

The Effects of International Financial Reporting Standards on Financial Reporting Quality

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The purpose of this study is to investigate whether the financial reporting under International Financial Reporting Standards (IFRS) has more quality than local GAAP for firms listed on Taiwan stock exchange. Financial Reporting Quality is measured in this study by three attributes of earnings introduced in previous literature, namely: 1) earnings management expressed as managing towards positive earnings and earnings smoothing and, 2) timely loss recognition expressed as the asymmetric incorporation of economic gains and losses and large negative net income, and 3) value relevance. Ordinary Least Square (OLS) Regression analysis, Z-test, and Binary Logistic Regression are employed to investigate the pre-IFRS (2008-2010) and post-IFRS (2012-2014) adoption periods on value relevance, earnings management, and timely loss recognition. The study employs a sample of 426 manufacturing firms from 8 industries listed on Taiwan stock exchange. The study finds that firms adopting IFRS evidence less earnings smoothing. However, there is no significant difference in either the timely loss recognition or the value relevance of accounting information between the pre and post-adoption periods. This study contributes to the literature by using data from an emerging market. It provides an insight to practitioners, international standard setters and regulators into the international debate on the effects of the switch from local GAAP to IFRS on Financial Reporting Quality.

Keywords: Emerging market, earnings management, timely loss recognition, value relevance.

Introduction

Investors around the world became suspicious about the quality of accounting information due to corporate financial scandals resulting from fraudulent financial reporting. They seek to have high quality, transparent and comparable financial information to help in making rational investment decisions. The Financial Reporting Quality (FRQ) is influenced by high-quality accounting standards and its appropriate enforcement (Benyasrisawat 2011, Khanagha 2011). Therefore, moving toward harmonized high-quality accounting standards is becoming an

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increasingly important issue to enhance the transparency and comparability of financial information produced.

Since 2001, the International Accounting Standards Board (IASB) an independent, non-profit organization has played an important role by developing high-quality International Financial Reporting Standards (IFRS) for use internationally for financial reporting purposes. Its main objective is to achieve international convergence. The European Union's publicly listed firms are required to prepare their financial reports in accordance with IFRS. Taiwan adopted IFRS in 2012 and many other developing and developed countries have either adopted IFRS or are in the process of the adoption. Approximately 140 countries around the world have now permitted IFRS adoption (Dayanandan et al. 2016).

IASB does not provide a clear definition of FRQ. However, Financial Accounting Standards Board Statement of Financial Accounting Concepts No. 1 (1978) states that "one objective of financial reporting is to help present and potential investors in making rational investment decisions and in assessing the expected firm cash flows". Verdi (2006) defines FRQ as the accuracy with which financial reporting provides information to investors about the firm's activities, particularly its expected cash flows. While Dechow et al. (2010) define as "Higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker".

Researchers are investigating the effect of IFRS on FRQ. Some research shows that adopting IFRS enhances FRQ in developed economies (Iatridis 2010, Jeanjean and Stolowy 2008, Zéghal et al. 2011). However, the benefit to emerging markets still unclear (Zhou et al. 2009). Other researchers show mixed results (Morais and Curto 2008, Paglietti 2010). On the other hand, some researchers show that adopting IFRS may not satisfy the information needs of stakeholders and has negative effects on the performance of the stock market and the trading volume (Ball 1995, Barth et al. 1999, Bradshaw and Miller 2002, Yoon 2007). It has been argued that FRQ is highly influenced by the opportunistic behavior of managers and national institutional factors (Jeanjean and Stolowy 2008, Palacios et al. 2014). The principle-based orientation of IFRS could add volatility to financial statements and open the door for possible managerial manipulation (Ahmed et al. 2013).

The empirical evidence about the benefit of implementing IFRS is conflicting and controversial. IFRS has been developed without regard for differences in socio-economic and political environments between different countries. As a result, more empirical evidence on whether the adoption of IFRS in emerging markets has enhanced the FRQ regarding timely loss recognition, value relevance and the level of earnings management is needed. It is important to focus on these three metrics in emerging markets because IFRS is a principle-based approach which is characterized by greater flexibility for manipulation of accounting information. This provides managers the opportunity to manage earnings due to the encouragement of professional judgment and discretion. According to Wong and Jian (2003), the

emerging market experience more earnings management because of the relatively weak investor protection and legal system.

The purpose of this study is to empirically investigate whether the adoption of IFRS leads to higher FRQ for manufacturing firms listed on the Taiwan stock exchange. The classification of Taiwan as an emerging market is based on the classification of the World Bank in 2018. It exhibits the characteristics of an emerging economy due to its weak corporate governance, poor legal enforcement and inadequate shareholder protection (Huang and Shiu 2009). According to IFRS 1, Taiwanese listed firms were required to issue their 2012 financial statements under both IFRS and Taiwanese GAAP which provides a unique opportunity to investigate this issue. According to Financial Supervisory Commission (2018), All firms listed on Taiwan stock exchange and financial institutions supervised by the Financial Supervisory Commission were required to apply IFRS starting from 2012 except unlisted public firms, insurance intermediaries, credit card firms and credit cooperatives. They were required to apply IFRS starting from 2015 (permitted from 2013).

Our empirical results show that firms in the post-IFRS period experienced lower level of earnings smoothing compared to firms in the pre-IFRS period. However, there is no evidence found that firms in the post-IFRS period evidenced more timely loss recognition or more value relevance of accounting information than in the pre-IFRS period. In particular, firms in the post-IFRS period have a higher variance of the change in net income and a less negative correlation between accruals and cash flows. This may suggest a significant reduction in earnings smoothing and improvement in FRQ after the transition to IFRS. This study is complements the findings in the existing literature regarding the effects of IFRS on FRQ.

