Conservative Financial Reporting and Cost of Equity: Evidence from Korea

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Abstract

Prior studies provided mixed evidence regarding the relation between earnings conservatism and cost of equity. This paper investigated whether earnings conservatism affects the cost of equity capital in emerging Korean market. Further, we explored whether the relation between conservatism and the cost of equity is influenced by the two economic factors, the ownership concentration of the largest shareholder and information asymmetry. Our empirical results showed that earnings conservatism is negatively related to the cost of equity capital and also the relation is more pronounced for the firms with high ownership concentration of the largest shareholders and high information asymmetry proxied by stock return volatility. These results suggested that the positive aspects of conservative financial reporting in the capital market are more strengthened in the poor information environment and more concentrated ownership structure, which is consistent with demand side of conservatism.

Keywords: Accounting conservatism, cost of equity, information asymmetry, ownership concentration

1. Introduction

This study empirically analyzed how the benefits of contracting in accounting conservatism affect the cost of equity capital for Korean firms. Shareholders invest in the firm and entrust management to the manager, after which they make decisions on the manager's rewards by evaluating the business performance based on accounting information. Shareholders retrieve the investments they made through dividend income and capital gains from their stocks, and thus there are monitoring incentives on whether the manager effectively manages the firm. Thus, when managers incorporate economic losses into financial statements on a timely basis, executing accounting conservatism, investors are able to mitigate over- or under- estimation of firm value due to uncertain information environment and firms also may decrease the volatility of future stock return, ultimately reducing the cost of equity (Artiach and Clarkson 2010; Lara et al. 2011a).

As such, shareholders have a demand for accounting conservatism, and if firms perform conservative accounting, there would be a more positive response in the stock market (LaFond and Watts 2008). Accordingly, this study develops the first hypothesis that firms with executing higher accounting conservatism are likely to decrease the cost of equity in Korean stock market. Further, this study examined whether the relation between accounting conservatism and cost of equity is affected by the level of ownership concentration and information asymmetry from the demand side of conservatism. We predict that the negative relation between conservatism and cost of equity capital is more strengthened in firms with high ownership concentration and high information asymmetry due to high demand for conservatism.

This study used the C-Score presented by Khan and Watts (2009) to measure the conservatism of firms and estimated the ex-ante cost of equity using the GM model by Gode and Mohanram (2003) derived from the abnormal earnings growth model (AEGM) and the PEG and MPEG models by Easton (2004), using their arithmetic means as the proxy of the cost of equity (Hail and Leuz 2006; Li 2009; Kim and Ko 2009; Cha et al. 2010; Jung and Yoo 2012).

Our analyses targeted the listed firms in Korea and found the following results. First, consistent with prior studies on accounting conservatism and the cost of capital, this study proved a negative relationship between

accounting conservatism and the cost of equity. Second, our empirical results showed that the negative relationship between conservatism and the cost of equity was strengthened in firms with high ownership concentration. We interpreted that investors perceived more significantly the role of governance mechanism of conservatism for firms with high ownership concentration, which explained why conservative accounting may reduce the cost of capital. Third, we found that the negative relationship between conservatism and cost of equity was strengthened in firms with high information asymmetry. This suggests that given that investors demand higher conservative financial reporting in firms with high information asymmetry, the impact of conservatism on cost of equity capital was more strengthened in poor information environment.

This study contributes to the current literature of conservatism in Korean stock market as follows. Given there have been mixed results validating the direct relationship between accounting conservatism and cost of capital in Korean firms, this study verified the direct correlation between conservatism and cost of equity capital. In addition, this study conveyed additional evidence of the impact of conservatism on cost of equity capital reduction conditional on the degree of information asymmetry and ownership concentration where conservatism is more demanded by investors.

2. Prior literature and hypotheses development

2.1 Conservatism and cost of equity

Francis et al. (2004) analyzed the direct relationship between seven proxy variables of earnings quality and the cost of equity. They classified the earnings quality into accounting-based earnings quality including accrual quality, earnings persistence, smoothness, and predictability, and into market-based earnings quality including value relevance, timeliness, and conservatism, documenting that higher quality of earnings led to lower cost of equity. However, conservatism measured by market-based earnings quality did not show a significant correlation with the cost of equity, which motivated us to focus on the relation between conservation and cost of equity in the emerging Korean stock market.

Li (2009) comparatively investigated the relationship between conservatism and the cost of equity in 31 countries from 1991 to 2006 using the model by Basu (1997). The results showed that, after controlling for the differences in the legal system and stock market regulations in each country, firms in countries that have more conservative financial reporting systems paid a lower cost of equity. Artiach and Clarkson (2010) presented the economic benefits of accounting conservatism by analyzing the relation between conservatism and the cost of equity using US samples. The results showed that conservatism is negatively associated with cost of equity and that firms with high information asymmetry showed a stronger negative relationship, while those with low information asymmetry showed a weaker negative relationship. Lara et al. (2011) pointed out a methodological issue in the study results by Francis et al. (2004) and reexamined the relationship between conservatism and cost of equity using the asset pricing test. Timely recognition of bad news about the firm based on conservatism can keep investors from misrepresenting the firm value due to poor information environment to a certain extent and also reduce the volatility of the future stock return, ultimately reducing the cost of equity. They measured conditional conservatism using the model by Basu (1997) and used the C-Score by Penman and Zhang (2002) to measure unconditional conservatism. The results were contrary to the study by Francis et al. (2004), revealing that conservative accounting may lower the firm's cost of equity using US samples.

