.012 *** (10.589) [1.205]	0.011 *** (10.368) [1.209]	0.026 *** (16.089) [1.218]
Liq	−0.001 *** (−2.720) [1.859]	−0.001 *** (−2.927) [1.779]	−0.001 *** (−2.637) [1.779]	−0.042 *** (−2.757) [1.856]
NetIntPay	−0.224 *** (−12.316) [1.400]	−0.192 *** (−11.562) [1.361]	−0.206 *** (−12.365) [1.339]	−0.315 *** (−11.969) [1.422]
Intercept	−0.235 *** (−7.806)	−0.224 *** (−7.608)	−0.220 *** (−7.353)	−0.076 *** (−7.763)
Year-fixed effects	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes
Adj. R^2	0.585	0.507	0.568	0.524
F-Stat.	33.438 ***	30.003 ***	32.005 ***	30.993 ***
DW	1.900	1.905	1.874	1.969

Note: The results indicate a significant negative relationship between FV and REM. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor, which do not exceed 10, and therefore, there is not a multicollinearity issue (Hair et al. 1995). *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

The results obtained in this study reflect that opportunistic earnings management deteriorates FV over time, showing that the opportunistic maximization of the manager's compensation generates distortions in the reported earnings and FV. Managers are interested in conducting REM activities to increase firm performance (Roychowdhury 2006; Darmanwan et al. 2019; Burgstahler and Dichev 1997). However, we support the idea that in the presence of misalignment of incentives between parties and the prevalence of personal needs to conserve the manager's business position and reputation, REM plays a crucial role and does not reflect the market reality. A reduction in FV provides an inaccurate assessment of the firm to future investors and leads to a decline in the firm's future CFO.

The maximization of managers' utility and their compensation are the most important motivations for managers to conduct REM activities; however, opportunistic behavior deteriorates FV and reduces the quality of reported earnings (Ronen and Yaari 2008). Accounting treatments, flexibility of accounting standards, low regulatory scrutiny, information asymmetry, and low investor vigilance are opportunities to manage earnings through real activities in the long term (Abbas and Ayub 2019). Managers have access to private information about the firm's performance and exercise their managerial discretion. They can manipulate earnings through real activities in the current period to show better

performance; however, this manipulation is detrimental to the firm in the long run (Graham et al. 2005).

Our control variables show a significantly negative effect in the majority of the regression models. There is a significant negative relationship between total debt ratio, liquidity, net interest payment, and Tobin's Q. These results imply that the possibility of exercising managers' discretion depends on the levels of current and non-current assets and liabilities. Moreover, managers prioritize interest and principal payments; however, the presence of a higher interest payment might limit managers from exercising their discretion. We also identify a positive relationship between asset tangibility and FV. These results show that asset tangibility is a positive signal of the firm's future performance and ensures confidence for investors. Similarly, there is a significant positive relationship between size and FV, indicating that large firms show higher FV compared with the value in small firms.

4.3.2. Relationship between FV and CG

Table 4 shows the results of six multiple linear regressions to explain the relationship between FV and the six CG metrics. We confirm that five out of six CG metrics have a significant positive relationship with FV. We conclude that an appropriate governance structure mitigates a firm's devaluation. Therefore, CG reduces the conflict of interest between managers and shareholders and decreases the asymmetric information between them. We accept Hypothesis 3, showing that there is a significant positive relationship between CG practices and FV at least at the 5% level, thus suggesting that CG is an effective mechanism to reflect the fundamental value of a firm.

Prior studies have acknowledged that CG positively influences FV (Gompers et al. 2003; Brown and Caylor 2006; Klapper and Love 2004; Black et al. 2006). Notably, CG defends shareholders' rights, promotes the adoption of national and international accounting and financial standards, integrates transparency in financial reports, contributes to programs of social responsibility to the community, increases confidence in the country's legal system, and incorporates a high level of audit committees in their business. Specifically, shareholder rights introduce additional monitoring of financial reports, which increases the quality of auditing standards and heightens FV by incorporating transparency in all processes and transactions (Geiger and North 2013; Lopes 2018). We identify that managers decrease their opportunistic behavior in firms with strong CG because they are subjected to extensive supervisory control, which reduces their probability to exercise discretion in all processes. Moreover, managers from firms with strong CG first assess their professional stability and long-term reputation instead of short-term incentives.