This study contributes to the literature in several ways. First, the effects of IFRS adoption on FRQ in emerging markets have not been widely studied (Kwon et al. 2017) and several emerging markets are in the process of adopting IFRS, such as Saudi Arabian, Egypt, India, Korea, and Malaysia. This study encompasses a sample of listed firms in Taiwan which is considered one of the emerging markets that have a significant influence on the world economy (Bekaert and Harvey 2017). Thus practitioners and international standard setters from other emerging markets can benefit from the results of this study. Second, existing empirical studies have focused on developed countries, such as Germany, Australia, the UK, and France (Peng and Chen 2014, Kaaya 2015, Kwon et al. 2017). This study fills the gap of the related literature by shedding the light on emerging markets. Third, the costs and benefits of switching from local GAAP to IFRS are still unclear. This study provides empirical evidence that compares the FRQ under IFRS with that under local GAAP and this can benefit regulators as they try to make rational decisions regarding the adoption by publicly listed firms in emerging markets. Finally, the findings of this study may help analysts and investors understand IFRS and FRQ issues in emerging markets. This study follows Barth et al. (2008) and Zhou et al. (2009) in focusing on three metrics of FRQ: 1) value relevance, 2) earnings management, and 3) timely loss recognition.

The remainder of this paper is organized as follows. Section 2 presents the related literature and develops the hypotheses. Section 3 deals with the sample selection, descriptive statistics of variables and the research methodology. Section 4 presents the empirical findings and Section 5 concludes the study.

Literature Review and Hypothesis Development

The quality of financial reporting is determined by the usefulness of information provided to meet the needs of users. One of the factors that affects FRQ is the accounting standards. High accounting standards are characterized by providing relevant, reliable, comparable and consistent accounting information (Khanagha 2011). Firms experience positive returns with increases in FRQ (Armstrong et al. 2010), a reduction in the cost of equity capital in countries with strong legal system (Li 2010), and increases the demand for equities by institutional investors (Florou and Pope 2012). Hence, literature tries to assess the effect of accounting standards on the quality of financial information.

Prior research measures FRQ in different ways. The majority of studies use value relevance, timely loss recognition, and earnings management as three main measures for FRQ as they provide useful financial information to stakeholders especially users in the equity market (Ahmed et al. 2013, Barth et al. 2008, Istrate et al. 2015, Jeanjean and Stolowy 2008, Morais and Curto 2008, Mousa and Desoky 2014, Paglietti 2010). Francis et al. (2004) consider seven measures of accounting quality, namely, earnings management, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. On the other hand, Benyasrisawat (2011) points out three dimensions of FRQ, namely, earnings persistence, value relevance and earnings timeliness. This study uses three attributes of earnings introduced in previous literature (Barth et al. 2008, Kaaya 2015, Lin et al. 2012, Mousa and Desoky 2014, Peng and Chen 2014, Zhou et al. 2009). The attributes are 1) value relevance, 2) timely loss recognition expressed as the asymmetric incorporation of economic gains and losses and large negative net income, and, 3) earnings management expressed as managing towards positive earnings and earnings smoothing.

Paglietti (2010) defines earnings management as the management intention to mislead stakeholders about the financial position of the firm which may affect their compensation. He adds that higher quality of accounting information is characterized by low earnings management. On the other hand, value relevance studies are concerned about the evaluation of the relationship between accounting information and capital market values (Khanagha 2011). It is argued that higher quality of accounting information exhibits a strong relationship between earnings and returns (Mousa and Desoky 2014). Outa (2011) defines timely loss recognition as “the firm’s ability to recognize losses as they occur by not engaging in activities that reschedule the losses over other periods of time”. Coelho et al. (2017) argue that more timely

recognition of the incurred losses in earnings make financial reporting more informative to investors and decision makers.

Several studies have tried to study the impact of adopting IFRS. Studies carried in developed countries regarding the higher quality of IFRS information reveals contradicting results. On the positive side, Irvine and Lucas (2006) find that IFRS has increased foreign direct investment, improve FRQ and enhance global market integration. Using a sample of 327 firms from 21 countries, Barth et al. (2008) find that firms exhibit less earnings management, higher frequency of large losses, an insignificant frequency of small positive earnings, and more value relevance of FRQ after voluntarily switching to IFRS. Similarly, the findings of Iatridis (2010) suggest that the implementation of IFRS in the UK decrease earnings management, lead to more value relevant accounting measures and more timely loss recognition which help investors in making more rational decisions. These two studies provide consistent results and suggest that adopting IFRS reinforces information reporting quality. Moreover, an empirical study by Armstrong et al. (2010) document that the adoption of IFRS in the European stock market improved the information transparency and earnings quality. Using a longitudinal study that covers pre-IFRS and post-IFRS periods during 1990–2008 for publicly listed Australian industrial firms, Chalmers et al. (2011) find that earnings become more value-relevant and suggest that IFRS adoption affects the associations between accounting information and market value. Several studies have confirmed that adopting IFRS has increased FRQ (Chalmers et al. 2011, Devalle et al. 2010, Meeks and Swann 2009, Chan et al. 2015).

