Abstract

In February 2006, the Chinese Ministry of Finance formally announced that, from 2007 onwards, the Chinese Accounting Standards (CAS) would be converging with International Accounting Standards (IAS). This significant step towards international accounting harmonization, for the purpose of attracting foreign investment, invokes the question as to whether the newly implemented IAS will indeed achieve the envisaged benefits of providing more useful information to capital market participants. This study aims to provide empirical evidence to address this question, by examining the comparative value-relevance of CAS versus IAS in the Chinese capital markets. The results of this study will inform the policy-makers whether moving towards IAS will improve information dissemination in the Chinese capital market.
1 Introduction

During the last two decades, China’s rapid economic growth has resulted in its rising status as one of the most influential participants in the world economy (Jefferson et al., 2006; Liu, 2000; Chandler, 2003). In order to attract additional foreign capital investment to sustain this growth, in February 2006 the Chinese Ministry of Finance formally announced that Chinese Accounting Standards (CAS hereafter) would be converging with International Accounting Standards (IAS hereafter) from 1 January 2007. The purpose of these changes is to improve the usefulness of accounting information from the perspective of foreign investors.

China’s significant step towards accounting harmonization invokes the question as to whether the newly-implemented IAS would indeed provide more useful information to capital market participants. Few studies have compared the usefulness of IAS with CAS in the current Chinese market to provide empirical evidence to address this question.

This study will investigate the comparative usefulness of CAS-based and IAS-based earnings and book value to the performance of A-shares (issued to domestic investors) and B-shares (issued to international investors), measured by value-relevance, under China’s market segmentation. The outcome of this research will inform the policy-maker whether moving towards the IAS would necessarily improve the usefulness of accounting disclosure in the Chinese market.

2 Institutional Backgrounds of China

The Chinese capital market constitutes an important area of research, in light of the increasing amount of foreign investment and international trade currently taking place in China (Jefferson et al., 2006; Liu, 2000; Chandler, 2003). Nevertheless, China’s capital market possesses a number of idiosyncratic characteristics, such as its young age and rapid expansion (Chen et al., 2001; Mookerjee & Yu, 1999; Fung et al., 2000; Chen & Thomas, 2003), the constantly evolving financial reporting framework (IAS Plus, 2007), and the unique capital market segmentation (Bao & Chow, 1999; Chen et al., 2001; Sami & Zhou, 2004; Lin & Chen, 2005; CSRC, 1993; CSRC, 1995), which distinguishes the Chinese capital market from those of developed countries. Consequently, the value-relevance of accounting information in China may considerably differ from that in other countries. It therefore requires separate research attention.

Under the capital market segmentation in China, trading shares are categorized into A-shares and B-shares, each subject to different regulations. A-shares are issued to domestic investors only, while B-shares are issued to foreign investors and a very limited number of authorized domestic investors.¹

¹ Prior to 19 February 2001, the market segmentation between A-shares and B-shares was absolute. However, from February 2001 onwards, regulations permitted domestic investors with foreign currency accounts to participate in the B-share market. Despite this change in legislation, the market remains effectively segmented, as foreign currency accounts are controlled by the China Bank and only a few individuals are authorized to hold one of the limited number of trading accounts.
The market segmentation leads to parallel regulatory environments faced by the A-share and B-share issuers, where the same firm which issues two types of shares (A-share and B-share) must report to the two types of shareholders (domestic and international) under CAS and IAS respectively. A-share firms are required to prepare financial statements under CAS, which is audited by domestic accounting firms and published in designated Chinese newspapers (CSRC, 1993); while B-share firms prepare accounting reports under IAS, which are audited by international accounting firms (Big 4), and published in overseas or Hong Kong newspapers.

These intriguing regulatory settings provide a unique opportunity for the comparison between the value-relevance of CAS- and IAS-based information which is disclosed by the same firms in the A- and B-share markets respectively.

3 Literature Review

3.1 Accounting Harmonization and Global Value-Relevance Research

In recent decades, the accounting profession has witnessed significant convergence of domestic Generally Acceptable Accounting Practices (GAAP) to International Accounting Standards (IAS) (Street & Shaughnessy, 1998; Garrido, et al., 2002; Fontes et al., 2005). Many countries have adopted IAS as part of their financial reporting frameworks, including the United States (SEC, 2007), China (PWC, 2007), and members of the European Union (Regulation (EC) 1606/2002).