Lara et al. (2011b) verified the information effect of conservatism using the conservatism measures by Callen et al. (2010) targeting US firms from 1976 to 2006. It was predicted that higher conditional conservatism would lead to lower information uncertainty of firms and resolve the issue of information asymmetry. The results showed that conservatism improves a firm's information environment, thereby reducing stock return volatility, analyst forecast errors, and the cost of equity.

Prior studies in Korea include Jung and Yoo (2012) who verified the relationship between conservatism and cost of equity depending on the voluntary disclosure frequency of bad news about firms. The results showed that the increase in the voluntary disclosure frequency of bad news led to a decrease in the cost of equity of conservatism. This result indicates that voluntary disclosure of bad news and accounting conservatism reduces information asymmetry of participants in the capital market, which may reduce the cost of equity. Thus, accounting conservatism improves a firm's information environment, through which the cost of equity can be saved. Moon and Kim (2009) analyzed how corporate governance and quality of earnings measured by discretionary accruals and the timeliness of accounting earnings affect the cost of equity. The results showed that higher quality of accounting earnings and corporate governance led to a decrease in information asymmetry between firms and shareholders, thereby reducing the cost of equity.

2.2 Hypotheses development

In sum, firms with conservative accounting policies were expected to show an increase in earnings quality and a

decrease in the cost of equity; most research findings are consistent with this expectation. However, the conservatism and cost of capital measures used in previous studies were generally different, and there are relatively less explored especially in Korea that examines the relation between conservatism and cost of equity capital of firms. Previous studies discussing the relation between conservatism and the cost of equity can be divided into two arguments. First, higher quality of accounting information will directly reduce the cost of equity. Since accounting conservatism can represent the quality of earnings (Ball et al. 2003; Watts 2003; Kim and Bae 2007), firms with high accounting conservatism also have a high quality of accounting earnings, which increases reliability in firms' accounting earnings, thereby reducing the cost of equity. Second, the quality of accounting information reduces firms' information risk and leads to a decrease in their cost of equity. In other words, when there is bad news about the firm, the information asymmetry and uncertainty that exist between the manager and external investors can be reduced by accurately and more quickly disclosing this news under the conservatism principle (asymmetric reporting system). According to previous studies, firms with higher information asymmetry and uncertainty will have a higher cost of equity (Easley and O'Hara 2004; He et al. 2013). Thus, accurate and timely disclosure of bad news reduces the information risk caused by information uncertainty of investors, which reduces the risk premium and ultimately saves the cost of equity. Therefore, firms with a more conservative financial reporting can attract funds on more favorable terms from investors in the capital market, which is reflected in the cost of equity, thereby reducing it.

Hypothesis 1: The degree of accounting conservatism is negatively related to the cost of equity.

One of the characteristics of corporate governance in Korea can be represented by a type of ownership concentration focusing on controlling shareholders and their affiliated parties (Lim and Choi 2013). There are no clear discussions about whether firms with a high ownership percentage of controlling shareholders will have excellent or poor corporate governance with increased ownership concentration. Related studies provide a logical flow and result in two aspects, which will be discussed here first before determining the hypotheses of this study.

Studies on the expropriation of minority shareholder hypothesis are as follows. Morck et al. (1988) stated that when there is an excessive increase in the ownership percentage of major shareholders, they may abuse management rights for their private interests and violate the interests of minority shareholders, thereby reducing enterprise value. Moreover, firms with increased ownership concentration due to the high ownership percentage of major shareholders can uprate the benefits by increasing the possibility that major shareholders would seek private interests through control of the firm (Claessens et al. 2000; Park 2003). Lim and Choi (2012) reported that increased ownership concentration will cause the controlling shareholder to seek private interests, thereby reducing enterprise value. In this context, according to the expropriation of minority shareholder hypothesis, increased ownership concentration leads to the opportunistic behavior of the controlling shareholder, which leads to a decline in corporate governance. Therefore, investors will have higher expectations for the role of accounting conservatism as a governance mechanism in firms with a high ownership concentration, which will increase the demand for accounting conservatism policy.

Next, controlling shareholders are the major capital providers under the interest alignment hypothesis who have the incentives to more actively monitor the manager (Shleifer and Vishny 1986). Lim and Choi (2013) also discovered that a higher ownership concentration allows the controlling shareholders to more efficiently monitor the manager based on specialized knowledge about business. Therefore, a higher ownership percentage of controlling shareholders promotes the efficiency of manager monitoring, which limits the opportunistic behavior of the manager and reduces earnings management (Jensen and Meckling 1976; Choi and Kim 2001), which also reduces the cost of capital (Cheon et al. 2006; Moon and Kim 2009). These studies explained that increased shares of major shareholders strongly motivate them to effectively monitor the manager to increase their own wealth. In other words, increased ownership concentration makes them more actively monitor the manager, which improves corporate governance. According to the interest alignment hypothesis, a higher ownership concentration leads to increased corporate governance; the increased monitoring function of the governance mechanism will also increase the accounting conservatism of the firm that is the provider of accounting information (Ahmed and Duellman 2007; Lara et al. 2009).

In sum, investors using accounting information will have increased demands for accounting conservatism under the expropriation of minority shareholder hypothesis, while the firm as an information provider may be more favorable to the application of accounting conservatism due to the interest alignment hypothesis. As a result, increased conservatism of firms with a high ownership concentration might lead to a more positive response in the capital market. Thus, our second hypothesis is established as follows:

Hypothesis 2: The negative relationship between accounting conservatism and cost of equity is more pronounced

for the firms with a high ownership concentration.