Other studies report contradicting results. A study by Van Tendeloo and Vanstraelen (2005) suggest that there is no significant difference in FRQ for firms adopting IFRS compared to firms adopting German GAAP. Similarly, using a sample of German firms applying IFRS since 2005, Lin et al. (2012) suggest a decline in FRQ under IFRS. They find that financial reports evidence less value relevance, less timely loss recognition, and more earnings management compared to those firms applying U.S. GAAP. These two studies provide consistent results and suggest that adopting IFRS does not enhance information reporting quality. Both Ahmed et al. (2013) and Christensen et al. (2015) find that European Union firms experience more earnings management after IFRS adoption. Ahmed et al. (2013) argue that firms that have voluntary application to IFRS experience less earnings management due to having incentives to increase the transparency of their reporting and attract market capital. On the other hand, firms that have mandatory application to IFRS, lack the motivation to have a transparent financial report which leads to higher earnings management after the adoption of IFRS. However, Capkun et al. (2016) conducted a study in 30 countries and found that firms adopting early, late or mandatory IFRS experience an increase in earnings management. They concluded that the principle-based nature of IFRS allows for greater flexibility in selecting accounting methods and greater discretion in earnings measurement which lead to an increase in earnings management. The conflicting results between the two studies may be due to differences in sample selection where Ahmed et al. (2013) sample include only

developed countries (European Union) while Capkun et al. (2016) sample includes both developed and developing countries which have a different legal system, capital market maturity, and development.

The studies presented above are applied in developed countries where we could expect an improvement in FRQ after IFRS adoption due to strong investor protection, strong legal enforcement, and capital market maturity. However, the results are mixed which makes it difficult to reach a general conclusion that IFRS enhance FRQ in developed countries. This result is supported by Nulla (2014) who observed that each country implemented the same accounting standards in a different way due to flexible standards which can lead to a reduction in FRQ even in strong enforcement countries like Germany and France.

Regarding the developing countries, Aljifri and Khasharmeh (2006) investigated the benefits of IFRS to the United Arab Emirates (UAE). They found that there is a general agreement among different users as investors, auditors and creditors on the importance of applying IFRS in the UAE. Similarly, Liu et al. (2011) examined the effect of IFRS on FRQ for publicly listed firms in China and find significant improvement expressed as an increase in value relevance of accounting information and a reduction in earnings smoothing. In a two emerging countries study, Khanagha (2011) investigated the value relevance of accounting information under IFRS in Bahrain for the period 1996-2008 and the United Arab Emirates for the period 2001-2008 listed firms. A comparison of the results for the pre and post-IFRS adoption, shows more relevant accounting information after the adoption of IFRS in Bahrain stock market, while there was a decline in value relevance for United Arab Emirates stock market. Using a sample of 117 listed firms in Indonesia Stock Exchange, Arum (2013) examined the impact of IFRS on the FRQ which are measured by the proxy of value relevance, timely loss recognition, and earnings management of accounting information. The empirical results indicate lower earnings management and higher value relevance of accounting information while having no effect on the timely loss recognition. This may signal an improvement in the financial reporting quality.

On the other hand, other studies show that adopting IFRS in developing countries does not necessarily lead to an improvement in FRQ. Chen and Yeh (2002), employing a sample of Chinese firms, examined the effect of adopting IFRS on FRQ. Their study revealed that IFRS does not improve accounting practices due to family ownership, informal personal relationship and political influences which contribute to the low reporting quality. Similarly, Rudra and Bhattacharjee (2012) find that publicly listed Indian firms using IFRS experience more earnings management compared to Indians firms using local GAAP which may be considered as a signal to the regulators to think about the effectiveness of IFRS in emerging markets suffering from weak investor protection and legal enforcement. Ames (2013), using data of 3950 listed companies in South Africa between 2000 to 2011 examined the impact of adopting IFRS on FRQ. He finds that FRQ is not improved among the firms adopting IFRS. A study of Taiwanese firms by Peng and Chen (2014) showed that the quality of the financial reports under local GAAP provides more value relevant than IFRS. Other

empirical studies find mixed results (Clarkson et al. 2011, Houqe et al. 2012, Outa 2011, Paananen and Lin 2009). Despite, the argument that IFRSs may not fit developing countries due to weak investor protection and legal enforcement (Kaaya, 2015). It is clear that some studies presented show that IFRS improves FRQ. This result is supported by Karampinis and Hevas (2009) who concluded that mandating IFRS may prove beneficial even in an unfavorable context.

Based on the above discussion, this study aims to compare the FRQ under local GAAP with that under IFRS by examining the impacts of implementing IFRS in one of the emerging markets. The study will fill the gap of the related literature by adding more evidence regarding emerging markets. Based on the above discussion that show conflicting evidence on the effect of IFRS on FRQ, the following hypotheses are formulated:

H1: Firms using IFRS experience less earnings management compared to firms using local GAAP.

H2: Firms using IFRS experience more timely recognition of losses compared to firms using local GAAP.

H3: Firms using IFRS experience more value relevant accounting information compared to firms using local GAAP.

Methodology

In this section, three FRQ that has been suggested in prior research as potentially important will be considered: value relevance, timely loss recognition, and earnings management. They are examined separately by comparing accounting information prepared under Taiwanese GAAP from 2008 to 2010 with those prepared under IFRS from 2012 to 2014. Quantifying FRQ is difficult, Hence, this study follows Lang et al. (2006), Barth et al. (2008) and Zhou et al. (2009) in focusing on a range of FRQ measures. According to Lang et al. (2006), accruals are sensitive to the industry in which the firm operates. Accordingly, the effect of industry on the characteristics of accounting data was considered in this study.

Earnings Management

This study analyzes two measures of earnings management. The first relates to the examination of earnings smoothing and the second focuses on managing towards positive earnings.

