Market segmentation, information asymmetry and investor responses of Chinese A and B markets

Carole Comerton-Forde[*], Juan Yao[*#]

This version: May 2008

Abstract

This paper uses matched pairs of stocks listed in both A and B-market in China to examine changes in returns and trading volumes around earnings announcements. We find that the earnings announcements are informationally valuable to both domestic and foreign investors. The A-share market is less responsive to both positive and negative earnings announcements compared to their foreign counterparties. It is consistent with previous literature that the B-share market is less informed. However, the difference in returns declines after November 2002 when trading restrictions are reduced. The regulatory change appears to have improved the market efficiency.

JEL Classification: G14, G15.

Keywords: Earnings Responses, Chinese Stock Markets, Market Efficiency.

---

[*] Finance Discipline, Faculty of Economics and Business, The University of Sydney. NSW 2006, Australia.

[#] Corresponding author, Email: j.yao@econ.usyd.edu.au. Tel: 61-2-90369057, Fax: 61-2-93516461.

Market segmentation, information asymmetry and investor responses of Chinese A and B markets

1. Introduction

The study of market reactions around earnings announcement has existed in the finance and accounting literature for several decades since the pioneering work of Ball and Brown (1968) (See Bernard and Thomas 1989; Lev 1989; Bernard 1992). As earnings announcements convey direct information about the performance of the company, conventional market efficiency theory claims that asset prices and trading should quickly reflect this information. Thus the magnitude and speed of market reactions to an announcement will indicate the efficiency of the market. While the topic of market reactions to earnings announcements has been well researched in developed economies, it is less researched in emerging markets, such as China. China is attempting to open its capital markets to foreign investors hence, understanding the impact of the process is important. Given the scale of the Chinese markets as well as its increasing global impact, a deep understanding of the information efficiency of its markets is of both commercial value and academic interest[1].

The Chinese stock market offers an ideal environment to study market reactions and its implications of the market efficiency for a number of reasons. First, the Chinese market was segmented prior to 2001.[2] China was the only country with total restrictions on foreign participation in the domestic equity market. However, some selected listed companies have separate, restricted classes of shares for foreigners. These companies have two classes of stocks. Domestic-only shares (termed A-shares) are listed in Shanghai or Shenzhen; foreign-only shares (termed B-shares) are listed in Shanghai or Shenzhen or Hong Kong (termed H-shares). These shares are legally identical with the same voting rights and dividends however; these shares are traded separately by different

---

[1] On 27th Feb 2007, 9 percent plunge on the benchmark index in China caused a 3.4 percent decline in the Dow Jones Wilshire 5000 Index.
[2] Before February 2001, the domestic market A and the specially designed foreign investor only market B were totally segmented.

classes of investors.[3] The segmentation of markets has resulted in a large difference between the prices of A-share and B-shares. The market prices of A-shares are often two or three times the price of the B-shares. As the dual listed companies in A and B-share markets have same fundamentals, the differences in their prices are more likely a result of information asymmetry and risk premiums[4]. The divergence of A and B-share prices has attracted a great deal of attention from both of practitioners and academics. However, there is a very little research looking at market reactions to the release of companies' fundamental information in both A and B-markets.

In this study, we use matched pairs of stocks listed in the A- and B-share markets to examine changes in returns and trading volumes around earnings announcements. We examine the differences in the magnitude of the changes in returns and volumes of A- and B-shares to assess which market reacts more efficiently. We consider the period before February 2001 when the markets were completely segmented as well as the period after 2003 when the trading restrictions of two markets were reduced. This allows us to investigate whether or how local and foreign investors react differently to the same earnings announcements both before and after the regulatory change.

The rest of the paper is organized as the follows. Next Section presents previous literature and motivation of the study, and Section 3 details institutional features of the Chinese market. Section 4 introduces the data and methodology employed in this study. And the results will be reported in Section 5. Section 6 presents the conclusion.

2. Previous Literature and motivation

Su (2003) examined the Chinese stock price reactions to changes in earnings per share (EPS) using a small sample of stocks from 1997 to 1998. He found that domestic A-share investors do not anticipate the EPS changes and slowly adjust to the new earnings information. However, the international investors in B-share market predict changes in

---

[3] After February 2001, domestic citizens were allowed to invest in B-shares with foreign currencies by Chinese securities regulatory authority. From November 2002, selected foreign institutions were allowed to invest in A-shares.

[4] Many papers investigate price differences between A- and B-shares, such as Chakravarty et al. (1998), Mei et al. (2004), and Sun and Tong (2000).

EPS better. Thus, Chinese A-share markets are speculative while B-share markets are relatively more efficient. Contrary to Su's findings, Huang (2004) investigated the Chinese stock price reactions to financial announcement for 2002. His study revealed both A-share and B-share stocks responded to the financial announcements. Moreover, B-share prices react more strongly to negative financial announcements than A-shares.

Both of these studies have found that earnings announcements are informationally valuable to investors as shown by the abnormal returns around the event date. However, none of them has examined the reactions of trading volume. Earlier accounting literature has suggested that trading volume and returns capture fundamentally different aspects of the market's assimilation of information (Bamber 1986, 1987). Beaver (1968) argues that abnormal trading volume reflects the degree to which individual investors revise their expectations in response to earnings announcements while abnormal returns reflect the aggregate or average revision in expectations. Kim and Verrecchia (1991) argue that price changes reflect the change in the aggregate market's average belief, while trading volume preserves differences among individual investors that are "cancelled out" in the averaging process that determines the equilibrium price. Thus it is important to examine the change in trading volume of stocks around earnings announcement.

