Earnings Quality during SFAS-to-IFRS Convergence in Taiwan

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ABSTRACT: In accordance with the trend toward International Financial Reporting Standards (IFRS) in global capital markets, Taiwanese securities regulators and the country’s Accounting Research and Development Foundation are taking a gradual approach to transitioning from Statement of Financial Accounting Standards (SFAS) to IFRS. Since IFRS emphasizes management judgment and fair value measures, earnings quality is a major concern. The motivation for this study is to examine earnings quality among Taiwanese publicly traded companies in light of the current SFAS-IFRS changeover. We address both fundamental and enhancing quality characteristics underlying the IFRS Conceptual Framework. Results indicate significant improvements in the fundamental quality characteristics of earnings due to the increasing use of IFRS in Taiwan. A sharp decrease in timeliness of earnings was observed, as was a significant increase in asymmetric timeliness. Additional analyses results indicate a range of impacts of increased IFRS usage on earnings quality among Taiwanese IT and non-IT companies.

Keywords: Earnings quality, Faithful representation, Relevance, Timeliness
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I. INTRODUCTION

In 2000, the International Organization of Securities Commissions recommended that global securities regulators allow foreign issuers to use International Financial Reporting Standards (IFRS) for cross-border offerings. Starting in 2005, the European Commission required IFRS for the consolidated financial statements of all companies publicly traded in the European Economic Area, and it has become a generally accepted accounting principle among all global capital markets.¹ In Taiwan, security regulators and accounting standards decision makers² are adopting IFRS as part of an effort to reduce the costs of foreign investments in the country’s capital markets, and to enhance the ability of publicly traded companies to raise capital in global markets.

In light of the trend toward IFRS in global capital markets, the Taiwan’s Accounting Research and Development Foundation (ARDF) initiated a plan to revise outdated SFASs and to promulgate new SFASs based on an eventual convergence to IFRS. Since 2006 the ARDF has issued eight new IFRS-based SFASs³ and revised seventeen others to reflect this changeover.

¹To date, at least 115 countries require or will require that all publicly traded companies follow IFRS rules when preparing their financial statements.
²In Taiwan, securities regulators include the Financial Supervisory Commission and one of its departments, the Securities and Futures Bureau. The ARDF is responsible for the ongoing development of accounting, auditing, and valuation standards, and for translating all IFRS in English to all IFRS in Chinese.
³Published in 2006, SFAS No. 35 (“Impairment of Assets”) was issued based on IAS 36 (“Impairment of Assets”). Published in 2005, SFAS No. 36 (“Financial Instruments: Presentation and Disclosure”) was issued based on IAS 32 “Financial Instruments: Presentation”) and IFRS 7 (“Financial Instruments: Disclosures”). Also published in 2006,
To enhance financial reporting comparability and transparency among publicly traded companies in Taiwan, and to support their access to global capital markets, in 2008 the country’s securities regulators decided to make IFRS mandatory for all consolidated financial statements issued by listed and OTC public companies starting in 2013.4

Earnings quality has become a major concern during the changeover. Since IFRS emphasizes managerial judgment and fair value measures, a significant percentage of academic researchers and practitioners in Taiwan are addressing questions on neutrality, freedom from bias, and predictability. According to principle-based IFRS, managers are charged with selecting appropriate accounting policies based on a firm’s economic condition and business model,5 with all assets and liabilities being measured based on fair value practices.6 In other words, according to IFRS rules, managers are responsible for using a range of sources to determine the fair values

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4In 2009, the ARDF was authorized by the IASB to translate IFRSs word-by-word. Since then, the ARDF has translated all IAS, SIC, IFRS and IFRIC statements to support completion of the SFAS-IFRS conversion process by 2013. Once the conversion is completed, the ARDF will neither promulgate nor issue accounting standards.

5For example, according to SFAS No. 34, a firm’s managers are responsible for determining the categories of financial assets based on their respective business models. According to SFAS Taiwan No. 35 (“Impairment of Assets,” based on IAS 36), those same managers are responsible for determining an asset’s “recoverable amount” based on recommendations from valuation consultants.

6For example, according to SFAS No. 34, financial assets and liabilities are to be measured in terms of fair value as of balance sheet dates. Under SFAS No. 35, when performing impairment tests for plants, property, equipment, and intangible assets, managers must determine recoverable amounts in terms of fair value measures as of balance sheet dates.
of all assets and liabilities. Where publicly traded markets for assets and liabilities exist, managers can refer to them for information; where no such markets exist, managers must use certain valuation models or consult with valuation experts. Some academics and practitioners note the difficulties of maintaining neutral and bias-free earnings quality when economic event measurement is dependent on managerial judgment. Further, fair value measures increase earnings volatility, which in turn decreases earnings predictability. Accordingly, the primary motivation for this study is to investigate earnings quality among Taiwanese publicly traded companies in light of SFAS-to-IFRS convergence.

The literature contains numerous investigations of public company earnings quality in the context of compliance with accounting standards, including comparisons of the effects of different financial reporting systems (e.g., IFRS versus US GAAP or other local GAAPs). In studies of the impacts of fair value accounting, earnings quality has been examined and discussed in terms of accrual quality, relevance, timeliness, conservatism, predictability, smoothness, and persistence. Here we will examine earnings quality for a sample of publicly traded companies in Taiwan from the perspectives of fundamental and enhancing characteristics tied to the IFRS Conceptual Framework during a period of transition from SFAS.7 This

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7The SFAS-IFRS transition period consists of two phases, referred to as the 2000-2003 “SFAS period” and the 2007-2010 “IFRS-based SFAS period.” From 2000 to 2003, all publicly traded companies were required to prepare financial reports in compliance with SFAS rules. Since 2005, the ARDF has enacted revised procedures for existing SFAS statements and issued new SFAS statements based on their IAS/IFRS counterparts. Many of the new IFRS-based SFAS statements and revised SFAS statements and rules have been enacted since January 1, 2007.
Conceptual Framework points to faithful representation and relevance as fundamental characteristics of quality, therefore we focused on **faithful representation quality of earnings** from an earnings smoothing point of view, and tested relevance from the perspectives of **predictive** and **confirmatory value**. The predictive value of earnings was examined in terms of persistence, and Ohlson’s residual income model was used to examine their confirmatory value. Earnings timeliness was analyzed from the viewpoints of price informativeness and asymmetric timeliness.

Our results indicate that the faithful representation quality of earnings has significantly improved over the course of SFAS-IFRS convergence. Regarding relevance, significant improvements were noted for both predictive and confirmatory value of earnings, while no significant increase was noted in terms of timeliness of earnings. Unexpectedly, a significant increase was noted in the asymmetric timeliness of earnings, even though conservatism is not considered a qualitative characteristic of the IFRS Conceptual Framework. Last, the data indicate that the SFAS-IFRS changeover in Taiwan is exerting different impacts on earnings quality between IT and non-IT companies.

The rest of this paper is organized as follows: in Section Two we will review the primary literature on earnings quality and show how we developed the hypotheses. In Section Three we

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Starting in 2007, all publicly traded companies had to decide whether to follow the old SFAS rules or IFRS-based SFAS rules for recognizing and measuring transactions based on the substance of economic activities.
review the research design and statistical methods used for hypothesis testing, and in Section Four we discuss the empirical findings. Additional test results for earnings quality of IT and non-IT companies are discussed in Section Five, and concluding remarks are given in the final section.

II. PRIOR STUDIES AND HYPOTHESES

The International Accounting Standards Board (IASB) is responsible for the Conceptual Framework and concepts underlying financial statement preparation. According to the IASB Conceptual Framework, statement information must have two fundamental qualitative characteristics: faithful representation and relevance. Four complementary characteristics enhance the usefulness of financial information for decision-making purposes: comparability (including consistency), verifiability, timeliness, and understandability. In this study we focused on faithful representation, relevance, and timeliness.

Faithful Representation

Financial reporting is a primary management vehicle for sharing information with stakeholders, therefore statements should faithfully represent the economic substance of events and transactions. Achieving this goal requires the neutral and error-free disclosure of all material
transactions and events. Many academic researchers have discussed faithful representation in terms of neutrality, examining this attribute from three earnings management perspectives.8

1. **Accrual quality.** As the IFRS has gained wider acceptance in global capital markets, several researchers have looked at the question of whether its adoption is enhancing accrual quality compared to either US GAAP or local GAAPs. Tendeloo and Vanstraelen (2005) used the context of the pre-2005 German equity market to investigate differences in accrual quality between public companies adopting German GAAP and public companies voluntarily adopting IFRS. They used a modified Jones model and controlled for the incentive effect of earnings management when examining the quality of total and discretionary accruals between the two groups of companies.9 They did not observe any significant differences—that is, voluntary adoption of IFRS did not significantly mitigate earnings management as predicted. For their comparison of accrual quality between voluntary IFRS-adopters and US GAAP users in the German Neuer Market, Meulen et al. (2007)10 used Dechow and Dichev’s (2002) model11 to

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8To maintain neutrality, the preparers of financial reports must faithfully represent a firm’s underlying economic and performance in the absence of all presumptions. According to some researchers, accounting standards that limit opportunistic discretionary actions on the part of managers will likely result in higher earnings neutrality (see, for instance, Ashbaugh and Pincus 2001; Barth et al. 2008; Ewert and Wagenhofer 2005.) For this reason, researchers have tended to examine earnings neutrality from an earnings management perspective.

9Modified Jones model was used to derive discretionary accruals from total accruals; given non-discretionary accruals, proxy discretionary accruals reflect systematic risks in operating activities. Theoretically, the greater the extent of a firm’s discretionary accruals, the poorer its accrual quality; this is due to increasingly weak neutrality, which in turn reduces earnings quality. (Dechow et al. 1995; Kothari et al. 2005.)

10In Germany, multinational companies started to adopt international accounting systems (e.g., IFRS and US GAAP) as early as 1993. They were also required to issue reports using German GAAP, resulting in costly dual accounting efforts. In response to ‘demand pull’ for international accounting, the country’s 1998 Capital Raising Facilitation Act allowed publicly traded parent companies to substitute consolidated IFRS or US GAAP accounts for German GAAP (Gassen and Sellhorn 2006, pp. 4). IFRS or US GAAP were also required for firms listed on the “Neuer
investigate the effects of changes in working capital on last-, current-, and subsequent-period cash flow realization. They predicted that the greater explanatory power of the Dechow and Dichev model would identify higher accrual quality among one of the two groups of companies; however, consistent with Tendeloo and Vanstraelen’s (2005) findings, they failed to locate any significant differences in terms of accrual quality.

