

Accounting Conservatism and Information Asymmetry: Evidence from Taiwan

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Abstract

This paper adopts information neutrality perspective to examine the role of earnings conservatism to explore the effect of accounting conservatism on information asymmetry in Taiwan. Results reveal that when corporate earnings are increasingly conservative, information asymmetry is more severe generally. In addition, when earnings conservatism is excessive or insufficient, varying effects are produced between earnings conservatism levels and information asymmetry. Specifically, when corporate conservatism is insufficient, the relationship between earnings conservatism and information asymmetry is significantly negative. Conversely, when accounting earnings is much more conservative, the influence on information asymmetry is positive. The empirical results of this study support the current development of financial standards. The empirical results also show that when the corporation performance demonstrates good news or bad news separately, investors' perception regarding the informativeness of accounting conservatism is different. Investors are more likely to identify with relevant results despite an overly conservative accounting recognition if the current period of a corporation provides good news.

Keywords: accounting conservatism, information asymmetry, faithful representation

1. Introduction

Conservatism is also known as the prudence principle. It is defined that accounting conservatism as a more stringent verification level required for accounting personnel when recognizing good news compared to that required when recognizing bad news (Basu, 1997). In other words, when accounting earnings reflect operating results, the timeliness of recognizing economic losses exceeds that of economic profits, resulting in asymmetric timeliness for recognition. In accounting standards, examples of practical applications of the conservatism principle as an accounting tool include adopting the method of the lower of cost or net realizable value of inventory, impairment testing for the value of assets, and contingency accounting.

Basu (1997) contended that conservatism results in inconsistent recognition criteria for profits and losses in accounting standards, which results in a slower earnings response to good news compared to bad news. Basu used this difference to measure the conservatism of financial statements, and defined this discrepancy as the asymmetric timeliness of earnings. Numerous empirical studies have extended Basu model and adopted various perspectives, including contract theory, agency theory, and litigation theory, to explain corporate demands for conservatism (Ahmed, Billings, Morton, & Stanford-Harris, 2002; La Fond & Watts, 2008; Shackelford & Shevlin, 2001; Watts, 2003a, 2003b). Among these studies, Watts (2003a, 2003b) adopted contract theory perspective to examine the conservatism demands of corporate financial statement information, and argued that conservative accounting is an effective contract mechanism for resolving ethical crises caused by information asymmetry and limited liability among the parties involved in corporate contracts. LaFond and Watts (2008) examined whether information asymmetry between the insiders and outsiders resulted in demand for conservatism, and concluded that conservatism can reduce earnings manipulation incentives for the insiders of a corporation, decrease agency problems among stakeholders, and further reduce information asymmetry and increase corporate value. Chi and Wang (2010) and Chi, Liu, & Wang (2009) examined the relationship between accounting conservatism and information asymmetry based on data from Taiwan. Their findings supported the assumption that conservative accounting can reduce the occurrence of information asymmetry and, thus, can be

employed as a corporate governance mechanism to increase corporate value and cash flow.

In the theoretical framework of generally accepted accounting principles, the ultimate goal for accounting information is decision usefulness. Financial statements provide useful information for existing and potential investors, creditors, and other users to evaluate the future investment cash flow or credit and to conduct rational decision-making. The Conceptual Framework for Financial Reporting which developed by the International Accounting Standards Board (IASB) and U.S. Financial Accounting Standards Board (FASB)(hereafter the Boards) established firmly the basic quality characteristics of accounting are relevance and faithful representation. In other words, the principle of conservatism is no longer included. However, the conservatism principle has significantly affected the preparation of accounting information over the long term. Thus, in the past 30 years, accounting practices have tended to be more conservative (Watts, 2003a), emphasizing the need for the conservatism principle. Various subsequent studies (Cheng, Wu, & Shiue, 2011) have also supported the contract theory perspective of Watts (2003a).

Hart and Moore (1995) contended that agency problems are primarily caused by information asymmetry between corporate funders and fund users. Insiders such as corporate managers and controlling shareholders possess complete information, whereas investors such as creditors and outside shareholders have insufficient information. Therefore, the insiders may, based on motives to pursue private interest, engage in behavior that is detrimental to the entire corporation profit. This situation is known as an agency conflict, which often becomes more severe because of information asymmetry among parties involved in the contract. The faithful representation of accounting information, to some extent, eases and resolves conflicts of interest caused by information asymmetry. Regarding economic development, Taiwan is currently an emerging economy market. Differences in the framework for regulatory systems and cultural environment backgrounds exist between Taiwan and developed countries. The existence of private information is more common in the markets of emerging economies; hence, outside investors are more likely to be exploited by insiders. In some degree, the development of market size is partially determined by whether information asymmetry between insiders and outsiders can be reduced. Compared to stock markets in Europe or the United States, the majority of the participants in Taiwan stock market are individual investors. In this context, the information asymmetry in Taiwan stock market is extreme. Thus, for corporations, maintaining faithful representation in accounting information and a neutral perspective instead of overly emphasizing accounting conservatism can positively influence the development of Taiwan stock market. Since 1999, Taiwan has gradually increased and amended accounting standards to converge on the International Financial Reporting Standards (IFRS). By referencing relevant IFRS regulations, accounting bulletins or reports have been consistently increased and amended, and listed, OTC, and emerging companies are required to directly adopt the IFRS for preparation of financial reports or statements beginning in 2013. The exclusion of the conservatism principle from the basic accounting framework will inevitably and directly influence information quality regarding accounting earnings recognition in Taiwanese corporations.