Outside directors and audit committees are considered central elements of good CG, suggesting that firms with independent board structures are associated with higher FV (Lei and Song 2012) because the independence of directors provides efficiency and transparency in operational and financial decisions. Moreover, disclosure is positively associated with FV because it increases the information quality, which diversifies the firms' risk, thereby showing stable income to investors (Foerster et al. 2013). We also show that high-organizational error management, which includes norms and common practices in organizations, is positively related to FV because it reduces consecutive errors and uses errors explicitly as a learning opportunity.

In governance there is no one-size-fits-all solution. The best approach will depend on the organization's particular circumstances. In our study, we proved that CG policies are more likely to improve the financial reporting. The financial reporting quality might be increased by (i) enhancing board stewardship through more diverse boards which adds new skillsets and recruits independent directors, (ii) maximizing board efficiency and effectiveness with improved procedures (e.g., setting annual work plans, formalizing boards papers, improving agendas and proceedings), (iii) structuring board nomination and evaluation processes, (iv) upgrading the role of internal audit and its proper independence in the organization, (v) strengthening enterprise risk management and improving risk dialogue by monitoring and mitigation, and (vi) improving transparency and shareholder

relations (e.g., increasing the non-financial information in their annual report on their websites, improving minority shareholder protection).

Table 4. Relationship between FV and CG.

Variables	Tobin's Q					
CGS	0.240 *** (7.846) [1.420]					
CG1		0.350 *** (13.550) [1.414]				
CG2			0.028 *** (7.811) [1.004]			
CG3				0.021 ** (2.046) [1.533]		
CG4					0.012 (1.491) [1.184]	
CG5						0.059 *** (6.318) [1.095]
Lev	−0.430 *** (−23.371) [1.326]	−0.426 *** (−23.574) [1.326]	−0.034 *** (−2.641) [1.019]	−0.429 *** (−23.170) [1.330]	−0.032 ** (−2.297) [1.022]	−0.541 *** (−22.193) [1.716]
Tang	0.519 *** (43.428) [1.174]	0.542 *** (45.591) [1.203]	0.005 ** (2.439) [1.176]	0.514 *** (42.406) [1.195]	0.006 *** (2.682) [1.174]	0.515 *** (34.767) [1.117]
Size	0.035 *** (18.910) [1.889]	0.026 *** (17.985) [1.205]	0.013 ** (2.545) [1.001]	0.028 *** (16.215) [1.600]	0.013 *** (9.857) [1.098]	0.028 *** (16.025) [1.265]
Liq	−0.037 *** (−21.472) [1.780]	−0.035 *** (−20.356) [1.804]	0.007 *** (10.392) [1.085]	0.038 *** (21.607) [1.782]	0.001 *** (4.567) [1.077]	0.046 *** (20.955) [1.042]
NetIntPay	0.253 *** (11.339) [1.375]	0.245 *** (11.214) [1.361]	0.214 *** (9.207) [1.030]	0.271 *** (12.170) [1.343]	0.208 *** (12.468) [1.034]	0.375 *** (11.292) [1.325]
Intercept	0.171 *** (3.306)	0.489 *** (8.468)	−0.233 *** (−12.848)	−0.105 *** (−2.609)	−0.234 *** (−7.639)	−0.063 ** (−2.328)
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.535	0.550	0.177	0.527	0.168	0.558
F-Stat.	188.326 ***	200.112 ***	35.878 ***	182.909 ***	33.878 ***	143.711 ***
DW	1.941	1.937	1.848	1.940	1.873	2.006

Note: The results indicate a significant positive relationship between CG and FV. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor. *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

4.3.3. Relationship between FV, REM, and CG with Interaction Effect

Table 5 shows the results of six multiple linear regressions that explain the relationship between (i) FV and REM activities, (ii) FV and CG, and (iii) FV and the interaction variable (ABN_REM * CG metrics). All the regressions confirm a significant negative relationship between REM and FV and a significant positive relationship between CG and FV, as shown in Tables 3 and 4, respectively. More importantly, most of the interaction variables of REM and CG show statistically significant positive coefficients. Firms characterized by strong CG tend to experience a weaker negative relationship between REM and FV than those with weak CG. This result shows that the CG variable plays a moderating role in the negative relationship between REM and FV. Our findings imply that an increase in monitoring and controlling mechanisms protects stakeholder interests. The presence of strong CG in a firm increases its reliability and transparency through information disclosure, which decreases the company risk and expropriation of minority shareholders. Consequently, managers reduce their opportunistic behavior and do not frequently engage in REM activities.