Gao and Tse (2004) studied the trading activities of A- and B-shares in the Chinese stock market by using the data prior to 2000. They argue that the investors in the B-share market react to both the IAS (International Accounting Standards) and PRC GAAP (People's Republic of China Generally Accepted Accounting Principles) earnings announcements, while the A-share investors react only to PRC GAAP earnings reports. They also find that the abnormal trading volumes in the A-share market persist for a longer period than those in the B-share market. However, as Gao and Tse (2004) only utilize the annual earnings announcement and their sample is relatively small, it is less clear whether their findings sustain over all other periodical earnings releases.

The existing literature reveals that the earnings information is value relevant in the Chinese market. Chakravarty, et al. (1998) argue that due to language barriers, different

4

accounting standards, and lack of reliable information about the local economy and firms, it is more difficult for the foreign investors to acquire and assess information about local Chinese firms. Chan et al. (2007) analyse trade and quote data of the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) from January 2000 to November 2001 and they reveal that the discount of B-shares is largely due to the information asymmetry as the foreign investors are not as well informed as the domestic investors. Thus the information asymmetry in A and B-markets might suggest that the A and B-shares will react differently to the fundamental information.

In this study we hypothesize that if there is an information asymmetry across A and B-markets there would be differences in reactions of the markets upon the release of fundamental information, such as the earnings announcements. Therefore, we focus on the differences of reactions of returns and volume around earnings announcements dates using matched pairs of stocks cross listed in both A and B-markets. Additionally, as a first step to open the capital markets to foreign investors, Chinese authority allowed some selected foreign institutions to invest in domestic markets in Nov 2002. We expect that with the reduced trading restrictions, the information efficiency would have been improved post Nov 2002.

3. Institutional features of Chinese stock market

The Chinese market consists of two stock exchanges, the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE). Both of the exchanges were established in early 90s. By the end of 2004, SHSE has 837 listed companies with total market capitalization of 2,601.43 billion Yuan, and SZSE has 536 listed companies with total market capitalization of 1,104.12 billion Yuan (SHSE, SZSE Fact Books 2004). Both exchanges utilize fully electronic order driving trading system and trading rules are essentially same. However, most companies listed on the SHSE are large and mainly state-owned, while the companies on SZSE are relatively smaller, most of them are joint ventures and export companies (Xu, 2000). Cross-listing between these two stock exchanges is not allowed.

A Chinese company can issue five types of shares in the domestic markets. These are state shares, legal person shares, employee shares, A- and B-shares. Only A- and B-shares are tradable shares, while B-shares in particular are issued to foreign investors. B-shares are special Renminbi-denominated ordinary shares but are traded in foreign currency. B-shares traded are quoted in US dollars in SHSE, and HK dollars in SZSE. The trading mechanism for B-shares is similar to that for A-shares. However, settlement for A-shares occurs on T+1 and settlement for B-shares takes place on T+3.

Prior to 2001, the A- and B-share markets were completely segmented. Only domestic investors could access the A-share market and only foreign investors were allowed to trade in the B-share market. However, this trading restriction was reduced in February 2001 when domestic citizens were allowed to invest in B-shares with foreign currencies. Beginning in November 2002, selected foreign institutions were allowed to invest in A-shares through the so-called QFII (Qualified Foreign Institutional Investors) provision by Chinese securities regulatory authority[5].

Chinese listed companies announce their earnings and other financial information through four periodical reports. The annual report has to be released within four months after the end of each financial year, and the half-year report has to be published within two months after the end of half-year and the quarterly reports have to be published within one month after the end of each quarter.[6] The listed companies are required to publish their periodical reports on the nominated websites by the China Securities Regulatory Commission (CSRC), and the extract or the full reports have to be published in at least one nominated newspaper. [7]

Companies with both A- and B-shares need to prepare two sets of financial statements: one is based on International Accounting Standard (IAS) for the B-share holders and the other is based on domestic accounting standard, PRC GAAP for the A-share holders.

---

[5] Some of these foreign institutions are China International Capital Corporation Limit, Sino-foreign Securities, China Euro Securities and Changjiang Peregrine.

[6] The annual report is to be released no later than 31 April, the half-year report is to be released no later than 31 August and the quarterly reports are to be released within one month after each end of quarter.

[7] The report can also be published in other sources, but no earlier than the nominated by CSRC.

However, both of the financial statements are released on the same day. Both of A and B-share holders can access two sets of financial statements. B-shares are usually owned by institutional investors and they receive half-yearly earnings and dividend reports and annual report. A-shares are usually owned by domestic individual investors, who are informed about company reports in newspaper or via other media. Though theoretically both of domestic and foreign investors are able to access the same information at the same time, a number of studies argue that there are significant differences in the ease of access to this information between foreign and domestic investors and between retail and institutional investors due to the language barriers, different accounting standards, and lack of local information etc. (Kaye and Cheng 1992; Sze 1993; Chakravarty, et al. 1998).

4. Data and Research Design

We select Chinese companies with both A- and B-shares listed over the period of August 1995 to March 2005. Using matched pairs of stocks is to allow us to control for the firm specific characteristic differences. There are 90 companies including 45 companies listed in SZSE and 45 in SHSE. These companies made a total of 2,115 announcements over this period. Any pair of announcements that are within twenty days of each other are removed from the sample to ensure that we have independent events of announcements in the sample.

The data of daily stock prices, trading volumes, market value and book to market ratios as well as interest rates are obtained from DataStream. The earnings announcement data are obtained from the CSMAR (Chinese Stock Market and Accounting Research) database. Market indices used are the SHSE A- and B-share indexes as well as SZSE A- and B-share indexes.

The historical market movements are depicted as the following:
[Figure 1]
[Figure 2]

7

The Figure 1 and 2 depict that since the establishment of B-markets till mid of 2001, two markets experienced different dynamics with a considerable price differences between two markets. As the A and B-shares of the company should reflect the same fundamental information, the different dynamics of price movement are largely due to liquidity and risk issues. (See Chakravarty et al. 1998, Mei et al. 2004, and Sun and Tong 2000). However, since mid of 2001 there seems to be a convergence in A and B-market price movements due to the speculation of regulatory change which aims to open the domestic market to foreigners. In Nov 2001, the Chinese authority announced the openness of A-market to selected foreign institution investors and following this regulatory change we can see that two markets have become more correlated with each other.

