The Impact of IFRS on Accounting Quality in a Regulated Market: An Empirical Study of China

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Abstract

As more countries consider the adoption of International Financial Reporting Standards (IFRS) that are based on practices prevalent in the English-speaking countries with free markets, it's increasingly important to understand the impact of IFRS on countries of different institutional, economic, and political environments. This article reports a study that examines the impact of IFRS on accounting quality in a regulated market, China, where new substantially IFRS-convergent accounting standards became mandatory for listed firms in 2007. Accounting quality is examined for the period 2005 to 2008 with only firms mandated to follow the new standards. The empirical results generally indicate that accounting quality improved with decreased earnings management and increased value relevance of accounting measures in China since 2007. Firms audited by the Big Four are expected to have higher quality before the standard change evidenced quality improvement to a smaller extent. Further analysis shows that such changes are less likely to result from changes in economic conditions but from the changes of the standards. Through the analysis of China's adoption of the new substantially IFRS-convergent standards, the study provides direct evidence on the question of whether IFRS can be relevant to markets that are still disciplined mainly by regulators rather than by market mechanisms.

Keywords

accounting quality, value relevance, IFRS, IFRS adoption, China

Global adoption of international accounting standards has been increasingly debated. Supporters of International Financial Reporting Standards (IFRS) argue that the use of IFRS increases the quality of financial reporting and benefits investors (Daske, Hail, Leuz, & Verdi, 2008). Opponents argue that a single set of standards may not be suitable for all settings and thus may not uniformly improve value relevance and reliability due to

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differences among countries (Soderstrom & Sun, 2007). Empirical studies have mixed results on quality change after the adoption of IFRS in different countries. One of the internationality dimensions is that the standard is not closely aligned with the economic or political institutions of any particular nation (Chua & Taylor, 2008), so there are arguments for assessment of IFRS practice on a country-by-country basis (Nobes, 2006). The International Accounting Standards Committee (IASC) Foundation has documented the ''need to have an understanding of the impact of IFRS as they are adopted in particular regions'' (The International Accounting Standards Board [IASB], 2004, para. 93).

The adoption of IFRS by China provides direct evidence on the question of whether IFRS can work properly in markets that are disciplined mainly by regulators rather than market mechanisms (Ding & Su, 2008). IFRS based on a microeconomic, shareholder-oriented, judgment-based model of financial reporting tend to prevail in culturally self-sufficient countries (e.g., advanced Organisation for Economic Cooperation and Development economies) of strong equity markets (Jones & Luther, 2005; Tyrrall, Woodward, & Rakhimbekova, 2007). A macroeconomic, rules-based, governmental model with a code-based or uniform accounting system could be more relevant to economies comfortable with plan-based accounting (Briston, 1978; Jaruga, 1993; Tyrrall et al., 2007). Unlike most developed countries, China follows a macroeconomic policy with a tradition of reliance on a uniform accounting system imported from the former Soviet Union to assist macroeconomic planning (Ding & Su, 2008). Other than economic factors noted by Nobes (1998), Ball, Kothari, and Robin (2000) disclose the strong influence of political factors on the nature of accounting systems in developing economies. Former research (Briston, 1978; Samuels & Oliga, 1982) suggests that the IASC standards are irrelevant or even harmful to developing countries that radically changed from capitalistic to communistic economies with large and dominant public sectors (Chamisa, 2000). Nevertheless, it is dangerous to generalize such findings to China due to significant differences in historical developments and economic philosophies between China and the countries studied before (Chamisa, 2000). Daske et al. (2008) find that capital-market benefits from mandatory IFRS adoption occur only in countries with strong transparent reporting incentives and legal enforcement when China is excluded from the sample of mandatory IFRS adoption. Some researchers question the effect of changing accounting standards toward IFRS in China due to weak enforcement (Chen, Sun, & Wang, 2002). Given her unique economic, political, and institutional differences from developed countries, China is an especially important region where the relevance of IFRS should be tested. Such a test also helps with assessing the application of IFRS in non-English-speaking countries where authoritative versions of IFRS in English may not have exact equivalents in language (Sunder, 2009). The impact of IFRS on the accounting quality in China is particularly interesting also because the 2007 market value of publicly traded shares in China ranked the second largest in the world next only to the United States. As the largest and fastest growing emerging market, China is increasingly important to investors around the world (Lin & Liu, 2009). Relevance of IFRS to China has direct impact on the level of financial reporting comparability that is critical to investors.

This study contributes to literature by examining whether IFRS are relevant to China and whether accounting quality has improved with the compulsory adoption of substantially IFRS-convergent accounting standards in China. It builds on recent advances in comparative international accounting literature and extends such literature by studying whether international accounting standards evidence acceptable benefits to regulated non-English-speaking markets. In particular, this study examines whether improvements can be found in earnings management and value relevance of accounting measures with the standard

change in China. The evidence generally indicates an improvement in accounting quality with significantly less earnings management and significantly higher value relevance of reported earnings. The improvement in accounting quality is significantly larger for firms that were not audited by Big Four and expected to have less incentive for transparent reporting before the standard change. As China is not alone among regulated developing countries with different institutional contexts in attempting to benefit from IFRS, this study is informative to international accounting standard setters and accounting regulators facing issues similar to those in China.