Basu, Huang, Mitsudome and Weintrop (2005) asserted that conservatism exists in the accounting earnings of Taiwanese corporations, and Chi and Wang (2010) referenced Taiwanese data and obtained empirical results verifying that conservatism reduces information asymmetry. However, Chi and Wang (2010) adopted Basu (1997) as the empirical model framework, although Basu's earnings conservatism estimation shows certain limitations. Furthermore, during the estimation process, Basu assumed that all firms in the industry are homogeneous and the firm's operating characteristics are not change over time (Khan & Watts, 2009). Therefore, Basu method could not determine whether varying degrees of conservatism had an identical influence on information asymmetry. For this reason, this study deems it necessary to reexamine the influence that earnings conservatism has on information asymmetry in Taiwan's capital market to understand the role of conservatism in accounting information and provide references for corporations when preparing financial statements in the future.

Investors and the accounting standard makers have argued that earnings conservatism can result in an underestimation of current earnings and an overestimation of future earnings. This affects the neutrality and relevance of financial information disclosures and further increases information asymmetry between the insiders and outsiders of the corporation. The majority of previous studies adopted contract theory perspective and, thus, supported the retention of the conservatism principle (e.g., Ahmed et al., 2002; Ahmed & Duellman, 2007; Khan & Watts, 2009). In contrast to previous studies that primarily supported conservative accounting to reduce management manipulation of earnings, this study focuses on (1) the effects that conservatism has on information asymmetry under various accounting conservatism degrees, and (2) contributing literature on conservative accounting in information neutrality. Recently, the Boards' concept of the conservatism principle or prudence has

been transformed into the faithful representation of accounting information. Consequently, this study adopts information neutrality perspective to examine the role of earnings conservatism.

Previous studies have primarily used linear relationships to measure the correlation between earnings conservatism and information asymmetry within the market, and subsequently suggested that accounting conservatism can reduce information asymmetry, increase contract efficiency, and enhance the quality of financial statement information (La Fond & Watts, 2008; Chi & Wang, 2010; Chi et al., 2009). This study extends the research of previous studies regarding the correlation between the conservatism and information asymmetry. As a result, the influence that earnings conservatism has on corporate information asymmetry is analyzed, and the influence is assumed to be nonlinear. In other words, this study assumes that both excessive and insufficient conservatism induce investor doubts, and, thus, the perception that the informativeness of corporate accounting reports should be enhanced.

Listed and OTC companies in Taiwan were adopted as the research samples. The empirical results indicate that Taiwan's corporate accounting earnings are conservative. This study also employed the firm-year indicator of accounting conservatism established by Khan and Watts (2009) to verify relevant inferences. Overall, the results showed that when corporate earnings are increasingly conservative, information asymmetry is more severe. Earnings conservatism causes investors to perceive that published accounting information is less neutrality and relevant, subsequently widening the information asymmetry between the internal personnel and external parties of a corporation. This results in investors raising stock bid-ask spreads for self-protection. In addition, when earnings conservatism is excessive or insufficient, varying effects are produced between earnings conservatism levels and information asymmetry. Specifically, when corporate conservatism is insufficient, the relationship between earnings conservatism and information asymmetry is significantly negative. Conversely, when accounting earnings is much more conservative, the influence on information asymmetry is positive. Therefore, when corporations recognize revenue and expense, extremity conservatism (i.e., either excessively or insufficiently conservative) would enhance the information asymmetry between insiders and outsiders. The empirical results also show that when the corporation performance demonstrates good news or bad news separately, investors' perception regarding the informativeness of accounting conservatism is different.

The remainder of this paper is organized as follows. Section 2 discusses the extant literature on earnings conservatism and information asymmetry, followed in Section 3 by a description of the data used, an explanation of the research design and presentation of the methods used to identify earnings conservatism and information asymmetry. The empirical results are presented in Section 4, with the conclusions drawn from this study being presented in Section 5.

2. Related Literature and Hypotheses

Various hypotheses are established in this study to verify the influence that accounting conservatism has on information asymmetry between the internal and external parties of an enterprise.

First, under perfect matching principle, all revenues that have occurred or can be recognized, as well as all expenses (and losses) relevant to the revenues should be recognized in the same period. However, under the conservative accounting principle, noise exists in the correlation between income and expenses. This inferior form of matching principle may reduce the extent of information disclosures and increase the level of information asymmetry. Hence, the Conceptual Framework for Financial Reporting published by the Boards defined and established the fundamental qualitative characteristics for accounting as relevance and faithful representation. The Boards perceive that when corporations face uncertainties, financial statement should be evaluated more judiciously. Abiding by the conventional conservatism principle in such circumstances can easily cause financial information biases, which conflicts with the neutrality of the faithful representation characteristic, leading to violations of information quality. Therefore, the new conceptual framework published in 2010 no longer included the conservatism (or prudence) principle. However, LaFond and Watts (2008) asserted that, under earnings conservatism, revenue is not overestimated and expenses and losses are not underestimated; thus, a certain level of protection is provided for external parties. When the information asymmetry between insiders and outsiders is more severe, the external parties demand a greater protection. In other words, corporate earnings must be more conservative. The empirical results reported by LaFond and Watts (2008) indicate that a positive correlation exists between the variations in information asymmetry and the variations in earnings conservatism of current year. Changes in information asymmetry both lead and are contemporaneous the conservatism. Furthermore, asymmetry decreases in subsequent period for the group with the greatest increase in information asymmetry, indicating that information asymmetry changes lead conservatism, which reduces information asymmetry in the following period. Overall, LaFond and Watts (2008) proposed that conservatism can reduce the manager's incentives and ability to manipulate earnings,

mitigate agency problems between interested parties, and further lower information asymmetry and increase corporate value.