To incorporate this structure break of two markets, we split our sample into two sub-periods to isolate the effect of this regulatory change. We examine two sub-samples which are the period before this change, from 1 August 1995 to 20 February 2001, and the period after this change, from 1 Feb 2003 to 1 August 2005.

We adopt an event study approach to investigate how A- and B-share investors behave differently before, during and after the earnings announcements. Unlike previous studies, we will adopt a matched pairs approach to control for differences in firm specific characteristics. We use a 10-day window to measure the price and return as well as trading volume reaction prior, and after earnings announcements.

Returns of listed shares are calculated as:

$$r_{it} = \ln(P_{it}) - \ln(P_{it-1})$$

Where P_{it} is the closing price of the i stock at the time t. The excess return is the difference of r_{it} and the risk-free rates, for the A-share market, which is the China deposit rate and for the B-market, which is the US three-month Treasure bill rate.

While all previous studies have adopted a single index model to compute the abnormal returns during the event window, the Fama-French three factor model has been employed here to adjust the risk in consideration that the single-index model is not sufficient to

explain expected returns (Fama and French, 1993). The expected returns or the predicted returns are obtained by:

$$R_{it,p} = \alpha_i + \beta_i R_{mt,p} + s_i SMB_{t,p} + h_i HML_{t,p} + e_{it,p}$$

Here $R_{it,p}$, is the excess return of stock i prior to the event window, $R_{mt,p}$ is the excess return of market index prior to the event window. $SMB_{t,p}$ is the difference between returns of a portfolio of small stocks and a portfolio of large stocks prior to the event window. $HML_{t,p}$ is the difference between returns of a portfolio of high book-to-market stocks and a portfolio of low book-to-market stocks prior to the window.

The abnormal returns during the event window thus will be:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt} + \hat{s}_i SMB_t + \hat{h}_i HML_t)$$

where R_{it} is the excess return of stock i during the event window, R_{mt} is the excess return of market index during the event window. SMB_t and HML_t are the return differences of small and large stocks and high book-to-market and low book-to-market stocks within the event window. t is the day measured relative to the event.

Average abnormal returns for each trading day within the event window are

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it},$$

where N is the number of announcements during day t.

Following Pilotte (1992), we adopt a cross-sectional test to account for an increase in return variance during the announcement period. The t-statistic is calculated as follows

$$t = (\sqrt{N}) AAR_t / SD,$$

where

$$SD = \left\{ \left[\sum_{i=1}^{N} (AR_t - AAR_t)^2 \right] \right\} / (N-1)^{1/2},$$

Though the traditional t-test is only optimal when the abnormal returns are normal distributed, Brown and Warner (1980, 1985) point out that it generally performs reasonably well with the daily return data.

The traditional Two Sample t-statistics are employed to test the differences in returns and across A and B-markets as the following:

$$\left(\frac{1}{N}\sum_{i=1}^{N}A_{i,t} - \frac{1}{N}\sum_{i=1}^{N}B_{i,t}\right)\bigg/ \sqrt{\frac{S_{A,t}}{N} + \frac{S_{B,t}}{N}},$$

where $A_{i,t}$ represents the return of A-shares and $B_{i,t}$ represents the return of B-shares on day t. And $S_{A,t}$ and $S_{B,t}$ are the cross-sectional standard deviations for each group on day t.

In addition to examining the reactions of price changes, we will also investigate the market reactions in terms of trading volume. Previous study computes the change in the level of trading volume during the event window. (See Gao and Tse, 2004) However, the normal t-statistics are not appropriate as the trading volume does not have a standard normal distribution, in fact it is highly skewed and leptokurtic. To avoid this problem, we examine the change of trading volume instead in this study.

We compute the abnormal change in trading volume (AV) for each trading day within the event window where the abnormal change is calculated as follows

$$AV_{it} = Vol_{it} - \overline{Vol}_i$$

Here Vol_{it} is the change of trading volume of stock i on day t. $\overline{Vol}_i$ is the average change of daily trading volume of stock i between -31 day to -11 day prior to the event window.

The standardized abnormal change of trading volume is

$$SAV_{it} = AV_{it} / S(Vol_i),$$

Where $S(Vol_i)$ is the standard deviation of change of volume between -31 to -11 days prior to the event.

Average abnormal change in trading volumes for each trading day within the event window are

$$AAV_t = \frac{1}{N}\sum_{i=1}^{N}SAV_{it}.$$

Ideally the earnings announcement study should be conducted using a measurement of earnings surprises; however, as the professional analyst market in China is just beginning and there is no complete analyst forecast data available, we cannot exercise on it.[8] We estimate the earnings surprises by examining the return from the previous day's closing price. Therefore, the sample is partitioned into two groups, positive and negative announcements. A positive earnings announcement is defined as an announcement that is associated with an increase in the stock price on the announcement day. A negative earnings announcement is associated with a decrease in the stock price on the announcement day.

5. Results

Table 1 reports summary statistics of the sample from each of the exchanges as at 1 August 2005. These results show that the market value of A-shares in our sample is larger than B-shares for both exchanges. The P/E ratio and trading volume of A-shares are also universally larger than B, which indicates that there is a price premium in A-shares or a price discount in B-shares. There is more trading activity in A-shares than B-shares. The level of trading in A-shares is more volatile than B-market shown by the difference in the standard deviation of trading volume in the two markets.

[Table 1]

5.1. Period with full trading restrictions

Prior to 20 February 2001 the markets for A-shares and B-shares are well segmented. A-shares are traded by Chinese citizens, and B-shares are traded by foreign investors only. Table 2 and Table 3 present the results of this sub-sample.