The rest of the article is organized as follows. Section titled ''Literature Review'' reviews extant literature on the international accounting standards adoption. Section titled ''Background and Hypotheses'' provides background information on China and develops the hypotheses. Section titled ''Methodology'' illustrates methods used to test the quality change due to the change of accounting standards. Section titled ''Sample and Descriptive Statistics'' describes the sample-selection process and the data. Section titled ''Results'' presents analysis results and robustness test results. Finally, Section titled ''Conclusion'' concludes the article with a discussion of results and limitations.

Literature Review

As a result of the seemingly inexorable rise of IFRS as the global accounting benchmark (Chua & Taylor, 2008) and critics' concerns over its uniform applicability and relevance to different institutional, political, and economic contexts (Cahan, Liu, & Sun, 2008), it is increasingly important to empirically examine the impact of IFRS adoption on accounting quality in countries of different contexts. Much research studies' quality change after the adoption of IFRS or its predecessor, International Accounting Standards (IAS). Barth, Landsman, Lang, and Williams (2006) uncover evidence of higher accounting quality with the adoption of IAS because sample firms from 21 countries generally evidence more value relevance of earnings after the adoption. Similar to Barth et al., Jermakowicz, Prather-Kinsey, and Wulf (2007) find a significant increase in the value relevance of earnings after the adoption of IFRS in German firms. Horton and Serafeim (2010) find significant earnings reconciliation from U.K. generally accepted accounting principles (GAAP) to IFRS to be value relevant. Gjerde, Knivsfla, and Saettan (2008) find reconciliation from Norway GAAP to IFRS to be marginally value relevant. Capkun, Cazavan-Jeny, Jeanjean, and Weiss (2008) find value relevance for earnings reconciliation adjustments from local GAAP to IFRS among nine European countries despite noted transition earnings management. Cormier, Demaria, Lapointe-Antunes, and Teller (2009) suggest that the first-time adoption of IFRS by French firms was perceived to be a signal of an increase in the quality of their financial statements. However, Jeanjean and Stolowy (2008) find that the pervasiveness of earnings management does not decline, but it increases, after the introduction of IFRS in France. Such different findings across countries indicate the significant role of national institutional factors in framing financial reporting characteristics. Most research at firm level is done with samples from developed countries with free-market economies (Chamisa, 2000). The relevance of IFRS to developing countries is still a subject of interest for many academic accountants (Chamisa, 2000). The relevance and impact of IFRS to developing countries of mixed economies with heavier regulator mechanisms are yet to be empirically tested.

There are advantages and disadvantages for developing countries to converge with IFRS. Advantages include rapid improvement in the perceived quality and status of financial reports (Tyrrall et al., 2007), an increase to market efficiency in (inter)national capital

markets with financial statements of higher quality (Tyrrall et al., 2007), a decrease to costs of capital (Leuz & Verrecchia, 2000), and an increase to inflows of foreign capital (Chamisa, 2000). Researchers including Cairns (1990) argue that IFRS are relevant to developing countries. Major disadvantages for developing countries to converge with IFRS such as ''information overloads'' (Choi & Mueller, 1984) and the additional cost of unnecessary complexity (Belkaoui, 2004) occur when IFRS are unsuited or irrelevant to national needs. Many researchers doubt the relevance of IFRS to developing countries. Xiang (1998) raises concerns over the relevance of IFRS to China. If IFRS are irrelevant, advantages such as improved accounting quality may not result from IFRS adoption or convergence.

International accounting standard setters and accounting regulators who plan to converge with IFRS should assess the relevance of IFRS to their national needs. Nobes (1998) makes a distinction between the needs of microeconomic and the needs of macroeconomic systems (Gray, Salter, & Radebaugh, 2001). Research has uncovered the major factors influencing the national need for accounting information. Such factors include strength of equity markets such as the relative size of the public and private sectors and the state of capital market development, the degree of similarity in economic and social environment to the original economy where an accounting system is developed, and the accounting needs and regulation of a nation (Chamisa, 2000; Nobes & Parker, 2006; Radebaugh, Gray, & Black, 2006; Tyrrall et al., 2007).

This study extends prior research on IFRS adoption and adds to the literature by examining the relevance and impact of IFRS on a regulated market under rapid change in a major developing country—China.

Background and Hypotheses

As per Nobes (1998), general model of reasons for international differences in financial reporting, the strengths of equity markets critically determine an accounting system's relevance to a nation. In addition, researchers like Chamisa (2000) and Tyrrall et al. (2007) find that the similarity of a nation to an accounting system's origin and a nation's specific accounting needs also establish an accounting system's relevance to a nation.

IFRS are written standards based on the practices of the English-speaking countries with advanced economies (Sunder 2009; Tyrrall et al., 2007). These standards are largely derived from the U.K. and the U.S. national standards (Hove, 1990; Samuels & Oliga, 1982). Even though there is an International Federation of Accountants project to adapt IFRS appropriately for public sector entities in progress, IFRS are currently aimed at listed private sector rather than public sector entities (Tyrrall et al., 2007). As per the classification of Nobes (1998), IFRS account for outside shareholders and are the right accounting system for a country that establishes a strong equity-outsider market in which the control of companies is widely spread among a large number of outsider equity holders.