Table 5. Relationship between FV, REM, and CG with interaction effect.

Variables	Tobin's Q					
ABN_REM	−0.377 ***	−0.011 **	−0.082 ***	−0.137 ***	−0.034 **	−0.030 ***
	(−3.355)	(−2.093)	(−2.689)	(−3.807)	(−2.154)	(−1.989)
	[1.470]	[1.191]	[1.155]	[1.005]	[1.223]	[1.276]
CGS	0.258 ***					
	(7.760)					
	[1.565]					
CG1		0.344 ***				
		(12.325)				
		[1.230]				
CG2			0.012 ***			
			(2.761)			
			[1.881]			
CG3				0.026 **		
				(1.995)		
				[1.471]		
CG4					0.001	
					(0.050)	
					[1.442]	
CG5						0.060 ***
						(5.706)
						[1.104]
ABN_REM*CGS	0.189 ***					
	(3.420)					
	[1.237]					
ABN_REM*CG1		0.011 **				
		(2.158)				
		[1.211]				
ABN_REM*CG2			0.068 ***			
			(2.834)			
			[1.743]			
ABN_REM*CG3				0.114 ***		
				(3.960)		
				[1.399]		
ABN_REM*CG4					0.488	
					(1.015)	
					[1.557]	
ABN_REM*CG5						0.577 **
						(2.143)
						[1.459]
Lev	−0.482 ***	−0.477 ***	−0.492 ***	−0.485 ***	−0.030 ***	−0.002 ***
	(−23.009)	(−23.078)	(−23.188)	(−22.982)	(−11.274)	(−10.066)
	[1.560]	[1.563]	[1.568]	[1.562]	[1.236]	[1.832]
Tang	0.505 ***	0.531 ***	0.503 ***	0.499 ***	0.505 ***	0.503 ***
	(38.457)	(40.561)	(37.983)	(37.374)	(38.123)	(30.644)
	[1.176]	[1.199]	[1.172]	[1.195]	[1.170]	[1.184]
Size	0.036 ***	0.026 ***	0.026 ***	0.029 ***	0.026 ***	0.027 ***
	(17.817)	(16.525)	(13.223)	(15.234)	(13.954)	(14.280319)
	[1.924]	[1.224]	[1.759]	[1.620]	[1.652]	[1.287]
Liq	−0.041 ***	−0.039 ***	−0.042 ***	−0.042 ***	−0.042 ***	−0.050 ***
	(−20.433)	(−19.534)	(−20.726)	(−20.659)	(−20.762)	(−19.739)
	[1.868]	[1.893]	[1.869]	[1.868]	[1.862]	[1.154]
NetIntPay	0.303 ***	0.292 ***	0.331 ***	0.322 ***	0.323 ***	0.411 ***
	(11.631)	(11.373)	(12.552)	(12.315)	(12.335)	(10.765)
	[1.431]	[1.423]	[1.409]	[1.406]	[1.402]	[1.319]
Intercept	0.150 ***	0.461 ***	−0.076 *	−0.103 **	−0.081 *	−0.031 **
	(2.862)	(7.613)	(−1.696)	(−2.349)	(−1.764)	(−2.593)
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.534	0.546	0.524	0.526	0.522	0.557
F-Stat.	149.978 ***	157.477 ***	143.921 ***	145.338 ***	143.527 ***	113.593 ***
DW	1.956	1.956	1.969	1.973	1.968	1.980

Note: The results indicate: (1) a significant negative relationship between REM and FV, (2) a significant positive relationship between CG and FV, and (3) a significant positive relationship between the interaction variables and FV. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Our findings are consistent with those of previous studies. Subanidja et al. (2016) show that CG metrics, such as independent commissioner, managerial ownership, and audit quality, act as moderating variables in the relationship between earnings management and FV, suggesting that CG positively influences the real FV when firms apply strict CG mechanisms. Moreover, (Jin et al. 2018) mention that CG introduces more control in the accounting processes of firms, whereas financial committees supervise and approve the debt position of firms; thus, managers do not freely access the cash flow, and they do not frequently engage in REM activities.