However, because of the limitations of Basu (1997) model, previous studies have not directly verified the influence that earnings conservatism has on information. The following effects were only indirectly identified: (1) A more severe level of information asymmetry between insider and outsider results in more significant earnings conservatism for corporate financial statements; and (2) changes in information asymmetry lead to an increase in the level of earnings conservatism (La Fond & Watts, 2008; Chi & Wang, 2010). Therefore, this study used the earnings conservatism indicator proposed by Khan and Watts (2009) to directly examine the average influence that conservative accounting standards have on information asymmetry.

An increase in the transparency of corporate information can elevate market liquidity, mitigate information asymmetry, and reduce the bid-ask spread. Easley and O'Hara (2004) contended that mitigating information asymmetry to reduce the cost of capital is one consideration factor of corporate information disclosures. Greater informativeness released in corporate financial information results in greater reductions in the cost for external parties to obtain information. This enables capital markets to attract external parties and increase their willingness in transactions, reduces the proportion of private informed transactions, and indirectly decreases the occurrence of information asymmetry. This study adopted the Boards' perspective, which proposes that if the accounting standards overly emphasize conservatism, the quality of corporate earnings cannot reflect firms' actual performance. Consequently, the financial statement releases insufficient level of accounting information, which might damage the faithful representation characteristic and further increases information asymmetry between the internal and external parties of a corporation. Thus, this study proposes Hypothesis 1 as follows:

H1: Overall, greater earnings conservatism in financial statement results in more severe information asymmetry.

Although earnings conservatism may reduce the informativeness of financial report, the conventional conservatism principle is believed to reduce agency costs and increase contract efficiency. Basu (1997) asserted that because managers possess private information regarding corporate operating performance and the assets value, and because the future profits of firm exists uncertainty, managers may conceal information harmful for the reported earnings. When encountering this type of ethical crisis, adopting conservatism principle appropriately can reduce the doubts of external parties and increase contract efficiency. LaFond and Watts (2008) argued that accounting conservatism even can be used as a corporate governance mechanism to induce information transparency. Based on the above-mentioned analysis, this study proposes that although outside investors perceive that excessive accounting conservatism reduces the informativeness of financial statement, they do not desire that firms demonstrate identical recognition criteria for revenue and expenses (and losses). By contrast, investors anticipate an appropriate level of conservatism as a form of protection. Therefore, this study expects that a nonlinear relationship exists between accounting conservatism and information asymmetry. In other words, an extremity in accounting conservatism of recognition (i.e., either excessive or insufficiently conservatism) increases the severity of information asymmetry. Thus, this study proposes the second hypothesis:

H2: A nonlinear relationship exists between corporate earnings conservatism and IA.

The following two concepts are proposed in H2:

H2a: When corporate earnings conservatism is extremely low, accounting conservatism negatively influence information asymmetry.

H2b: When corporate earnings conservatism is extremely high, accounting conservatism positively influence information asymmetry.

3. Methodology and Data Source

3.1 Measuring Conservatism

Based on the results of previous studies (Basu, 1997), conservatism is defined as immediately recognizing possible expenses and losses and only recognizing possible or expected profits when they have been realized, which results in the recognition of accounting earnings being more timely or concurrently sensitive in reflecting bad news than good news. Basu (1997) employed the disparity between the speed of earnings reflecting good news compared to that for bad news and subsequently measured accounting conservatism. Numerous studies have adopted the *asymmetric timeliness of earnings* model proposed by Basu (1997) as a basis for measuring the level of accounting conservatism (Ball, Kothari, & Nikolaev, 2010; Pae, 2007; Cheng et al., 2011; La Fond & Watts, 2008). Stock prices reflect disclosed information in the market; therefore, Basu (1997) used market returns as an indicator of good and bad news during accounting. Equation (1) shows the *asymmetric timeliness of earnings model* proposed by Basu (1997):

$$X_{i,t}/P_{i,t-1} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 R_{i,t} + \beta_3 R_{i,t} \times DR_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $X_{i,t}/P_{i,t-1}$ represents the continuing operating income after tax for firm i at year t divided by the equity market value at the beginning of year t , with the purpose of deflating the net income or profit using market value; $R_{i,t}$ indicates buy and hold return which is calculated from May 1 of year t to April 30 of year $t+1$ (Note 1); and $DR_{i,t}$ is a dummy variable. When $R_{i,t}$ is a negative value, $DR = 1$; otherwise, $DR = 0$. According to Eq. (1), when the market response reflects positive news (i.e., $R > 0$), the response coefficient of earnings for good news is β_2 , and when the market response reflects bad news (i.e., $R < 0$), the response coefficient of earnings for good news is $\beta_2 + \beta_3$. β_3 denotes the disparity between the accounting recognition of good news compared to bad news. According to Basu (1997), if earnings conservatism exists in accounting recognition, β_3 will be greater than 0.

Although the most popular method for estimating earnings conservatism is Basu's *asymmetric timeliness of earnings method* (Ryan, 2006), this estimation method has certain limitations. For example, during the estimation process, the conservatism measure is estimated either for an industry-year using a cross-section of firms in the industry or for a firm using a time-series of firm-years. It implies that conservatism within the same year for all firms in the industry are homogeneous or assumes that the firm's operating characteristics are stationary (Khan & Watts, 2009); however, this is impossible. To resolve these problems, Khan and Watts (2009) broadened the assumption of homogeneity and stationarity in Basu's method and developed a firm-year conservatism measure. Thus, this study adopted the method proposed by Khan and Watts (2009) as an indicator for measuring accounting conservatism.