2. **Earnings smoothing.** To analyze differences in earnings smoothing between two groups of IFRS and non-IFRS adopters in multiple countries pre- and post-adoption, Barth et al. (2008) used three metrics: (a) variability of change in net income; (b) ratio of change variability in net income to change variability in operating cash flow; and (c) Spearman correlations between accruals and operating cash flows. Paglietti (2009) and Devalle et al. (2010) followed Barth et al.’s approach when searching for significant change in the propensity of public companies to smooth earnings during pre- and post-IFRS adoption periods. Their respective findings were mixed: whereas Barth et al. found that the likelihood of IFRS adopters to smooth earnings decreased between pre- and post-adoption periods and was lower than the likelihood among non-IFRS adopters during the same post-adoption period, Paglietti and Devalle et al. found that

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Market”—the high-tech and innovative market segment of the Deutsche Borse that lasted from March 1997 to June 2003. All Neuer Market companies subsequently moved to either the Prime Standard or the General Standard (Meulen et al. 2007, 11).

Based on their examination of the role of accruals in transforming cash flow into earnings, Dechow and Dichev (2002) suggest that in the absence of earnings management, current accruals can be objectively estimated using last-period, current, and subsequent cash flow data from operating activities, with estimation model error representing a discretionary and/or unexpected current accrual level. They assert that an increasingly higher absolute discretionary current accrual level indicates progressively poorer accrual quality.
the propensity of public companies to smooth earnings during the post-IFRS adoption period was not significantly different from that in the pre-adoption period.

3. Managing earnings toward a target. Managers have strong incentives to avoid reporting earnings decreases or losses. According to past analyses of the frequency distributions of earnings metrics, it is common to observe high frequencies of small positive earnings and earnings increases (Burgstahler and Dichev 1997; Durtschi and Easton 2005). Accordingly, Barth et al. (2008) and Paglietti (2009) hypothesized that companies applying IFRS are less likely than those applying domestic GAAPs to report small positive earnings or earnings increases; both found evidence in support of this hypothesis.

In summary, researchers have generally failed to locate significant differences in neutrality characteristics tied to faithful representations for earnings produced by either IFRS or non-IFRS approaches, yet it is still generally accepted that the use of IFRS will lead to improved transparency and faithfulness in financial reporting. Based on this background, the first research hypothesis is expressed as:

**H1:** Faithful representation quality of earnings is significantly improving during the SFAS-to-IFRS transition in Taiwan.

**Relevance**
To achieve relevance, financial information must support the efforts of stakeholders to use past information to predict a company’s future profits and cash flow (i.e., have “predictive value”) and to confirm or revise their prior beliefs (i.e., have “confirmatory value”). Materiality must be considered for information to be relevant. If omissions or misstatements have the potential to adversely affect stakeholder decisions, such information is considered material and must be disclosed. Most researchers discuss financial information relevance from the perspectives of earnings persistence (predictive value) and contemporaneous relationships among equity book value, earnings, and security prices (confirmatory value).

**Predictive Value**

Researchers have generally found that current realizations of earnings are assumed to have significant implications for future earnings realizations, an attribute known as “earnings persistence.” Kormendi and Lipe (1987), Ramakrishan and Thomas (1998), and Dichev and Tang (2008) have all used time-series approaches to analyze persistence of earnings, and found that higher earnings persistence is an indicator of stronger or more accurate earnings predictability.

Results from comparisons of the predictive values of earnings information under local GAAP and IFRS methods have been mixed. Gassen and Shellhorn (2006) examined differences in earnings persistence between firms that voluntarily adopted IFRS and firms that used a
German version of GAAP from 1998 to 2004, and found significantly lower earnings persistence/predictability among the voluntary IFRS adopters. In a separate study, Hung and Subramanyam (2007) investigated changes in earnings persistence among publicly traded German companies that changed from German GAAP to IFRS between 1998 and 2002, and found a significant improvement in earnings persistence/predictability in the post-IFRS adoption group. Doukakis (2010) looked for changes in earnings persistence and other earnings components for all non-financial companies listed on the Athens Stock Exchange between pre-IFRS (2002-2004) and post-IFRS periods (2005-2007). His findings were consistent with those reported by Gassen and Shellhorn (2006)—that is, no significant improvements were noted following IFRS adoption. In both cases, the researchers observed that due to a fair value orientation, IFRS-based earnings persistence and predictability were significantly weaker compared to those resulting from local GAAPs. Based on this background, the second research hypothesis was established as:

**H2**: The predictive value of earnings has significantly decreased during the transition from SFAS to IFRS in Taiwan.

*Confirmatory Value*
Many researchers have used Ohlson’s (1995) clean surplus theory to test the confirmatory value of accounting information. When studying the relative explanatory power of equity book value and earnings from a historical cost perspective, Collins et al. (1997) and Francis and Schipper (1999) found that the explanatory power of earnings information decreased over time, that the explanatory power of equity book value information increased over time, and that a mix of the two types of information enhanced explanatory power over time.

After the European Commission made IFRS mandatory for all consolidated financial statements issued by publicly traded companies in the European Economic Area, many comparisons were made of the explanatory power of earnings information under IFRS, US GAAP, and various local GAAPs. To compare the relative explanatory power of earnings information under IFRS and German GAAP, Gassen and Sellhorn (2006) and Hung and Subramnayam (2007) looked at whether the relative explanatory power of earnings reported by companies that had voluntarily adopted IFRS prior to the mandatory requirement was significantly higher than that of earnings reported by companies using German GAAP at the same time. In both studies, no significant differences were found.

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12 To examine financial information relevance, Ohlson (1995) proposed his clean surplus theory from a measurement perspective. The theory assumes that in efficient markets, balance sheets communicate shareholder/claimant rights to net assets, and that income statements represent a firm’s future cash flow potential. Users of financial information can utilize these reports to determine or predict the fundamental value of firm shares. In other words, a firm’s fundamental value can be expressed using the equity book value function and expected future residual earnings (also referred to as “abnormal earnings”). Unlike the naïve model, if the inclusion of equity book value and abnormal earnings significantly improves explanatory power for changes in share price, then they are said to have relevance quality.
Meulen et al. (2007) used a combination of Ohlson’s theory and the returns-to-earnings relationship to compare the explanatory power of earnings between publicly traded companies in the German Neuer Market that had voluntarily adopted IFRS and those that adhered to US GAAP (2000 to 2002 time frame), and failed to find significant differences. In contrast, Barth et al. (2008) investigated the explanatory power of earnings information reported by public companies using/not using IFRS in 21 countries, and reported greater explanatory power among those firms using IFRS. They speculated that the difference resulted from an institutional effect in different countries.  

Other researchers have compared pre- and initial IFRS periods in terms of the relative explanatory power of earnings. Paglietti (2009) analyzed the impact of IFRS mandatory adoption on the explanatory power of a firm’s security price in Italy, and Devalle et al. (2010) examined changes in explanatory power following mandatory IFRS rules for companies listed on five European stock exchanges. Based on their application of Ohlson’s theory, they observed significant increases in relative explanatory power following mandatory IFRS adoption by EU firms.  

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13 Barth et al. (2008) investigated the relative explanatory power of IAS and non-IAS adopters from 21 countries. Some countries (e.g., China, Poland and Russia) did not have accounting standards before adopting IFRS; accordingly, the introduction of IFRS made accounting information more meaningful and useful for capital market participants in those countries, and added greater explanatory power compared to non-IFRS earnings reports.  

14 Paglietti (2009) compared relative explanatory power of accounting information under the Italian GAAP and IFRS for publicly traded companies in Italy, where IFRS has been mandatory since 2005. He examined the relative explanatory power of accounting information in a sample of companies during the transition period (between 2002 and 2004) and three years following the mandate (between 2005 and 2007). Devalle et al. (2010) analyzed relative
earnings is improving to a significant degree during the transition from SFAS to IFRS in Taiwan. Accordingly, the third research hypothesis is expressed as:

**H3:** There has been a significant increase in the confirmatory value of earnings among Taiwanese firms during the SFAS-to-IFRS transition period.

**Timeliness**

According to the IASB Conceptual Framework, *timeliness* means that information is issued when it is still useful for decision-making purposes. To test the timeliness of earnings information, Beaver et al. (1987) used a “reverse” regression—that is, they examined earnings change as a function of percentage change in security price. In semi-strong market efficiency scenarios, security price is said to capture all publicly available information, some of which may lead to economic gains or losses during a current period. Examples include an electronic parts company receiving a large order from a major computer manufacturer, or a report of misappropriated assets on the part of a CEO. Other types of publicly available information can lead to future economic gains or losses—for instance, moving into an emerging market or bringing in new managerial leadership. Beaver et al. (1987) approached the process in which publicly available information in security prices is used to explain earnings by regressing

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explanatory power of accounting information under local GAAPs and IFRS for publicly traded companies in Germany, Spain, France, Italy and the United Kingdom. Their study periods were 2002-2004 (pre-IFRS) and 2005-2007 (IFRS). Results from the two studies were similar: the overall explanatory power of accounting information significantly increased following the mandatory adoption of IFRS, especially in terms of earnings information.
deflated changes in earnings on deflated changes in security price, based on evidence indicating that earnings contain more timely information (Ball et al. 2003; Basu 1997; Beaver et al. 1980; Beaver et al. 1987).

Applying Beaver et al.’s (1987) test model, Barth et al. (2008) compared earnings timeliness among IFRS adopters and matched non-adopters from 21 countries, controlling for systematic country and industry effects. They found that during the post-adoption period, good news was incorporated into the reported earnings of IFRS adopters in a significantly timelier manner. Interestingly, they did not observe any significant differences in the timely incorporation of bad news between the two groups. Among the IFRS adopters, both good and bad news was incorporated into reported earnings on a significantly timelier basis in the post-adoption period compared to the pre-adoption period.

For this study we examined earnings timeliness for a group of Taiwanese publicly traded companies during a period of transition from SFAS to IFRS. Based on Barth et al.’s (2008) finding that IFRS adoption led to improved earnings timeliness, we predicted the same result for the present study sample, and therefore expressed the fourth research hypothesis as:

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15Barth et al.’s (2008) sample consisted of 327 firms in 21 countries that had adopted IFRS procedures between 1994 and 2003, and 327 non-IFRS adopters that were matched in terms of industry, size and country. They defined two periods: pre-IFRS adoption (1990-1993) and post-IFRS adoption (1994-2003). Adopters and non-adopters were divided into two subsamples ("good news" and "bad news"), resulting in four subsamples overall. "Bad news" was a proxy for negative stock returns over 12 months, ending 3 months after year-end; "good news" was a proxy for non-negative stock returns over the same period. Barth et al. also compared earnings timeliness among the four subgroups during the pre- and post-adoption periods.
**H4:** Earnings timeliness has significantly increased during the SFAS-to-IFRS transition period in Taiwan.