The usefulness of IAS-based information has been measured by the concept of value-relevance, which refers to the ability of accounting numbers to summarize the underlying market stock performance (Amir et al., 1993; Chang, 1999; Core et al., 2003; Francis & Schipper, 1999; Kothari & Shanken, 2003, Haverty, 2006). The aim of value-relevance research is to provide empirical evidence as to whether IAS provides useful accounting information to the global capital market, in order to inform policy-makers about the desirability of accounting harmonization (Holthausen & Watts, 2001).

3.2 Value-Relevance Research in Chinese Capital Market

Amongst existing value-relevance literature (e.g. Alford et al., 1993; Amir et al., 1993; Pope & Rees, 1993; Bandyopadhyay et al., 1994; Harris et al., 1994; Rees, 1995; Barth & Clinch, 1996; Chan & Seow, 1996; Bodnar & Weintrop, 1997; Rees & Elger, 1997; Niskanen et al., 2000; Frank, 2000; Hora et al., 2004; Leuz & Verrecchia, 2000; Ashbaugh & Pincus, 2001; Ashbaugh & Olsson, 2002; Bartov et al., 2002; Leuz, 2003), only a small number of studies made specific reference to the capital market of China:

and Zhou (2004) found that, during 1992-2000, IAS demonstrates higher value-relevance in the pricing of B-shares than CAS in the pricing of A-shares. On the other hand, Abdel-Khalik et al. (1999) and Lin and Chen (2005), using data from 1994-1995 and 1995-2000 respectively, both provided contradictory evidence that CAS-based earnings and book values are more value-relevant to the A-share market than their IAS-based counterparts to the B-share market.

3.3 Gaps in Existing Literature

Existing literature on IAS value-relevance in the Chinese capital market has yielded mixed results. Some researchers found superior value-relevance in IAS over CAS (Bao & Chow, 1999; Gao & Tse, 2004; Sami & Zhou, 2004), while others observed limited usefulness of IAS to investors (Haw et al., 1999; Abdel-Khalik et al., 1999; Chen et al., 2002; Lin & Chen, 2005). This inconsistency in existing findings gives rise of the need for further research, in order to generate additional evidence to further inform the debate over the value-relevance of IAS in China.

Additionally, the limitations of the data and methodology used in prior studies results in a number of gaps in the existing value-relevance literature exist.

First, all prior studies utilized sampling periods which fall between 1992 and 2000. However, in the early 1990s, both the Chinese capital market and its financial reporting framework were still substantially underdeveloped (Chan & Rotenberg, 1999), resulting in unstandardized and incomplete disclosure by listed firms (Chen et al., 2001). As a result, findings from early studies such as Bao and Chow (1999), Haw et al. (1999) and Abdel-Khalik et al. (1999), which focused on sampling periods between 1992-1996, 1994-1995, and 1992-1997 respectively, are arguably not representative of the current market status. Moreover, the most significant reform in Chinese accounting regulations occurred between 1998 and 2001, during which the issuance of the 16 specific accounting standards substantially raised the standards of financial reporting (PWC, 2007). Consequently, the results from exiting literature, all of which relied upon observations prior to the end of 2000, are arguably outdated due to these subsequent developments of China’s accounting framework. In the absence of any prior research which examined recent observations, the proposed study is expected to contribute to the existing literature by extending the sampling period beyond year 2000 to 2005, thereby providing an updated view on the value-relevance of IAS- and CAS-based accounting information in the Chinese capital market.

Second, some of the studies on relative value-relevance of IAS and CAS, including Bao and Chow (1999) and Haw et al. (1999) examined the association of IAS-based versus CAS-based accounting information in the context of B-share market only. As discussed above, B-share foreign investors who resided outside of China may not have had access to, or the ability to understand, CAS-based reports which were published domestically and in Chinese. Thus the comparison between IAS and CAS in the context of B-share valuation is based on the unreasonable assumption that international investors utilize CAS-based information in their decision-making, thereby biasing the results from value-relevance comparison in favor of IAS (Chen et al., 2001). In order to avoid such biases, the current study will evaluate the value-relevance of CAS in the domestic A-share market and IAS in the international B-
share market, which will provide a more valid value-relevance comparison between CAS and IAS.