Davidson, Gelardi, and Li (1996) expect the adoption of an accounting system like IFRS to follow China's move toward a strong equity market. Since its establishment in the early 1990s, the Chinese capital market has developed rapidly. According to the Chinese Securities Regulatory Commission (CSRC) and the National Bureau of Statistics of China, China's total market value of publicly traded shares is approximately US$3.574 trillion as of the end of 2009, about 73% of Gross Domestic Product (GDP). The number of listed firms increased from 14 at the beginning of 1990 (Peng, Tondkar, van der Laan Smith, & Harless, 2008) to 1,718 by the end of 2009 according to CSRC. In addition, state-owned

enterprises (SOEs), a significant feature of the Chinese centrally planned economy, are being systematically dismantled since the 1990s with the termination of financial support for most SOEs. Lee (2001) indicates that the modernization and restructuring of SOEs have been at the top of the economic reform agenda. Chinese policy makers believe that dynamic economic growth requires a greater role for the private sector (Wu, Boateng, & Drury, 2007). The increased emphasis on the private sector and rising importance of capital from publicly traded shares pressurizes both the Chinese government and listed firms to improve the quality of financial reporting (Peng et al., 2008) because improvement to financial reporting and auditing standards is necessary for many countries to develop internal capital markets (Hakim & Omri, 2010; Mahon, 1965). Firth (1996) believes that China's change toward a free-market enterprise system makes accounting systems developed under socialist philosophy totally inadequate for the emerging capitalist structure. According to Nobes (1998), for countries like China, where an impression has been created that the population and the government seem keen on moving to an equity-outsider system, the introduction of IFRS can be appropriate.

In response to the needs of the emerging capitalist structure and the need to attract foreign direct investments as a means of achieving rapid and sustainable economic growth (Wu et al., 2007), China has made tremendous changes to its accounting regulations (Chen, Wang, & Zhao, 2009). The accounting regulations applicable to a Chinese listed firm depend on the type of security issued: A-shares, which can only be owned and traded by Chinese citizens and B-shares, which can be owned and traded by foreigners, Chinese citizens, or both (Peng et al., 2008). Firms that issue A-shares are required to comply with Chinese domestic accounting standards that have gone through changes to converge with IFRS. Although no voluntary adoption of IFRS is allowed, firms that issue B-shares are mandated to comply with IAS/IFRS. Those that issue both A- and B-shares are required to issue two sets of annual reports, one with Chinese standards and the other with IFRS (Peng et al., 2008). Before the economic reform, accounting and financial reporting in China were mainly designed to facilitate macroeconomic planning (Ding & Su, 2008). Since 1992, China has issued four sets of accounting regulations (1992, 1998, 2001, and 2006) with each replacing the previous one with greater conformity to IFRS (Chen et al., 2002; Peng et al., 2008). China's new accounting standards of 2006 have become substantively convergent with IFRS (Ding & Su, 2008). Deloitte (China) reveals fundamental changes since the earlier standards. Among the changes are more guidance leading to stricter requirements for impairment testing, a liability to be recognized for compensation to employees for termination of employment relation under a formal plan, the recognition of share-based payment transaction for services provided by employees and other parties, and a clarification that revenue does not include inflows of economic benefits resulting from equity contributions from owners (Deloitte, 2006). These fundamental changes may improve the quality of earnings and affect net asset of enterprises (Deloitte, 2006). Thus, since January 1, 2007, the effective date of the 2006 new accounting standards, all listed A-share firms are mandated to follow substantially IFRS-convergent accounting standards. IFRS are relevant to China if Chinese firms do in fact observe IFRS (Chamisa, 2000). Effective regulatory oversight is important in reaching accounting standards harmonization outcome (Bradshaw & Miller, 2008). With increased audit regulation and monitoring, Street and Gray (2002) find high compliance with accounting regulations in China. Despite the language barrier (Sunder, 2009), Peng et al. (2008) uncover that former effort to converge with IFRS did lead to the convergence of accounting practices in China.

Besides accounting regulation, the strength of equity markets, and the strength of the private sector, researchers suggest that the degree of similarity in economic and social environments to developed economies in which IFRS originated can affect IFRS relevance to a nation (Chamisa, 2000; Tyrrall et al., 2007). Despite following a macroeconomic model, the economy in China has experienced a gradual and sustained process of transition since the beginning of reforms in 1978. Over a period of three decades, the centrally controlled economy and its institutions have been dismantled and phased out to be replaced by the market economy and its accompanying institutions and practices (Tan, Yang, & Veliyath, 2009). The increase in capital market size and the private sector also reflects such a development. Although China is still classified as a lower middle-income nation as per gross national income per capita, it is growing rapidly with an average annual GDP growth rate of 10.2% during the period from 2000 to 2007. Many economic and social indicators reported in World Development Report 2009 by the World Bank show that Chinese economic and social conditions are becoming more similar to those of advanced economies. For example, in 2007, domestic credit provided by the banking sector was 136% of GDP in China, 194% of GDP in the United Kingdom, and 240% of GDP in the United States. The average annual growth of population during 2000 to 2007 was 0.6% in China, 0.5% in the United Kingdom, and 0.9% in the United States. The life expectancy at birth for 2006 was no less than 70 for China, similar to the United Kingdom and the United States. For 2006, high technology exports were 30% of manufactured exports in China, 34% in the United Kingdom, and 30% in the United States. As a result of economic reforms, the economic and social environment of China is becoming closer to those of advanced economies. IFRS are expected to be relevant to developing countries whose national environments become similar to those of the United Kingdom or the United States (Chamisa, 2000).