The Khan and Watts (2009) method is primarily based on Basu's model (1997), with extended firm-year conservatism indicators comprising corporate size (total assets), development potential (market-to-book ratio), and financial leverage (debt ratio). To estimate the timeliness with which firms reflect both good news and conservatism, Khan and Watts (2009) defined the timeliness of good news (G_score) and the incremental timeliness of bad news (C_score) each year as linear functions of the three firm-specific characteristics each year:

$$G_score_{i,t} = \beta_2 = \mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEV_{i,t} \quad (2a)$$

$$C_score_{i,t} = \beta_3 = \lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t} \quad (2b)$$

β_2 represents the response to good news of the earnings in Eq. (1), β_3 indicates the disparity in responses toward good and bad news for earnings in Eq. (1), $SIZE_{i,t}$ denotes the logarithmic value for the total assets of the corporation, $MB_{i,t}$ is the firm market-to-book ratio, and $LEV_{i,t}$ symbolizes the debt ratio. Since the equations are estimated from annual cross-sectional regressions, all corporations possess identical μ_i and λ_i values in the same year; however, μ_i and λ_i vary in different years. By substituting Eqs. (2a) and (2b) into the Basu (1997) estimation model represented in Eq. (1), the annual cross-section regression model is:

$$\begin{aligned} X_i / P_i = & \beta_0 + \beta_1 DR_i + R_i (\mu_1 + \mu_2 SIZE_i + \mu_3 MB_i + \mu_4 LEV_i) \\ & + R_i \times DR_i (\lambda_1 + \lambda_2 SIZE_i + \lambda_3 MB_i + \lambda_4 LEV_i) \\ & + (\delta_1 SIZE_i + \delta_2 MB_i + \delta_3 LEV_i + \delta_4 DR_i \times SIZE_i + \delta_5 DR_i \times MB_i + \delta_6 DR_i \times LEV_i) \\ & + \varepsilon_i \end{aligned} \quad (3)$$

After organizing Eq. (3), the following regression estimation is obtained:

$$\begin{aligned} X_i / P_i = & \beta_0 + \beta_1 DR_i \\ & + \mu_1 R_i + \mu_2 (R_i \times SIZE_i) + \mu_3 (R_i \times MB_i) + \mu_4 (R_i \times LEV_i) \\ & + \lambda_1 (R_i \times DR_i) + \lambda_2 (R_i \times DR_i \times SIZE_i) + \lambda_3 (R_i \times DR_i \times MB_i) + \lambda_4 (R_i \times DR_i \times LEV_i) \\ & + \delta_1 SIZE_i + \delta_2 MB_i + \delta_3 LEV_i \\ & + \delta_4 (DR_i \times SIZE_i) + \delta_5 (DR_i \times MB_i) + \delta_6 (DR_i \times LEV_i) \\ & + \varepsilon_i \end{aligned} \quad (4)$$

Using a cross-sectional model to estimate Eq. (4), the annual μ_i and λ_i values can be obtained. By combining these values with the firm size, market-to-book ratio, and debt ratio for each year, and substituting the outcome into Eqs. (2a) and (2b), the C_score conservatism measure is acquired. A greater C_score indicates more conservative in corporate financial reporting.

3.2 Measuring Information Asymmetry

Despite internal personnel (e.g., managers) and external parties (e.g., minority shareholders) possessing an equal amount of information regarding the macro market, if information asymmetry exists for individual corporations, internal personnel hold information that external parties lack. Hence, in the transaction market, market makers recognize an opportunity for exploitative behavior of insiders and subsequently increase the informed transaction probability. However, market makers are not sure the amount of private information that the internal personnel have and the level of exploitation. It would results in higher trading costs; thus market makers tend to create greater quoted spreads and protect themselves. Glosten and Milgrom (1985) asserted that the market makers' bid-ask spreads increase with the number of informed transactions, reflecting a rise in the level of information asymmetry. Therefore, this study employed the daily last bid and last offer price to calculate the annually average bid-ask spread of the individual firms as the measure of the level of information asymmetry (IA):

$$IA_{i,t} = \text{annually average of } \frac{a_{i,t} - b_{i,t}}{(a_{i,t} + b_{i,t})/2} \quad (5)$$

Where a_{it} and b_{it} denote the daily last bid price and last ask price at year t for firm i .

3.3 The Models

Generally, corporate financial information is announced lags behind market response. To examine the influence that the level of earnings conservatism has on information asymmetry, this study matched the conservatism of previous periods to the information asymmetry indicator of the current period for the sample firms. For this, the following model was employed:

$$IA_{i,t} = \alpha_0 + \alpha_1 C_score_{i,t-1} + \alpha_2 PRICE_{i,t} + \alpha_3 VOLUME_{i,t} + \alpha_4 DEV_{i,t} + \varepsilon_i \quad (6)$$

Where $IA_{i,t}$ is the annually average of last bid-ask spread; $C_score_{i,t}$ is Khan and Watts (2009) measure of conservatism; $PRICE_{i,t}$ represents the natural logarithm of the annual average daily closing price, $VOLUME_{i,t}$ represents the natural logarithm of the annual average daily trading volume, and $DEV_{i,t}$ denotes the annual deviation of the daily rate or return. According to previous studies (Stoll, 1978, 2000; Van Ness, Van Ness, & Warr, 2002), the bid-ask spread is affected by price, transaction volume, and volatility in rate of return; therefore, we controlled the relevant variables. If accounting conservatism can reduce the level of information asymmetry between insiders and outsiders, the regression coefficient α_1 of the C_score in Eq. (5) should be significantly negative, and vice versa.