Earnings smoothing

To test for changes in earnings smoothing, three different measures are used in this study.

1-First, the variability of the changes in the annual net income deflated by end of year total assets. Earnings should fluctuate over time if firms do not use accruals to manage earnings. Accordingly, lower values of the variance of the change in net income are considered a signal to higher earnings smoothing, and vice versa. The change in net income can be affected by factors other than the financial reporting. Hence, controls from prior research have been used as shown in the below model (Barth et al., 2008, Lang et al., 2006):

$$\begin{aligned} \Delta NI = & \beta_0 + \beta_1 SIZE + \beta_2 GROWTH + \beta_3 EISSUE + \beta_4 LEV + \beta_5 DISSUE + \beta_6 \\ & TURN + \beta_7 CF + \beta_8 AUD + \beta_9 XLIST + \beta_{10} NUMEX + \beta_{11} SECTOR1 + \\ & \beta_{12} SECTOR2 + \beta_{13} SECTOR3 + \beta_{14} SECTOR4 + \beta_{15} SECTOR5 + \beta_{16} SECTOR6 \\ & + \beta_{17} SECTOR7 + \beta_{18} \Delta NI (-1) + \varepsilon \end{aligned} \quad (1)$$

Where ΔNI is the annual change in net income, $SIZE$ is the natural logarithm of the end of year market value of equity, $GROWTH$ is the annual change in sales, $EISSUE$ is the annual change in common stock, LEV is end of year total liabilities divided by equity book value, $DISSUE$ is annual change in total liabilities, $TURN$ is sales divided by end of year total assets, CF is annual net cash flow from operating activities divided by end of year total assets, AUD is an indicator variable that equals one if the firm's auditor is PwC, KPMG, E&Y or D&T and zero otherwise, $XLIST$ is an indicator variable that equals one if the firm is listed outside the EU, $NUMEX$ is the number of Stock Exchanges on which a firm's stock is listed. $SECTOR1$ is the Commodity Chemicals industry, $SECTOR2$ Iron & Steel industry, $SECTOR3$ is the Auto, Truck & Motorcycle Parts industry, $SECTOR4$ is the Textiles & Leather Goods industry, $SECTOR5$ is the Food Processing industry, $SECTOR6$ is the Construction & Engineering industry, $SECTOR7$ is the Electrical Components & Equipment industry and Machinery & Equipment is the reference category. $\Delta NI (-1)$ is a lagged value of observed endogenous response variables for solving serial autocorrelation issue. ε is the error term.

The residuals of the regression of model 1 are denoted as ΔNI^* and their standard deviation $\sigma_{\Delta NI^*}$. Lower standard deviation could be considered as evidence of using accruals to smooth earnings.

2- Second, the variability of annual changes in net income relative to the variability of annual changes in cash flows. The variability of annual changes in cash flows is the variance of the residuals of the regression of annual change in cash flow. Despite the controls used in model 1, the variability in net income may be due to activities that are not correlated with discretionary accruals (Lin et al. 2012). Examining the variability of annual changes in net income relative to the variability of annual changes in cash flows control this concern as firms with more variability in cash flows will have more variability in net income. Controls have been used to mitigate the effect of other factors as shown in the below model:

$$\Delta CF = \beta_0 + \beta_1 \text{ SIZE} + \beta_2 \text{ GROWTH} + \beta_3 \text{ EISSUE} + \beta_4 \text{ LEV} + \beta_5 \text{ DISSUE} + \beta_6 \text{ TURN} + \beta_7 \text{ AUD} + \beta_8 \text{ XLIST} + \beta_9 \text{ NUMEX} + \beta_{10} \text{ SECTOR1} + \beta_{11} \text{ SECTOR2} + \beta_{12} \text{ SECTOR3} + \beta_{13} \text{ SECTOR4} + \beta_{14} \text{ SECTOR5} + \beta_{15} \text{ SECTOR6} + \beta_{16} \text{ SECTOR7} + \beta_{17} \Delta CF(-1) + \varepsilon \quad (2)$$

Where ΔCF is the annual change in net operating cash flow and the residuals of the regression of model 2 are denoted as ΔCF^* . The second metric is concerned about the variability of $\Delta Ni^* / \Delta CF^*$ over the pre-IFRS (2008-2010) and post-IFRS (2012-2014) periods. This variability is denoted as $\sigma_{\Delta Ni^* / \Delta CF^*}$. If firms use accruals to smooth earnings, the variability of net income will be less than that cash flow.

3- Finally, the correlation between total accruals (ACC) and operating cash flows (CF) helps in detecting the smoothing effect of accruals. If managers use accruals to smooth earnings, there will be a negative correlation between them as managers may tend to increase accruals when suffering from shortage in cash flows (Ball and Shivakumar 2005, Paglietti 2010, Myers et al. 2007). Again, to control for the effect of other factors, the following regression models are used:

$$CF = \beta_0 + \beta_1 \text{ SIZE} + \beta_2 \text{ GROWTH} + \beta_3 \text{ EISSUE} + \beta_4 \text{ LEV} + \beta_5 \text{ DISSUE} + \beta_6 \text{ TURN} + \beta_7 \text{ AUD} + \beta_8 \text{ XLIST} + \beta_9 \text{ NUMEX} + \beta_{10} \text{ SECTOR1} + \beta_{11} \text{ SECTOR2} + \beta_{12} \text{ SECTOR3} + \beta_{13} \text{ SECTOR4} + \beta_{14} \text{ SECTOR5} + \beta_{15} \text{ SECTOR6} + \beta_{16} \text{ SECTOR7} + \beta_{17} CF(-1) + \varepsilon \quad (3)$$