Financial-reporting practice is also contingent on the interaction between accounting standards and preparers' incentives (Ball, Robin, & Wu, 2003). By comparing voluntary adopters of IFRS with compulsory adopters in Germany, Christensen, Lee, and Walker (2008) find that improved quality is confined to voluntary adopters whose incentives are different from those of the compulsory adopters. Working with mandatory IFRS reporting around the world, Daske et al. (2008) also find that firms' reporting incentives are crucial for reporting outcomes. Preparer incentives hinge on the interplay between market and political forces in the reporting jurisdiction (Ball et al., 2003). The rising importance of the private sector in China calls for quality improvement to reporting and auditing standards (Lin & Chen, 2005). In response, China's Ministry of Finance (MOF), a governmental body, developed accounting standards substantially convergent with IFRS in 2006 to improve the quality. Besides the economic and political forces, standard compliance incentives are also reinforced by a collectivism-oriented culture (Xiao, Weetman, & Sun, 2004). The collectivism-oriented societal value supports making accounting policy at the national level (Xiao et al., 2004). In addition, increased audit regulation and monitoring contribute to high compliance with accounting regulations in China (Street & Gray, 2002). Peng et al (2008) disclose empirical evidence of successful convergence of accounting practice that resulted from MOF's former effort to converge with IFRS in China.

Given China's increasing economic and social similarity to advanced economies, the evidence of IFRS' observance, economic incentives, and political and institutional support for IFRS convergence, it is reasonable to hypothesize that IFRS are relevant to China. If IFRS are relevant to a country, regulators expect that the adoption of IFRS leads to great advantages such as improved quality of financial reporting (e.g., EC Regulation No. 1606/

2002). Ball (2006) suggests that the advantages of adopting IFRS include more accurate, comprehensive, and timely financial information; more internationally comparable information; and more efficient capital market. When IAS, the antecedent of IFRS, are found applicable and relevant to different countries, improvement to accounting quality is identified (Barth, Landsman, & Lang, 2008). Gassen and Sellborn (2006) report similar findings. The advantages are especially expected for countries with relatively weak investor-protection mechanisms in place (Hope, Jin, & Kang, 2006). Daske et al. (2008) find that quality improvement for mandatory adopters is greater for countries with larger differences between local GAAP and IFRS. Given IFRS' expected relevance to China and China's former underdeveloped reporting and disclosure system (Lin & Chen, 2005), it is hypothesized that accounting quality improves with the mandatory adoption of substantially IFRS-convergent accounting standards in China.

Methodology

As per prior research (Barth et al., 2006; Lang, Raedy, & Wilson, 2006; Paananen & Lin, 2009), accounting quality is operationalized with earnings management and value relevance. Higher accounting quality is expected to exhibit less earnings management and higher value relevance of earnings and equity book value (Barth et al., 2008). To detect a change in accounting quality attributable to changes in accounting standards rather than changes in incentives, we include controls associated with firms' voluntary accounting decisions such as growth, leverage, size, and so on as per Barth et al. (2008).

Earnings Management

Earnings management and earnings smoothing are often used to assess the accounting quality due to their impact on the quality of reported earnings (Chin, Chen, & Hsieh, 2009; Liou & Yang, 2008). Earnings management is defined as a ''purposeful intervention in the external financial-reporting process'' (Schipper, 1989). Earnings smoothing is a specific form of earnings management (Nagy & Neal, 2001) that occurs when managers take actions to reduce fluctuations in their firms' reported net income (Trueman & Titman, 1988).

Earnings management or smoothing is first measured by the variance of ΔNI^*, the residuals from the regression of ΔNI (the change in net income scaled by total assets) on control variables identified in prior research (Barth et al., 2006; Lang et al., 2006; Paananen & Lin, 2009) as nonaccounting-standard variables influencing earnings. A smaller variance may be evident for earnings smoothing (Barth et al., 2008). ΔNI^* are the residuals of

$$\Delta NI_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} + \beta_4 Dissue_{it} \\ + \beta_5 Turn_{it} + \beta_6 LEV_{it} + \beta_7 CFO_{it} + \beta_8 AUD_{it} + \beta_9 FF_{it} + \varepsilon_{it}, \tag{1}$$

where for firm i in year t, Size is the natural logarithm of total assets; Growth is the percentage change in sales; Eissue is the percentage change in common shareholders' equity; Dissue is the percentage change in total liabilities; Turn is sales divided by total assets; LEV is total liabilities divided by shareholders' equity; CFO is the cash flow from operating activities scaled by total assets; AUD is a dummy variable taking the value of 1 when the firm's auditor is one of the Big Four accounting firms, that is, PwC, KPMG, E&Y, or D&T, and 0 otherwise; and FF is the free float measured as the average number of shares

traded on the last day of the month during the fiscal year divided by number of common shares outstanding at the fiscal year-end. Equation 1 is estimated by pooling observations in the period before 2007 and in the period afterwards. Variances of ΔNI^* for the two periods are compared with a variance ratio F test (Lang et al., 2006).