4.3.4. Robustness Tests

To reinforce our conclusion that strong CG is effective in monitoring the managerial opportunistic behavior of REM activities and that FV does not decline as much as that with weak CG, we need to observe less REM activities for firms with strong CG than for those with weak CG. For this robustness check, we divide the total sample into two groups, the strong CG group and the weak CG group, according to their CGS quartile value (Q3 and Q1, respectively). Firms with strong CG show CGS values higher than 2.061 (quartile three, Q3), whereas those with weak CG have CGS values lower than 1.919 (quartile one, Q1). The numbers of firms in each sample are 2677 and 913 firm-year observations with strong and weak CG, respectively. Table 6 shows the different t-test results for the testing variables of Tobin's Q and REM metrics. We perform this test to determine whether the mean of Tobin's Q, REM activities, and CG metrics for firms with strong CG is different from that for firms with weak CG. The average of all dependent and independent variables is statistically different between firms with strong CG and those with weak CG. In particular, the significant difference in CG metrics between firms with strong CG and those with weak CG supports the classification according to the CG quartile values.

Table 6. *t*-test for equality of means for firms with strong CG vs. weak CG.

Variable	Strong CG	Weak CG	Difference	*t*-Value
Tobin's Q	0.031	0.018	0.014	3.740 ***
ABN_REM	0.012	0.043	−0.031	−2.706 ***
ABN_CFO	0.001	0.006	−0.005	−2.836 ***
ABN_SG&A	0.003	0.009	−0.006	−3.371 ***
ABN_PROD	0.015	0.029	−0.014	−3.112 ***
CGS	2.041	1.840	0.201	68.734 ***
CG1	1.689	1.577	0.112	40.466 ***
CG2	1.271	0.856	0.415	52.509 ***
CG3	1.227	1.099	0.128	17.698 ***
CG4	1.270	0.769	0.501	57.043 ***
CG5	0.561	0.539	0.022	3.545 ***

Note: Firms with firm-year observations having a CGS higher than 2.061 (quartile three Q3) are classified as having strong CG, whereas those with firm-year observations having lower than 1.919 (quartile one Q1) are classified as firms with weak CG. The dependent variable is Tobin's Q. *** indicates statistical significance at the 1% level.

The mean value of Tobin's Q in firms with strong CG is higher than that in firms with weak CG, suggesting that the value of firms with strong CG is greater than that of firms with weak CG. This result is consistent with our previous finding from the regression analysis in Table 4, which shows a positive relationship between CG and FV. Moreover, the mean value of REM activities is higher in firms with weak CG than in those with strong CG, showing that firms with weak CG are more susceptible to engaging in REM activities. This result also supports our previous argument that effective CG may prohibit the management from engaging in REM activities. It also indirectly confirms our finding in Table 3, which supports the opportunistic behavior of REM, because there is no reason for firms with strong CG to monitor the REM activities of the management, if it is considered from the perspective of efficiency.

To provide additional evidence that strong CG prevents the management from engaging in the opportunistic behavior of REM activities, we conduct four multiple linear regressions using CGS and the size of the firm as independent variables and REM metrics as dependent variables. Table 7 shows, at the 1% level, the significant negative relationship between (1) REM activities and CGS and (2) REM metrics and firm size. The findings suggest the prevalence of opportunistic earnings management in the absence of CG policies. These results are consistent with the previous literature that firms with strong CG avoid REM activities (Byard et al. 2006; Jianga et al. 2008; He et al. 2009). The introduction of CG policies increases transparency in a firm given that it provides several internal and external benefits, such as access to public information, reduction in agency costs, a decrease in asymmetric information, a decline in managers' opportunistic behavior, a rise in the supervisory role of owners, and an increase in the reliability of firms. Therefore, there is an improvement in the quality of financial reporting, which reduces the possibility of engaging in REM activities.

Table 7. Relationship between REM, CG, and size.