4 Research Questions and Development of Hypotheses

In order to provide evidence indicating the desirability of replacing CAS with IAS in the context of China’s recently implemented harmonization process, this study aims to investigate whether IAS demonstrates greater usefulness in the Chinese market than CAS. This study will utilize the quasi-experimental settings provided by the parallel reporting frameworks governing the A-share and B-share firms, under which the value-relevance of CAS-based information can be compared with that of the IAS-based information issued by the same firm.

It is a priori expected that the IAS-based information will demonstrate a higher level of value-relevance in the B-share market compared to CAS-based information in the A-share market, for a number of reasons.

First, prior to the issuance of China’s first accounting framework in 1992, the traditional accounting practices in China were predominantly macro-oriented to serve the State’s central control and planning purposes (Zhou, 1988); meanwhile, the accounting practices in the private sector of China were unstandardized and unregulated, resulting in problems such as lack of independent verification and faithful representation (Qing et al., 1998, Tang, 2000; Chan & Rotenberg, 1999; Aharony et al., 2000; Chen & Thomas, 2003). Despite subsequent accounting reform which substantially raised the financial-reporting standards of Chinese firms, the traditional perceptions of low quality accounting information might still discourage investors from relying upon accounting information in making their investment decisions (Qing et al., 1998).

Second, it is generally acknowledged that IAS are more sophisticated and stringent than CAS, as they provide more detailed rules and guidance regarding the recognition and measurement of accounting items (for example, the classification of leases is more fully defined in the IAS than in the CAS) (MOF, 2005; IASB, 2007). As a result, the accounting reports prepared under IAS are associated with a higher degree of perceived transparency and quality (Jermakowicz & Gornik-Tomaszewski, 2006), especially when the alternative CAS are relatively under-developed and unsophisticated (Sami & Zhou, 2004; Fox, 1998; Rask et al., 1998). Therefore, investors in the B-share market are likely to rely upon IAS-based information in their decision-making to a higher extent than the A-share investors with the CAS-based information, resulting in higher value-relevance of IAS comparing to CAS.

Third, under the dual financial reporting rules, the IAS-based reports issued by B-share firms are audited by international accounting firms (usually the Big 4), while CAS-based reports issued by A-share firms are audited by domestic auditors. Despite the recent developments in the Chinese auditing profession (Bao & Chow, 1999; Yan & Yang, 1998), the quality of auditing in China is still perceived to be low, especially when compared with international accounting firms (Aharony et al., 2000; Chui & Kwok, 1998; Defond et al., 2000; Lam & Jing, 2000). Consequently, the reputation and prestige associated with the big-4 accounting firms also contribute to investors’ faith in the IAS-based accounting reports.
Due to the presence of these factors in the Chinese capital market, it is therefore hypothesized that IAS-based information has higher value-relevance in the B-share market than CAS-based information in the A-share market.

5 Research Design

5.1 Model Selection

In order to investigate the usefulness of accounting information in determining stock performance in the capital market, two models will be employed in this study: a return model to examine the value-relevance of accounting earnings to determining stock return, and a price model to test the value-relevance of accounting numbers to equity valuation.

5.1.1 Return Model

There is large volume of literature that has examined the usefulness of earnings information by employing a market return model (Ali & Zarowin, 1992; Alford et al., 1993; Amir et al, 1993; Harris et al, 1994; Barth & Clinch, 1996; Rees & Elgers, 1997; Harris & Muller, 1999; Bao & Chow, 1999; Haw et al., 1999, Chen et al., 2001). In particular, the return model developed by Easton and Harris (1991) has been immensely popular amongst value-relevance researchers (Ali & Zarowin, 1992; Harris et al, 1994; Chan & Seow, 1996; Harris & Muller, 1999; Amir et al., 1993; Haw et al., 1999; Chen et al., 2001), for it incorporates both earnings level and earnings changes as independent variables in explaining the dependent variable: annual market return on stock. The Easton and Harris (1991) model is specified as follows:

\[ R_{jt} = \beta_0 + \beta_1 E_{jt} + \beta_2 (E_{jt} - E_{jt-1}) + e_{jt} \]

Where:

- \( R_{jt} \): annual return (including cash dividends) of firm j shares for period t
- \( E_{jt} \): annual earnings
- \( E_{jt} - E_{jt-1} \): change annual earnings for firm j from period t-1 to period t
- \( \beta_0 \): intercept
- \( \beta_1 \) and \( \beta_2 \): regression coefficients on independent variables
- \( e_{jt} \): random error term incorporating effects of other unspecified factors on annual return.