In contrast, consistent conservatism is a strong feature of prior accounting treatments such as US GAAP, continental European systems, and the Taiwanese version of SFAS. A number of researchers have emphasized “good news-bad news” distinctions in security price information when investigating the effects of accounting conservatism on the asymmetric timeliness of earnings information (see, for example, Ball et al. 2003; Basu 1997). Good news is described as leading to economic gains and bad news to economic losses; according to a conservatism perspective, economic losses should be recognized even if they are not realized, but economic gains should not be recognized prior to full realization. According to this perspective, earnings are more sensitive to publicly available bad news than good news. Evidence indicating that bad news tends to be incorporated into earnings on a more timely basis compared to good news has been presented by Al-Sehali et al. (2004), Ball et al. (2003), Basu (1997), and Beekes et al. (2004). Those same researchers also assert that the combined effect of good and bad news on earnings timeliness is significantly greater than the effect of aggregate information (e.g., security price) alone.
However, the current IFRS Conceptual Framework does not describe conservatism as a desirable quality of financial reporting information. According to Hellman (2008, 77), “The argument for excluding conservatism is that the preparers should not be encouraged to be conservative when dealing with uncertainty, since this could lead to a conservatism bias. Instead, preparers shall take a neutral standpoint when dealing with uncertainty.” In opposition to the IASB assertion, researchers have found that conservatism is prevalent among financial report preparers, therefore asymmetric timeliness and understatements of shareholder value are still commonplace in the post-IFRS period. For example, Paglietti (2009) used Basu’s (1997) test model when comparing the asymmetric timeliness of Italian GAAP-based and IFRS-based earnings. Results from his analysis of differences in earnings timeliness in reports issued by 92 non-financial public companies during two compliance periods (Italian GAAP, 2002 to 2004, and IFRS, 2005 to 2007) indicate (a) an asymmetrical increase in the incorporation of bad news

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16The IASB concluded that ‘describing prudence or conservatism as a desirable quality or response to uncertainty would conflict with the quality of neutrality. Even with the proscriptions of deliberate misstatements (e.g., understatement of assets or income, or deliberate overstatement of liabilities or expenses) that appear in the existing frameworks, an admonition to be prudent (conservative) is likely to lead to a bias in reported financial position and financial performance…. Accordingly, the framework does not include prudence or conservatism as desirable qualities of financial reporting information.’ (IASB 2006, para. BC2.22.)
relative to good news into reported earnings, and (b) significantly poorer timeliness of IFRS-based earnings compared to Italian GAAP-based earnings. Similar to Paglietti, Balsari et al. (2010) used Basu’s model to compare earnings conservatism between pre- and post-IFRS periods for 3,789 companies listed on the Istanbul Stock Exchange. Their findings are consistent with those reported by Paglietti—that is, IFRS adoption led to increased asymmetric timeliness.

Based on these findings of increased asymmetric timeliness following IFRS adoption, we established our final research hypothesis as:

**H5:** Asymmetric earnings timeliness has significantly increased during the SFAS-to-IFRS transition period in Taiwan.

### III. RESEARCH DESIGN

The primary study purpose was to evaluate earnings quality during the transition from SFAS to IFRS in Taiwan from the perspectives of two qualitative characteristics underlying the Conceptual Framework: fundamental (in the form of faithful representation and relevance) and enhancing (timeliness). Faithful representation of earnings quality was assessed in terms of

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17Paglietti (2009) created two subsamples from the 92 firms in his main sample: those with good news (non-negative annual stock returns) and those with bad news (negative annual stock returns), based on data from six months following fiscal year-end.
earnings smoothing. Relevance of earnings quality was assessed from the perspectives of predictive and confirmatory value. Earnings timeliness was examined in terms of price informativeness and asymmetricality.

Faithful Representation

Three metrics were used to evaluate earnings smoothing, the first being \( \sigma(\varepsilon^\Delta NI_{i,t}) \)—the standard deviation of residuals from the regression of annual change in net income on variables that are not attributable to financial reporting systems (e.g., economic environment and earnings management incentives). The regression model was written as:

\[
\Delta NI_{i,t} = \alpha_0 + \alpha_1 SIZE_{i,t} + \alpha_2 GROWTH_{i,t} + \alpha_3 \Delta CS_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 AT_{i,t} + \alpha_6 \Delta TL_{i,t} \\
+ \alpha_7 OCF_{i,t} + \alpha_8 AUD_{i,t} + \alpha_9 NUMEX_{i,t} + \alpha_{10} CLOSE_{i,t} + \varepsilon^{\Delta NI}_{i,t} \]

where:

\( \Delta NI_{i,t} = (NI_{i,t} - NI_{i,t-1}) / \text{Average Total Assets}_{i,t} \). NI_{i,t} is measured under the systems of the SFAS in Taiwan-compliance and the IFRS, respectively.

\( SIZE_{i,t} = \log(\text{market value of common stockholders’ equity})_{i,t} \);

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18 Accrual quality and managing earnings to a target were not addressed in this study because test specifications are still considered questionable. Previous researchers have used different accrual models (e.g., Jones, modified Jones, performance-matched accrual) with proxies for discretionary (current) accruals as metrics of accrual quality. However, discretionary accruals in those models can be affected by estimation bias. In terms of managing earnings toward a target, past researchers have tested for earnings management incentives by observing discontinuities in the frequency distribution of deflated earnings at specific thresholds (see, for example, Burgstahler and Dichev 1997; Degeorge, Patel and Zeckhauser 1999). Durtschi and Easton (2005) argue that a discontinuity in the frequency distribution of deflated earnings reflects deflation, rather than the purposeful managing of earnings towards targets.

19 Researchers have assumed that earnings quality is influenced by change in financial reporting system, lax enforcement, earnings management incentives, market pressures, and institutional factors. When using Lang et al.’s (2006) approach to measure three earnings smoothing metrics, Barth et al. (2008) and Paglietti (2009) predicted that all other factors being equal, IFRS-based earnings are managed to a lesser degree than domestic-based earnings, since IFRS rules limit the potential actions of managers to smooth earnings.

20 The initial model used by extant researchers (Barth et al., 2008; Devalle et al., 2010; Paglietti, 2009) was: \( \Delta NI_{i,t} = \alpha_0 + \alpha_1 SIZE_{i,t} + \alpha_2 GROWTH_{i,t} + \alpha_3 \Delta CS_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 AT_{i,t} + \alpha_6 \Delta TL_{i,t} + \alpha_7 OCF_{i,t} + \alpha_8 AUD_{i,t} + \alpha_9 XLIST_{i,t} + \alpha_{10} NUMEX_{i,t} + \alpha_{11} CLOSE_{i,t} + \varepsilon^{\Delta NI_{i,t}} \). We excluded XLIST_{i,t} from the model since XLIST_{i,t} accounted for 71% variation in NUMEX_{i,t} (high collinearity problem).
\[ GROWTH_{i,t} = \frac{\text{sales}_{i,t} - \text{sales}_{i,t-1}}{\text{sales}_{i,t-1}} \times 100\%; \]

\[ \Delta CS_{i,t} = \frac{\text{common stock}_{i,t} - \text{common stock}_{i,t-1}}{\text{common stock}_{i,t-1}} \times 100\%; \]

\[ LEV_{i,t} = \frac{\text{total liabilities}_{i,t}}{\text{book value of equity}_{i,t}}; \]

\[ AT_{i,t} = \frac{\text{sales}_{i,t}}{\text{average total assets}_{i,t}}; \]

\[ \Delta TL_{i,t} = \frac{\text{total liabilities}_{i,t} - \text{total liabilities}_{i,t-1}}{\text{total liabilities}_{i,t-1}} \times 100\%; \]

\[ OCF_{i,t} = \frac{\text{operating cash flow}_{i,t}}{\text{average total assets}_{i,t}}; \]

\[ AUD_{i,t} = 1 \text{ if the firm’s auditor is PwC, KPMG, E&Y or D&T, 0 otherwise;} \]

\[ NUMEX_{i,t} = \text{the number of stock exchanges on which a firm is listed;} \]

\[ CLOSE_{i,t} = \text{percentage of closely held shares of firm } i \text{ during period } t; \text{ and} \]

\[ \varepsilon_{\Delta NI}^{NI_{i,t}} = \Delta NI_{i,t} - \text{Expected(} \Delta NI_{i,t}.\text{)} \]

Note that the smaller the standard deviation of \((\varepsilon_{\Delta NI}^{NI_{i,t}}))\), the higher the likelihood of earnings smoothing, and vice versa. We used F and Wilcoxon tests to assess significance of difference in \(\varepsilon_{\Delta NI}^{NI_{i,t}}\) during the transitional period.

The second earnings smoothing metric is the ratio of variability of change in net income to variability of change in operating cash flow. Controlling for the effect of variables not attributable to financial reporting systems, variability of change in net income is measured by
$\epsilon_{NI,i,t}$ from model (1), and variability of operating cash flow is measured by $\epsilon_{OCF,i,t}$ from the following model:\textsuperscript{21}

$$OCFi,t = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 GROWTH_{i,t} + \beta_3 CS_{i,t} + \beta_4 LEV_{i,t} + \beta_5 AT_{i,t} + \beta_6 \triangle TL_{i,t} + \beta_7 AUD_{i,t} + \beta_8 NUMEX_{i,t} + \beta_9 \triangle CLOSE_{i,t} + \epsilon_{OCF,i,t}$$

where:

$OCFi,t =$ operating cash flow of firm $i$ for period $t$ deflated by average total assets for period $t$; and

$\epsilon_{OCF,i,t} =$ $OCFi,t - \text{Expected}(OCFi,t)$

This ratio is measured as $\sigma(\epsilon_{\triangle NI,i,t}) / \sigma(\epsilon_{OCF,i,t})$, with the $\epsilon_{\triangle NI,i,t}$ standard deviation relative to the $\epsilon_{OCF,i,t}$ standard deviation. The rationale behind the ratio is that some firms use accruals to manage earnings so that $\sigma(\epsilon_{\triangle NI,i,t})$ is reduced compared to $\sigma(\epsilon_{OCF,i,t})$. Accordingly, the lower the ratio, the greater the likelihood of earnings smoothing and vice versa. Significance of difference in the $\sigma(\epsilon_{\triangle NI,i,t}) / \sigma(\epsilon_{OCF,i,t})$ ratio during the transitional period was assessed by F and Wilcoxon tests.