Variables	ABN_REM	ABN_CFO	ABN_SG&A	ABN_PROD
CGS	−0.591 ***	−0.026 ***	−0.178 ***	−0.253 ***
	(−7.290)	(−2.643)	(−8.339)	(−4.439)
	[0.441]	[0.348]	[0.348]	[0.445]
Size	−0.045 ***	−0.003 ***	−0.012 ***	−0.024 ***
	(−7.879)	(−6.062)	(−7.191)	(−6.028)
	[0.441]	[0.421]	[0.258]	[0.448]
Constant	−0.024	−0.019	−0.028	−0.110
	(−0.159)	(−0.577)	(−0.651)	(−1.051)
Adj. R^2	0.024	0.001	0.022	0.012
F-Stat.	37.230 ***	32.364 ***	40.647 ***	39.048 ***
DW	1.854	1.686	1.949	1.936

Note: The results indicate a significant negative relationship between REM, CGS, and REM and the size of the firm. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor. *** indicates statistical significance at the 1% level.

Large firms tend to be considered as well-governed, given that they exercise more managers' control and promote transparency and disclosure, and they tend to adopt strong CG strategies; thus, managers are subject to frequent audit and financial supervision (Tulcanaza-Prieto and Morocho-Cayamcela 2021). On the one hand, Kim et al. (2003) argue that large firms usually have strong internal control systems and governance mechanisms, which reduce the flexibility of real manipulations (Kim et al. 2003). On the other hand, Persons (1995) reports that the occurrence of fraud and fraudulent activities are more recurrent in smaller firms (Persons 1995). Therefore, large firms tend to be characterized as having strong CG and show low REM activities, whereas small firms do not. Our data show a statistically significant negative effect on the size variable for all of the different REM metrics. The size effect of REM activities may be considered as additional evidence to support our fourth hypothesis that strong CG prevents management from engaging in REM activities.

Table 8 shows the results of eight multiple linear regressions to explain the relationship between FV and REM activities measured by ABN_REM, ABN_CFO, ABN_SG&A, and ABN_PROD for the two subsamples of firms with strong CG and those with weak CG, respectively. The F-statistics are significantly higher for all models, showing that the linear regression models fit the data better than the intercept-only model. Furthermore, the Durbin Watson statistics range from 1.859 to 1.989 (values close to 2.0), indicating that no autocorrelation is detected in the sample. Panel A confirms the significant negative relationship between all REM metrics and FV measured by Tobin's Q for firms with weak CG at the 1% level. The regression coefficient of ABN_REM indicates that when the abnormal aggregate REM rises by one unit, with the statement that other variables remain

constant, FV decreases by 0.033. Similar negative coefficients are estimated for the other REM measures. These results imply that FV is significantly negatively affected by REM activities for firms with weak CG by price discounts, tolerant credit terms, cutting SG&A expenses, and overproduction (Tulcanaza-Prieto et al. 2019). On the contrary, the regression coefficients of all REM measures are not statistically significant for firms with strong CG (Panel B). These results imply that REM activities negatively affect FV only for firms with weak CG. In other words, firms with strong CG do not experience a decline in FV associated with REM activities. These findings suggest that the opportunistic view of REM is valid for firms with weak CG, whereas it is not valid for those with strong CG. These findings also confirm our earlier evidence that effective CG plays a role in preventing the management's opportunistic behavior of REM activities. Along with the evidence from Tables 6 and 7, we can conclude that firms with weak CG may observe REM activities more than those with strong CG, and those observed REM activities are more likely associated with the management's selfish behavior. However, firms with strong CG successfully monitor the management decision process, so that the tendency for the management to engage in REM activities associated with opportunistic views declines and firms do not suffer from losing economic value as much as those with weak CG.

Table 8. Relationship between FV and REM for firms with strong and weak CG.