To comprehensively describe the effect of accounting conservatism on information asymmetry, this study further observed the influence that varying levels of accounting conservatism have on IA . The C_score was arranged in sequential order from high to low and divided into four groups. Subsequently, this study examined whether the influences of firm conservatism on IA were identical across the C_Score quarters.

Furthermore, investor perceptions regarding the level of conservatism for a corporation when receiving good news or bad news may be different. For example, when bad news occurs for a corporation, if accounting recognition is overly conservative, investors may perceive that corporations are "taking a big bath" and opportunistically exploiting outsiders. Conversely, when good news occurs, if corporate accounting recognition is too conservative, investors are more likely to perceive that corporations are cautious rather than concealing information. So long as corporations provide good news, investors can even perceive extreme conservatism as acceptable and do not view conservatism as reducing the informativeness of corporate financial statements. In other words, investor responses and acceptance regarding the informativeness of these two scenarios may differ completely. Therefore, in addition to conducting a general analysis of all samples, the samples were divided into subsamples of good news (i.e., $R > 0$) and bad news (i.e., $R < 0$), and the effect of earnings conservatism on IA was examined.

3.4 Data and Sample Selection

Listed or OTC companies in Taiwan were adopted as the research subjects of this study to analyze the correlation between corporate earnings conservatism and information asymmetry in Taiwan between 2002 and 2011. Data were sourced from the finance and share price database of the *Taiwan Economic Journal* (TEJ). For the reason that market response is ahead of financial information announcement, this study matched the previous year C_score with IA of current year for individual sample firm to examine the influence that the level of earnings conservatism has on information asymmetry. Specifically, C_score from year 2001 to 2010 was matched with IA and control variables from year 2002 to 2011. The financial, insurance, securities industries and the sample with missing data were excluded. Observations falling in the top or bottom 1% of share price or financial data values

were excluded to reduce the effects of outliers on the empirical results. The samples employed totaled 6,387 observation values.

4. Empirical Results

4.1 Descriptive Statistics

Table 1 shows the descriptive statistics of the primary variables. The means for X/P , R , and the C_score were 8.733%, 15.447%, and 0.168, respectively. The market prices of the sample firms were approximately 1.549 times that of their book value, the mean for the debt ratio was approximately 43%, and the bid-ask spread was approximately 0.608% of the share price.

Table 1. Descriptive statistics of the variables

Variables	Descriptive Statistics				
	N	Mean	Max.	Min.	Std. Dev.
Measurement indexes of conservatism					
X/P (%)	6,387	8.733	65.116	57.111	14.814
R (%)	6,387	15.447	231.432	68.767	49.821
C_score	6,387	0.168	1.590	-1.044	0.200
MB	6,387	1.549	15.490	0.060	1.176
$SIZE$	6,387	15.665	19.631	13.179	1.267
LEV (%)	6,387	43.315	86.430	7.960	15.871
Information asymmetry and control variables					
IA (%)	6,387	0.608	6.983	0.088	0.701
$PRICE$	6,387	2.780	7.578	0.694	0.786
$VOLUME$	6,387	7.068	11.653	0.875	1.625
DEV	6,387	2.227	4.918	0.475	0.536

Notes: $X_{it}/P_{i,t}$ represents the continuing operating income after tax for firm i at year t divided by the equity market value at the beginning of year t ; R_{it} indicates buy and hold return which is calculated from May 1 of year t to April 30 of year $t+1$; C_score is Khan and Watts (2009) measure of conservatism; $SIZE$ denotes the logarithmic value for the total assets of the corporation, MB_{it} is the firm market-to-book ratio, and LEV_{it} symbolizes the debt ratio. IA is the annually average of last bid-ask spread; $PRICE$ represents the natural logarithm of the annual average daily closing price, $VOLUME$ represents the natural logarithm of the annual average daily trading volume, and DEV denotes the annual deviation of the daily rate or return.

Table 2 shows the Pearson and Spearman correlation coefficient matrix of the variables, thereby providing some basic analysis of the correlation between variables. C_score and information asymmetry (IA) exhibit a positive correlation, which indicates that corporations with greater accounting earnings conservatism show greater tendencies toward IA in the following period. In addition, IA exhibits a significantly negative correlation with share price ($PRICE$) and transaction volume ($VOLUME$), and exhibits a positive correlation with the level of variation in share price rates of return (DEV). These results are identical to those reported by Demsetz (1968) and Stoll (1978).

Table 2. Correlation coefficients^{ab}

	X/P	R	C_score	MB	$SIZE$	LEV	IA	$PRICE$	$VOLUME$	DEV
X/P		0.289 ***	-0.093 ***	0.316 ***	0.041 ***	-0.104 ***	-0.231 ***	0.197 ***	0.036 ***	-0.291 ***
R	0.340 ***		0.084 ***	0.213 ***	0.039 ***	0.003 ***	-0.117 ***	0.168 ***	0.155 ***	0.064 ***
C_score	-0.098 ***	0.137 ***		-0.215 ***	-0.024 *	0.058 ***	0.057 ***	-0.127 ***	-0.044 ***	-0.055 ***
MB	0.466 ***	0.265 ***	-0.161 ***		0.051 ***	-0.119 ***	-0.153 ***	0.652 ***	0.047 ***	-0.024 *
$SIZE$	0.068 ***	0.066 ***	-0.066 ***	0.060 ***		0.275 ***	-0.418 ***	0.208 ***	0.727 ***	-0.003 ***
LEV	-0.091 ***	-0.013 ***	0.144 ***	-0.095 ***	0.278 ***		0.084 ***	-0.131 ***	0.102 ***	0.134 ***
IA	-0.271 ***	-0.165 ***	0.097 ***	-0.384 ***	-0.633 ***	0.031 **		-0.260 ***	-0.627 ***	0.289 ***
$PRICE$	0.225 ***	0.170 ***	-0.159 ***	0.702 ***	0.213 ***	-0.117 ***	-0.516 ***		0.184 ***	0.006 ***
$VOLUME$	0.035 ***	0.143 ***	-0.072 ***	0.057 ***	0.738 ***	0.117 ***	-0.690 ***	0.195 ***		0.241 ***
DEV	-0.321 ***	-0.008 ***	-0.023 **	-0.148 ***	0.015 ***	0.119 ***	0.124 ***	-0.015 ***	0.304 ***	