The third metric is the Spearman correlation between accruals and operating cash flow.

Considering the possible influences of variables that are not attributable to financial reporting

\textsuperscript{21} The original model used by extant researchers (Barth et al., 2008; Devalle et al., 2010; Paglietti, 2009) was:

$\triangle OCF_{i,t} = \alpha_0 + \alpha_1 \triangle SIZE_{i,t} + \alpha_2 \triangle GROWTH_{i,t} + \alpha_3 \triangle CS_{i,t} + \alpha_4 \triangle LEV_{i,t} + \alpha_5 \triangle AT_{i,t} + \alpha_6 \triangle TL_{i,t} + \alpha_7 \triangle AUD_{i,t} + \alpha_8 \triangle XLIST_{i,t} + \alpha_9 \triangle NUMEX_{i,t} + \alpha_{10} \triangle CLOSE_{i,t} + \epsilon_{\triangle OCF_{i,t}}$. We replaced $\triangle OCF_{i,t}$ with $OCF_{i,t}$ because the original model specification failed in the setting of Taiwanese publicly listed companies during the SFAS-to-IFRS transition period. We excluded $XLIST_{i,t}$ from the model since $XLIST_{i,t}$ accounted for 71% variation in $NUMEX_{i,t}$ (high collinearity problem).
systems, we compared the Spearman correlations of the residual \( \varepsilon_{OCF}^{i,t} \) from model (2) and the residual \( \varepsilon_{Acc}^{i,t} \) from model (3) as follows:\(^{22}\)

\[
\text{Accruals}_{i,t} = \kappa_0 + \kappa_1 \text{SIZE}_{i,t} + \kappa_2 \text{GROWTH}_{i,t} + \kappa_3 \Delta \text{CS}_{i,t} + \kappa_4 \text{LEV}_{i,t} + \kappa_5 \text{AT}_{i,t} \\
+ \kappa_6 \Delta \text{TL}_{i,t} + \kappa_7 \text{AUD}_{i,t} + \kappa_8 \text{NUMEX}_{i,t} + \kappa_9 \text{CLOSE}_{i,t} + \varepsilon_{Acc}^{i,t} 
\]

where:

\[
\text{Accruals}_{i,t} = (\text{net income}_{i,t} - \text{operating cash flow}_{i,t}) / \text{average total assets}_{i,t};
\]

\[
\varepsilon_{OCF}^{i,t} = \text{OCF}_{i,t} - \text{Expected}(\text{OCF}_{i,t}); \text{ and}
\]

\[
\varepsilon_{Acc}^{i,t} = \text{Accruals}_{i,t} - \text{Expected}(\text{Accruals}_{i,t}).
\]

The Spearman correlation of residuals is denoted as \( \rho(\varepsilon_{OCF}^{i,t}, \varepsilon_{Acc}^{i,t}) \). The rationale behind this correlation is that some managers adjust accruals to increase earnings when operating cash flows are low. The literature contains evidence indicating that more earnings smoothing occurs when \( \rho(\varepsilon_{OCF}^{i,t}, \varepsilon_{Acc}^{i,t}) \) is more strongly negative. Wilcoxon and t-tests were used to assess the significance of difference in \( \rho(\varepsilon_{OCF}^{i,t}, \varepsilon_{Acc}^{i,t}) \) during the transitional period.

**Relevance**

**Predictive Value**

Due to the attribute of earnings persistence, current earnings can serve as a significant

\(^{22}\) The original model used by extant researchers (Barth et al., 2008; Devalle et al., 2010; Paglietti, 2009) was: \( \text{Accruals}_{i,t} = \alpha_0 + \alpha_1 \text{SIZE}_{i,t} + \alpha_2 \text{GROWTH}_{i,t} + \alpha_3 \Delta \text{CS}_{i,t} + \alpha_4 \text{LEV}_{i,t} + \alpha_5 \text{AT}_{i,t} + \alpha_6 \Delta \text{TL}_{i,t} + \alpha_7 \text{AUD}_{i,t} + \alpha_8 \text{XLIST}_{i,t} + \alpha_9 \text{NUMEX}_{i,t} + \alpha_{10} \text{CLOSE}_{i,t} + \varepsilon_{Acc}^{i,t} \). We excluded XLIST\(_{i,t}\) from the model since XLIST\(_{i,t}\) accounted for 71% variation in NUMEX\(_{i,t}\) (high collinearity problem).
predictor of subsequent earnings (Doukakis 2010). The following model\textsuperscript{23} was used to test the predictive value of earnings during the period of transition from SFAS to IFRS:

\[ OI_{i,t+1} = \phi_0 + \phi_1 \times OI_{i,t} + \epsilon_{OI_{i,t+1}} \]  

(4)

where

\( OI_{i,t+1} = \text{Operating income}_{i,t+1}, \text{divided by the number of outstanding common shares at the end of time period } t+1 \);

\( OI_{i,t} = \text{Operating income}_{i,t}, \text{divided by the number of outstanding common shares at the end of time period } t \); and

\( \epsilon_{EBIT_{i,t+1}} = OI_{i,t+1} - \text{Expected}(OI_{i,t+1}). \)

The OI\(_{i,t}\) (\( \phi_1 \)) coefficient (representing earnings persistence) theoretically lies between 0 and 1. Past studies have confirmed that greater earnings persistence (\( \phi_1 \)) translates into a higher predictive value of earnings and vice versa. We followed Devalle et al.’s (2010) and Paglietti’s (2009) examples in using Chow tests\textsuperscript{24} to determine significant differences in the

\textsuperscript{23}The study of Doukakis (2010) found that non-operating income has weaker persistence than operating income at a significant level. As a result, we excluded non-operating income from the model and tested predictive value of operating income only.

\textsuperscript{24}A Chow test statistic is computed as follows:

\[ \frac{[RSS - (RSS_1 + RSS_2)]/p}{(RSS_1 + RSS_2)/(n + m - 2p)} \]

where RSS is the residual sum of squares of the specific regression model for the entire sample period, including the SFAS-only and SFAS-to-IFRS conversion periods; \( p \) is the number of parameters (equal to \( [p-1] \) coefficients plus one intercept); RSS\(_1\) is the residual sum of squares of the regression model for the SFAS period; RSS\(_2\) is the residual sum of squares of the regression model for the SFAS-to-IFRS conversion period; and \( n \) and \( m \) are the numbers of observations for the two sub-sample periods, respectively. Chow test statistics follow an F-distribution with degrees of freedom \((p, n+m-2p)\). The null hypothesis states that the independent variable coefficients do not differ between the two periods. If the null hypothesis is rejected, a structural break exists in the relationship between independent variables and a dependent variable, with coefficients having significant differences between the two time phases.
earnings persistence ($\varphi$) of model (4) during the transition from SFAS to IFRS.

**Confirmatory Value**

To test for confirmatory value, we compared changes in the relative explanatory power of earnings with contemporaneous changes in stock price during the SFAS-IFRS transition period by applying Ohlson’s residual income model:

$$P_{i,t+3\text{months}} = \delta_0 + \delta_1 \times BVE_{i,t} + \delta_2 \times EPS_{i,t} + \varepsilon^P_{i,t+3\text{months}} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldOTS
the greater (smaller) the incremental $R^2$ of $\text{EPS}_{i,t}$ relative to $P_{i,t+3\text{months}}$, the higher (lower) the confirmatory value of earnings information. A Chow test was used to determine whether the $\delta_1$ and $\delta_2$ coefficients of model (5) differed significantly during the transition period.

**Timeliness**

To test the timeliness quality of earnings during the SFAS-IFRS changeover, we used Beaver et al.’s (1987) reverse model, written as:

$$EPS_{i,t} = \nu_0 + \nu_1 \times \text{Returns}_{i,t} + \varepsilon^{\text{EPS}}_{i,t} \text{......................................................... (6)}$$

where

$EPS_{i,t}$ = firm $i$’s earnings per share for time period $t$; and

$\text{Returns}_{i,t}$ = buy-and-hold security return over a 15-month period ending three months after the fiscal year-end.

$EPS_{i,t}$ was predicted to change in the same direction as $\text{Returns}_{i,t}$—that is, $\nu_1$ was expected to be positive. As in previous studies, we assessed timeliness in terms of the explanatory power (adjusted $R^2$) of model (6), assuming that greater explanatory power would indicate more timely information being incorporated into earnings. A Chow test was used to examine whether the SFAS-IFRS transition is resulting in a systematic difference in the relationship between $\text{Returns}_{i,t}$ and $EPS_{i,t}$—that is, whether the $\nu_1$ coefficient on $\text{Returns}_{i,t}$ in model (6) is undergoing a significant change during the convergence period.
Similar to Al-Sehali and Spear (2004), Balsari et al. (2010), Gassen and Sellhorn (2006), and Paglietti (2009), we used Basu’s (1997) research model to test for the asymmetric timeliness of earnings during the SFAS-IFRS changeover:

\[
EPS_{i,t} = \nu_0 + \nu_1 \times Neg_{i,t} + \nu_2 \times Returns_{i,t} + \nu_3 \times Neg_{i,t} \times Returns_{i,t} + \epsilon_{EPS_{i,t}} \quad (7)
\]

where

\( EPS_{i,t} = \) firm \( i \)'s earnings per share for time period \( t \);

\( Neg_{i,t} = 1 \) if \( Returns_{i,t} \) is negative or zero, 0 otherwise;

\( Returns_{i,t} = \) the buy-and-hold security return over a 15-month period ending three months after the fiscal year-end.

The \( \nu_2 \) coefficient is a measure of the contemporaneous sensitivity of accounting earnings to positive security returns, and the \( \nu_3 \) coefficient is a measure of the incremental sensitivity of accounting earnings to contemporaneous negative security returns. Theoretically, asymmetric timeliness of earnings occurs when \( \nu_3 \) is significantly greater than \( \nu_2 \). A Chow test was used to determine a systematic difference in model (7) during the SFAS-IFRS convergence period—that is, to locate significant differences among \( \nu_1, \nu_2 \) and \( \nu_3 \).