Variables	Panel A: Weak CG (N = 913)				Panel B: Strong CG (N = 2677)			
	Tobin's Q							
ABN_REM	−0.033 *** (−4.219) [1.440]				−0.011 (−0.590) [1.292]			
ABN_CFO		−0.012 *** (−4.045) [1.133]				−0.044 (−1.029) [1.084]		
ABN_SG&A			−0.089 *** (−4.308) [1.568]				−0.139 (−0.610) [1.367]	
ABN_PROD				−0.038 *** (−3.832) [1.289]				0.003 (0.128) [1.262]
Lev	−0.503 *** (−10.645) [1.700]	−0.509 *** (−22.493) [1.629]	−0.511 *** (−22.719) [1.599]	−0.496 *** (−20.950) [1.700]	−0.328 *** (−9.054) [1.288]	−0.276 *** (−8.598) [1.028]	−0.285 *** (−8.919) [1.035]	−0.415 *** (−8.878) [1.325]
Tang	0.525 *** (33.314) [1.171]	0.498 *** (35.183) [1.188]	0.496 *** (35.418) [1.172]	0.504 *** (34.669) [1.176]	0.547 *** (16.036) [1.281]	0.571 *** (25.033) [1.269]	0.566 *** (25.075) [1.262]	0.546 *** (17.133) [1.300]
Size	0.021 *** (11.236) [1.229]	0.029 *** (17.456) [1.242]	0.029 *** (17.649) [1.244]	0.028 *** (16.252) [1.229]	0.021 *** (3.811) [1.185]	0.023 *** (6.538) [1.151]	0.024 *** (6.792) [1.156]	0.026 *** (5.133) [1.185]
Liq	−0.019 *** (−8.876) [1.902]	−0.045 *** (−20.245) [1.887]	−0.045 *** (−20.447) [1.881]	−0.044 *** (−19.350) [1.899]	−0.012 *** (−3.306) [1.801]	−0.025 *** (−9.073) [1.657]	−0.025 *** (−9.313) [1.662]	−0.032 *** (−7.900) [1.800]
NetIntPay	−0.099 *** (−4.150) [1.491]	0.367 *** (12.382) [1.511]	0.362 *** (12.353) [1.477]	0.349 *** (11.409) [1.505]	−0.133 *** (−3.316) [1.259]	0.114 *** (3.405) [1.182]	0.113 *** (3.413) [1.162]	0.170 *** (3.323) [1.326]
Intercept	−0.120 ** (−2.333)	−0.138 *** (−3.044)	−0.146 *** (−3.234)	−0.123 *** (−2.602)	−0.079 (−0.558)	−0.121 (−1.289)	−0.140 (−1.497)	−0.072 (−0.554)
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.594	0.539	0.542	0.537	0.445	0.349	0.355	0.324
F-Stat.	102.446 ***	143.356 ***	145.201 ***	138.372 ***	22.513 ***	51.422 ***	52.656 ***	28.991 ***
DW	1.989	1.944	1.946	1.966	1.874	1.902	1.908	1.859

Note: The results indicate a significant negative relationship between FV and REM in firms with weak CG. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor. *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

The results of our study are consistent with those of previous studies, showing that the prevalence of opportunistic REM activities deteriorates FV over time (Burgstahler and

Dichev 1997; Roychowdhury 2006; Darmanwan et al. 2019). Therefore, REM activities are the consequences of agency problems between managers and shareholders, given the presence of personal needs that do not reflect the real value of the firm in the long term. Moreover, the conduct of REM activities does not show the market financial reality because it reduces the firm's future cash flow and provides an incorrect assessment of the firm to future investors. The maximization of managers' utility and their compensation are the most important motivations for managers to conduct REM activities; however, opportunistic behavior deteriorates the FV and reduces the quality of reported earnings (Ronen and Yaari 2008). Accounting treatments, flexibility of accounting standards, low regulatory scrutiny, information asymmetry, and low investor vigilance are opportunities to manage earnings through real activities in the long term (Abbas and Ayub 2019). Managers have access private information about a firm's performance and exercise their managerial discretion. They can manipulate earnings through real activities in the current period to show better performance; however, this manipulation is detrimental to the firm in the long run (Graham et al. 2005).

We included tangibility of the assets in all models of our study. However, there has been a growing interest in corporate non-financial information and intangible assets in recent years because a firm cannot grow over the long term without the trust of society and stakeholders. A sustainable firm needs to create shared value with society from both financial and non-financial perspectives and meet society's expectations and demands, which determine the firm's ability to create value over the medium to long term. Nowadays, many standards and frameworks are established, the management and disclosure of non-financial information is often perceived as a new "obligation" by firms. However, these new standards have not been incorporated in the Korean accounting principles and rules yet. With the increasing of demand for disclosure of non-financial information, firms are concerned about collecting data and identifying appropriate metrics. These procedures are strategically considered by management and affect the creation or impairment of future corporate value.