When a firm's information environment is unclear, the information asymmetry and uncertainty between external investors and the manager tend to increase, along with the increase of information risk, which could trigger the is sue of adverse selection. Higher information asymmetry between the manager and external investors leads to hig her accounting conservatism, which indicates that there is a positive relationship between conservatism and infor mation asymmetry (LaFond and Watts 2008). Thus, accounting conservatism plays a role in reducing informatio n asymmetry in the sense that the manager who has information superiority delivers the negative information to i nformation users in a timely manner. Khan and Watts (2009) also stated that increased information asymmetry le ads to increased conservatism.

Lara et al. (2011) explained the positive information effect of the accounting conservatism in terms of informatio n providers by reporting that a firm's information asymmetry decreases when accounting conservatism increases. This result implies that firms with high information asymmetry have weaker manager monitoring functions, whi ch raises the expectations for the increased role of conservatism as a governance mechanism, thereby increasing t he demand for conservatism. Thus, when firms that revealed higher information asymmetry practice conservativ e accounting, shareholders and debtholders may perceive this positively, thereby reducing the cost of capital. Th us, our third hypothesis is developed as follows:

Hypothesis 3: The negative relationship between accounting conservatism and cost of equity is more pronounced for the firms with high information asymmetry.

3. Research design

3.1. Accounting conservatism

This study measured conservatism using the research model by Khan and Watts (2009) following recent studies (e.g., Anagnostopoulou et al. 2021). First, regression Equation (1) is the model by Basu (1997), who measured co nservatism by how much more quickly bad news is perceived than good news in terms of accounting earnings. T he timeliness index of good news is represented by β_3, and that of bad news by $\beta_3 + \beta_4$. β_4 indicates the increme ntal timeliness of bad news compared to good news. If a firm practices conservative accounting, the timeliness of bad news for earnings will be greater, and β_4 will have a positive coefficient.

$$Earn_{it} = \beta_1 + \beta_2 D_{it} + \beta_3 R_{it} + \beta_4 D_{it} * R_{it} + e_{it} \tag{1}$$

$$G-Score = \beta_3 = \mu_1 + \mu_2 SIZE_{it} + \mu_3 MTB_{it} + \mu_4 \leq V_{it} \tag{2}$$

$$C-Score = \beta_4 = \lambda_1 + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 \leq V_{it} \tag{3}$$

$$Earn_{it} = \beta_1 + \beta_2 D_{it} + R_{it}(\mu_1 + \mu_2 SIZE_{it} + \mu_3 MTB_{it} + \mu_4 \leq V_{it})$$
$$+ D_{it} * R_{it}(\lambda_1 + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 \leq V_{it})$$
$$+ (\delta_1 SIZE_{it} + \delta_2 MTB_{it} + \delta_3 \leq V_{it} + \delta_4 D_{it} SIZE_{it} + \delta_5 D_{it} MTB_{it} + \delta_6 D_{it} \leq V_{it}) + e_{it} \tag{4}$$

For year t of firm i,

Earn	=	Net income from continuing operations divided by market value of equity
R	=	Annual stock return (monthly cumulative return from April at year t to March at year t + 1)
D	=	A dummy variable indicating 1 if R is smaller than 0; otherwise 0
SIZE	=	Natural logarithm of total assets
MTB	=	Total market value of equity divided by total book value of equity
LEV	=	(short-term borrowings + current maturities of long-term debt + bonds payable + long-term borrowings) divided by total assets

Khan and Watts (2009) suggested the firm–year measure of conservatism, C-Score, represented by the ratio of m arket value to book value of equity (MTB), firm size (SIZE), and debt-to-equity ratio (LEV) that are the characte

ristics of individual firms affecting conservatism based on the asymmetric timeliness of earnings reported by Basu (1997). They presented the good news timeliness index β_3 as G-Score, and the bad news timeliness index $\beta_3 + \beta_4$, as G-Score + C-Score. We employed the method by Khan and Watts (2009) to conduct a regression analysis of Equation (4) by year and calculate the coefficient, which was then applied to Equations (2) and (3) to ultimately calculate the G-Scores and C-Scores by firm–year. Here, C-Score is a conservatism measure that represents the incremental timeliness of bad news; a higher C-Score indicates stronger accounting conservatism of firms.

3.2 Cost of equity

Cost of equity is the minimum amount of return that must be earned for the firm to maintain the value of equity financed by the firm from shareholders. The cost of equity, which is used as the discount rate in the valuation model of individual firms, cannot be observed objectively, which is why more reliable measurement is important. There are two methods to estimate the cost of equity. First, the ex-post realized yield of stocks can be used as the proxy of the cost of equity through the capital asset pricing model (CAPM), in which considerable measurement errors can be inherent. To overcome the limitations of this realized yield, methods to actively use the valuation models for shareholder equity have been presented in accounting since the late 1990s (Baek et al. 2011). Therefore, this study estimates the ex-ante cost of equity based on the relationship between the current stock price and future earnings forecast based on the valuation models. According to previous studies, the ex-ante cost of equity measures has higher reliability than the ex-post cost of equity measures estimated based on the ex-post realized stock return (Gebhardt et al. 2001; Ahn et al. 2008).