[Table 2]

---

[8] IBES has limited earnings forecast data on Chinese stock market, however, as the forecast data are offered by the foreign institutional brokers, it is not clear how it is relevant to the local investors.

Table 2 depicts the return and volume reactions for negative announcements prior to 2001. There is a significant Abnormal Return (AR) of -3.1% in A-market on the event day and -5.1% in B-market. This suggests a significant price changes in both of the market upon the earnings announcement. Additionally, there is a significant difference 2% in ARs between A and B-markets. The difference here suggests that the Shanghai A-share market is significantly less responsive to B-share markets for negative announcements.

When the trading volumes around the announcements are investigated, we find different trading activities in A and B market. In A market, there were significant increased trading lead to the announcement day and slight reversion 3 days after the announcement. However, in B market, there was essentially no increased trading across event windows. Though there was an increase in volume on the event day at 1.752 per cent, it was not significant.

Kim and Verrecchia (1991) claim that the price changes reflect the change in the aggregate market's average beliefs and trading volume is the sum of all individual investors' trades. Thus, trading volume preserves differences among individual investors that are "cancelled out" in the averaging process that determines equilibrium prices. Therefore, it is possible that some earnings announcements will generate different magnitude of changes in trading volume and price changes. Bamber and Cheon (1995) argue that there are significant conceptual differences between price and volume reactions to informative disclosures. In particular, if the announcement causes a change in average beliefs which induces a price change while investors have identical predisclosure expectations and interpretations of the announcement, the trading volume may be low, and vice versa. We suspect that in those cases of negative announcements, the investors in B market have formed the homogeneous predisclosure expectations and interpretations of the announcement even though the announcements do cause a change in average beliefs of the aggregate market. However, this was not the case for the A market.

A test on the difference of change of volume in A versus B reveals that over the most of the event window, A markets has significant less change of volume compared with B. This seems to be consistent with the returns results that A market investors react less to negative announcements than B counterpart.

[Table 3]

Table 3 depicts the result of positive announcements prior to 2001. On the event day, the significant abnormal return (AR) in A-market is 2.5%. While in B-market, there is a significant abnormal return of 3.5%. Additionally, the price change in B actually starts one day lead up to the announcement. The significant difference in returns is about -1% across A and B-market. The result here shows that for positive announcements, A-market is also less responsive to B counterpart on the event day.

However, the tests on the trading volume show different results compare with the negative announcements. In A market, there is significant increase in trading on the first couple of days of announcement and a reversal on day 3 and 4. Compare to the reaction to negative announcements, it looks that A market investors do expect and trade on negative announcements however not the positive one. In B market, the reaction in volume is similar to the negative announcements, in which there is generally no significant increase or decrease in volume except on day -3 and day 10. The results here suggest that A market investors also have more heterogeneous expectations over positive announcement compare to the B counterpart.

Overall the difference in returns during this period indicates A-market reacts less than B, which is consistent with previous finding that B-market is less informed (Chan et al. 2007). Additionally the volume results reveal that A-market investors have more diverse expectations about earnings announcements than B investors. Additionally, A-market investors expect and trade more on negative announcements.

5.2. Period with reduced trading restrictions

13

The trading restrictions of both A and B-shares were relaxed after 8 November 2002. Some selected foreign institutional investors are allowed to trade in A-shares through the provision of QFII. And local investors are allowed to trade in B since Feb 2001.

Table 4 and Table 5 provide results of the period after Nov 2002.

[Table 4]

Table 4 summarizes the result for negative announcements after 2002. The abnormal return is -1.8% in A-market on event day and a small significant return of -0.2% on -7 day. The abnormal return persists longer into day +6 and day +9 in A-market. For B-market, the abnormal return on event day is -1.9% but there is a positive return of 0.5% on the day before the announcement. The negative return also shows up on day +7 at 0.3%. Contrary to the results prior to 2001, there is no significant difference in abnormal returns between two markets on the event day, but about -0.4% on day -1 which might be a result of B's reaction on day -1. Similarly, the significant difference in return on day +6 might be due to the reactions of day +6 in A and day +7 in B. The return results here suggest that though the return reactions in A market is still smaller than B, the difference of two markets has declined, which seems to indicate a decrease of information asymmetry across two markets.

The trading volume results in A market are similar to the one before 2002. There is no significant change in volume on event day but couple of days before and a reversal in change of volume couple of days after the event. However, the patter of change in volume in B market is different from the results prior to 2001. This reveals that after the regulatory change, there is more trading on earnings announcements in B market. There is a significant increase in volume on event day and a reversal the day after in B market. According to the arguments of Kim and Verrecchia (1991) and Bamber and Cheon (1995), the significant trading increase in B seems to suggest that the expectation of investors in B market is more diverse than the period before 2001. We suspect the mixture of both local and foreign investors in B markets has caused this.

14

[Table 5]

For positive announcements, the Table 5 indicates that the abnormal return in A-market is 2% but there are some information leakage in A-market as the abnormal returns are also significant on day -7th , -5th day before the event. In B market, the abnormal return is 2.4% on the event day. And the abnormal return is also significant on day -5 and -4. The significant abnormal returns prior to events are all with negative signs, and it looks that both of the A and B-market investors have predicted the earnings announcement in the wrong direction before the event day. The difference between returns across two markets is not significant at all, which is consistent with the results from the negative announcements that the difference in price reactions has disappeared after 2002.

In the trading volume part, the increase in trading of A-market is quite consistent with the pattern from period before 2001. There is a significant increase in trading on event day for positive announcements which also shows up on day 4 and 6. In B market the trading also increases on event day, but there are decreased trading on -5th and 3rd and 6th day. Again similar to negative announcements, we see the significant increase in trading on event day, and this suggests that the investors' expectation about the announcements are more diverse than the period prior to 2001.