$$ACC = \beta_0 + \beta_1 \text{ SIZE} + \beta_2 \text{ GROWTH} + \beta_3 \text{ EISSUE} + \beta_4 \text{ LEV} + \beta_5 \text{ DISSUE} + \beta_6 \text{ TURN} + \beta_7 \text{ AUD} + \beta_8 \text{ XLIST} + \beta_9 \text{ NUMEX} + \beta_{10} \text{ SECTOR1} + \beta_{11} \text{ SECTOR2} + \beta_{12} \text{ SECTOR3} + \beta_{13} \text{ SECTOR4} + \beta_{14} \text{ SECTOR5} + \beta_{15} \text{ SECTOR6} + \beta_{16} \text{ SECTOR7} + \beta_{17} ACC(-1) + \varepsilon \quad (4)$$

Where ACC is net income (NI) minus CF. The residuals of the regression in model 3 are denoted as CF^* and the residuals of the regression in model 4 are denoted as ACC^* . The third metric is concerned about the correlation between CF^* and ACC^* . The higher negative correlation between them signals the use of accruals to smooth variability in earnings and thus affect FRQ (Myers et al. 2007).

Managing Towards Positive Earnings

The second earnings management measure tests if firms manage earnings towards small positive earnings (denoted as SPOS) rather than a negative earnings. According to Kwon et al. (2017), managers tend to smooth earnings to avoid losses which may result in more frequent positive earnings, if possible, compared to small losses. Hence, a high frequency of small positive earnings signals the greater management's discretion to avoid losses and thus affect FRQ. This measure is evaluated by estimating the coefficient of a dummy variable SPOS in the following logistic regression model (Barth et al. 2008):

$$\text{POST}(0,1) = \beta_0 + \beta_1 \text{SPOS} + \beta_2 \text{SIZE} + \beta_3 \text{GROWTH} + \beta_4 \text{EISSUE} + \beta_5 \text{LEV} + \beta_6 \text{DISSUE} + \beta_7 \text{TURN} + \beta_8 \text{CF} + \beta_9 \text{AUD} + \beta_{10} \text{XLIST} + \beta_{11} \text{NUMEX} + \varepsilon \quad (5)$$

POST(0,1) is a dummy variable that equals one for firms adopting IFRS and zero for firms adopting local GAAP. SPOS equals one if the net income deflated by total assets is between 0 and 0.01 and zero otherwise (Barth et al. 2008). This measure is concerned about the coefficient of SPOS in the regression equation. If the coefficient is negative, this means that firms in the pre-IFRS period are more likely to smooth earnings toward small positive net income compared to firms in the post-IFRS period and vice versa.

Timely Loss Recognition

Timely loss recognition is the second FRQ measure which reflects accounting conservatism. Ball et al. (2000) define timeliness as “the degree to which accounting income incorporates economic income”. It can be assessed by two metrics. The first one focuses on the likelihood of reporting a large negative net income (denoted as LNEG). Higher FRQ is characterized by recognizing large losses as they occur rather than being deferred to future periods (Zhou et al. 2009). If managers smooth earnings, large losses should be relatively rare. Hence, high frequency of timely loss recognition signals better FRQ. The following logistic regression is constructed to estimate the likelihood of loss recognition timeliness (LNEG) following IFRS adoption (Lang et al. 2006):

$$\text{POST}(0,1) = \beta_0 + \beta_1 \text{LNEG} + \beta_2 \text{SIZE} + \beta_3 \text{GROWTH} + \beta_4 \text{EISSUE} + \beta_5 \text{LEV} + \beta_6 \text{DISSUE} + \beta_7 \text{TURN} + \beta_8 \text{CF} + \beta_9 \text{AUD} + \beta_{10} \text{XLIST} + \beta_{11} \text{NUMEX} + \varepsilon \quad (6)$$

LNEG is a dummy variable that equals one if the net income scaled by total assets is lower than -0.20 and zero otherwise (Barth et al. 2008). This measure is concerned about the coefficient of LNEG in the regression equation. If the coefficient is positive, this means that firms in the post-IFRS period are more likely to recognize large losses in a timely manner compared to firms in the pre-IFRS period and vice versa.

The second measure of timely loss recognition is concerned about the asymmetric incorporation of economic gains and losses. Appropriate loss recognition compared to profit recognition has been used in prior research to estimate FRQ (Ahmed et al. 2013). The stock returns are used as a proxy for good and bad news and measured by R^2 of the return-earnings regression model proposed by Basu (1997):

$$\text{Def}(E) = \beta_0 + \beta_{1(\text{Def}(E))} \text{Dr} + \beta_{2(\text{Def}(E))} r + \beta_{3(\text{Def}(E))} (\text{Dr} \cdot r) + \varepsilon_{(\text{Def}(E))} \quad (7)$$

Where $Def(E)$ is earnings per share in year t deflated by stock price per share in year $t-1$. Dr is a dummy that takes value one in case of bad news (if $r < 0$) and zero otherwise and r is annual stock returns from six months after the firm's fiscal year-end. The interaction between Dr with r (β_3) shows the incremental effect of bad news relative to good news on earnings. According to Lang et al. (2006), the information in earnings will find its way into the share price, so the concern is whether the news is captured in earnings in a timely manner. FRQ is associated with share price, therefore a higher R^2 indicates higher reporting quality. In addition, this measure is concerned about the magnitude of the coefficient of the interaction between Dr with r (β_3) in the regression equation. The large coefficient is a signal of more timely loss recognition.