This implied cost of equity is measured based on valuation models. Cost of equity is estimated using the residual income valuation model (RIM) and abnormal earnings growth valuation model (AEGM) designed to evaluate the enterprise value using accounting information along with the dividend discount model (DDM), which is a traditional valuation model. More specifically, there are models by Gebhardt et al. (2001) and Claus and Thomas (2001) using the RIM, the PEG and MPEG models by Easton (2004) based on the AEGM, and the Gode and Mohanram (2003) model based on the model by Ohlson and Juettner-Nauroth (2000). The RIM is developed from the DDM under the assumption of a clean surplus relationship. The AEGM is a model that can estimate the cost of equity using information such as stock price, future earnings forecast, short-term growth rate, and sustainable growth rate without the assumption of the firm's dividend policy or clean surplus relationship. This study will estimate the ex-ante cost of equity using the GM model by Gode and Mohanram (2003) derived from the AEGM and the PEG and MPEG models by Easton (2004).

3.2.1 Modified economy-wide growth: Gode and Mohanram (2003) - R_{GM}

The RIM considers the book value of equity and future earnings forecast in evaluating the enterprise value. Ohlson and Juettner-Nauroth (2005) presented a model that can calculate enterprise value using only future earnings forecast based on the AEGM, which was empirically applied by Gode and Mohanram (2003).

$$P_0 = \frac{eps_1}{r} + \frac{eps_2 - eps_1 - r(eps_1 - dps_1)}{r \times (r - g_p)}$$

$$r = A + \sqrt{A^2 + \frac{eps_1}{P_0}(g_2 - (\gamma - 1))}$$

$$A \equiv \frac{1}{2}[(\gamma - 1) + \frac{dps_1}{P_0}]$$

(5)

r	=	r_{GM} Cost of equity measured using the GM (2003) model
P	=	Stock price
eps	=	Earnings per share (EPS) forecast
dps	=	EPS forecast * dividend payout ratio
$g_p(= \gamma - 1)$	=	Sustainable growth rate
g_2	=	Short-term growth rate $(= \frac{eps_2 - eps_1}{eps_1})$

Future abnormal earnings grow constantly at a consistent ratio, and it is assumed that the dividend payout ratio at this point of valuation will remain the same in the future. The value of $eps_{t+2} - eps_{t+1}$ is regarded as 0 if the EPS

forecast at year t+2 is smaller than that at year t+1; if the value inside the root is negative, the cost of equity is A in equation (5) (Ahn et al. 2008; Jung and Yoo 2012; Yoo et al. 2013). A sustainable growth rate is calculated by deducting 3% considering the inflation rate from the return of 3-year-term government bonds that are the risk-free rate proxy (Gode and Mohanram 2003; Hwang et al. 2008; Moon and Kim 2009; Jung and Yoo 2012).

3.2.2 Modified price earnings growth: Easton (2004) - R_{MPEG}

The MPEG model was designed under the specific assumption that the three-year-ahead abnormal earnings growth is 0 in the model by Ohlson and Juettner-Nauroth (2005). In other words, future abnormal earnings growth is maintained consistently instead of increasing.

$$P_0 = \frac{eps_2 + r \times dps_1 - eps_1}{r^2}$$

$$\text{단, } eps_2 \geq eps_1 \geq 0$$

(6)

$r = r_{MPEG}$ Cost of equity measured using the MPEG model

$P = $ Stock price

$eps = $ EPS forecast

$dps = $ EPS forecast * dividend payout ratio

3.2.3 Price earnings growth ratio: Easton (2004) - R_{PEG}

In the PEG model, the three-year-ahead abnormal earnings growth is 0 and abnormal earnings growth is maintained consistently in the model by Ohlson and Juettner-Nauroth (2005), to which the assumption that the future expected dividend is 0 is added (Easton 2004).

$$P_0 = \frac{eps_2 - eps_1}{r^2}$$

$$\text{단, } eps_2 \geq eps_1 \geq 0$$

(7)

$r = r_{PEG}$ Cost of equity measured using the PEG model

$P = $ Stock price

$eps = $ EPS forecast

The future dividends per share (DPS) forecast for all valuation models above was calculated by multiplying the current dividend payout ratio of the firm by the earnings forecast for future years (Gode and Mohanram 2003). If the current net income at the point of evaluation is positive, the current dividend payout ratio is obtained by dividing DPS by EPS; if it is negative, the current dividend payout ratio is calculated by dividing DPS by normal earnings estimated at 6% of the total assets (Gode and Mohanram 2003; Hwang et al. 2008). Moreover, the dividend payout ratio is assumed as 0% to 50%.

This study estimated the ex-ante cost of equity using these models and used the average of individual measures as the cost of equity proxy to minimize the measurement error (Hail and Leuz 2006; Li 2009; Kim and Ko 2009; Cha et al. 2010; Jung and Yoo 2012).

3.3 Conservatism and cost of equity

Research models such as Equations (8) and (9) were set up to validate the correlation between conservatism and cost of equity. Equation (8) is the validation model for Hypothesis 1, and Equation (9) for Hypotheses 2 and 3. COE, which is the proxy for the cost of equity, is the average of R_{GM}, R_{PEG}, and R_{MPEG} estimated through the aforementioned valuation models. CONS is the variable of interest in this study, which is a firm–year measure of conservatism by Khan and Watts (2009). Here, if a_1 of Equation (8) is negative, there is a negative relationship between accounting conservatism and cost of equity, which is consistent with hypothesis 1. Hypotheses 2 and 3 analyze the incremental effect of accounting conservatism on the cost of equity depending on ownership concentration

and information asymmetry. Equation (9) is employed to validate this research question. VARS represents the dummy variable measuring ownership concentration (OWN) and information asymmetry (VOL); its measurement method is the same as that explained in the cost of debt in the previous section. If a_3 of Equation (9) is negative, the negative relationship between accounting conservatism and cost of equity is strengthened in firms with a high ownership concentration and information asymmetry.