In the literature of finance and accounting, there is a concern about the endogenous relationship between FV and CG. To address this concern, we employed Equations (9) and (10) to control the endogeneity problem by two-stage least square (2SLS) regression analysis. To increase the econometric specification, we recur to 2SLS regression procedure implemented by (Black et al. 2006). According to their study, CG can be influenced by firm size, long term profitability, and industry factors. In the first stage, we ran Tobin's Q and CGS, where we controlled for "Size_Dummy" and "Size". In the second stage, we ran our model using results from the first stage.

First stage:

$$CGS_{i,t} = \beta_0 + \beta_1 Tobin's\ Q_{i,t} + \beta_2 Size\_Dummy_{i,t} + \beta_3 Size_{i,t} + \varepsilon_{i,t}, \tag{9}$$

Second stage:

$$Tobin's\ Q_{i,t} = \alpha_0 + \alpha_1 CGS_{i,t} + \alpha_2 Lev_{i,t} + \alpha_3 Tang_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 Liq_{i,t} + \\ \alpha_6 NetIntPay_{i,t} + \sum_{j=1}^{n} \alpha_j\ Industry_{i,t} + \sum_{k=11}^{f} \alpha_k\ Year_{i,t} + \varepsilon_{i,t}, \tag{10}$$

where "Size_Dummy" is an indicator variable with a value of 1, if total assets are equal to or above 2 trillion Korean Won, and 0 otherwise. Firms with assets of over KRW 2 trillion are required by law to have an audit committee, which provides an internal control mechanism for monitoring management's activity. Those results of our second stage of 2SLS regression in Table 9 show positive coefficients for every aspect of CG variables, which support our earlier results that effective CG influences firm value positively. These results are also consistent with our implication that effective CG reduces the probability for the management to engage in REM activities.

Table 9. Regression results of the 2SLS model.

	First-Stage Regression Results					
Variable	**CGS**	**CG1**	**CG2**	**CG3**	**CG4**	**CG5**
Tobin's Q	0.363 ***	0.177 **	0.367 ***	0.486 ***	0.576 ***	0.821 **
	−10.876	−2.26	−10.037	−10.62	−10.265	−2.113
Intercept	−1.924 ***	−1.656	−1.047	−1.080	−0.984 ***	−0.832 ***
	(−26.058)	(−33.308)	(−32.065)	(−34.161)	(−32.922)	(−36.116)
Adj. R^2	0.032	0.015	0.027	0.03	0.028	0.01
F-Stat.	18.283 ***	5.106 **	10.746 ***	12.785 ***	15.366 ***	4.463 **
Covariance Tobin's Q	0.004	0.006	0.008	0.004	0.003	0.005
Second Stage Regression Results						
Variables	Tobin's Q					
CGS	0.094 **					
	−2.725					
	[1.420]					
CG1		0.014 ***				
		−4.058				
		[1.214]				
CG2			0.035 ***			
			−4.058			
			[1.014]			
CG3				0.060 **		
				−2.15		
				[1.033]		
CG4					0.070 **	
					−2.491	
					[1.184]	
CG5						0.017 ***
						−2.685
						[1.095]
Lev	−0.075 **	−0.006 **	−0.143 **	−0.141 **	−0.182 **	−0.042 **
	(−2.298)	(−2.356)	(−2.359)	(−2.502)	(−2.297)	(−2.520)
	[1.326]	[1.326]	[1.226]	[1.330]	[1.322]	[1.016]
Tang	0.014	0.004	0.001	0.021	0.035	0.109
	−0.637	−0.03	−0.02	−0.578	−0.682	−0.767
	[1.174]	[1.203]	[1.003]	[1.195]	[1.174]	[1.177]
Size	0.024 ***	0.002 ***	0.051 ***	0.047 ***	0.072 ***	0.023 ***
	−7.359	−10.553	−10.683	−9.129	−9.857	−4.972
	[1.889]	[1.205]	[1.276]	[1.600]	[1.598]	[1.265]
Liq	−0.002	−0.016	−0.001	−0.002	−0.004	−0.004
	(−0.498)	(−0.071)	(−0.171)	(−0.344)	(−0.567)	(−0.702)
	[1.780]	[1.804]	[1.428]	[1.082]	[1.077]	[1.042]
NetIntPay	0.481 ***	0.035 ***	0.876 ***	0.835 ***	0.188 ***	0.985 ***
	−12.108	−11.979	−9.791	−12.303	−12.468	−11.144
	[1.375]	[1.361]	[1.621]	[1.343]	[1.334]	[1.325]
Intercept	0.293 ***	0.593 ***	0.512 ***	0.184	0.349 **	0.972 ***
	−4.023	−3.367	−2.648	−1.495	−1.998	−7.75
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.268	0.171	0.181	0.166	0.168	0.146
F-Stat.	33.896 ***	34.637 **	35.654 ***	33.430 ***	33.878 ***	20.335 ***
DW	1.974	1.973	1.975	1.872	1.973	1.839