Value Relevance

Following previous studies, this study measures value relevance using the price-earnings model (Collins et al. 1999, Van der Meulen et al. 2007). Value relevance considers that high-quality financial reporting should have a high degree of association with the firm's share price which provides more useful information to investors. The model distinguishes between positive and negative earnings as follows (Ohlson 1995):

$$P_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 DX + \beta_3 X_{it} * DX + \beta_4 BV_{i,t-1} \quad (8)$$

Where P_{it} is the share price three months after fiscal year end t , X_{it} is earnings per share, DX is a dummy variable equal to one if earnings are negative or zero otherwise and $BV_{i,t-1}$ is the book value per share at the beginning of period t . It should be noted that the coefficient of earnings, β_1 , reflects the pricing effect of current earnings. The measure of value relevance is based on the adjusted R^2 of the model which examines the explanatory power of accounting information over years (Wu et al., 2017).

The Sample

Taiwanese publicly listed firms have been required to switch from the Taiwanese GAAP to IFRS in 2012. A sample of 426 firms listed on Taiwan stock exchange is randomly selected in this study. Table 1 presents the sample industry breakdown. The sample comprises a range of industries in the manufacturing sector. Data is obtained from Thomson Reuters DataStream database covering six years, pre-IFRS (2008-2010) and post-IFRS (2012-2014). The same set of 426 firms adopted Taiwanese GAAP in the pre-IFRS (2008-2010) and IFRS in the post-IFRS (2012-2014) period.

Table 1. Industry Analysis

Industry	Frequency	Percent	Valid Percent	Cumulative Percent
Auto, Truck & Motorcycle Parts	198	5.2	5.2	5.2
Commodity Chemicals	387	10.1	10.1	15.3
Construction & Engineering	225	5.9	5.9	21.1
Electrical Components & Equipment	1521	39.7	39.7	60.8
Food Processing	225	5.9	5.9	66.7
Industry and Machinery & Equipment	549	14.3	14.3	81
Iron & Steel industry	270	7	7	88
Textiles & Leather Goods	459	12	12	100
Total	3834	100	100	

Empirical Results and Analysis

Descriptive Statistics

Table 2 presents descriptive statistics for the test and control variables used in the research design. Both have been examined separately under both local GAAP and IFRS for the same set of firms. Data is approximately symmetric as skewness ranges from -0.46 to 0.5. The descriptive analysis of the test variables reveals that there is a slight decrease in the mean of the change in annual net cash flow (CF_DELTA) and accruals (ACC) under IFRS compared to Taiwanese GAAP. This may signal a decrease of earnings management practices under IFRS. However, there are no significant differences in the mean and dispersion of the other test variables under both local GAAP and IFRS.

As for control variables, the descriptive statistics show that the adoption of IFRS causes a significant reduction in the mean of the annual change in sales (GROWTH) from 355834 to -495997. Moreover, a significant reduction in the mean of the annual change in common stocks (EISSUE) and the annual change in total liabilities (DISSUE) under IFRS. This may signal that firms in the pre-IFRS period are more likely to issue stocks and debt than firms in the post-IFRS period.

Table 3 reveals that the time series test and control variables are stationary at the 0.01 level. Table 4 shows that according to Schwarz criterion, there is a long-term equilibrium relationship among the time series variables where the p-value of both Tau-statistic and Z-statistic are at the 0.01 level.

Table 2. Descriptive Statistics

	Pre-IFRS (2008-2010)					Post-IFRS (2012-2014)				
	Mean	Median	Std. Dev.	Skewness	Kurtosis	Mean	Median	Std. Dev.	Skewness	Kurtosis
Test Variables										
NI_DELTA	-0.003	-0.002	0.012	-0.04	2.23	-0.002	-0.002	0.011	-0.09	2.33
CF_DELTA	569943	440354	2731030	0.15	2.57	552444	485586	2782907	0.14	2.42
ACC	-3516552	-2989165	2797312	-0.55	2.39	-3514471	-3123636	2672059	-0.46	2.43
DEF	0.048	0.050	0.024	-0.09	2.05	0.048	0.048	0.023	-0.02	2.12
R	0.037	0.031	0.152	0.14	1.89	0.045	0.038	0.132	0.20	2.26
P	0.590	0.580	0.166	0.33	2.18	0.575	0.546	0.166	0.50	2.27
BV	0.489	0.482	0.066	0.43	2.52	0.497	0.493	0.070	0.25	2.18
X	0.031	0.030	0.018	0.28	2.25	0.031	0.028	0.019	0.44	2.27
Control Variables										
LNSIZE	18.042	17.998	1.196	0.12	2.58	18.216	18.087	1.131	0.22	2.63
GROWTH	355834	228340	5927955	0.14	2.12	-495997	-648252	5419240	0.22	2.51
EISSUE	1119962	1185916	1007546	-0.20	2.08	539270	585250	1169628	0.19	1.76
LEV	0.879	0.852	0.216	0.40	2.33	0.888	0.880	0.219	0.27	2.25
DISSUE	1620513	1316895	3300458	0.12	2.32	814413	366747	3287520	0.52	2.65
TURN	0.903	0.852	0.403	0.38	2.65	0.831	0.801	0.367	0.37	2.98
CF	0.061	0.061	0.027	-0.003	2.03	0.061	0.062	0.026	-0.01	2.11