To control volatile net income due to volatile cash flows, earnings smoothing is also measured by the ratio of the variability of ΔNI^* to the variability of ΔCFO^*, which is measured by the residuals from the regression of ΔCFO (the change in operating cash flows scaled by total assets) on the same control variables in Equation 2. Observations from each period are pooled for the estimation. However, like Lang et al. (2006) and Barth et al. (2006), we do not test the differences because we are not aware of any statistical test for differences between ratios of variances.

$$
\begin{aligned}
\Delta CFO_{it} = {} & \beta_0 + \beta_1 Size_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} + \beta_4 Dissue_{it} \\
& + \beta_5 Turn_{it} + \beta_6 LEV_{it} + \beta_7 CFO_{it} + \beta_8 AUD_{it} + \beta_9 FF_{it} + \varepsilon_{it}.
\end{aligned}
\tag{2}
$$

In addition, earnings smoothing is directly measured with Spearman correlation between cash flows residuals (CFO^*) from Equation 3 and accruals residuals (ACC^*) from Equation 4, where ACC is the difference between NI and CFO (Barth et al., 2006).

$$
\begin{aligned}
CFO_{it} = {} & \beta_0 + \beta_1 Size_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} + \beta_4 Dissue_{it} \\
& + \beta_5 Turn_{it} + \beta_6 LEV_{it} + \beta_7 AUD_{it} + \beta_8 FF_{it} + \varepsilon_{it}.
\end{aligned}
\tag{3}
$$

$$
\begin{aligned}
ACC_{it} = {} & \beta_0 + \beta_1 Size_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} + \beta_4 Dissue_{it} \\
& + \beta_5 Turn_{it} + \beta_6 LEV_{it} + \beta_7 AUD_{it} + \beta_8 FF_{it} + \varepsilon_{it}.
\end{aligned}
\tag{4}
$$

Furthermore, to test managing toward positive earnings, Equation 5 is run to compare the period before 2007 with the period afterward to examine if firms in one period are more likely to manage toward positive earnings than the other as measured by the coefficient on the small positive net income (SPO; Barth et al., 2006; Paananen & Lin, 2009).

$$
\begin{aligned}
Period(0,1)_{it} = {} & \beta_0 + \beta_1 Size_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} \\
& + \beta_4 Dissue_{it} + \beta_5 Turn_{it} + \beta_6 LEV_{it} + \beta_7 AUD_{it} + \beta_9 FF_{it} \\
& + \beta_{10} CFO_{it} + \beta_{11} SPO_{it} + \varepsilon_{it},
\end{aligned}
\tag{5}
$$

where $Period(0,1)_{it}$ takes on 1 for the period before 2007 and 0 for the period since 2007, and SPO is a binary variable equal to 1 if net income scaled by total assets is between 0 and 0.01. A positive coefficient on SPO in Equation 5 indicates that firms manage earnings toward small positive amounts more frequently before 2007 than afterward.

Finally, earnings management is assessed by the timely loss recognition. It is important to recognize large losses as they occur rather than spread their effects over multiple periods with earnings management especially in international contexts (Ball et al., 2000). Basu (1997), and Lang et al. (2006) consider reverse regressions of earnings on an indicator variable for bad news (negative investment returns), returns, and the interaction of returns with the indicator variable like Equation 6. More timely loss recognition will result in a larger coefficient estimate on bad news earnings in a regression of earnings on returns (Lang et al., 2006).

$$EPS_{it} = \beta_0 + \beta_1 Return_{it} + \beta_2 Bad_{it} + \beta_3 Return_{it} \times BAD_{it} + \varepsilon_{it}, \tag{6}$$

where $BAD\ (0,1)_{it}$ takes on 1 for firm i with negative returns in year t and 0 otherwise; EPS is net income per share deflated by the price at the beginning of the period; and $Return$ is the natural logarithm of the ratio of the stock price 6 months after fiscal year-end to the stock price 6 months before fiscal year-end, adjusted for dividends and stock splits (Barth et al., 2006; Bartov, Goldberg, & Kim, 2005; Lang et al., 2006).

Value Relevance

Following Barth et al. (2006), stock price 6 months after fiscal year-end denoted as P (Barth et al., 2006; Lang et al., 2006) and $Return$ are first regressed on firms' Standard Industrial Classification codes to obtain residual measures P^* and $Return^*$ unaffected by mean differences across industries for each period. The test of value relevance is conducted with Equation 7 based on Ohlson's (1995) framework and Equation 8 based on Bartov et al's (2005) model. Due to expected weakness of Cramer statistic, the value relevance is tested with coefficient estimates for interaction terms as suggested by Hope (2007).

$$\begin{aligned} P^*_{it} = {}& \beta_0 + \beta_1 BVE_{it} + \beta_2 EPS_{it} + \beta_3 POST_{it} \\ & + \beta_4 BVE_{it} \times POST_{it} + \beta_5 EPS_{it} \times POST_{it} + \varepsilon_{it}, \end{aligned} \tag{7}$$

$$Return^*_{\ it} = \beta_0 + \beta_1 POST_{it} + \beta_2 EPS_{it} + \beta_3 EPS_{it} \times POST_{it} + \varepsilon_{it}, \tag{8}$$

where BVE is book value per share; EPS is the net income per share; and $Post$ is a dummy variable taking the value of 1 for the period since 2007 and 0 otherwise. Differences in value relevance between the two periods under study are expected to be reflected in significantly positive coefficients for the terms interacting with $POST_{it}$: β_4 and β_5 in Equation 7 and β_3 in Equation 8.