Similar to Chan and Seow (1996), a 12-month window will be used in this study to examine the impact of earnings in annual reports on annual stock return. In order to mitigate the heteroscedasticity problem associated with the size of firms (White, 1980), the reported earnings in the model are first deflated by the outstanding shares as a proxy for market capitalization (Barth & Kallapur, 1996). This proxy, however, does not capture the stock-price component which determines market capitalization. Consequently, Earnings Per Share (EPS) are further deflated by the lagged stock price from the beginning of the period, as suggested by Biddle et al. (1995) and used in subsequent research (Harris & Muller, 1999; Kothari, 2001; Lin & Chen, 2005). The adjusted return model is as follows:

\[ R_{jt} = \beta_0 + \beta_1 \frac{EPS_{jt}}{P_{jt-1}} + \beta_2 \left( \frac{EPS_{jt} - EPS_{jt-1}}{P_{jt-1}} \right) + e_{jt} \]
Where:

\[ P_{jt} \] stock price at date of accounting announcement for firm j during period t
\[ \text{EPS}_{jt} \] annual earnings per share for firm j during period t
\[ \text{EPS}_{jt} - \text{EPS}_{jt-1} \] change annual earnings per share for firm j from period t-1 to t
\[ \beta_0 \] intercept
\[ \beta_1 \] and \[ \beta_2 \] : regression coefficients on independent variables
\[ e_{jt} \] : random error term incorporating effects of other unspecified factors on annual return.

This return model is not without limitation. According to Kothari & Zimmerman (1995), if the stock market correctly forecasts accounting earnings and incorporates this anticipated information into the beginning share price, the return model would bias the earnings coefficient towards zero.

5.1.2 Price Model

Following numerous prior value-relevance studies (Landsman, 1986; Barth, 1994; Amir et al, 1993; Eccher et al., 1996; Burgstahler & Dechov, 1997; Barth et al., 1998; Harris & Muller, 1999; Ashbaugh & Olsson, 2002), a price model will also be utilized in this study in addition to the return model. Dissimilar to the return model, the price model investigates the impact of accounting information on the market valuation of, rather than return on, equity stock; furthermore, a price model examines the impact of not only earnings but also book value of equity on the stock performance.

The inclusion of book value in addition to earnings is important in light of prior literature which has documented significant information content in both reported earnings (Ball & Brown, 1968, Beaver et al., 1979; Bowen, 1981; Collins & Kothari, 1989; Kothari & Zimmerman, 1995) and book value of equity (Barth, 1991; Shelvin, 1991). Earnings and book values are traditionally considered to be alternative approaches to price models (Sami & Zhou, 2004). However, the Ohlson (1995) model is the first to incorporate both earnings and book value in the equity valuation and therefore has high popularity amongst value-relevance researchers (Barth & Clinch, 1996; Collins et al., 1997; Burgstahler & Dechov, 1997; Barth et al., 1998; Harris & Muller, 1999; Bao & Chow, 1999; Chen et al., 2001; Chen et al., 2002; Sami & Zhou, 2004; Lin & Chen, 2005). The Ohlson (1995) model is specified as follows:

\[ P_{jt} = \beta_0 + \beta_1 \text{BV}_{jt} + \beta_2 \text{E}_{jt} + \beta_3 V_{jt} + e_{jt} \]

Where:

\[ P_{jt} \] the price per share of firm j at time t
\[ \text{BV}_{jt} \] book value of firm j at time t
\[ \text{E}_{jt} \] earnings of firm j for period ending at time t
\[ V_{jt} \] other non-random non-accounting information about future abnormal earnings available at time t
\[ \beta_0 \] intercept
\[ \beta_1 \] and \[ \beta_2 \] : regression coefficients on independent variables
\[ e_{jt} \] random factors affecting the equity valuation

The Ohlson (1995) model is chosen for the current study for two reasons. First, earnings and book values constitute complementary rather than redundant components of equity valuation (Chang, 1999; Feltham & Ohlson, 1995; Ohlson,
Second, the findings from recent literature indicate that there has been a decline in the value-relevance of reported earnings, and a corresponding increase in the value-relevance of book-value of equity (Francis & Schipper, 1999; Collins et al., 1997; Ely & Waymire, 1997). These findings suggest that traditional measures of profit are becoming less important in the decision-making of investors and are gradually being replaced by balance-sheet measures (Ely & Waymire, 1997). This change in value-relevance renders it imperative to incorporate book-value into the model of equity valuation.