Overall, the results after 2002 suggest that with reduced trading restrictions the difference in abnormal returns across two markets found prior to 2001 becomes smaller (for negative announcements) or not significant at all (for positive announcements). This might be a result of improved information dissemination after regulatory change. However, there seems to be more severed information leakage during this period compared to prior 2001 especially in A-market. And in some occasions such as the positive announcements, the investors predict the announcements in wrong direction. Interestingly, during this period of time, we see significant increase in trading for both negative and positive announcements in B-market. This seems to suggest that the investors' expectations of announcements are more diverse in B-market after the

15

regulatory change. As both domestic and foreign investors trade together during this period, we suspect that the interactions of both informed and uninformed investors have caused some heterogeneity in the predictions of announcements.

6. Conclusion

The results of our study are generally consistent with previous findings that the earnings announcements are informationally valuable to the markets as in all our cases the abnormal returns around the event day are significant. There are some evidence of pre-event information leakage in A-market after 2002, especially for the positive announcements.

As we investigate the abnormal returns of paired matched stock as well as trading volumes, a few interesting results appear here. First, domestic investors of A-market react less to both negative and positive announcements compared to the respective foreign counterparties when two markets are completely segmented. It seems that the earnings announcements are less informationally valuable for domestic investors prior to 2001. However, this difference declines after 2002. Across both of A and B-market, the magnitude of abnormal returns as well as the difference between two markets have declined in more recent time when the trading restrictions are reduced. This indicates that both domestic and foreign investors predict the earnings information better as a result of the reduced segmentation of the market. We suspect that the mixture and interaction of domestic and foreign investors have reduced the information asymmetry across two markets.

Secondly, the trading activities of A and B investors upon announcements are different. The A-market investors seem to have more heterogeneous expectations on announcements compared with B counterpart when two markets are completely segmented. Furthermore, A-market investors form more similar expectations on positive announcements compare to negative ones. However, with the trading restriction reduced after 2002, we see more diverse reactions in B-market trading on announcement day. It

seems that the mixture of both domestic and foreign investors after 2002 in B market has increase the information dissemination.

The results here point to some interest issues. Fist of all, it seems that positive news and negative news are absorbed differently in the A-market. The results suggest that the A-market investors have more diverse expectation in the case of negative announcements but it is not the case with the B-market. Are the different reactions of positive verse negative news a result of behaviour biases among local and foreign investors? In the Chinese market, A-shares are mainly owned by individual investors while there are more institutional investors in B-share market.[9] As the stock markets were only established in China two decades ago, the domestic investors are less educated about the functioning of the stock market and thus relatively less sophisticated than investors in other developed markets[10]. Thus whether the different behavioural biases among local and foreign investors as suggested by Odean (1998, 1999) have contributed to the information efficiency in the market is an interesting issue. Additionally, we see more information leakage after 2002 especially in A-market. As the trading restrictions are reduced in this period of time, is the information leakage contributed by the entry of foreign investors to the local market? All these issues are subject to future research.

---

[9] For example, in 1995, the proportion of institutional investors in SHSE A-market was 0.57% compared to 16.47% in B-market.[9](Huang, 2004; Gao and Tse, 2004).

[10] Wang et al. (2006) investigated the psychological mechanism of Chinese local investors. By using a survey they provided empirical evidence that Chinese investors have a speculative orientation and low level of risk perception. Their results also indicated that the Chinese local investors are deficient in investment knowledge and skills.

References:

Ball, R. and Brown, P. 1968, An Empirical Evaluation of Accounting Income Numbers, Journal of Accounting Research, autumn, pp.159-178.

Bamber, L. 1986, The Information Content of Annual Earnings Releases: A Trading Volume Approach, Journal of Accounting Research, vol. 24 (Spring), pp. 40-56.

Bamber, L. 1987, Unexpected Earnings, Firm Size and Trading Volume Around Quarterly Earnings Announcements, The Accounting Review, vol. 62, (July), pp. 510-532.

Bamber, L. and Cheon, Y.S. 1995, Differential Price and Volume Reactions to Accounting Earnings Announcements, The Accounting Review, vol. 70, no. 3, July, pp. 417-441.

Beaver, W. 1968, The Information Content of Annual Earnings Announcements, Empirical Research in Accounting, Supplement to Journal of Accounting Research, vol. 6, pp. 67-92.

Bernard, V., Thomas, J. 1989, Post-Earnings-Announcement Drift: Delayed Price Response or Risk Premium? Journal of Accounting Research vol. 27, Supplement, pp.1-48.

Bernard, V., 1992, Stock Price Reactions to Earnings Announcements: a Summary of Recent Anomalous Evidence and Possible Explanations. In: Thaler (Ed.), Advances in Behavioural Finance. Russell Sage Foundation, New York.

Chakravarty, S., Sarkar, A. and Wu, L. 1998, Information Asymmetry, Market Segmentation and the Pricing of Cross-listed Shares: Theory and Evidence from Chinese A and B Shares, Journal of International Financial Markets, Institutions and Money, vol. 8, pp. 325-355.

Chan, K., Menkveld, A.J. and Yang, Z. 2007, Information Asymmetry and Asset Prices: Evidence from the China Foreign Share Discount, Journal of Finance, forthcoming.

Fama, E. and French, K.R. 1993, Common Risk Factors in the Returns on Stocks and Bonds, Journal of Financial Economics, vol. 33, no. 1, pp. 3-56.

Gao, Y. and Tse, Y.K. 2004, Market Segmentation and Information Value of Earnings Announcements: Some Empirical Evidence from an Event Study on the Chinese Stock Market, International Review of Economics and Finance, vol. 13, pp. 455-474.

He, H. and Wong, J. 1995, Differential Information and Dynamic Behaviour of Stock Trading Volume, Review of Financial Studies, vol. 8, pp. 919-972.