Sample and Descriptive Statistics

Chinese firms with annual financial information and stock information available in Compustat Global for the 2005 to 2008 periods are selected for the study. Listed firms with only A-shares are studied. These firms are listed on only one stock market. To remove the impact of sample firm differences across periods, only firms that have data for both periods are studied. Firms with missing data are also removed from the sample. A total of 870 sample firms that were studied are from different industries: 66% manufacturing; 13% transportation, communications, and utilities; 7% wholesale and retail trade; 5% services; 4% mining and construction; 2% agriculture, forestry, and fishing; and 3% public administration and nonclassifiable. Total firm years with complete data for analysis are 3,240. No sample firms are in the business of finance, insurance, or real estate.

Table 1 presents the descriptive statistics of the sample variables between periods under study. No significant differences are identified for growth or LEV between the periods. As metrics based on variability are sensitive to outliers (Christensen et al., 2008), all non-dummy variables are winsorized at 5% level following Barth et al. (2008).

Table 1. Descriptive Statistics for Variables Studied

	2005-2006		2007-2008	
	M	*SD*	*M*	*SD*
Test variables				
ΔNI	0.007	0.045	0.008	0.058
ΔCFO	0.013	0.073	0.006	0.077
ACC	−0.039	0.066	−0.023	0.073
CFO	0.066	0.065	0.056	0.067
SPO	0.161	0.367	0.133	0.339
EPS	0.195	0.310	0.284	0.372
BVE	2.761	1.370	3.037	1.640
P	5.088	3.438	10.572	0.675
Return	−0.130	2.678	1.186	7.365
Control variables				
LEV	1.380	1.100	1.448	1.191
Growth	0.153	0.247	0.173	0.283
Eissue	0.042	0.147	0.158	0.334
Dissue	0.168	0.318	0.178	0.369
Turn	0.724	0.456	0.762	0.468
Size	7.765	0.956	7.994	1.078
CFO	0.066	0.065	0.056	0.067
AUD	0.090	0.287	0.087	0.282
FF	0.009	0.007	0.018	0.013

Results

Table 2 presents results comparing the earnings management before 2007 with that afterward. The findings reveal that firms generally evidenced lower earnings management after the mandatory adoption of IFRS-convergent standards. The test of net income variability, ΔNI^*, suggests that earnings became more volatile since 2007 as the variability of net income change residuals was significantly greater for firms during 2007 and 2008. Such a statistically significant increase at the .01 level indicates lower earnings smoothing after IFRS-convergent standards became mandatory (Lang et al., 2006). Decreased level of earnings smoothing is further confirmed by the substantial change in the ratio of earnings variability, ΔNI^*, over cash flow variability, ΔCFO^* (Barth et al., 2006). Researchers (Lang et al., 2006) argue that a more negative correlation between accruals and cash flows suggests higher level of earnings smoothing because managers appear to respond to poor cash flow outcomes by increasing accruals. After the standard change, this correlation turned less negative, implying a decrease in earnings smoothing with the standard change (Lang et al., 2006). The significant and positive coefficient for *SPO* implies that firms have more tendency to manage earnings toward small positives in the earlier period (*Period* is 1) than in the latter period (Lang et al., 2006). Lang et al. (2006) argue that more timely loss recognition will result in a larger coefficient estimate on bad news earnings in the regression of earnings on returns. The coefficient β_3 for $Return_{it} \times BAD_{it}$ is larger since 2007 but not significant.

Table 3 provides empirical results on value relevance comparison. The findings reveal that firms generally evidence higher value relevance since 2007. Value relevance is first

Table 2. Comparisons of Earnings Management

Earnings management	2005-2006	2007-2008
Variability of ΔNI*	0.002	0.003[a]
Variability of ΔNI* over ΔCFO*	0.420	0.761
Correlation of ACC* and CFO*	−.058	−.055
Timely loss recognition, $Return \times BAD$ coefficient	−0.003	0.000
Small positive NI (SPO)	0.049[b]	

[a]Denotes significant difference between periods at $p < .01$.
[b]Denotes significantly different from zero at $p < .05$.

measured in terms of accounting measures' ability to explain stock prices with Equation 7. Coefficient β_5 of 7.469 for $EPS_{it} \times POST_{it}$ is significantly positive at .01 level. Coefficient β_4 of .228 for $BVE_{it} \times POST_{it}$ is not significant. Hence, earnings show stronger explanation power for stock price variation since 2007. Value relevance is also measured in terms of earnings' ability to explain return with Equation 8. The coefficient β_3 of 3.873 for $EPS_{it} \times POST_{it}$ is significantly positive at .01 level. Earnings for 2007 forward provide more explanation for the variation of return. Higher value relevance is again identified for earnings reported after substantially IFRS-convergent standards became compulsory in China. The increased value relevance is consistent with the finding of decreased earnings management since 2007.