Consistent with a number of existing studies (Landsman, 1986; Barth, 1991; Eccher et al., 1996; Burgstahler & Dichev, 1997; Collins et al., 1997; Bao & Chow, 1999; Chen et al., 2001), a modified Ohlson (1995) model is constructed by deflating earnings and book value by the number of shares outstanding to reduce the heteroscedasticity problem. Furthermore, assuming that BV and E are not correlated with V, V can be dropped from the model since the explanatory power of a regression of P on BV and E reflects the materiality of V, i.e. how much investors rely on accounting information in equity valuation (Eichenseher, 2000; Sami & Zhou, 2004). The modified model is re-specified as follows:

\[ P_{jt} = \beta_0 + \beta_1 BVPS_{jt} + \beta_2 EPS_{jt} + e_{jt} \]

Where:
- \( BVPS_{jt} \): book value per share for firm j at time t
- \( EPS_{jt} \): earnings per share for firm j at time t
- \( \beta_0 \): intercept
- \( \beta_1 \) and \( \beta_2 \): regression coefficients on independent variables
- \( e_{jt} \): random error term incorporating effects of other unspecified factors on annual return.

Under current regulations in China, the fiscal year ends on 31 December, and Chinese firms are required to publish their annual financial statements before 30 April of the following year. Therefore, consistent with Lin and Chen (2005), the dependent variable encompasses the market value of stock at 30 April of following year, in order to capture the impact of accounting announcements.

The Ohlson (1995) price model suffers from the scale effect (Easton et al. 1992; Barth & Kallapur, 1996; Lin & Chen, 2005). Nevertheless, the combined use of both price and return models may mitigate problems associated with each individual model (Kothari & Zimmerman, 1995). Thus, following prior studies (Amir et al., 1993; Harris et al., 1994; Amir & Lev, 1996; Barth & Clinch, 1996; Eccher et al., 1996; Graham et al., 1998; Haw et al., 1999), both models will be employed in this study in order to produce more reliable evidence regarding the value-relevance of IAS and CAS in China.

5.2 Sample Description and Data Collection

In order to compare the value-relevance of accounting information in A-share and B-share markets with the aforementioned models, I intend to use a sample consisting of listed firms which simultaneously issued both A- and B-shares on the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) between 1999 and 2005.
The sampling period from 1999 to 2005 is selected for the predominant reason that, as discussed above, the period subsequent to 2000 has not been examined by any existing study. The sampling period commences in 1999, as the development of CAS reached a relatively stable and sophisticated stage by the end of that year, as signified by the completion of the first phase of the Ministry of Finance project of CAS development (PWC, 2007). Furthermore, 2005 constitutes the last year prior to the convergence between CAS and IAS, which was announced in February 2006. Although the revised CAS does not take effect until 1 January 2007, empirical evidence suggests that firms might voluntarily adopt the new standards to pre-empt the impending mandatory change in regulations (Nikanen et al., 2000). Therefore, 2005 is arguably the last fiscal year during which substantial differences existed between the CAS- and IAS-based accounting information.

An A-share and a B-share sample will be collected in order to compare the value-relevance of CAS and IAS in their respective market segments. In the Chinese capital market, most of the firms issuing B-shares to international investors also, simultaneously, issue A-shares to domestic investors. This market phenomenon provides unique quasi-experimental settings, under which the value-relevance of IAS-based information can be directly compared with that of CAS-based information issued by the same company. This study will take advantage of this opportunity and select a sample consisting of firms issuing both A-shares and B-shares simultaneously. Thus, each firm in the A-share market sample will be matched with itself in the B-share market sample, in order to control for any firm-specific idiosyncratic factor which could potentially impact the value-relevance of that firm’s accounting information in the capital market (Chan & Seow, 1996; Lin & Chen, 2005). This approach also aims to avoid problems associated with the process of matching samples from different populations, such as the complexity in specifying the correct matching criteria, and the difficulty in obtaining observations that satisfy these criteria (Harrison et al., 1983; Murray, 1983), which may impact on the validity of results (Chan & Seow, 1996; Lin & Chen, 2005).