Table 3. Unit Root Test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-71.0288	0.0000	16	20413
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-63.7571	0.0000	16	20413
ADF - Fisher Chi-square	2341.98	0.0000	16	20413
PP - Fisher Chi-square	2606.64	0.0000	16	20432

**Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Table 4. Tau and Z-statistics

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
NETINCOME	-18.42707	0.0000	-536.7976	0.0000
NI_DELTA	-16.62892	0.0000	-454.5156	0.0000
LNSIZE	-12.56317	0.0000	-422.3788	0.0000
GROWTH	-12.73522	0.0000	-326.5989	0.0000
EISSUE	-17.43492	0.0000	-487.8751	0.0000
LEV	-14.80203	0.0000	-530.8698	0.0000
DISSUE	-18.41085	0.0000	-535.3919	0.0000
TURN	-14.06258	0.0000	-574.5237	0.0000
CF	-18.34584	0.0000	-532.5232	0.0000
CF_DELTA	-19.47992	0.0000	-585.8725	0.0000
ACC	-18.40662	0.0000	-535.9143	0.0000
DEF	-17.04257	0.0000	-473.4941	0.0000
R	-14.28235	0.0000	-352.1540	0.0000
P	-22.03178	0.0000	-704.3500	0.0001
BV	-20.40924	0.0000	-628.7475	0.0000
X	-21.83900	0.0000	-695.1914	0.0001

Earnings Management

Table 5 presents the results for earnings management measures: managing towards positive earnings and earnings smoothing for firms adopting local GAAP from 2008 to 2010(pre-IFRS) and adopting IFRS from 2012 to 2014(post-IFRS). The first result, the test of the variability of ΔNI^* suggests that earnings are less volatile for firms in the pre-IFRS period, 0.00834, than for firms in the post-IFRS period, .00941, after controlling for other factors. This difference is statistically significant at the 0.01 level which suggests a significant reduction in earnings smoothing and improvement in FRQ after the transition to IFRS. On the contrary, the second result, the ratio of the variance of change in net income, ΔNI^* to the variance of change in cash flow, ΔCF^* is lower for firms in the post-IFRS period, 0.0000001902, than for firms in the pre-IFRS period, 0.0000004745. Although this may suggest that the variability in net income for firms in the post-IFRS period is not due to the variability in cash flow but driven by the effect of accruals, it is not statistically significant.

The third result indicates the correlation between cash flows and accruals. The correlation between CF* and ACC*, for the pre-IFRS period, -0.54, is significantly more negative than the post-IFRS period, -0.038. There is a significant negative correlation between cash flow and accruals at the 0.05 level in the pre-IFRS period. This may suggest that management may use accruals to smooth earnings when cash flow is low. The negative correlation between accruals and cash flow decreased when moving from local GAAP to IFRS. This may indicate that firms adopting IFRS are less likely to use accruals to smooth earnings. This result is consistent with the first one which supports the increase in the quality of financial reports after the IFRS adoption. Finally, the regression coefficient of SPOS is negative which may indicate that firms in the post-IFRS period are less likely oriented towards reporting small positive earnings compared to pre-IFRS. However, the coefficient is insignificant. This indicates that there is no statistically significant difference between firms in the post and pre-IFRS period in managing earnings toward a target.

Table 5. Comparison of the Pre-IFRS and Post-IFRS Earnings Management

Earnings Smoothing	PRE-IFRS (N=1278)	POST-IFRS (N=913)
Variability of ΔNI^*	0.00834	.00941***
Variability of ΔNI^* over ΔCF^*	0.0000004745	.0000001902
The correlation of CF* and ACC*.	-0.54**	-0.038
Managing Towards Positive Earnings		
Small Positive NI(SPOS)	Beta = -0.61 Exp(B) = 0.941	

The symbols **, *** indicate a significant difference between pre-IFRS and post-IFRS at the 0.05 and the 0.01 level respectively.

In summary, the above-mentioned results show that firms in the post-IFRS period are less likely to use accruals to smooth earnings compared to the pre-IFRS period. In addition, there are no statistically significant differences between firms in the pre and post-IFRS in the ratio of the variance of change in net income, ΔNI^* , to the variance of change in cash flow, ΔCF^* , and managing earnings toward a target. This result supports the first hypothesis which states that “Firms adopting IFRS are less likely to manage earnings compared to firms adopting local GAAP”.

Timely Loss Recognition

Table 6 presents the results for timely loss recognition: asymmetric incorporation of economic gains and losses and large negative net income. The negative coefficient indicates that firms in the post-IFRS period are less likely to report large losses. However, the coefficient of LNEG is insignificant. In another word, there is no significant difference between pre and post-IFRS in reporting large negative losses. Table 6 shows the R^2 of the regression equation of accounting earnings on stock returns for both good news and bad news. Earnings are regressed on annual stock returns, an indicator that represents bad news and the

interaction of these two predictors. The R^2 in the pre-IFRS is 0.5933 which is larger than that in the post-IFRS which is 0.4493. This indicates that earnings under local GAAP proportionally shows greater timeliness in presenting losses relative to gains. The magnitude of the coefficient of the interaction variable ($B3$) is significant under both local and IFRS GAAP although its magnitude is smaller in the pre-IFRS, -1.719491, compared to the post-IFRS, -1.425209 which is inconsistent with the R^2 result. However, there is no significant difference between the two coefficients. This indicates that there is no significant difference between pre and post-IFRS in the timeliness of earnings which is consistent with the previous result.