Control variables included many variables suggested by previous studies that would affect the cost of equity. SIZE, MTB, LEV, and BETA are typical indicators that represent firm risk (Fama and French 1992). Bigger firms tend to have a better information environment, which reduces the information risk caused by information asymmetry; SIZE was included to control this difference in firm size (Gode and Mohanram 2003; Botosan and Plumlee 2005). The ratio of market value to book value of equity or market-to-book ratio (MTB) was included to control other types of risks that cannot be captured by systematic risk (Fama and French 1992; Jung and Yoo 2012). LEV was also added to control variables based on previous studies proving that a higher debt-to-equity ratio (LEV) leads to an increase in the cost of equity (Gebhardt et al. 2001; Gode and Mohanram 2003). The CAPM presented that stock market beta has a positive relationship with the cost of equity. Therefore, BETA was used to control the systematic risk of firms; unsystematic risk (IDRISK) was also included based on the previous study results that it has a significant correlation with the cost of equity (Malkiel and Xu 1997; Jung and Yoo 2012).

$$
\begin{aligned}
COE_{it} = {} & \alpha_0 + \alpha_1 CONS_{it} + \alpha_2 SIZE_{it} + \alpha_3 MTB_{it} + \alpha_4 \leq V_{it} + \alpha_5 BETA_{it} \\
& + \alpha_6 \sigma(OI)_{it} + \alpha_7 LOSS_{it} + \alpha_8 IDRISK_{it} + \alpha_9 OCYCLE_{it} + \alpha_{10} MKT_{it} \\
& + \sum YD + \sum ID + \varepsilon_{it}
\end{aligned} \tag{8}
$$

$$
\begin{aligned}
COE_{it} = {} & \alpha_0 + \alpha_1 VARS_{it} + \alpha_2 CONS_{it} + \alpha_3 CONS \times VARS_{it} + \alpha_4 SIZE_{it} \\
& + \alpha_5 MTB_{it} + \alpha_6 \leq V_{it} + \alpha_7 BETA_{it} + \alpha_8 \sigma(OI)_{it} + \alpha_9 LOSS_{it} \\
& + \alpha_{10} IDRISK_{it} + \alpha_{11} OCYCLE_{it} + \alpha_{12} MKT_{it} + \sum YD + \sum ID + \varepsilon_{it}
\end{aligned} \tag{9}
$$

For firm i and year t

COE	=	Average of R_{GM}, R_{PEG}, and R_{MPEG}
CONS	=	C-Score calculated using Equations (4) and (3)
VARS	=	① OWN: Dummy variable indicating 1 if the ownership of the largest shareholders is larger than the median of the sample; otherwise 0.
		② VOL: Dummy variable indicating 1 if the daily stock return is greater than the median of the sample; otherwise 0.
SIZE	=	Natural logarithm of total assets
MTB	=	Market value of equity/book value of equity
LEV	=	Total liabilities/total assets
BETA	=	Regression of monthly stock return on market return during 30 to 60 months
σ(OI)	=	Standard deviation of operating income for five previous years
LOSS	=	A dummy variable indicating 1 if the firm reports losses; otherwise 0.
IDRISK	=	Standard deviation of residuals from regression to estimate BETA
OCYCLE	=	Natural logarithm of operating cycle
MKT	=	A dummy variable indicating 1 if firms belong to KOSPI market; 0 if firms belong to KOSDAQ MARKET.

A standard deviation of operating income (σ(OI)) was added as a control variable to capture the operational uncertainty. A standard deviation of operating income (σ(OI)) represents a firm's earnings volatility (VOLATILITY); firms with lower earnings volatility tend to have less operational uncertainty and risk, thereby reducing the cost of equity. Moreover, firms that reported losses (LOSS) will show the increased cost of equity along with increased risk; thus, LOSS was added to the control variables. OCYCLE is the variable that captures the firm's operating cycle. A longer operating cycle increases uncertainty, causing the firm to depend more on the manager's assump

tions, which increases estimation error and ultimately increases the cost of equity (Francis et al. 2004). Finally, the year and industry dummies were added to control the year and industrial effects as well as the market (MKT) variable.

3.4 Sample selection

This study selected firms that met the following requirements among those listed in the Korean stock market for the period starting 2000 as the samples: (1) firms with available analyst forecast data, financial data, and corporate bond credit ratings required for analysis on Fn-Guide Data Guide Pro 5.0; (2) firms for which stock return data can be obtained from the KIS-VALUEⅢ of NICE Information Service; (3) firms that do not belong to the financial business; (4) excluding firms with impaired capital; and (5) corporations closing their books in December. The basic financial, analyst forecast, and corporate bond credit ratings data required for analysis were extracted through Fn-Guide Data Guide Pro 5.0; KIS-VALUEⅢ was used for stock return data. Analyst forecast data in estimating the cost of equity was obtained using the consensus over future earnings forecast announced for three months in April, May, and June after the disclosure deadline for financial statements. The account titles or financial statement formats of the financial business differ from general manufacturing business and cannot be comparatively analyzed. Thus, financial business was excluded from the samples. The effect of the difference in the month of settlement was controlled by limiting the scope to firms that close their books in December. Samples were selected among firms from which all kinds of data required for empirical analysis could be obtained, and firms with available corporate bond credit ratings data, the cost of equity measures, and conservatism measures (C-Score) which are dependent variables. The maximum samples used in this study are 1,873 firm–year measures of the cost of equity, and 2,901 firm–year measures of the cost of debt; ± 1.5 σ standard error is regarded as an outlier for each sample used in the analysis, which was therefore eliminated and thus, the number of samples is different.