Higgins, E. J. and Peterson, D. R. 1998, The Power of One and Two Sample T-Statistics Given Event-Induced Variance Increases and Nonnormal Stock Returns: A Comparative Study, Quarterly Journal of Business and Economics, vol. 37, no. 1, pp. 27-49.

Huang, X. 2004, China Stock Price Reactions to Financial Announcements: Evidence from Segmented Markets, Managerial Finance, vol. 30, no. 3, pp.62-73.

Kaye, L. and Cheng, E. 1992, Babes in the Bourse, Far Eastern Economic Review, vol. 16, July, pp. 48-50.

Kim, O. and Verrecchia, R. 1991, Trading Volume and Price Reactions to Public Announcements, Journal of Accounting Research, vol, 29 (Autumn), pp. 302-321.

Lev, B. 1989, On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research, Journal of Accounting Research, vol. 27, Supplement, pp. 153-192.

Mei, J., Scheinkman, J.A. and Xiong, W. 2004, Speculative Trading and Stock Prices: Evidence from Chinese A-B Share Premia, Working paper, Department of Economics, Princeton University.

Odean, T. 1998, Are Investors Reluctant to Realize Their Losses? Journal of Finance, 53, 1775-1798.

Odean, T. 1999, Do Investors Trade Too Much? American Economic Review, 89, 1279-1298.

Pilotte, E. 1992, Growth Opportunities and the Stock Price Response to New Financing, vol. 65, no. 3, pp. 371-394.

Sun, Q. and Tong, W.H.S. 2000, The Effect of Market Segmentation on Stock Prices: The China Syndrome, Journal of Banking & Finance, vol. 24, pp. 1875-1902.

Su, D. 2003, Stock Price Reactions to Earnings Announcements: Evidence from Chinese Markets, Review of Financial Economics, vol. 12, pp. 271-286.

Sze, J.W. 1993, The Allure of B Shares, China Business Review, Jan-Feb, pp. 42-48.

Xu, C.K. 2000, The Microstructure of the Chinese Stock Market, China Economic Review, vol. 11, pp. 79-97.

Wang, X.L., Shi, K. and Fan, H.X. 2006, Psychological Mechanisms of Investors in Chinese Stock Markets, Journal of Economic Psychology, vol. 27, pp. 762-780.

Figure 1:

Shanghai market indexes

Figure 2:

Shenzhen market indexes

20

Table 1. summary statistics

Companies	Shanghai Stock Exchange 45				Shenzhen Stock Exchange 45			
	A		B		A		B	
Total MV	72915.03	*1317.23*	18904.39[1]	*494.52*	105157.9	*2732.96*	34768.15[2]	*1324.23*
Mean PE	77.9	*110.054*	68.34	*251.56*	125.18	*363.02*	98.75	*358.59*
Mean VO	1504.9	*2364.42*	748.50	*1272.32*	4550.67	*18115.81*	927.14	*1729.85*

Note: MV stands for the market value in unit of millions of Chinese currency Yuan, PE stands for the price earning ratio and VO stands for the daily trading volume in terms of number of shares traded in unit of 1000. The italic numbers are standard deviation.

[1] The SHSE B-shares are denominated in US dollars. The MV value here has been converted to Chinese currency Yuan at exchange rate 1$US=7.8Yuan.

[2] The SZSE B-shares are denominated in Hong Kong dollars. The MV value here has been converted to Chinese currency Yuan at exchange rate 1$HK=0.95Yuan.

Source: DataStream.

Table 2. Negative announcements prior to 2001:

Window	A-Market				B-Market				Diff in return	t-test
	Return	t-test	Volume	t-test	Return	t-test	Volume	t-test		
-10	0.001	0.872	0.109	1.675	0.004	1.033	0.141	0.611	-0.003	-0.739
-9	-0.001	-0.525	-0.038	-0.555	-0.002	-0.682	0.108	1.031	0.002	0.477
-8	0.001	0.964	0.059	0.711	0.002	1.060	0.216	0.596	-0.001	-0.420
-7	-0.001	-1.171	-0.035	-0.611	-0.001	-0.492	0.155	0.828	0.000	-0.108
-6	0.000	0.265	-0.055	-1.130	0.000	-0.020	3.876	1.077	0.000	0.146
-5	0.002	1.468	**0.188**	**2.471**	-0.001	-0.459	1.351	1.216	0.003	1.225
-4	-0.001	-0.429	-0.015	-0.218	-0.002	-0.862	0.088	0.514	0.001	0.500
-3	0.000	0.086	**0.231**	**2.354**	-0.001	-0.372	0.331	1.333	0.001	0.354
-2	-0.001	-0.659	-0.015	-0.261	-0.001	-0.629	0.484	1.168	0.001	0.228
-1	0.002	1.701	**0.225**	**2.617**	0.002	0.849	0.365	0.826	0.000	0.073
0	**-0.031**	**-22.190**	0.139	1.640	**-0.051**	**-19.512**	1.752	1.439	**0.020**	**6.791**
1	-0.003	-1.946	0.102	1.642	0.003	1.019	0.260	1.086	-0.005	-1.802
2	-0.001	-0.553	-0.110	-1.321	0.002	0.955	0.736	1.642	-0.003	-1.103
3	0.000	0.268	**-0.169**	**-4.225**	-0.002	-0.882	0.219	1.191	0.002	0.893
4	0.000	0.173	-0.009	-0.140	0.003	1.452	0.425	1.253	-0.002	-1.122
5	0.000	-0.230	-0.101	-1.853	-0.003	-1.488	0.241	0.918	0.003	1.206
6	0.000	-0.086	-0.013	-0.252	-0.003	-1.585	0.332	1.146	0.003	1.349
7	0.001	1.394	0.003	0.041	0.003	1.291	-0.009	-0.096	-0.001	-0.524
8	0.000	0.389	0.142	1.770	-0.002	-0.933	0.367	1.305	0.002	1.006
9	-0.001	-0.640	0.161	1.245	0.001	0.306	**0.330**	**2.235**	-0.001	-0.577
10	0.000	0.137	-0.059	-1.119	0.000	-0.214	0.915	1.164	0.001	0.254

Note: Return stands for abnormal returns while Volume stands for standardized abnormal change in trading volumes. The italic columns are t-statistics. The significant values are in bold.