Table 6. Comparison of the Pre-IFRS and Post-IFRS Timely Loss Recognition

Timely Loss Recognition	PRE-IFRS (N=1278)	POST-IFRS (N=913)
Large Negative Net Income(LNEG)	Beta = -0.105 Exp(B) = 0.901	
Asymmetric Incorporation Of Economic Gains And Losses	$\beta_1 = 0.354147\#$ $B_2 = 1.621350\#$ $B_3 = -1.719491\#$ $R^2 = 0.593385$	$\beta_1 = 0.332621\#$ $B_2 = 1.617809\#$ $B_3 = -1.425209\#$ $R^2 = 0.449316$

The symbols *, ***, indicate a significant difference between pre-IFRS and post-IFRS at the 0.1 and 0.01 level respectively. The symbol # indicates significantly different from 0 at the 0.01 level.

In summary, the above-mentioned results show that there is no significant increase in the timely loss recognition after the adoption of IFRS. This may signal no change in the FRQ. This result does not support the second hypothesis which states that “Firms adopting IFRS are more likely to recognize losses in a timely manner compared to firms adopting local GAAP”.

Value relevance

Table 7 presents the degree of association between financial measures and stock prices. The adjusted R^2 for firms in the post-IFRS, 0.30866, is larger than that of pre-IFRS, 0.232839. This indicates that the financial reporting data is more value relevant in the post-IFRS compared to the pre-IFRS period which increases FRQ under IFRS. Focusing on the regression coefficients, it is clear that all variables increase their influence on the share price in the post-IFRS period. In the pre-IFRS period, the regression coefficient of earnings per share (β_1) and the interaction variable (B_3) are significant at 0.01 level. In the post-IFRS period, all regression coefficients increased in magnitude and are significant. This indicates that all variables increase their influence on stock prices in the post-IFRS period. However, the chow F-statistic shows no significant difference between the regression coefficients in the post and pre-IFRS period. This indicates that there is no significant difference in value relevance after adopting IFRS which is consistent with the previous result. This result does not support the third hypothesis which states that “Firms adopting

IFRS are more likely to have value relevant accounting information compared to firms adopting local GAAP”.

Table 7. Comparison of the pre-IFRS and post-IFRS Value relevance

Value Relevance	Pre-IFRS (N=1278)	Post-IFRS (N=913)
The degree of association between financial measures and stock prices.	$\beta 1 = 0.815968\#$	$\beta 1 = 1.336180\#$
	$B2 = 0.002505$	$B2 = 0.041822\#\#$
	$B3 = -1.660291\#$	$B3 = -2.231037\#$
	$B4 = 0.048866$	$B4 = -0.119618\#\#\#$
	Adjusted $R^2 = 0.232839$	Adjusted $R^2 = 0.308661$

The symbols #, ##, ### indicate significantly different from 0 at the 0.01, 0.05 and 0.1 level respectively.

The above results support the argument that IFRS reduces earning management. In addition, they do not support the argument that firms adopting IFRS are more likely to recognize losses in a timely manner nor more likely to have value relevant accounting information than firms adopting local GAAP. In other words, the results suggest some improvement in FRQ under IFRS. This study result is consistent with the findings of the study of Zhou et al. (2009) who find that firms adopting IFRS are less likely to smooth earnings than firms adopting Chinese GAAP. In addition, they didn't find adopting firms engaging in a more timely loss recognition which is consistent with Kwon et al. (2017), who documents lower earnings management in Korea after IFRS adoption, and Wu et al. (2017), who find that adopting IFRS in Taiwan does not lead to further increases in value relevance of financial reporting. The results support the findings of many other studies such as Eccher and Healy (2000), Van der Meulen et al. (2007) and Lin et al. (2012).

At the same time, this study result is inconsistent with the findings of Ching-Chieh et al. (2012), who finds that firms adopting IFRS in Taiwan are more value relevant, Mousa and Desoky (2014) who find some improvement in the value relevance after the adoption of IFRS and Capkun et al. (2016), who find an increase in earning management after mandatory IFRS adoption. The results are also inconsistent with the findings of many other studies such as Liu et al. (2011), Khanagha (2011) and Adibah Wan Ismail et al. (2013). One possible reason for the above results is that the stakeholders are affected not only by standards applied but also by other factors. Another possible reason is the characteristics of the emerging markets which might hinder the benefits from IFRS adoption as the weak corporate governance, inadequate shareholder protection and the lack of effective controls and infrastructure to oversight reporting under the IFRS. In addition, convergence in a country that has high-quality accounting standards may not significantly improve all the measures of the financial reporting quality.

Conclusions

The current study extends the literature on the effect of IFRS on financial reporting quality and examines three attributes namely: value relevance, timely

loss recognition, and earnings management. It sheds the light on the role of IFRS in emerging markets to provide more evidence of the impact on the quality of financial information. The results show that firms in the post-IFRS period (2012-2014) are less likely to use accruals to smooth earnings compared to the pre-IFRS period (2008-2010). However, there is no significant difference in the timely loss recognition or the value relevance of accounting information under IFRS. The results suggest some improvement in FRQ under IFRS. This indicates that adopting high-quality accounting standards is not enough to guarantee improvement in FRQ.

This study is subject to several limitations. First, the study sample is limited to the industrial sector. It could be expanded by examining other sectors. Second, only three measures of FRQ are investigated. Further studies can be conducted using other measures as earnings persistence, loss avoidance, and investor responsiveness. The results imply the importance of IFRS and thus have direct implications for practitioners, international standard setters, and regulators. In addition, the results are of interest to analysts and investors who need to understand IFRS and FRQ issues in emerging markets.

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