In summary, the empirical study reveals significantly higher quality in reported accounting measures after the mandatory adoption of substantially IFRS-convergent accounting standards in China with decreased earnings smoothing and increased value relevance to stock price and return. Decrease in earnings smoothing is evidenced by significantly higher net income variability, higher ratio of net income variability to cash flow variability, and larger $Return \times BAD$ coefficient. Increase in value relevance is particularly evidenced by significant and positive coefficient for the interaction variable, $EPS_{it} \times POST_{it}$, in explaining stock price and return. When outliers are not winsorized, the findings are generally the same with a lower adjusted R^2 for value relevance models. Such findings are in agreement with Barth et al.'s (2008) finding that countries generally evidence less earnings management and more value relevance of accounting measures with the adoption of IFRS/IAS standards. The findings also empirically confirm researchers' (Chamisa, 2000; Nobes, 1998; Tyrrall et al., 2007) argument that IFRS can be relevant to countries like China where economic and social environments and accounting needs become similar to those of advanced economies. Empirical evidence from China supports Hope et al.'s (2006) belief that the adoption of IFRS can lead to great advantages like improved quality of financial reporting especially for countries with relatively weak investor-protection mechanisms if IFRS are relevant to the country.

Although China offers no voluntary adoption option, existing reporting incentive differences have resulted in different quality of reporting and auditing. Lin and Liu (2009) reveal that firms with low incentives for transparent and quality reporting are inclined to choose a low-quality auditor in China. The quality of financial reporting audited by large auditors such as the Big Four is normally considered to be high. Therefore, it is interesting to know whether IFRS adoption improves accounting quality for firms with non–Big Four auditors to a larger magnitude because quality improvement from IFRS adoption is expected to be bigger for adopters with poorer quality (Daske et al., 2008). Table 4 reveals a greater level

Table 3. Value Relevance Regression Results

	Parameter	SE	t value	p
Panel A: Price model:				
$P^*_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 EPS_{it} + \beta_3 POST_{it} + \beta_4 BVE_{it} \times POST_{it} + \beta_5 EPS_{it} \times POST_{it} + \varepsilon_{it}$				(7)
Intercept	−5.631	0.281	−20.060	<.0001
be	0.698	0.108	6.430	<.0001
EPS	4.567	0.479	9.540	<.0001
POST	2.060	0.376	5.480	<.0001
BVE × POST	0.228	0.142	1.600	.109
EPS × POST	7.469	0.627	11.920	<.0001
Adjusted R^2	.538			
N	3,240			
Panel B: Return model: $Return^*_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 EPS_{it} + \beta_3 EPS_{it} \times POST_{it} + \varepsilon_{it}$				(8)
Intercept	−1.105	0.159	−6.960	<.0001
POST	0.008	0.229	0.030	.973
EPS	2.224	0.434	5.130	<.0001
EPS × POST	3.873	0.558	6.940	<.0001
Adjusted R^2	.103			
N	3,240			

of quality improvement among firms with non–Big Four auditors after the standard change. Accounting quality shows significant improvement for firms not using Big Four auditors to a greater extent. For example, the increase in variability of ΔNI^* is significant at $p < .01$ level for firms without the Big Four but insignificant for firms using the Big Four. SPO is significantly positive for non–Big Four users at $p < .05$ level but not significant for Big Four users. Value relevance change as measured by $EPS_{it} \times POST_{it}$ coefficients is significant at $p < .01$ level for non–Big Four users but significant at $p < .05$ level or insignificant for Big Four users in the price model or return model, respectively. A more obvious difference lies in the uniquely significant $BVE_{it} \times POST_{it}$ coefficient for non–Big Four users, suggesting that only non–Big Four users experienced significant increase in the value relevance of reported book value per share after the standard change. Such a finding provides empirical evidence for the superior value of IFRS adoption by entities of poorer quality in financial reporting, where IFRS are relevant.

Land and Lang (2002) reveal that accounting quality is improving through time around the world. Accounting quality improvement observed since the standard change could be obtained even if the standard did not change (Barth et al., 2008). A robustness test examines B-share firms mandated to adopt IFRS since formation to find no significant differences for these firms' value relevance between the 2005 to 2006 and the 2007 to 2008 periods. None of the interaction terms with POST such as $EPS_{it} \times POST_{it}$ for Equation 7 (−1.539) and Equation 8 (0.099) are found to be significant. To a certain extent, these findings show that the accounting quality change identified in A-share firms might not necessarily be a result of the general quality improvement expected to occur from year to year because B-share firms that are also under the yearly improvement effect do not show significant quality improvement in value relevance across the periods.

Table 4. Comparisons Between Firms Using Auditors of Different Quality

	2005-2006	2007-2008
Earnings management when $AUD = 0$		
Variability of ΔNI^*	0.002	0.003[a]
Variability of ΔNI^* over ΔCFO^*	0.434	0.790
Correlation of ACC^* and CFO^*	−.062	−.052
Timely loss recognition, $Return \times BAD$ coefficient	−0.015	−0.001
Small positive NI (SPO)	0.059[b]	
Earnings management when $AUD = 1$		
Variability of ΔNI^*	0.001	0.001
Variability of ΔNI^* over ΔCFO^*	0.275	0.401
Correlation of ACC^* and CFO^*	−.006	−.110
Timely loss recognition, $Return \times Bad$ coefficient	0.084	0.016
Small positive NI (SPO)	−0.171	
Value relevance change measured by $\beta_5 EPS_{it} \times POST_{it}$ in the Price model		
$AUD = 0$	7.498[c]	
$AUD = 1$	5.730[d]	
Value relevance change measured by $\beta_5 BVE_{it} \times POST_{it}$ in the Price model		
$AUD = 0$	0.371[c]	
$AUD = 1$	−0.606	
Value relevance change measured by $\beta_3 EPS_{it} \times POST_{it}$ in the Return model		
$AUD = 0$	4.031[c]	
$AUD = 1$	3.079	

Note: $AUD = 0$ when firms do not use Big Four; $AUD = 1$ when firms use Big Four.
[a]Denotes significant difference between periods at $p < .01$
[b]Denotes significant difference between periods at $p < .05$.
[c]Denotes significantly different from zero at $p < .01$.
[d]Denotes significantly different from zero at $p < .05$.