4. Empirical results

4.1 Descriptive statistics and correlation analysis

Table 1 shows the descriptive statistics of samples used in the analysis showing mean, median, standard deviation, minimum value, 25%, 75%, and maximum value. This study used the means of R_{GM}, R_{PEG}, and R_{MPEG} that are individual measures of the cost of equity estimated through the valuation models as the proxy of COE. First, the means of R_{GM}, R_{PEG}, and R_{MPEG} were 0.183, 0.161, and 0.184, respectively, and the cost of equity of Korean firms was approximately 16% to 18% on average. This result is similar to previous studies that analyzed the stock market in Korea (Hwang et al. 2008; Moon and Kim 2009). The mean of CONS that is the conservatism measure was -0.303, and the median was 0.123. The total cost of equity samples used in this study proved the tendency of accounting conservatism in firms that exceeded the median, which is similar to the cost of debt samples. This implies that the C-Score of Khan and Watts (2009) can well represent the accounting conservatism of Korean firms.

Table 1. Descriptive statistics

Variables	N	MEAN	MEDIAN	STD	MIN	Q1	Q3	MAX
R_{GM}	1,873	0.183	0.166	0.083	0.125	0.022	0.227	0.618
R_{PEG}	1,873	0.161	0.147	0.071	0.11	0.012	0.198	0.459
R_{MPEG}	1,873	0.184	0.165	0.083	0.125	0.022	0.226	0.635
COE	1,873	0.176	0.159	0.078	0.12	0.025	0.216	0.513
CONS	1,873	-0.303	0.123	1.582	-0.27	-9.277	0.365	3.41
SIZE	1,873	20.008	19.859	1.413	18.909	16.647	21.003	23.607
MTB	1,873	1.38	1.055	1.108	0.657	0.09	1.755	10.597
LEV	1,873	0.409	0.413	0.175	0.271	0.043	0.548	0.947
BETA	1,873	0.85	0.823	0.422	0.58	-3.475	1.085	3.988
σ(OI)	1,873	0.036	0.028	0.03	0.016	0.002	0.045	0.289
LOSS	1,873	0.036	0	0.186	0	0	0	1
IDRISK	1,873	0.142	0.126	0.143	0.103	0.04	0.157	3.621
OCYCLE	1,873	4.626	4.675	0.657	4.321	-0.047	5	7.535

MKT	1,873	0.72	1	0.449	0	0	1	1

Variable definition:

COE	=	Average of R_{GM}, R_{PEG}, R_{MPEG}
CONS	=	C-Score calculated using Equations (4) and (3)
SIZE	=	Natural logarithm of total assets
MTB	=	Total market value/total capital
LEV	=	Total liabilities/total assets
BETA	=	Regression of monthly stock return on market return during 30 to 60 months
σ(OI)	=	Standard deviation of operating income for previous five years
LOSS	=	A dummy variable indicating 1 if firm reports losses; otherwise 0.
AGE	=	Natural logarithm of years passed since foundation
IDRISK	=	Standard deviation of residuals from regression to estimate BETA
OCYCLE	=	Natural logarithm of operating cycle
MKT	=	A dummy variable indicating 1 if firms belong to KOSPI market; 0 if firms belong to KOSDAQ market.

Table 2 shows the correlation analysis results of cost of equity samples. COE has a statistically significant and negative correlation with CONS at the 1% level. COE also showed a significant and negative correlation with SIZE, MTB, and MKT at the 1% level. However, it showed a significant and positive correlation with LEV, BETA, IDRISK, and OCYCLE at the 1% level, implying that firms with higher risk show an increase in the cost of equity.

4.2 The relation between conservatism and cost of equity

Table 3 shows the regression analysis results of Hypothesis 1. The result showed that the coefficient of CONS is -0.007, showing statistical significance at the 1% level, suggesting that firms with higher accounting conservatism showed a significant lower cost of equity. Other control variables, such as SIZE, MTB, and IDRISK, show significant and negative results at the 1% level, and BETA shows significant and negative results at the 10% level. LEV and σ(OI) show significant and positive results at the 10% level. These results are strongly supportive of the first hypothesis of this study, providing additional evidence that higher degree of accounting conservatism significantly decrease the level of cost of equity capital.