**Sample and Data**

All financial variable data were obtained from annual consolidated financial statements filed with the Taiwan Stock Exchange Corporation (TSEC). Data for \( CLOSE_{i,t} \) (percentage of
closely held firm shares) were obtained from the TSEC Market Observation Post System, and data for $XLIST_{i,t}$ (firm listed on non-Taiwanese stock exchanges) and $NUMEX_{i,t}$ (number of stock exchanges on which a firm is listed) were provided by the CITIBANK Depository Receipt Service. Data for $P_{i,t}$ (stock price per share), $Returns_{i,t}$ (buy-and-hold security return over a 15-month period ending three months after fiscal year-end), and $AUD_{i,t}$ ($PwC$, KPMG, E&Y or D&T auditing) were collected from the Taiwan Economic Journal database.

The time range covered in this research consists of two phases: 2000-2003,26 which we will designate the “SFAS period,” and 2007-2010, which we will designate the “IFRS period.” Since 2005 the ARDF has managed the convergence via alterations to old SFASs or new IAS-based SFASs. Seventeen new and revised ones of all 41 SFASs have been enacted since January 1, 2007.27 Since 6 of 41 SFAS only were revised and enacted as part of ARDF activities between 2004 and 2006, those years were excluded from the sample period.

The sample selection process and information on industry type are summarized in Table 1. We initially identified 817 publicly listed companies with accessible consolidated financial statements; 76 financial companies were excluded based on industry characteristic, 130 were excluded because they sold their first shares after 2003, and 71 were excluded since they could

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26 Sample companies were selected on the basis of having complete sets of variable data over the study time horizon. All available data could be traced to 2000.

27 Seven SFAS statements based on IAS statements (including SFAS No. 35 specifically based on IAS 36, SFAS No. 37 specifically based on IAS 38, SFAS No. 38 specifically based on IFRS 5, etc.) were enacted after January 1, 2007.
IV. RESULTS

Faithful Representation

As shown in Table 2, panel A, the results support H1. The \( \sigma(\varepsilon^{\Delta NI}_{i,t}) \) during the SFAS period was significantly smaller than in the IFRS period (mean = 0.0161 and 0.0472 and median = 0.0090 and 0.0335, both respectively). The ratio \( \sigma(\varepsilon^{\Delta NI}_{i,t})/\sigma(\varepsilon^{OCF}_{i,t}) \) during the SFAS period was significantly smaller than in the IFRS period (mean = 0.0271 and 0.0595 and median = 0.0181 and 0.0454, both respectively), and the negative \( \rho(\varepsilon^{OCF}_{i,t},\varepsilon^{ACC}_{i,t}) \) was significantly larger (median = -0.9523 and -0.8648). According to these metrics, the propensity to smooth earnings significantly decreased over the two periods—in other words, there was a significant improvement in the faithful representation of earnings quality.

Relevance

Predictive Value

In terms of the predictive value of earnings, the study findings refute H2 and conflict with Gassen and Shellhorn’s (2006) and Doukakis’s (2010) findings that persistence of earnings became weaker after a transition to IFRS due to its fair value orientation. As shown in Table 4, panel A, OI\(_{i,t}\) had strong explanatory power (50.5%) regarding change in OI\(_{i,t+1}\) during the IFRS
period but significantly smaller than the 58.3% during the SFAS period. Chow test results indicate a significant difference in $\phi_1$ (earnings persistence) for model (4): 0.688 during the SFAS period versus 0.732 during the IFRS period. In short, the findings suggest a significant improvement in the predictive value of earnings during the second time period, without any mitigating effects from an IFRS fair value orientation.

**Confirmatory Value**

As shown in Table 5, panel A, H3 was supported. During the SFAS period, the incorporation of earnings information did not provide an incremental $R^2$ (-0.1%) for firm stock price per share three months after the end of the fiscal period ($P_{i,t+3\text{months}}$), significantly lower than the 8.1% during the IFRS period. In addition, Chow test results indicate a significant difference in the model (5) $BVE_{i,t}$ ($\delta_1$) and $EPS_{i,t}$ ($\delta_2$) coefficients between the two compliance periods. While the relative sensitivity of $EPS_{i,t}$ to $P_{i,t}$ ($\delta_2 = -0.390$) was non-significant during the SFAS period, it increased significantly to 4.755 during IFRS period ($p<0.05$). In short, the findings indicate significant improvement in the confirmatory value of earnings.

**Timeliness**

According to the data presented in Table 6, panel A, H4 is rejected. Chow test results indicate a significantly systematic difference in the relationship between $Returns_{i,t}$ and $EPS_{i,t}$ ($\nu_1$) for the two time periods. The 0.9% explanatory power of $Returns_{i,t}$ for changes in $EPS_{i,t}$ during
the IFRS period was significantly lower than the 3.4% during the SFAS period. In terms of the $\nu_1$ coefficient, a small proportion of $\text{Returns}_{t,i}$ (timely informativeness) was incorporated into $\text{EPS}_{t,i}$ (accounting earnings) from 0.006 during the SFAS period to 0.004 during the IFRS period.

Similarly, the findings shown in Table 7, panel A indicate a significant difference in the explanatory power of $\text{Returns}_{t,i}$ for changes in $\text{EPS}_{t,i}$ during the IFRS convergence period compared to the SFAS period (3.4% versus 4.3%), despite distinguishing between good and bad news in $\text{Returns}_{t,i}$. Regarding model (7) coefficients $\nu_1$, $\nu_2$ and $\nu_3$, the incremental sensitivity of accounting earnings ($\text{EPS}_{t,i}$) to contemporaneous negative security returns was significantly greater than to positive security returns during the SFAS-IFRS transition period ($\nu_3 = 0.032$, $\nu_2 = -0.001$). Since this asymmetric timeliness scenario was more significant compared to the SFAS period ($\nu_3 = 0.011$, $\nu_2 = 0.004$), these findings support H5.

Combined, the results indicate that timeliness of earnings did not significantly increase during the SFAS-IFRS convergence period. Although conservatism is not considered a qualitative characteristic in the IFRS Conceptual Framework, a significant increase in asymmetric timeliness of earnings was observed during the transition. This finding suggests a significant degree of conservatism among Taiwanese public companies in the preparation of consolidated financial reports during the IFRS transition period, perhaps due to management inclinations to act conservatively when dealing with uncertainties under a new and unfamiliar
system. The finding also suggests ongoing understatements of shareholder value due to conservatism on the part of Taiwanese public companies during the SFAS-IFRS convergence period.

V. ADDITIONAL ANALYSES

Due to the intensive capital requirements of technological innovation, an increasing number of IT companies are raising funds by issuing GDRs or ADRs in global securities markets. Between 2000 and 2003 (a full SFAS compliance period), 13.3% of the companies in the present study sample issued GDRs or ADRs, with the percentage increasing to 18.2% during the IFRS convergence period.\textsuperscript{28} Both percentages are higher than those for non-IT companies in the sample,\textsuperscript{29} suggesting that IT companies have more motivation than non-IT firms to prepare IFRS-based financial reports in order to raise funds from global securities markets, and that the switch to IFRS may have exerted different impacts on earnings quality between these two groups of companies. We therefore compared earnings quality differences between the SFAS and IFRS periods for both IT and non-IT industries.

\textbf{Faithful Representation}

\textsuperscript{28}Data were collected from the Depository Receipt Service of CITIBANK and summarized by the authors. \textsuperscript{29}In other industries, 3.8% of the companies in the sample issued GDRs or ADRs on global securities markets during the SFAS period. This percentage decreased to 3.48% during the SFAS-to-IFRS conversion period.
As shown in panels B and C of Table 2, both IT and non-IT companies reported significantly higher $\sigma(\varepsilon^{NI}_{i,t})$ and $\sigma(\varepsilon^{NI}_{i,t})/\sigma(\varepsilon^{OCF}_{i,t})$ and lower negative $\rho(\varepsilon^{OCF}_{i,t},\varepsilon^{ACC}_{i,t})$ during the IFRS transition period. According to these findings, the tendency of companies in either category to smooth earnings was significantly reduced by the changeover to new standards.

**Relevance**

**Predictive Value**

The data indicate different impacts from IFRS convergence on the predictive value of earnings for both IT and non-IT companies. In the first category, the explanatory power of $O_{i,t}$ for changes in $O_{i,t+1}$ during the IFRS period was 53.7%, significantly smaller than the 55.5% $O_{i,t}$ explanatory power during the SFAS period. Chow test results verify a significant difference in $\varphi_1$ (earnings persistence) in model (4) between the SFAS period (0.624) and the IFRS period (0.781). In other words, earnings predictability among Taiwanese IT companies significantly improved during the IFRS convergence period (Table 4, panel B). In contrast, the explanatory power of $O_{i,t}$ for changes in $O_{i,t+1}$ in the IFRS period was significantly lower—48.6% versus 60.1% during the SFAS period; Chow test results indicate a significantly lower $\varphi_1$ during the IFRS period (0.707 versus 0.813 during the SFAS period; Table 4, panel C). In summary, the fair value orientation of IFRS exerted different impacts on earnings predictability between IT and non-IT companies. Since IT industries are constantly dealing with technological innovations and
market changes, the fair value orientation of IFRS may more faithfully reflect the substance of an IT business model, thus enhancing earnings predictability. Conversely, it appears likely that the fair value orientation of IFRS does not reflect the stable business models and mature markets associated with non-IT industries, thereby increasing exposure to fair value risk and decreasing earnings predictability.

**Confirmatory Value**

Unexpectedly, the results indicate that the incorporation of \( \text{EPS}_{i,t} \) information results in significantly incremental \( R^2 \) value for stock price per share \((P_{i,t})\) for either IT \((9.0\%)\) or non-IT \((5.5\%)\) companies during the IFRS period. Further, the relative sensitivity of \( \text{EPS}_{i,t} \) information to \( P_{i,t} \) was insignificant for companies in both categories during the SFAS period; in the IFRS period, that relative sensitivity significantly increased to 5.396 for IT companies and 2.827 for non-IT companies. In other words, there were significant improvements in the confirmatory value of earnings information during the IFRS period, regardless of industry characteristic.