According to the models above, two types of data will be required: (1) market data on the historical price and return of shares, which are provided by Yahoo Finance; and (2) contents of the General Purpose Financial Reports published by the A-share and B-share firms, which will be gathered from the Taiwan Economic Journal (TEJ) Database. The TEJ Database has been utilized by a majority of capital-market studies on the Chinese capital market, and is widely regarded as a reliable data source (Bao & Chow, 1999; Haw et al., 1999; Chen et al., 2001; Sami & Zhou, 2004; Lin & Chen, 2005).

5.3 Data Analysis Methods

The aim of this study is to compare the value-relevance of CAS and IAS in the Chinese capital market. Prior studies with similar objectives have examined the association between CAS-based and IAS-based information and the stock performance of B-shares only (Bao and Chow, 1999; Haw et al., 1999). However, as Chen et al. (2001) pointed out, this comparison is of limited validity, as foreign B-share investors usually did not have access to CAS-based information. Furthermore, subsequent research findings suggest that CAS-based information is relevant to domestic A-share valuation, while IAS-based information is relevant to the
international B-share valuation (Chen et al., 2001; Sami & Zhou, 2004; Gao & Tse, 2004). Therefore, the current study will evaluate the value-relevance of CAS-based information in the A-share market against the value-relevance of IAS-based information in the B-share market, in order to obtain a more valid value-relevance comparison between the two sets of accounting standards.

Consequently, two return models and two price models will be constructed, each based on A-share market and B-share market samples receptively. The market return and price of A-shares will be regressed on the CAS-based information issued by A-share firms; while the market return and price of B-shares will be regressed on the IAS-based information issued by B-share firms.

In order to evaluate the relative value-relevance of IAS and CAS, the strength of association in the A-share and B-share regressions will be compared with each other using a number of indicators, including the explanatory power of the model, and the β coefficients of independent variables.

The explanatory power of the model, or strength of association between market valuation and accounting numbers, is measured by adjusted R^2. The significance of each independent variable in the regression model is measured by the statistical significance of their β coefficients.\(^2\)

5.3.1 Comparison of Adjusted R^2

The overall explanatory power of the independent variables (accounting numbers) over the dependent variables (stock performance), as measured by the adjusted R^2, will be relied upon as the primary indicator of value-relevance of accounting numbers to the market valuation of stock (Harris et al., 1994; Harris & Muller, 1999). The adjusted R^2 from the B-share regressions will be compared with that of the A-share regressions to examine whether IAS-based accounting information has higher value-relevance in the B-share market compared with CAS-based accounting information in the A-share market.\(^3\)

Rather than relying upon intuitive comparison of adjusted R^2 (Collins et al., 1997; Francis & Schipper, 1999), which relies purely upon the judgment of the researchers and thus limits the strength of evidence provided by the findings (Sami & Zhou, 2004); this study intends to conduct R^2 comparisons by relying upon the Cramer (1987) test, which constitutes a statistical hypothesis test with hypotheses specified as follows:

\[ H_0: R^2_A = R^2_B \text{ (There is no significant difference between the observed } R^2) \]
\[ H_1: R^2_A \neq R^2_B \text{ (There is a significant difference between the observed } R^2) \]

\(^2\) The magnitude of β coefficients are not relevant to the question of value-relevance, since they measure the slope of the regression rather than the explanatory power of the variables.

\(^3\) Although it is argued that between-sample R^2 comparison is invalid, unless the difference in the scales of variables are controlled for (Brown et al., 1999); the current study is not invalidated by this argument, since each pair of A-share and B-share firms’ accounting numbers are deflated by the same number of shares outstanding, thus controlling for the scale-factor. This measure should effectively validate the R^2 comparisons between the A-share and B-share samples (Sami & Zhou, 2004; Chan & Seow, 1996).
The Cramer (1987) test involves the calculation of standard deviation of $R^2$, in order to assess whether or not the difference between the $R^2$s observed from different models are due to some real differences in the populations, as opposed to mere sampling variation (Ball et al., 2000). The results will provide evidence on the comparison of $R^2$s generated from the A-share model and B-share model, and thus indicate the comparative value-relevance of IAS and CAS.