Table 2. Correlation analysis

	COD	CONS	SIZE	MTB	LEV	BETA	σ(OI)	LOSS	AGE	DEFAULT	MKT
COD	1	0.122	-0.782	-0.019	0.232	0.346	0.36	0.359	-0.175	0.678	-0.486
		(<.0001)	(<.0001)	(0.303)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
CONS		1	(-0.124)	0.1	-0.015	0.135	0.088	0.106	-0.039	0.074	-0.149
			(<.0001)	(<.0001)	(0.41)	(<.0001)	(<.0001)	(<.0001)	(0.036)	(<.0001)	(<.0001)
SIZE			1	0.025	0.13	-0.186	-0.321	-0.213	0.24	-0.483	0.455
				(0.175)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
MTB				1	0.076	0.09	0.231	0.065	-0.21	0.077	-0.183
					(<.0001)	(<.0001)	(<.0001)	(0.001)	(<.0001)	(<.0001)	(<.0001)
LEV					1	0.136	-0.028	0.227	-0.049	0.438	-0.025
						(<.0001)	(0.13)	(<.0001)	(0.008)	(<.0001)	(0.186)
BETA						1	0.158	0.19	-0.132	0.242	-0.323
							(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
σ(OI)							1	0.279	-0.226	0.363	-0.326
								(<.0001)	(<.0001)	(<.0001)	(<.0001)
LOSS								1	-0.139	0.445	-0.235
									(<.0001)	(<.0001)	(<.0001)
AGE									1	-0.245	0.418
										(<.0001)	(<.0001)
DEFAULT										1	-0.369
											(<.0001)
MKT											1

Note: See Table 1 for more detailed definitions of variables.

4.2 The relation between conservatism and cost of equity

The purpose of this study is to empirically analyze how accounting conservatism affects the Korean stock markets. Table 3 shows the regression analysis results of Hypothesis 1 that verify the negative relationship between accounting conservatism and cost of equity. The result showed that the coefficient of CONS is -0.007, showing statistical significance at the 1% level, suggesting that firms with higher accounting conservatism showed a significant lower cost of equity. Other control variables, such as SIZE, MTB, and IDRISK, show significant and negative results at the 1% level, and BETA shows significant and negative results at the 10% level. LEV and σ(OI) show significant and positive results at the 10% level. These results are strongly supportive of the first hypothesis of this study, providing additional evidence that higher degree of accounting conservatism significantly decrease the level of cost of equity capital.

Table 3. Regression result: H1

$$COE_{it} = \alpha_0 + \alpha_1 CONS_{it} + \alpha_2 SIZE_{it} + \alpha_3 MTB_{it} + \alpha_4 \leq V_{it} + \alpha_5 BETA_{it} + \alpha_6 \sigma(OI)_{it}$$
$$+ \alpha_7 LOSS_{it} + \alpha_8 IDRISK_{it} + \alpha_9 OCYCLE_{it} + \alpha_{10} MKT_{it} + \sum YD + \sum ID + \varepsilon_{it}$$

Variables		Pre.	COE		
			Coeff.		t-value
Intercept		?	0.474		11.61***
CONS		-	-0.007		-3.51***
SIZE		-	-0.018		-9.43***
MTB		-	-0.011		-5.33***
LEV		+	0.144		9.37***
BETA		+	-0.009		-1.65*
σ(OI)		+	0.276		3.54***
LOSS		+	-0.001		-0.19
IDRISK		+	-0.033		-4.65***
OCYCLE		+	0.004		1.11
MKT		?	-0.001		-0.19
∑YD, ∑ID			Included		
Adj. R^2			0.2521		
F-value			16.03***		
N			1,873		

Note 1) See Table 1 for more detailed definitions of variables. Note 2) ***, **, * indicate that there is statistical significance at the 1%, 5%, 10% levels (two-tailed test).

4.3 The relation between conservatism and cost of equity, conditional on ownership concentration

Hypothesis 2 in this study validates how the relationship between accounting conservatism and cost of capital is affected by the level of ownership concentration. Table 4 shows the regression analysis results that includes the dummy variable OWN representing the level of ownership concentration as an interaction term in the research model. The main variable of our interest, CONS*OWN, showed -0.004 coefficient, showing statistical significance at the 5% level. This suggested that the negative relation between conservatism and cost of equity is more strengthened in the firms with low ownership concentration was -0.006, which supports Hypothesis 2. This implies that shareholders perceive high ownership concentration as a governance mechanism together with conservatism, thus decreasing the cost of equity.

Table 4. Regression result: H2

$$COE_{it} = \alpha_0 + \alpha_1 OWN_{it} + \alpha_2 CONS_{it} + \alpha_3 CONS_{it} \times OWN_{it} + \alpha_4 SIZE_{it} + \alpha_5 MTB_{it} + \alpha_6 \leq V_{it}$$
$$+ \alpha_7 BETA_{it} + \alpha_8 \sigma(OI)_{it} + \alpha_9 LOSS_{it} + \alpha_{10} IDRISK_{it} + \alpha_{11} OCYCLE_{it} + \alpha_{12} MKT_{it}$$
$$+ \sum YD + \sum ID + \varepsilon_{it}$$

Variables		Pre.		COE		
				Coeff.		t-value
Intercept		?		0.483		11.24***
OWN		?		-0.003		-0.82
CONS		-		-0.006		-2.65***
CONS*OWN		-		-0.004		-2.01**
SIZE		-		-0.018		-9.3***
MTB		-		-0.012		-5.49***
LEV		+		0.148		9.26***
BETA		+		-0.009		-1.77*
σ(OI)		+		0.328		4.25***
LOSS		+		-0.003		-0.36
IDRISK		+		-0.033		-4.63***
OCYCLE		+		0.003		1.02
MKT		?		-0.001		-0.17
∑YD, ∑ID				Included		
Adj. R^2				0.2607		
F-value				16.64***		
N				1,868		

Note 1) OWN: A dummy variable indicating 1 if the ownership percentage of major shareholders is higher than the median; otherwise 0. Note 2) See Table 1 for more detailed definitions of variables. Note 3) ***, **, * indicate that there is statistical significance at the 1%, 5%, 10% levels (two-tailed test).