Notes: ^aThe sample comprises of 6,387 firm-year observations. *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level (two-tail test). Pearson correlations are presented below the diagonal and Spearman correlations are presented above the diagonal. ^bThe variables are defined in Table 1.

4.2 The Level of Earnings Conservatism in Taiwan between 2001 and 2010

Firstly, this study employed the *asymmetric timeliness of earnings model* (Basu, 1997) to examine the conservatism degree for listed and OTC corporations in Taiwan. The results showed that when returns are positive (i.e., good news), the response of earnings to good news is β_2 , and when returns are negative (bad news), the response of earnings to bad news is $\beta_2 + \beta_3$. The difference in the response of earnings toward good news and bad news is represented by β_3 . If conservatism exists in corporate earnings, β_3 is significantly greater than zero. Table 3 lists the level of annual earnings response toward positive and negative rates of return between 2001 and 2010 (Note 2). Excluding 2003 and 2006, the earnings of Taiwan's listed and OTC companies were conservative regarding accounting earnings, which indicates that earnings conservatism commonly exists in Taiwan's corporate accounting system.

Table 3. Accounting conservatism trends of Taiwan listed and OTC companies

$$X_{i,t} / P_{i,t} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 R_{i,t} + \beta_3 R_{i,t} \times DR_{i,t} + \varepsilon_{i,t}$$

Year	Obs.	β_0	β_1	β_2	β_3	Adj. R ²
2001	570	0.063 (4.430)***	0.019 (0.650)	0.005 (0.190)	0.197 (1.670)*	0.002
2002	626	0.181 (9.750)***	-0.007 (-0.300)	0.171 (3.810)***	0.170 (2.900)**	0.272
2003	769	0.097 (10.260)***	-0.031 (-1.150)	0.020 (1.600)	0.102 (0.730)	0.014
2004	879	0.161 (13.220)***	0.005 (0.330)	0.132 (3.590)***	0.233 (4.860)***	0.259
2005	604	0.093 (10.120)***	-0.027 (-1.450)	0.083 (6.020)***	0.304 (3.810)***	0.231
2006	629	0.097 (9.270)***	-0.046 (-1.970)**	0.048 (3.100)***	0.107 (1.060)	0.067
2007	648	0.091 (11.870)***	0.009 (0.700)	0.061 (4.140)***	0.153 (3.150)***	0.111
2008	658	0.084 (4.600)***	0.015 (0.730)	-0.024 (-0.400)	0.257 (3.880)***	0.111
2009	640	0.047 (4.150)***	-0.004 (-0.100)	0.097 (6.780)***	0.487 (2.580)**	0.118
2010	691	0.069 (11.390)***	0.009 (0.920)	0.093 (6.720)***	0.170 (4.480)***	0.233

Notes: *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level (two-tail test). X/P represents the continuing operating income after tax divided by the equity market value at the beginning of year; R indicates buy and hold return which is calculated from May 1 of year t to April 30 of year $t+1$. DR is a dummy variable, when R is a negative value, $DR = 1$; otherwise, $DR = 0$.

4.3 Effect of Conservatism on Information Asymmetry

This study investigated whether earnings conservatism causes investors to perceive that published accounting information is less timeliness and relevant, and whether this increases information asymmetry between insiders and outsiders, subsequently inducing stock bid-ask spreads for self-protection. The empirical results are listed in Table 4. Table 4 indicates data regarding H1 and shows the regression results for all samples, as well as current year good news and current year bad news subsamples, obtained using Eq. (6). In Table 4, good news subsamples involve corporations with positive rates of return for the annual buy-and-hold of the year- t ($R > 0$), whereas $R < 0$ represent bad news subsamples. If H1 is supported, information asymmetry (IA) becomes more severe as the earnings conservatism (C_score) increases. Specifically, the coefficient for the C_score should significantly exceed zero. As shown in Table 4, the regression results for all samples and the bad news subsamples exhibit significantly positive coefficients for the C_score , indicating that accountings conservatism and information asymmetry possess a positive correlation. Notably, for the good news subsamples, the C_score coefficients were non-significant, indicating that when corporations show good news in the current year, investors are less sensitive to the degree of accounting conservatism. The above results partially support H1, greater earnings conservatism results in more severe information asymmetry, especially for the firms with bad news.