The abnormal return is the Fama and French three-factor model adjusted returns. The abnormal change in trading volume (AV) for each trading day within the event window where the abnormal change is calculated as follows

$AV_{it} = Vol_{it} - \overline{Vol}_i$. Here Vol_{it} is the change of trading volume of stock i on day t. $\overline{Vol}_i$ is the average change of daily trading volume of stock i between -31 day to -11 day prior to the event window. The standardized abnormal change of trading volume is $SAV_{it} = AV_{it} / S(Vol_i)$, Where $S(Vol_i)$ is the standard deviation of change of volume between -31 to -11 days prior to the event.

Table 3. Positive announcements prior to 2001:

	A-Market				B-Market				Diff in return	t-test
	Return	t-test	Volume	t-test	Return	t-test	Volume	t-test		
-10	0.000	0.113	0.068	0.944	-0.002	-1.020	-0.027	-0.334	0.002	0.955
-9	0.001	0.638	0.061	0.839	-0.001	-0.498	1.264	1.427	0.002	1.074
-8	-0.001	-0.271	0.011	0.196	-0.001	-0.290	-0.075	-1.253	0.000	0.051
-7	-0.001	-0.618	-0.003	-0.035	-0.002	-0.953	0.222	1.811	0.001	0.277
-6	-0.001	-0.640	-0.060	-1.244	**-0.006**	**-2.725**	0.445	1.850	**0.005**	**1.972**
-5	-0.001	-0.456	0.178	1.932	0.000	0.049	0.966	1.954	-0.001	-0.441
-4	0.002	0.761	-0.018	-0.264	0.004	1.731	0.507	1.229	-0.002	-0.937
-3	0.001	0.335	0.056	0.785	0.002	1.049	**-0.186**	**-2.574**	-0.002	-0.647
-2	-0.003	-1.412	0.095	1.171	-0.001	-0.628	1.941	1.308	-0.002	-0.832
-1	0.000	-0.028	0.015	0.248	**0.005**	**2.292**	1.325	1.114	**-0.005**	**-2.053**
0	**0.025**	**8.583**	**0.866**	**8.229**	**0.035**	**14.994**	0.215	0.859	**-0.010**	**-3.691**
1	0.001	0.484	**0.287**	**3.235**	-0.004	-1.640	0.946	1.906	0.005	1.887
2	-0.002	-0.967	**-0.205**	**-3.648**	0.002	0.875	-0.003	-0.019	-0.004	-1.670
3	0.000	-0.062	**-0.128**	**-2.302**	0.000	0.155	0.088	0.593	0.000	-0.195
4	0.000	-0.010	-0.009	-0.113	-0.001	-0.575	0.067	0.542	0.001	0.483
5	-0.001	-0.400	-0.093	-1.450	0.000	-0.048	0.235	1.514	-0.001	-0.384
6	0.001	0.389	-0.057	-0.946	-0.001	-0.559	0.265	1.481	0.002	0.880
7	0.000	-0.013	0.025	0.334	0.002	0.888	1.870	1.082	-0.002	-0.775
8	-0.002	-0.731	0.013	0.197	0.001	0.578	0.155	1.082	-0.003	-1.222
9	0.002	0.737	-0.020	-0.331	-0.004	-1.899	0.069	0.377	**0.005**	**2.360**
10	-0.001	-0.477	-0.018	-0.282	0.000	0.233	**0.468**	**2.144**	-0.001	-0.676

Note: Return stands for abnormal returns while Volume stands for standardized abnormal change in trading volumes. The italic columns are t-statistics. The significant values are in bold.

The abnormal return is the Fama and French three-factor model adjusted returns. The abnormal change in trading volume (AV) for each trading day within the event window where the abnormal change is calculated as follows

$AV_{it} = Vol_{it} - \overline{Vol}_i$. Here Vol_{it} is the change of trading volume of stock i on day t. $\overline{Vol}_i$ is the average change of daily trading volume of stock i between -31 day to -11 day prior to the event window. The standardized abnormal change of trading volume is $SAV_{it} = AV_{it} / S(Vol_i)$, Where $S(Vol_i)$ is the standard deviation of change of volume between -31 to -11 days prior to the event.

Table 4. Negative announcements after 2002:

Window	A-Market				B-Market				Diff in return	t-test
	Return	t-test	Volume	t-test	Return	t-test	Volume	t-test		
-10	0.000	0.075	0.087	0.871	-0.001	-0.796	0.089	0.923	0.001	0.660
-9	0.000	0.226	0.056	0.463	0.002	1.518	0.053	0.245	-0.002	-1.115
-8	0.000	0.048	0.156	1.573	0.000	-0.317	0.154	0.731	0.000	0.262
-7	**-0.002**	**-2.236**	0.017	0.196	0.000	0.062	0.001	0.012	-0.002	-1.451
-6	-0.001	-1.468	0.065	0.702	-0.001	-0.950	0.072	0.572	0.000	-0.243
-5	0.001	0.965	0.118	1.553	0.000	0.035	0.846	1.436	0.001	0.586
-4	0.001	0.502	0.008	0.114	-0.002	-1.608	0.034	0.252	0.003	1.534
-3	0.001	0.780	-0.087	-1.283	-0.002	-1.073	-0.054	-0.645	0.002	1.325
-2	0.001	1.030	**0.229**	**2.012**	0.001	0.961	0.178	1.549	0.000	0.032
-1	0.000	0.271	0.077	0.784	**0.005**	**3.316**	-0.127	-1.395	**-0.004**	**-2.281**
0	**-0.018**	**-15.530**	-0.079	-1.139	**-0.019**	**-12.542**	**0.407**	**2.331**	0.001	0.311
1	-0.002	-1.285	0.044	0.575	0.002	0.990	**-0.266**	**-4.298**	-0.003	-1.584
2	-0.001	-1.007	**-0.137**	**-2.308**	0.000	-0.048	-0.061	-0.643	-0.001	-0.508
3	-0.001	-0.773	-0.062	-0.898	-0.001	-0.579	0.209	1.249	0.000	-0.088
4	-0.001	-1.042	0.099	1.094	-0.001	-0.533	1.612	0.938	-0.001	-0.286
5	-0.001	-0.475	0.235	1.521	-0.002	-1.327	-0.093	-0.998	0.001	0.732
6	**-0.003**	**-2.798**	-0.013	-0.187	0.001	0.847	0.070	0.660	**-0.004**	**-2.378**
7	0.000	0.053	-0.017	-0.221	**-0.003**	**-2.488**	-0.084	-0.715	0.003	1.952
8	-0.001	-0.732	0.024	0.249	0.000	0.137	-0.036	-0.409	-0.001	-0.642
9	**-0.002**	**-2.042**	-0.019	-0.270	-0.001	-0.656	0.100	0.774	-0.002	-1.039
10	0.000	-0.330	0.023	0.197	0.001	1.040	0.033	0.239	-0.001	-1.026

Note: Return stands for abnormal returns while Volume stands for standardized abnormal change in trading volumes. The italic columns are t-statistics. The significant values are in bold.

The abnormal return is the Fama and French three-factor model adjusted returns. The abnormal change in trading volume (AV) for each trading day within the event window where the abnormal change is calculated as follows

$$AV_{it} = Vol_{it} - \overline{Vol}_i.$$ Here Vol_{it} is the change of trading volume of stock i on day t. $\overline{Vol}_i$ is the average change of daily trading volume of stock i between -31 day to -11 day prior to the event window. The standardized abnormal change of trading volume is $SAV_{it} = AV_{it} / S(Vol_i)$, Where $S(Vol_i)$ is the standard deviation of change of volume between -31 to -11 days prior to the event.

Table 5. Positive announcements after 2002:

Window	A-Market				B-Market				Diff in return	t-test
	Return	t-test	Volume	t-test	Return	t-test	Volume	t-test		
-10	-0.001	-0.768	0.170	1.657	0.000	0.264	0.126	1.134	-0.001	-0.696
-9	0.001	1.032	-0.007	-0.082	0.001	0.388	-0.055	-0.475	0.001	0.431
-8	-0.002	-1.758	0.138	1.089	-0.001	-0.721	0.162	1.042	-0.001	-0.755
-7	**-0.003**	**-2.092**	0.108	1.019	-0.002	-1.352	-0.006	-0.057	-0.001	-0.613
-6	-0.002	-1.641	0.028	0.393	0.001	0.415	0.001	0.012	-0.003	-1.361
-5	**-0.005**	**-3.830**	0.126	1.138	**-0.003**	**-2.136**	**-0.176**	**-1.999**	-0.002	-1.117
-4	-0.001	-0.363	0.429	1.755	**-0.003**	**-1.968**	0.165	1.368	0.003	1.281
-3	**-0.003**	**-2.384**	0.327	1.850	-0.003	-1.767	0.101	0.742	0.000	0.078
-2	**-0.004**	**-2.675**	0.148	1.040	0.000	0.061	0.149	1.319	-0.004	-1.651
-1	**-0.003**	**-2.234**	0.025	0.247	-0.001	-0.541	-0.090	-1.029	-0.002	-0.827
0	**0.020**	**14.211**	**0.187**	**1.912**	**0.024**	**12.142**	**0.981**	**4.429**	-0.004	-1.627
1	0.002	1.091	0.105	1.086	0.001	0.692	-0.166	-1.307	0.000	0.180
2	-0.001	-1.206	-0.054	-0.674	0.000	-0.236	-0.147	-1.052	-0.001	-0.631
3	0.001	0.938	-0.046	-0.620	0.002	1.441	**-0.259**	**-4.459**	-0.001	-0.274
4	-0.002	-1.490	**0.299**	**2.085**	0.002	1.125	0.095	0.833	-0.003	-1.804
5	0.000	0.423	-0.060	-0.766	0.000	-0.149	0.028	0.203	0.001	0.396
6	0.001	0.745	**0.551**	**3.855**	0.000	-0.083	**-0.179**	**-2.346**	0.001	0.615
7	0.000	-0.342	0.082	0.581	0.001	0.935	3.576	1.021	-0.001	-0.934
8	0.000	-0.404	-0.056	-0.709	-0.002	-1.335	-0.090	-0.936	0.001	0.769
9	0.000	-0.017	-0.057	-0.670	0.001	0.598	0.185	0.896	-0.001	-0.475
10	0.000	-0.028	0.024	0.289	-0.001	-0.420	0.127	0.814	0.001	0.292

Note: Return stands for abnormal returns while Volume stands for standardized abnormal change in trading volumes. The italic columns are t-statistics. The significant values are in bold.

The abnormal return is the Fama and French three-factor model adjusted returns. The abnormal change in trading volume (AV) for each trading day within the event window where the abnormal change is calculated as follows

$AV_{it} = Vol_{it} - \overline{Vol}_i$. Here Vol_{it} is the change of trading volume of stock i on day t. $\overline{Vol}_i$ is the average change of daily trading volume of stock i between -31 day to -11 day prior to the event window. The standardized abnormal change of trading volume is $SAV_{it} = AV_{it} / S(Vol_i)$, Where $S(Vol_i)$ is the standard deviation of change of volume between -31 to -11 days prior to the event.