National GDP, Gross National Product, and firms' earnings growth are compared across the two periods studied to find no significant differences. Both stock price and return experienced significant increase in the period from 2007 to 2008. The increase to value relevance after standard change is found to be significant for all firms whether their stock prices or returns in year 2007 to 2008 were higher than firm average for year 2005 to 2006 or not. Therefore, the detected differences in general appear to be a result of the compulsory adoption of substantially IFRS-convergent accounting standards instead of a result from differences in economic conditions across time.

Brown, Lo, and Lys (1999) discuss scale issues related to inference from value relevance regressions, which can occur if samples differ in terms of general share price levels. They recommend deflating the regression variables by past price to mitigate the effect of scale. Regression variables of Equations 7 and 8 are deflated by the period's beginning stock price. The same conclusions are reached. The adjusted R^2 for models with deflated variables is smaller than models without deflation as predicted by Brown et al. Nevertheless, coefficients for the interaction term $EPS_{it} \times POST_{it}$ in models with deflated variables are significantly positive at .01 level just like those coefficients in models without deflation. It does not matter if EPS includes or excludes extraordinary items.

As suggested by Ball et al. (2000), the sample is split into two groups based on good and bad news in assessing value relevance. Good (bad) news observations are those for which $Return$ is nonnegative (negative). The coefficients for the interaction term $EPS_{it} \times$

$POST_{it}$ in both models are significant at .01 for both good firms and bad firms. However, the coefficients for the interaction term $BVE_{it} \times POST_{it}$ in the price model is only significant for bad news firms at .05 level. The significantly increased value relevance in reported earnings is found to be true for all firms. The significantly increased value relevance in reported shareholders' equity is found to be only true for firms with negative returns. Such a finding supports that of Paananen and Lin (2009) in which firms with bad news are identified with stronger change in value relevance after mandatory IFRS adoption in Germany.

Many researchers (Barth et al., 2008; Lang et al., 2006; Paananen & Lin, 2009; Van der Meulen, Gaeremynch, & Willekens, 2007) compare accounting quality with Cramer's (1987) test of R^2 obtained across samples. As a robustness test, P^* is regressed on *EPS* and *BVE* for each period to compare the association between stock price and reported *EPS* and *BVE*, whereas *Return** is regressed on EPS for each period to compare the association between return and earnings between the two periods with Cramer's test of adjusted R^2. Adjusted R^2 for the price model is significantly increased in the latter period at .01 level, whereas adjusted R^2 for the return model is significantly increased at .10 level. The comparison based on adjusted R^2 leads to the same conclusion from the comparison based on coefficients of interaction terms for the price model. The weak conclusion for the return model could be due to the weakness of Cramer's test as per Hope (2007). As the IFRS adoption effect may be uncertain during the transition period, the model is also tested with the transition period (2006-2007) removed as per Li (2010) and Petersen (2009) to find the same conclusions. Similar conclusions also result from a larger sample set with some missing variable values. Hence, the conclusions of our model appear to be robust.

Conclusion

Analysis is conducted on Chinese listed firms mandated to report with substantially IFRS-convergent accounting standards to identify changes in earnings management and value relevance of accounting measures since 2007. Findings support the hypotheses that the quality of accounting, especially reported earnings, significantly improved with the compulsory adoption of substantially IFRS-convergent standards in China. Empirical evidence reveals that value relevance of reported earnings increased while earnings smoothing decreased with the standard change. Such empirical results support the projection that IFRS are relevant to China given her increased economic and social similarity to advanced economies and regulatory effort to converge with IFRS. Empirical evidence is also in agreement with Daske et al.'s (2008) claim that quality improvement from IFRS adoption is expected to be bigger for adopters with poorer quality as firms audited by Big Four before the standard change evidenced quality improvement to a smaller extent.

Data from one single, although major, country may limit the generalizability of the findings. As more countries are considering IFRS convergence, future research needs to assess the relevance of IFRS to other economies with institutional, political, and cultural environments different from that of IFRS' origin. Given limited resources and the finding that B-share firms do not experience significant change with the Chinese standard change, a time series study of China's accounting quality over a longer period of time has not been conducted to further confirm that changes found among A-share firms are not a result of a general trend of accounting quality improvement over time. A longitudinal study of accounting quality over a longer period of time can provide a more complete view of accounting quality change in China. This study focuses on IFRS' impact on accounting quality in China. Future research may examine whether China can also harvest other suspected advantages

from IFRS adoption such as a decrease in cost of capital and an increase in market efficiency.

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