Table 4. Information asymmetry and accounting conservatism

$$IA_{i,t} = \alpha_0 + \alpha_1 C_score_{i,t-1} + \alpha_2 PRICE_{i,t} + \alpha_3 VOLUME_{i,t} + \alpha_4 DEV_{i,t} + \varepsilon_i$$

Variables	All samples		Good news ($R > 0$)			Bad news ($R < 0$)	
	coeff.	OLS <i>t</i> -statistics	coeff.	OLS <i>t</i> -statistics		coeff.	OLS <i>t</i> -statistics
<i>Intercept</i>	1.730	49.63***	1.821	41.61	***	1.569	27.17***
<i>C_score</i>	0.122	4.43***	0.037	1.21		0.255	4.51***
<i>PRICE</i>	-0.113	-15.92***	-0.132	-14.88	***	-0.092	-7.83***
<i>VOLUME</i>	-0.308	-87.76***	-0.288	-62.82	***	-0.326	-59.2***
<i>DEV</i>	0.606	57.86***	0.531	41.08	***	0.698	40.2***
ADJ R ²	0.6160		0.5928			0.6408	
F	2562.27		1316.06			1236.64	
N	6,387		3,615			2,772	

Note: Good news subsamples involve corporations with *positive* buy-and-hold return ($R > 0$) in year-*t*, whereas $R < 0$ represent bad news subsamples. Dependent variable *IA* is the annually average of last bid-ask spread. *C_score* is Khan and Watts (2009) measure of conservatism; *PRICE* represents the natural logarithm of the annual average daily closing price; *VOLUME* represents the natural logarithm of the annual average daily trading volume; and *DEV* denotes the annual deviation of the daily rate or return. *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

To verify H2a and H2b, that is, whether differences exist in the correlations between high or low earnings conservatism, this study divided the conservatism indicator (*C_score*) into four groups (Q1-Q4) organized in sequential order from low to high. Q1 represents corporations with the lowest *C_score*; it means the accounting conservatism level of firms in Q1 is low. By contrast, Q4 comprised corporations with the highest *C_score*; thus, the sample firms in Q4 adopted higher accounting conservatism criterion. Q1 to Q4 were used to estimate Eq. (6) respectively and to determine the effects of different conservatism levels having on *IA*. The empirical results for all samples (Table 5) indicate that the *IA* average increased from 0.525% in Q1 to 0.726% in Q4. This finding also supports H1: earnings conservatism is positively correlated with *IA*. In addition, for corporations categorized in the group with the lowest conservatism level (Q1), the correlation between earnings conservatism and *IA* is significantly negative. Conversely, the correlation between the two is significantly positive for corporations in Q4. Therefore, extremity conservatism (i.e., either excessively or insufficiently conservative) increases the severity of information asymmetry between insiders and outsiders.

Table 5. The effects that different conservatism levels have on *IA* – all samples

$$IA_{i,t} = \alpha_0 + \alpha_1 C_score_{i,t-1} + \alpha_2 PRICE_{i,t} + \alpha_3 VOLUME_{i,t} + \alpha_4 DEV_{i,t} + \varepsilon_i$$

Variables	Q1		Q2		Q3		Q4	
	coeff.	OLS <i>t</i> -statistics	coeff.	OLS <i>t</i> -statistics	coeff.	OLS <i>t</i> -statistics	coeff.	OLS <i>t</i> -statistics
<i>Intercept</i>	1.978	26.51***	1.839	25.41	***	1.794	19.31	***
<i>C_score</i>	-0.496	-6.13***	-0.109	-0.31		0.106	0.31	
<i>PRICE</i>	-0.173	-11.55***	-0.165	-13.2	***	-0.119	-9.11	***
<i>VOLUME</i>	-0.272	-38.64***	-0.275	-42.73	***	-0.306	-46.71	***
<i>DEV</i>	0.461	20.26***	0.508	28.26	***	0.563	30.77	***
ADJ R ²	0.5259		0.6242			0.6493		
F	443.32		663.73			739.57		
N	1,596		1,597			1,597		
Mean of <i>IA</i> (%)	0.525		0.573			0.606		
							0.726	

Note: *C_score* is Khan and Watts (2009) measure of conservatism; *PRICE* represents the natural logarithm of the annual average daily closing price; *VOLUME* represents the natural logarithm of the annual average daily trading volume; and *DEV* denotes the annual deviation of the daily rate or return. *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

The empirical results of using good news and bad news subsamples to analyze Eq. (6) are shown in Tables 6 and 7 respectively. The estimation results indicate that for corporations in Q1, the correlation between earnings conservatism and *IA* is significantly negative. Conversely, the correlation between the two is significantly positive when a corporation is in Q4. Hence, extremity conservatism (i.e., either excessively or insufficiently conservative) increases the severity of information asymmetry between the external parties and internal

personnel of a corporation. The result is similar to Table 5. In other words, if the accounting information is more neutral, the correlation between earnings conservatism and information asymmetry is not significant; thus, H2a and H2b are supported. This result indirectly confirms the Boards' perspective on excluding the conservatism principle.

In Table 6, the mean of the *IA* increased from 0.549% in Q1 to 0.594% in Q4. Table 7 shows *IA* mean increase from 0.495% in Q1 to 0.951% in Q4. In comparison, the speed of *IA* increase for the bad news subsample is greater than that of the good news subsample. Hence, if the current period of a corporation provides bad news and the corporate accounting recognition is overly conservative (Q4 group), outside investors may suspect that corporations are "taking a big bath", which negatively impacts the informativeness of the published financial statements. Conversely, if the current period of a corporation provides good news, investors are more likely to identify with relevant results despite an overly conservative accounting recognition. This demonstrates the asymmetry of investor perceptions regarding the accounting informativeness of good and bad news.