**Timeliness**

Timely information was not incorporated into the accounting earnings of IT companies during the IFRS period, therefore a significant decrease was observed in earnings timeliness (SFAS adjusted \( R^2 = 3.0\% \), IFRS adjusted \( R^2 = 0.2\% \)). After distinguishing between good news and bad news in \( \text{Returns}_{i,t} \), the data indicate that more good news was incorporated into
accounting earnings in a timely manner during the SFAS period ($\nu_2 = 0.005$), and more bad news was timely incorporated during the IFRS period ($\nu_3 = 0.041 > \nu_2 = -0.003$) (Tables 6 and 7, B panels). For the non-IT companies in the sample, a significant decrease in earnings timeliness was noted between the SFAS (adjusted $R^2 = 6.3\%$) and IFRS periods (adjusted $R^2 = 4.0\%$) (Table 6, panel C). Further, bad news was incorporated into accounting earnings in a significantly timelier manner than good news during the SFAS period ($\nu_3 = 0.022 > \nu_2 = 0.002$), and bad news was incorporated in a timelier manner than good news during the IFRS period ($\nu_3 = 0.026 > \nu_2 = 0.003$) (Table 7, panel C). In summary, earnings timeliness decreased and conservatism increased during the changeover from SFAS to IFRS for the IT companies in the sample, while for the non-IT firms earnings timeliness significantly decreased and conservatism essentially did not change. According to these results, publicly traded IT companies in Taiwan are more likely to delay the acknowledgment of good news compared to their non-IT counterparts under IFRS rules, likely due to risk-return considerations and economic substance issues.

VI. CONCLUSION

In accordance with the global trend toward IFRS, Taiwanese securities regulators and the country’s ARDF have taken a gradual approach to transitioning from SFAS to IFRS. In 2008, securities regulators announced that all listed and OTC public companies must comply with IFRS when preparing financial reports starting in 2013. The planned transition has increased
stakeholder concerns regarding earnings quality, since IFRS compliance is believed to influence
corporate value and to impact stakeholder interests. Accordingly, we examined the earnings
quality of Taiwanese public companies during the convergence period from SFAS to IFRS from
the dual perspectives of fundamental and enhancing quality characteristics underlying the IFRS
Conceptual Framework. Fundamental quality characteristics refer to faithful representation and
relevance. We examined faithful representation in terms of three earnings smoothing metrics:
variability of change in net income, ratio of the variability of change in net income to the
variability of operating cash flow, and Spearman correlations between accruals and operating
cash flow. Consistent with Barth et al.’s (2008) findings, our results indicate that the tendency to
smooth earnings is significantly decreasing during this period of transition in Taiwan. In other
words, for the listed companies in the study sample, there has been a significant improvement in
the faithful representation quality of earnings as more of them switch to IFRS.

Earnings relevance quality was also examined from two perspectives: predictive value and
confirmatory value. We tested the predictive value of earnings during the convergence period in
terms of earnings persistence, but unlike past findings, the present study results indicate a
significant improvement in the predictive value of earnings, suggesting that the fair value
orientation of IFRS did not mitigate earnings predictability period-by-period. The confirmatory
value of earnings was tested using Ohlson’s residual income model. Our results are consistent
with those reported by Paglietti (2009) and Devalle et al. (2010)—that is, a significant improvement in the confirmatory value of earnings has occurred as the listed companies in the sample move from SFAS to IFRS.

We used the same research design as Beaver et al. (1987) and Basu (1997) to examine earnings timeliness, which is considered a quality-enhancing characteristic of IFRS convergence. Similar to Paglietti (2009), we found that (a) during the convergence period, the asymmetric incorporation of bad news into reported earnings relative to good news increased significantly for the study sample, and (b) earnings timeliness decreased significantly compared to the all-SFAS period. These findings suggest that during the changeover period, publicly listed companies in Taiwan have become more conservative about income recognition and measurement in the face of uncertainties. Accordingly, regulators should consider requiring public companies to disclose detailed information on decisions resulting from these uncertainties; the motivation would be to reduce the potential for misstatements of shareholder value resulting from conservative decisions made by company managers.

Intensive capital requirements for technological innovation has encouraged an increasing number of Taiwanese IT companies to prepare IFRS-compliant financial reports as required by global securities markets, therefore we tested for the effects of IFRS convergence on earnings quality between IT and non-IT companies in the sample. Results indicate significant
improvement in faithful representation quality and the confirmatory value of earnings during the changeover period for companies in both categories. There were two unexpected findings. First, for the IT companies in the sample, earnings predictability during the transition period increased significantly, likely because the fair value orientation of IFRS reflects the economic substance of IT company business models. However, for the non-IT companies in the sample, earnings predictability was significantly reduced during the same period, likely due to their comparatively stable business models and mature markets, which are not reflected by the fair value orientation of IFRS. Second, in terms of earnings timeliness, the study results indicate that during the convergence period, the IT companies in the sample were more likely than the non-IT companies to incorporate more bad news relative to good news into their accounting earnings in a timely fashion. A possible explanation is that they are more conservative about risk-return considerations, and therefore more willing to disclose transparent information on economic substance in compliance with IFRS. The findings (conditional on industry effect) support Barth et al.’s (2008) argument that “IFRS may eliminate [a] firm’s ability to report accounting measurements which are more reflective of its economic position and performance” (472).

This study makes some contributions to the literature on earnings quality. To our knowledge, most studies have addressed earnings quality in terms of earnings attributes. In contrast, we examined earnings quality in an IFRS convergence scenario from the perspectives of
fundamental and enhancing qualitative characteristics underlying the IFRS Conceptual Framework. Future researchers may want to examine other qualitative characteristics such as comparability, verifiability, and understandability. Second, our empirical study findings indicate that, in an IFRS convergence scenario, fair value measurement does not mitigate predictive value of earnings in context of Taiwanese public companies, clarifying the confusion of practitioners and academicians. Future researchers may re-examine predictive value of earnings in the post-IFRS era and make comprehensive analysis of impact of fair value measurement on earnings predictability. Third, the IASB proposes that fair value measurement can improve timeliness and reduce conservatism of accounting information. However, our empirical findings indicate that, within the context of Taiwanese public companies, an increasing conservatism in management judgment about risks and returns of substantial transactions weakens timeliness of earnings during the transition period from SFAS to IFRS. Our arguments open a new window for future researchers to re-examine timeliness of earnings in the post-IFRS era and to explore the impact of fair value measurement on earnings timeliness. Fourth, our study is the first one verifying that the SFAS-IFRS changeover in Taiwan exerts different impacts on earnings quality between IT and non-IT industries. Future researchers may analyze the impact of mandatory adoption of IFRS on earnings quality among different industries. Last, we believe our findings can assist securities regulators and the ARDF in the complex task of assessing the impacts of
mandatory IFRS adoption on earnings quality and the usefulness of reported information for investors in 2013 and beyond.
Table 1
Sample Selection and Demographics

<table>
<thead>
<tr>
<th></th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate sample</td>
<td>817</td>
</tr>
<tr>
<td>Commercial Banks</td>
<td>(34)</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td>(15)</td>
</tr>
<tr>
<td>Securities Companies</td>
<td>(26)</td>
</tr>
<tr>
<td>Companies’ common shares initially public offering</td>
<td>(130)</td>
</tr>
<tr>
<td>Year 2003</td>
<td></td>
</tr>
<tr>
<td>Companies without complete variables data</td>
<td>(71)</td>
</tr>
<tr>
<td>Sample examined</td>
<td>541</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industries</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Technology (IT) Industries</strong></td>
<td></td>
</tr>
<tr>
<td>Semiconductor</td>
<td>39</td>
</tr>
<tr>
<td>Computer and Peripheral Equipment</td>
<td>41</td>
</tr>
<tr>
<td>Optoelectronic</td>
<td>30</td>
</tr>
<tr>
<td>Communication and Internet</td>
<td>23</td>
</tr>
<tr>
<td>Electronic Parts/Components</td>
<td>47</td>
</tr>
<tr>
<td>Electronic Products Distribution</td>
<td>15</td>
</tr>
<tr>
<td>Information Service</td>
<td>8</td>
</tr>
<tr>
<td>Other Electronic</td>
<td>22</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>225</td>
</tr>
<tr>
<td><strong>Non-IT Industries</strong></td>
<td></td>
</tr>
<tr>
<td>Cement</td>
<td>7</td>
</tr>
<tr>
<td>Food</td>
<td>19</td>
</tr>
<tr>
<td>Plastics</td>
<td>20</td>
</tr>
<tr>
<td>Textiles</td>
<td>45</td>
</tr>
<tr>
<td>Electric Machinery</td>
<td>32</td>
</tr>
<tr>
<td>Electrical and Cable</td>
<td>13</td>
</tr>
<tr>
<td>Chemical</td>
<td>21</td>
</tr>
<tr>
<td>Biotechnology and Medical Care</td>
<td>8</td>
</tr>
<tr>
<td>Glass, Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>Paper, Pulp</td>
<td>7</td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>26</td>
</tr>
<tr>
<td>Rubber</td>
<td>9</td>
</tr>
<tr>
<td>Automobile</td>
<td>4</td>
</tr>
<tr>
<td>Oil, Gas and Electricity</td>
<td>8</td>
</tr>
<tr>
<td>Building Material and Construction</td>
<td>30</td>
</tr>
<tr>
<td>Shipping and Transportation</td>
<td>16</td>
</tr>
<tr>
<td>Tourism</td>
<td>6</td>
</tr>
<tr>
<td>Trading and Consumers’ Goods</td>
<td>10</td>
</tr>
<tr>
<td>Others</td>
<td>31</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>316</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>541</td>
</tr>
</tbody>
</table>
### Table 2
Tests for Faithful Representation Quality of Earnings

<table>
<thead>
<tr>
<th>Variables(^a)</th>
<th>SFAS in Taiwan-Compliance (Year 2000 to Year 2003)</th>
<th>Conversion to IFRS (Year 2007 to Year 2010)</th>
<th>Test Results for Hypothesis 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Panel A: Total Sample (N = 541 Firms)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}}))</td>
<td>0.0161</td>
<td>0.0090</td>
<td>0.0207</td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}})/\sigma(e_{OCF_{it}}))</td>
<td>0.0271</td>
<td>0.0181</td>
<td>0.0292</td>
</tr>
<tr>
<td>(\rho(e_{OCF_{it}}, e_{Acc_{it}}))</td>
<td>-0.7259</td>
<td>-0.9523</td>
<td>0.4942</td>
</tr>
<tr>
<td>Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}}))</td>
<td>0.0178</td>
<td>0.0121</td>
<td>0.0190</td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}})/\sigma(e_{OCF_{it}}))</td>
<td>0.0360</td>
<td>0.0240</td>
<td>0.0398</td>
</tr>
<tr>
<td>(\rho(e_{OCF_{it}}, e_{Acc_{it}}))</td>
<td>-0.7572</td>
<td>-0.9612</td>
<td>0.4702</td>
</tr>
<tr>
<td>Panel C: Subsample-Non-IT Industries (n = 316 Firms)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}}))</td>
<td>0.0154</td>
<td>0.0082</td>
<td>0.0214</td>
</tr>
<tr>
<td>(\sigma(e_{\Delta NI_{it}})/\sigma(e_{OCF_{it}}))</td>
<td>0.0236</td>
<td>0.0162</td>
<td>0.0229</td>
</tr>
<tr>
<td>(\rho(e_{OCF_{it}}, e_{Acc_{it}}))</td>
<td>-0.7135</td>
<td>-0.9489</td>
<td>0.5037</td>
</tr>
</tbody>
</table>

Notes:

\(^a\) \(\sigma(e_{\Delta NI_{it}})\) is the standard deviation of the residuals from the regression model (1). \(\sigma(e_{\Delta NI_{it}})/\sigma(e_{OCF_{it}})\) is the ratio of the variability of change in net income to the variability of change in operating cash flows. Considering possible influence of the variables unattributable to the financial reporting systems (i.e., sales growth, leverage, firm size, if auditor is one of Big 4 Firms, the number of stock exchanges on which a firm's stock is listed, etc.), the variability of change in net income is measured by \(\sigma(e_{\Delta NI_{it}})\) from the model (1). The variability of operating cash flows is measured by the standard deviation of the residual \(\sigma(e_{OCF_{it}})\) from the model (2). \(\rho(e_{OCF_{it}}, e_{Acc_{it}})\) is the Spearman correlation between accruals and operating cash flows. Considering possible influence of the variables unattributable to the financial reporting systems, the operating cash flows is measured by the residual \(e_{OCF_{it}}\) from the model (2). The accruals is measured by the residual \(e_{Acc_{it}}\) from the model (3).