5.3.2 Comparison of Regression Coefficients

The significance of $\beta$ coefficients is examined in addition to adjusted $R^2$. While adjusted $R^2$ provides an indication of the overall explanatory power of the model, significance of $\beta$ coefficients offers more specific information regarding the significance of individual variables. Therefore, both measures are used to compare the value-relevance of accounting information.

The comparative strength of IAS and CAS accounting numbers in determining stock performance can also be evaluated by examining the significance of $\beta$ coefficients of the independent variables in the A-share and B-share regression models. Following Sami and Zhou (2004), the present study will adopt the Christie (1990) test, which utilizes the t-statistics associated with each $\beta$ coefficient to calculate the p-value, in order to test the hypothesis as specified below:

$H_0$: $\beta = 0$ (accounting information has no impact on stock performance)

$H_1$: $\beta \neq 0$ (accounting information has some impact on stock performance)

The results from this hypothesis test will provide evidence regarding whether the $\beta$ coefficients of independent variables are statistically significantly different from zero, and thus indicate whether each of the accounting measures included in the model has any real impact on stock performance.

In summary, the combined results generated from the adjusted $R^2$ and $\beta$ coefficients comparisons will constitute an indicator of the comparative strength of association between the CAS and IAS accounting information and the A-share and B-share stock performance respectively, which would enable the researcher to arrive at a conclusion as to whether CAS or IAS had higher value-relevance during the 1999-2005 period.

The approach of the value-relevance comparison adopted in the current study can be contrasted with the $J$ test (Davidson & MacKinnon, 1993; MacKinnon, 1992) and its modified version the $J_A$ Test (Fisher & McAleer, 1981; Bao & Chow, 1999). The purpose of $J$ Test and $J_A$ Test is to assess which one of the two competing sets of independent variables is more closely associated with the dependent variable (Chan & Seow, 1996). However, since the models in the current study regress CAS-based information against A-share market data, and IAS-based information against B-share market data, the $J$ and $J_A$ Tests are inappropriate since the two sets of competing explanatory variables are associated with different dependent variables.

5.4 Additional Reconciliation Variables

Following prior research (Lin & Chen, 2005; Chen et al., 2002) which has identified cross-market information usage in the A-share and B-share, additional reconciliation
variables will be added to existing models to represent the magnitude of reconciliation between the accounting items recorded under IAS and CAS. Hence the price and return models are re-specified as follows:

Return Model:
\[ R_{jt} = \beta_0 + \beta_1 E_{jt} + \beta_2 (E_{jt} - E_{jt-1}) + \beta_3 E_{jt} (\text{IAS-CAS}) + \beta_4 (E_{jt} (\text{IAS-CAS}) - E_{jt-1} (\text{IAS-CAS})) + e_{jt} \]

Price Model:
\[ P_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + \beta_3 BV_{jt} (\text{IAS-CAS}) + \beta_4 E_{jt} (\text{IAS-CAS}) + e_{jt} \]

Where:
- \( E_{jt} (\text{IAS-CAS}) \): the reconciliation between IAS and CAS earnings for firm j period t
- \( E_{jt} (\text{IAS-CAS}) - E_{jt-1} (\text{IAS-CAS}) \): the reconciliation between IAS and CAS earnings changes for firm j from period t-1 to period t
- \( BV_{jt} (\text{IAS-CAS}) \): the reconciliation between IAS and CAS book values for firm j at time t

The F test for regression \( R^2 \) examines the addition of an incremental independent variable on the overall strength of association with the dependent variable (Chan & Seow, 1996). The F test will be employed to investigate whether the inclusion of these accounting reconciliation items will improve the model, for the purpose of achieving the optimal specification of the price and return models.

5.5 Residual Analysis

Finally, the residual generated from the aforementioned regression models will be analyzed in two aspects in order to identify causes for any unusual patterns.

First, residual patterns will be examined from a longitudinal perspective: value-relevance of accounting information may vary based on macro-induced influences, other than those from regulatory changes. Examples of significant historical events which may have such influence include the SARS virus breakout in China in 2003. The potential impact of such an event, which is not presented in the model, could be identified from residual analysis.

Second, if an economic model is correctly specified, the residuals should be normally distributed and homoscedastic (i.e. have constant variance). It is possible that value-relevance (measured by the overall significance of the model) may shift based on level of underlying variables: the same value-relevance of accounting information might only hold when the level of earnings falls into a ‘normal’ range, whereas dramatic changes in accounting earnings may have quite different effects on the stock market compared to usual earnings fluctuations. If these phenomena occur, the residuals would be expected to be heteroscedastic (i.e. have non-constant variance).