Table 6. The effects that different conservatism levels have on *IA* – good news ($R > 0$)

$$IA_{i,t} = \alpha_0 + \alpha_1 C_score_{i,t-1} + \alpha_2 PRICE_{i,t} + \alpha_3 VOLUME_{i,t} + \alpha_4 DEV_{i,t} + \varepsilon_i$$

Variables	Q1		Q2		Q3		Q4	
	coeff.	OLS t-statistics	coeff.	OLS t-statistics	coeff.	OLS t-statistics	coeff.	OLS t-statistics
<i>Intercept</i>	1.990	21.22***	1.871	19.67 ***	2.214	18.64 ***	1.352	13.46***
<i>C_score</i>	-0.509	-5.47***	-0.384	-0.84	-0.819	-2.14 **	0.527	6.00***
<i>PRICE</i>	-0.193	-10.12***	-0.156	-9.86 ***	-0.146	-8.9 ***	-0.090	-4.68***
<i>VOLUME</i>	-0.255	-27.25***	-0.261	-30.96 ***	-0.331	-38.46 ***	-0.318	-33.82***
<i>DEV</i>	0.434	15.73***	0.458	20.67 ***	0.583	24.69 ***	0.708	25.2***
ADJ R ²	0.5281		0.5969		0.6694		0.6489	
F	253.33		335.25		458.15		418.17	
N	903		904		904		904	
mean of <i>IA</i> (%)	0.549		0.489		0.574		0.594	

Note: *C_score* is Khan and Watts (2009) measure of conservatism; *PRICE* represents the natural logarithm of the annual average daily closing price; *VOLUME* represents the natural logarithm of the annual average daily trading volume; and *DEV* denotes the annual deviation of the daily rate or return. *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

Table 7. The effects that different conservatism levels have on *IA* – bad news ($R < 0$)

$$IA_{i,t} = \alpha_0 + \alpha_1 C_score_{i,t-1} + \alpha_2 PRICE_{i,t} + \alpha_3 VOLUME_{i,t} + \alpha_4 DEV_{i,t} + \varepsilon_i$$

Variables	Q1		Q2		Q3		Q4	
	coeff.	OLS t-statistics	coeff.	OLS t-statistics	coeff.	OLS t-statistics	coeff.	OLS t-statistics
<i>Intercept</i>	1.946	15.87***	1.823	17.15 ***	1.386	8.63 ***	1.007	8.44***
<i>C_score</i>	-0.539	-3.41***	-0.262	-0.53	1.374	1.94 *	1.956	10.56***
<i>PRICE</i>	-0.173	-7.12***	-0.165	-8.77 ***	-0.103	-4.72 ***	-0.075	-2.94***
<i>VOLUME</i>	-0.290	-25.99***	-0.271	-28.99 ***	-0.306	-29.22 ***	-0.415	-39.22***
<i>DEV</i>	0.527	13.54***	0.500	17.14 ***	0.616	21 ***	0.956	29.19***
ADJ R ²	0.5241		0.6218		0.6424		0.7620	
F	191.49		285.49		311.35		555.77	
N	693		693		693		693	
mean of <i>IA</i> (%)	0.495		0.623		0.652		0.951	

Note: *C_score* is Khan and Watts (2009) measure of conservatism; *PRICE* represents the natural logarithm of the annual average daily closing price; *VOLUME* represents the natural logarithm of the annual average daily trading volume; and *DEV* denotes the annual deviation of the daily rate or return. *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

5. Conclusion

Financial statements in Taiwan are significantly influenced by accounting conservatism. Previous studies have

explained corporations' demands for conservatism from numerous perspectives, including contract theory, agency theory, and action theory. These theories support that conservatism is positive and beneficial for decision-usefulness. However, financial statements must possess the quality characteristic of faithful representation which includes neutrality. When the operating performance of corporations exhibits uncertainties, the conservatism principle may result in the underestimation of net assets, which conflicts with the quality characteristic of faithful representation. Therefore, the Boards excluded the conservatism principle from the basic framework of accounting. This study adopts the perspective of information between insiders and outsiders to examine the value of the existence of earnings conservatism. We anticipate that the results of this study provide empirical evidence that supports the current development of financial standards.

This study adopted listed and OTC corporations in Taiwan as research samples. In summary, the results indicated that for corporations in Taiwan, when earnings conservatism is more significant, information asymmetry becomes increasingly severe. In addition, when earnings conservatism is extreme or insufficient, its correlation with information asymmetry produces varying effects and influences. Specifically, when the conservatism level of accounting information is low, the correlation between earnings conservatism and information asymmetry is significantly negative, whereas the influence on information asymmetry is significantly positive when the conservatism in corporate earnings is high. Therefore, when corporations recognize revenue and expenses, an extremity in conservatism causes investors to perceive that the informativeness of the financial statements published by a corporation is insufficient. As a result, information asymmetry is increased and investors then increase stock bid-ask spreads for self-protection. The results also indicate that when corporations provide bad news in the current period and corporate accounting recognition is overly conservative, outside investors may perceive that corporations are "taking a big bath," which negatively affects the informativeness of the published financial statements. Conversely, if the current period of a corporation provides good news, investors are more likely to identify with relevant results despite an overly conservative accounting recognition. This demonstrates the asymmetry of investor perceptions regarding the accounting informativeness of good and bad news. Finally, the empirical results of this study support the current development of financial standards. However, the formulation of financial accounting standards possesses a wide scope of influence. And this study contends that an extremity in conservatism increases the information asymmetry between the internal personnel and external parties of a corporation. Thus, the boards should endeavor to achieve balance while emphasizing faithful representation.

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Notes

Note 1. According to regulations, financial statements for listed or OTC companies on Taiwan's stock market must be made public within four months after the end of the fiscal year. Since 2012, this period was reduced to three months.

Note 2. Table 3 shows the samples of all listed and OTC companies in Taiwan after the missing values and outliers of Eq. (1) variables were deducted; thus, the number of samples in Table 3 exceeds that of Table 1.

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