Note: The results indicate a significant positive relationship between CGS and FV, using 2SLS regression to control endogeneity. Beta corresponds to unstandardized coefficients. Numbers inside the parentheses are t-statistics. Numbers inside the brackets are the values of the variance inflation factor. *** and ** indicate statistical significance at the 1% and 5% level, respectively.

5. Conclusions

This study analyzes the simultaneous relationship between FV, REM, and CG using a sample of 3590 firm-year observations of non-financial firms listed on the KOSPI from 2013 to 2011. By introducing Tobin's Q as a proxy for FV, we find that the effect of REM activities is significantly negative on FV. These results align with the view of managers' opportunistic behavior, where REM may decrease FV. Managers are motivated to engage in "masked" daily transactions to rise their wealth and reputation. We are also able to confirm the positive effect of CG on FV by establishing a positive relationship between CG and FV based our regression analysis. These results align with the adoption of effective CG

policies to reduce agency conflicts, decrease asymmetric information, and increase FV by implementing accounting transparency and active supervision.

By introducing an interaction term between REM and CG, we find that CG plays a moderating role in loosening the relationship between REM and FV. The presence of strong CG in a firm increases its reliability and transparency through information disclosure; thus, the probability of the management making selfish decisions declines. The monitoring effect of CG may prevent management from engaging in the opportunistic behavior of REM activities so that the firm value does not decrease any more. The adoption of effective CG policies provides the implementation of high auditing standards and transparency in financial reports, which increases shareholders' confidence and reduces managers' opportunistic behavior to manipulate earnings for personal needs.

To support our conclusion, we provide an analysis of the robustness checks. First, for our conclusion to be valid, strong CG should be effective in monitoring the management's selfish decision-making behavior. Therefore, firms with strong CG should exhibit less REM activities than those with weak CG. By conducting a sample statistic, we are able to observe fewer REM activities in firms with strong CG than those with weak CG. More importantly, we find a statistically significant negative relationship between REM activities and CGS levels by running a multiple regression model. Second, if strong CG plays an effective monitoring role to ban management from engaging in opportunistic behavior of REM, we should observe a positive or at least no negative relationship between FV and REM for firms with strong CG, and a significant negative relationship for firms with weak CG. Our data confirm this notion by showing no significant relationship for firms with strong CG and a significant negative relationship for those with weak CG. Our results imply that the frequency of managerial opportunistic engagement in REM activities may be limited by the degree of CG. Notably, CG is considered as an effective corporate finance tool that reduces the possibility of managers' engagement in the opportunistic behavior of REM activities and it retains the fundamental value of the firm through the implementation of reliability, control, confidence, and transparency therein. This implication is compatible with the previous literature that CG may be an effective mechanism to control the opportunistic behavior of managers, and it decreases the possibility of free access to internal and external financing (Tulcanaza-Prieto et al. 2020c).

There are certain limitations to our study. We suggest introducing other proxies for the firm's performance, such as return on assets, return on equity, and return on invested capital to corroborate our findings using Tobin's Q. Moreover, it is necessary to obtain a recent CG dataset, which depends on the transparency and disclosure of the firms. For future research, the authors recommend including the degree of REM activities dividing the sample into suspicious and non-suspicious firms according to the level of earnings management.

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