The residual analysis constitutes a measure which will further assist in the attempt to ensure the correct specification of models.

6 Preliminary Empirical Results

A preliminary regression is run in accordance with the Ohlson (1995) Price Model using data from the Shanghai Stock Exchange (SHSE) only. The regression utilizes
panel data consisting of 36 available firms from the Shanghai Stock Exchange over a seven-year period from 1999 to 2005. The outputs of the regressions for A-share market data and B-share market data are presented in Table 2 and Table 3 respectively.

6.1 Value-Relevance to A-share Market

Table 1 reports the output of the estimated A-share price model, which investigates the association between the market pricing of A-share stock (dependent variable) and the accounting earnings and book value per share reported under CAS (independent variables). The relatively high adjusted $R^2$ (70.72%) and highly significant F-statistics (with p-value approximating zero) both suggest that the model is overall highly significant. The estimated coefficient on book value is positive and significant at 10% significance-level, indicating that the CAS-based book value per share is value-relevant to A-share stock pricing in the market. However, contrary to expectation, the estimated coefficient on annual earnings is not statistically significant, which suggests that CAS-based earnings are not relevant to the pricing of A-shares.

![Table 1: Price Model based on A-share Data](image)

6.2 Value-Relevance to B-share Market

Table 2 reports the output of the estimated B-share price model, where the dependent variable consists of B-share stock prices, and the independent variables include IAS-based earnings and book value per share. Similar to the output from the aforementioned A-share regression, the adjusted $R^2$ (82.34%) and the F-statistics (23.01***) in this regression indicate that the price model based on B-share data also has high overall statistical significance, which implies that IAS-based accounting information is value-relevant in the pricing of B-shares issued by SHSE-listed firms. In particular, the estimated coefficient on book value and earnings are both significant at 5% significant level. However, the estimated coefficient for book value has an

* *** statistically significant at 1% significance level.
unexpected negative sign. This may be due to biases introduced into the models by deflating earnings and book values by beginning-of-period book value.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
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<td>0.056794668</td>
<td>13.15341234</td>
<td>2.96298E-27</td>
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<tr>
<td>EIAS</td>
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<td>56.12302245</td>
<td>5.27927555</td>
<td>0.000000417</td>
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<tr>
<td>BVIAS</td>
<td>-6.596416</td>
<td>3.107133429</td>
<td>-2.122990909</td>
<td>0.035293043</td>
</tr>
</tbody>
</table>

6.3 Aggregate-Level Comparison

Overall, IAS-based accounting information demonstrates a higher level of aggregate value-relevance to the pricing of B-shares than CAS-based information in the pricing of A-share, as indicated by the higher $R^2$ ($R^2_B 82.34% > R^2_A 70.72%$) and higher F-statistics ($F_B 23.01 > F_A 13.92$) generated by the B-share model. Additionally, the preliminary results also suggest that stock pricing in the B-share market is mainly determined by accounting earnings, whereas stock pricing in the A-share market tends to be dominated by the level of the book value of equity.

6.4 Problems and Potential Solutions

Due to the potential autocorrelation and multicollinearity conditions which may exist in the data, it is expected that further residual analysis will unearth some unusual patterns, which do not follow white-noise. The low Durbin Watson Test Statistics (DWTS) is also consistent with this view by suggesting that first order autocorrelation may exist in the data. Detailed autocorrelation tests will be performed to examine whether autocorrelation is in fact present in the data. Subsequently, corrective measures will be undertaken by using alternative Least Square regression methods (e.g. General Least Square) to ensure the validity of test statistics generated from the regression models.

7. Limitations

The proposed research is faced with two major limitations. First, the scope of this research is constrained by data availability. In particular, due to the lack of access to historical price data on Chinese B-share firms prior to 1999, it is impractical to extend the current sampling period (1999-2005) to years prior to 1999. Second, an inherent
limitation of regression analysis is its failure to prove causality. In particular, a statistically significantly high correlation between a firm’s accounting information and its stock performance does not prove that the variations in the stock performance are caused by the accounting information disclosed. To the contrary, the accounting reports may merely reflect the market performance of the stock rather than dictating it.

8. Reference List