4.4 The relation between conservatism and cost of equity, conditional on information asymmetry

Hypothesis 3 in this study investigates whether the negative relationship between accounting conservatism and cost of equity capital is affected by the degree of information asymmetry. Table 5 shows the regression results that include the dummy variable, VOL, representing the level of information asymmetry, as an interaction term in the research model. Our main variable of interest, CON*VOL variable, captures the incremental effect of information asymmetry on the relation between conservatism and cost of equity. The regression result in Table 5 presents that the coefficient of CONS*VOL was -0.005, showing a statistically significant and negative at the 5% significance level. This result documented that the negative relationship between accounting conservatism and cost of equity is strengthened in firms with high information asymmetry, which is in supportive of hypothesis 3. External investors in the stock market are put in a relatively disadvantageous position in terms of information collection. Thus, investors will increase their demand for accounting conservatism in firms with high information asymmetry, and if the firms accept this and increase conservatism, the cost of equity can be reduced. In sum, our results add to the conservatism literature in terms of cost of equity and information asymmetry, proving that there was a stronger response in the stock market when shareholders demand high conservatism of firms with severe information asymmetry.

Table 5. Regression result: H3

$$COE_{it} = \alpha_0 + \alpha_1 VOL_{it} + \alpha_2 CONS_{it} + \alpha_3 CONS_{it} \times VOL_{it} + \alpha_4 SIZE_{it} + \alpha_5 MTB_{it} + \alpha_6 \leq V_{it} + \alpha_7 BETA_{it} + \alpha_8 \sigma(OI)_{it} + \alpha_9 LOSS_{it} + \alpha_{10} IDRISK_{it} + \alpha_{11} OCYCLE_{it} + \alpha_{12} MKT_{it} + \sum YD + \sum ID + \varepsilon_{it}$$

Variables		Pre.		COE		
				Coeff.		t-value
Intercept		?		0.471		11.56***
VOL		?		-0.003		-0.87
CONS		-		-0.004		-1.9*
CONS*VOL		-		-0.005		-2.49**
SIZE		-		-0.018		-9.41***
MTB		-		-0.011		-5.31***
LEV		+		0.146		9.46***
BETA		+		-0.008		-1.5
σ(OI)		+		0.279		3.56***
LOSS		+		-0.001		-0.19
IDRISK		+		-0.032		-4.57***
OCYCLE		+		0.004		1.13
MKT		?		-0.001		-0.18
∑YD, ∑ID				Included		
Adj. R^2				0.2556		
F-value				15.15***		
N				1,872		

Note 1) VOL: A dummy variable indicating 1 if the annual standard deviation of daily stock return is higher than the median; otherwise 0. Note 2) See Table 1 for more detailed definitions of variables. Note 3) ***, **, * indicate that there is statistical significance at the 1%, 5%, 10% levels (two-tailed test)

5. Conclusion

This study empirically analyzed whether accounting conservatism of Korean firms have a positive effect on the stock markets. Accounting conservatism improves the quality of a firm's financial reporting by enhancing the timely reporting of economic losses. Accordingly, accounting conservatism enables debtholders to more effectively detect the firm's default risk and it also enables shareholders to reduce information risk under uncertain information environment. In this regards, we posit that shareholders can expect reduction in cost of equity as a reward for accounting conservatism, thus predicting the negative relationship between accounting conservatism and the cost of equity. Further, we hypothesized that the effect of conservatism on cost of equity is more pronounced for the firms with high ownership concentration and information asymmetry.

To measure the degree of conservatism of a firm, we used C-Score developed by Khan and Watts (2009). We employed an ex-ante cost of equity, which is estimated using the GM model by Gode and Mohanram (2003) derived from the AEGM (abnormal earnings growth model), and the PEG (price to earnings growth) and MPEG (modified PEG) models by Easton (2004). The average of these three estimates was used as the proxy for the cost of equity in this study.

We targeted the Korean companies listed in the Korean stock market and found that there was a negative relationship between accounting conservatism and the cost of equity. Moreover, there was an incremental effect in which firms with high ownership concentration showed a significant decrease in the cost of equity as the degree of accounting conservatism increased. We posit that the role of the governance mechanism is weakened in firms with high ownership concentration. In other words, if investors anticipate that accounting conservatism will serve as a governance mechanism, the firm as the information provider practices conservative accounting by meeting their needs, which ultimately reduces the cost of capital. Finally, the negative relationship between conservatism and cost of equity was strengthened in firms with high information asymmetry. This implies that external investors have a higher demand for accounting conservatism in firms with high information asymmetry,

and thus the increase in accounting conservatism further reduces the cost of equity.

This study has made the following implications. First, there are relatively less explored regarding the direct relationship between accounting conservatism and the cost of capital in emerging Korean market, which adds to the current literature by providing additional evidence that accounting conservatism can decrease the cost of equity capital. Second, this study focused on the degree of ownership concentration of the largest shareholders, which can be, partly, represented as the ownership level of *chaebol* in Korea, and found that the ownership concentration more strengthened the positive impact of conservatism on cost of equity reduction in Korean stock market. Lastly, this study proved that severe information asymmetry more strengthened the role of conservatism in Korea stock market in terms of cost of equity. As a further study, we propose to explore how the COVID19 influenced the capital market in Korea. Specifically, it would be interesting to investigate the effect of COVID19 on the positive aspects of conservative financial reporting in the debt and equity capital market in the sense of prediction that COVID19 leads to the more conservative financial statements.

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