\(^b\) The symbol "**" denotes that F test statistic is significant statistically at the 1% level.

\(^c\) The symbol "*" denotes that t test statistic is significant statistically at the 5% level, and the symbol "**" represents statistical significance at the 1% level.

\(^d\) The symbol "*" denotes that the z statistic under the Wilcoxon test is significant statistically at the 5% level.
### Table 3: Descriptive Statistics

#### Panel A: Total Sample (N = 541 Firms)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>T Test Statistic</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$O_{i,t}$</td>
<td>0.84</td>
<td>0.52</td>
<td>1.64</td>
<td>2.07*</td>
<td>-1.68</td>
</tr>
<tr>
<td>$P_{i,t+3\text{months}}$</td>
<td>22.53</td>
<td>10.91</td>
<td>73.46</td>
<td>4.20***</td>
<td>-23.42*</td>
</tr>
<tr>
<td>$BVE_{i,t}$</td>
<td>14.77</td>
<td>13.73</td>
<td>5.63</td>
<td>9.65***</td>
<td>-9.28*</td>
</tr>
<tr>
<td>$EPS_{i,t}$</td>
<td>0.99</td>
<td>0.73</td>
<td>2.38</td>
<td>7.32***</td>
<td>-8.47*</td>
</tr>
<tr>
<td>$\text{Returns}_{i,t}$</td>
<td>13.38</td>
<td>1.07</td>
<td>70.46</td>
<td>8.56***</td>
<td>-8.38*</td>
</tr>
<tr>
<td>$\text{Neg}_{i,t}$</td>
<td>0.49</td>
<td>0.00</td>
<td>0.50</td>
<td>-5.96***</td>
<td>-5.94*</td>
</tr>
<tr>
<td>$\text{Neg}<em>{i,t} \times \text{Returns}</em>{i,t}$</td>
<td>-15.76</td>
<td>0.00</td>
<td>22.28</td>
<td>5.08***</td>
<td>-5.81*</td>
</tr>
</tbody>
</table>

#### Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>T Test Statistic</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$O_{i,t}$</td>
<td>1.55</td>
<td>1.06</td>
<td>2.37</td>
<td>-1.99*</td>
<td>-1.67</td>
</tr>
<tr>
<td>$P_{i,t+3\text{months}}$</td>
<td>37.41</td>
<td>17.71</td>
<td>110.74</td>
<td>-0.21</td>
<td>-7.62*</td>
</tr>
<tr>
<td>$BVE_{i,t}$</td>
<td>17.69</td>
<td>16.30</td>
<td>6.74</td>
<td>2.95***</td>
<td>-0.32</td>
</tr>
<tr>
<td>$EPS_{i,t}$</td>
<td>1.93</td>
<td>1.64</td>
<td>3.05</td>
<td>0.99</td>
<td>-0.69</td>
</tr>
<tr>
<td>$\text{Returns}_{i,t}$</td>
<td>10.00</td>
<td>-2.72</td>
<td>72.45</td>
<td>5.42***</td>
<td>-4.35*</td>
</tr>
<tr>
<td>$\text{Neg}_{i,t}$</td>
<td>0.52</td>
<td>1.00</td>
<td>0.50</td>
<td>-2.14*</td>
<td>-2.14*</td>
</tr>
<tr>
<td>$\text{Neg}<em>{i,t} \times \text{Returns}</em>{i,t}$</td>
<td>-19.00</td>
<td>-2.11</td>
<td>24.07</td>
<td>2.93***</td>
<td>-2.78*</td>
</tr>
</tbody>
</table>

#### Panel C: Subsample-Non-IT Industries (n = 316 Firms)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>T Test Statistic</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$O_{i,t}$</td>
<td>0.56</td>
<td>0.38</td>
<td>1.12</td>
<td>4.60***</td>
<td>-3.17*</td>
</tr>
<tr>
<td>$P_{i,t+3\text{months}}$</td>
<td>12.27</td>
<td>7.78</td>
<td>20.36</td>
<td>11.53***</td>
<td>-24.18*</td>
</tr>
<tr>
<td>$BVE_{i,t}$</td>
<td>13.11</td>
<td>12.82</td>
<td>4.10</td>
<td>7.49</td>
<td>11.85***</td>
</tr>
<tr>
<td>$EPS_{i,t}$</td>
<td>0.46</td>
<td>0.47</td>
<td>1.69</td>
<td>2.43</td>
<td>11.22***</td>
</tr>
<tr>
<td>$\text{Returns}_{i,t}$</td>
<td>15.36</td>
<td>3.46</td>
<td>69.08</td>
<td>7.59</td>
<td>6.76***</td>
</tr>
<tr>
<td>$\text{Neg}_{i,t}$</td>
<td>0.47</td>
<td>0.00</td>
<td>0.50</td>
<td>0.48</td>
<td>0.48</td>
</tr>
<tr>
<td>$\text{Neg}<em>{i,t} \times \text{Returns}</em>{i,t}$</td>
<td>-13.86</td>
<td>0.00</td>
<td>20.95</td>
<td>4.97***</td>
<td>-5.90*</td>
</tr>
</tbody>
</table>

Notes:

- $O_{i,t}$ is a firm (i)'s operating income for the period t divided by the number of outstanding common shares as the end of the period t.
- $P_{i,t+3\text{months}}$ is a firm (i)'s stock price per share as of three months after the end of the period t. $BVE_{i,t}$ is a firm (i)'s book value of common stockholders’ equity per share as of the end of the period t, excluding noncontrolling interests. $EPS_{i,t}$ is a firm (i)'s earnings per share for the period t. $\text{Returns}_{i,t}$ is the buy-and-hold security return over a 15-month period ending three months after fiscal year end. Neg$_{i,t}$ is equal to 1 if $\text{Returns}_{i,t}$ is negative or zero, equal to 0 otherwise.
- The symbol ** represents that t test statistic is significant statistically at the 5% level. The symbol *** represents that t statistic is significant statistically at both the 1% and 5% level.
- The symbol ** represents that Wilcoxon test statistic is significant statistically at the 5% level.
### Table 4
Test for Predictive Value of Earnings

<table>
<thead>
<tr>
<th>Panel A: Total Sample (N = 541 Firms)</th>
<th>SFAS in Taiwan-Conversion to IFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td><strong>Predictive Coefficient (ϕ₁)</strong></td>
</tr>
<tr>
<td>Intercept</td>
<td>+/-</td>
</tr>
<tr>
<td>OIᵢ,t</td>
<td>+</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R²: 58.3% 50.5%
- F Statistic: 1,565.01*** 1,510.64***

**Chow Test Statistic:** 4.36*

<table>
<thead>
<tr>
<th>Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)</th>
<th>SFAS in Taiwan-Conversion to IFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td><strong>Predictive Coefficient (ϕ₁)</strong></td>
</tr>
<tr>
<td>Intercept</td>
<td>+/-</td>
</tr>
<tr>
<td>OIᵢ,t</td>
<td>+</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R²: 55.5% 53.7%
- F Statistic: 396.22*** 487.37***

**Chow Test Statistic:** 7.23***

<table>
<thead>
<tr>
<th>Panel C: Subsample-Non-IT Industries : (n = 316 Firms)</th>
<th>SFAS in Taiwan-Conversion to IFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td><strong>Predictive Coefficient (ϕ₁)</strong></td>
</tr>
<tr>
<td>Intercept</td>
<td>+/-</td>
</tr>
<tr>
<td>OIᵢ,t</td>
<td>+</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R²: 60.1% 48.6%
- F Statistic: 1207.72*** 1000.62***

**Chow Test Statistic:** 4.87***

**Notes:**
- The dependent variable, OIᵢ,t+1, is operating incomeᵢ,t divided by the number of outstanding common shares as the end of the period (t+1). The independent variable, OIᵢ,t, is operating incomeᵢ,t divided by the number of outstanding common shares as the end of the period t. The earnings time-series model is $OI_{i,t+1} = \phi_0 + \phi_1 \times OI_{i,t} + \epsilon_{OI_{i,t+1}}$.
- The symbol "***" denotes that F statistics are significant statistically at both the 1% and 5% levels.
- The symbol "*" denotes that Chow test statistics are significant statistically at the 1% level and the symbol "**" denotes that Chow test statistics are significant statistically at the 5% level, following F distribution. The symbol "****" denotes that Chow test statistics are significant statistically at both the 1% and 5% levels following F distribution.
- The symbol "***" denotes that t statistics are significant statistically at both the 1% and 5% levels.
Table 5  
Test for Confirmatory Value of Earnings

Panel A: Total Sample (N = 541 Firms)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>2.125</td>
<td>0.39</td>
<td>-2.992</td>
<td>-2.63*</td>
</tr>
<tr>
<td>BVE$^{i,t}$</td>
<td>+</td>
<td>1.379</td>
<td>3.45*</td>
<td>1.211</td>
<td>17.40*</td>
</tr>
<tr>
<td>EPS$^{i,t}$</td>
<td>+</td>
<td>-0.390</td>
<td>-0.42</td>
<td>4.755</td>
<td>23.03*</td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted $R^2$: 0.9%
- Incremental $R^2$ of EPS$^{i,t}$: -0.1%
- Change in F Statistic$^b$: ---
- Chow Test Statistic$^c$: 31.59***

Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>21.830</td>
<td>1.79</td>
<td>-1.581</td>
<td>-0.81</td>
</tr>
<tr>
<td>BVE$^{i,t}$</td>
<td>+</td>
<td>0.977</td>
<td>1.23</td>
<td>1.182</td>
<td>10.91*</td>
</tr>
<tr>
<td>EPS$^{i,t}$</td>
<td>+</td>
<td>-0.856</td>
<td>-0.49</td>
<td>5.396</td>
<td>17.27*</td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted $R^2$: 0.2%
- Incremental $R^2$ of EPS$^{i,t}$: 0.1%
- Change in F Statistic$^b$: 0.93
- Chow Test Statistic$^c$: 19.70***

Panel C: Subsample-Non-IT Industries (n = 316 Firms)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
<th>Coefficient ($\delta_j$)</th>
<th>t statistic$^d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>7.143</td>
<td>3.04*</td>
<td>0.421</td>
<td>0.38</td>
</tr>
<tr>
<td>BVE$^{i,t}$</td>
<td>+</td>
<td>0.439</td>
<td>2.39*</td>
<td>1.036</td>
<td>13.83*</td>
</tr>
<tr>
<td>EPS$^{i,t}$</td>
<td>+</td>
<td>-1.233</td>
<td>-2.78*</td>
<td>2.827</td>
<td>12.31*</td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted $R^2$: 0.5%
- Incremental $R^2$ of EPS$^{i,t}$: 0.5%
- Change in F Statistic$^b$: 0.53
- Chow Test Statistic$^c$: 83.89***

Notes:

$^a$ The model is $P_{i,t+3\text{months}} = \delta_0 + \delta_1 \times BVE_{i,t} + \delta_2 \times EPS_{i,t} + e_{i,t+3\text{months}}$. $P_{i,t+3\text{months}}$ is a firm (i)'s stock price per share over a 15-month period ending three months after the fiscal year end. $BVE_{i,t}$ is a firm (i)'s book value of common stockholders' equity per share as of the end of the period t, excluding noncontrolling interests. $EPS_{i,t}$ is a firm (i)'s earnings per share for the period t. $e_{i,t+3\text{months}} = P_{i,t} - \text{Expected}(P_{i,t})$.

$^b$ The symbol "**" denotes that F statistics are significant statistically at the 5% level.

$^c$ The symbol "***" denotes that Chow test statistics are significant statistically at the 1% and 5% level respectively following F distribution.

$^d$ The symbol "*" denotes that t statistics are significant statistically at the 5% level.
### Panel A: Total Sample (N = 541 Firms)

<table>
<thead>
<tr>
<th>Independent Variables&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Predictive Sign</th>
<th>Coefficient&lt;sup&gt;b&lt;/sup&gt; (ν&lt;sub&gt;j&lt;/sub&gt;)</th>
<th>t statistic&lt;sup&gt;d&lt;/sup&gt;</th>
<th>F Statistic&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Chow Test Statistic&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>0.903</td>
<td>16.37***</td>
<td>80.99***</td>
<td>21.17***</td>
</tr>
<tr>
<td>Returns&lt;sub&gt;i,t&lt;/sub&gt;</td>
<td>+</td>
<td>0.006</td>
<td>8.19***</td>
<td>67.06***</td>
<td>5.03***</td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted R<sup>2</sup>: 3.4% 0.9%
- F Statistic<sup>b</sup>: 67.06*** 25.35***
- Chow Test Statistic<sup>c</sup>: 21.59***

### Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)

<table>
<thead>
<tr>
<th>Independent Variables&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Predictive Sign</th>
<th>Coefficient&lt;sup&gt;b&lt;/sup&gt; (ν&lt;sub&gt;j&lt;/sub&gt;)</th>
<th>t statistic&lt;sup&gt;d&lt;/sup&gt;</th>
<th>F Statistic&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Chow Test Statistic&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>1.853</td>
<td>15.95***</td>
<td>22.21***</td>
<td>5.61***</td>
</tr>
<tr>
<td>Returns&lt;sub&gt;i,t&lt;/sub&gt;</td>
<td>+</td>
<td>0.007</td>
<td>4.71***</td>
<td>26.56***</td>
<td>1.91</td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted R<sup>2</sup>: 3.0% 0.2%
- F Statistic<sup>b</sup>: 22.21*** 3.66
- Chow Test Statistic<sup>c</sup>: 21.17***

### Panel C: Subsample-Non-IT Industries (n = 316 Firms)

<table>
<thead>
<tr>
<th>Independent Variables&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Predictive Sign</th>
<th>Coefficient&lt;sup&gt;b&lt;/sup&gt; (ν&lt;sub&gt;j&lt;/sub&gt;)</th>
<th>t statistic&lt;sup&gt;d&lt;/sup&gt;</th>
<th>F Statistic&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Chow Test Statistic&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>0.366</td>
<td>7.54***</td>
<td>80.99***</td>
<td>61.51***</td>
</tr>
<tr>
<td>Returns&lt;sub&gt;i,t&lt;/sub&gt;</td>
<td>+</td>
<td>0.006</td>
<td>9.00***</td>
<td>71.57***</td>
<td></td>
</tr>
</tbody>
</table>

Goodness of Fit:
- Adjusted R<sup>2</sup>: 6.3% 4.0%
- F Statistic<sup>b</sup>: 80.99*** 71.57***

Notes:

<sup>a</sup> The model is \( EPS_{i,t} = \nu_0 + \nu_1 \times Returns_{i,t} + \epsilon_{EPS_{i,t}} \). EPS<sub>i,t</sub> is measured with a firm (i)'s earnings per share for the period t. Returns<sub>i,t</sub> is measured by the buy-and-hold security return over a 15-month period ending three months after fiscal year end. \( \epsilon_{EPS_{i,t}} \) is the error term.

<sup>b</sup> The symbol "***" denotes that F statistics are significant statistically at the 1% and 5% level, respectively.

<sup>c</sup> The symbol "***" denotes that Chow test statistics are significant statistically at the 1% and 5% level respectively following F distribution.

<sup>d</sup> The symbol "***" denotes that t statistics are significant statistically at the 1% and 5% level respectively.
### Table 7
#### Test for Asymmetric Timeliness of Earnings

**Panel A: Total Sample (N = 541 Firms)**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient</th>
<th>t statistic</th>
<th>Coefficient</th>
<th>t statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>1.183</td>
<td>12.33***</td>
<td>2.146</td>
<td>18.43***</td>
</tr>
<tr>
<td>Neg_{i,t}</td>
<td>-</td>
<td>-0.141</td>
<td>-0.85</td>
<td>-0.120</td>
<td>-0.54</td>
</tr>
<tr>
<td>Returns_{i,t}</td>
<td>+</td>
<td>0.004</td>
<td>3.43***</td>
<td>-0.001</td>
<td>-0.72</td>
</tr>
<tr>
<td>Neg_{i,t} × Returns_{i,t}</td>
<td>+</td>
<td>0.011</td>
<td>3.03***</td>
<td>0.032</td>
<td>6.29***</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R^2: 4.3%
- F Statistic: 28.58***
- Chow Test Statistic: 13.76***

**SFAS in Taiwan-Compliance (Year 2000 to Year 2003)**

**Conversion to IFRS (Year 2007 to Year 2010)**

**Panel B: Subsample-Information Technology (IT) Industries (n = 225 Firms)**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient</th>
<th>t statistic</th>
<th>Coefficient</th>
<th>t statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>2.038</td>
<td>9.50***</td>
<td>3.288</td>
<td>15.95***</td>
</tr>
<tr>
<td>Neg_{i,t}</td>
<td>-</td>
<td>0.136</td>
<td>0.36</td>
<td>-0.082</td>
<td>-0.23</td>
</tr>
<tr>
<td>Returns_{i,t}</td>
<td>+</td>
<td>0.005</td>
<td>2.44***</td>
<td>-0.003</td>
<td>-2.30*</td>
</tr>
<tr>
<td>Neg_{i,t} × Returns_{i,t}</td>
<td>+</td>
<td>0.012</td>
<td>1.62</td>
<td>0.041</td>
<td>5.62***</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R^2: 3.2%
- F Statistic: 8.44***
- Chow Test Statistic: 4.37***

**Panel C: Subsample-Non-IT Industries (n = 316 Firms)**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Predictive Sign</th>
<th>Coefficient</th>
<th>t statistic</th>
<th>Coefficient</th>
<th>t statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+/-</td>
<td>0.786</td>
<td>9.84***</td>
<td>1.623</td>
<td>16.54***</td>
</tr>
<tr>
<td>Neg_{i,t}</td>
<td>-</td>
<td>-0.111</td>
<td>-0.80</td>
<td>0.039</td>
<td>0.20</td>
</tr>
<tr>
<td>Returns_{i,t}</td>
<td>+</td>
<td>0.002</td>
<td>2.11*</td>
<td>0.003</td>
<td>3.05***</td>
</tr>
<tr>
<td>Neg_{i,t} × Returns_{i,t}</td>
<td>+</td>
<td>0.022</td>
<td>6.77***</td>
<td>0.026</td>
<td>5.25***</td>
</tr>
</tbody>
</table>

**Goodness of Fit:**
- Adjusted R^2: 11.5%
- F Statistic: 52.98***
- Chow Test Statistic: 30.74***

**Notes:**
- a. The model is \( EPS_{i,t} = \nu_0 + \nu_1 \times Neg_{i,t} + \nu_2 \times Returns_{i,t} + \nu_3 \times Neg_{i,t} \times Returns_{i,t} + \nu EPS_{i,t} \). \( EPS_{i,t} \) is measured with a firm (i)’s earnings per share for the period t. \( Neg_{i,t} \) is equal to 1 if \( Returns_{i,t} \) is negative or zero, equal to 0 otherwise. \( Returns_{i,t} \) is measured by the buy-and-hold security return over a 15-month period ending three months after fiscal year end. \( \nu EPS_{i,t} \) is the error term.
- b. The symbol "***" denotes that F statistics are significant statistically at the 1% and 5% level, respectively.
- c. The symbol "***" denotes that Chow test statistics are significant statistically at the 1% and 5% level respectively following F distribution.
- d. The symbol "***" denotes that t statistics are significant statistically at the 1% and 5% level respectively. The symbol "**" denotes that t statistic is significant statistically at the 5% level only.
REFERENCES


