Stock Market Liberalization and Market Returns in China: Evidence from QFII Announcement

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Abstract

Stock market liberalization is a decision to allow foreign investors to purchase domestic shares. This paper is an event study on market reactions around the announcement of the Qualified Foreign Institutional Investors (QFII) scheme in China. We find no significant abnormal returns in market indices in the short-term period leading up to the announcement, negative abnormal returns in the short-term period following the announcement, and no significant abnormal returns in the long-term period thereafter. The findings do not comply with the prediction of international asset pricing models. The QFII scheme may not help much in reducing the cost of equity capital and risk premium of China companies.

Keywords: *stock market liberalization, market segmentation, QFII, event study*

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1 Introduction

Stock market liberalization is a political decision by the government to allow foreign investors to invest in domestic stock markets (and less commonly, to allow domestic investors to purchase foreign shares). Stock market liberalization is extensively studied in empirical researches on economic growth and financial development. Stock market liberalizations are considered exogenous factors and avoid the potential endogeneity between financial development and growth. Researches on economic growth and financial development reveal that a well-developed financial sector is critical for economic growth. Early days of research can be traced back to Schumpeter (1911) who argues that financial services are paramount in promoting economic growth. Levine (1997) provides a comprehensive review on previous works. King and Levine (1993) show that initial level of financial development can predict future economic growth. Using cross-sectional analysis, Levine and Zervos (1997) show that measures of stock market liquidity, size, volatility and integration with world capital markets are correlated with economic growth.

Recent researches by Henry (2000), Kim and Singal (2000), Bekaert and Harvey (2000), Patro and Wald (2003), and others take another perspective. They study the impact of stock market liberalization on emerging market returns, asset prices, volatility, and cost of equity. Henry (2000) finds that in the 12 emerging countries he examines, stock markets experience average abnormal returns of 3.3 percent per month in real dollar terms during an eight-month event window preceding a country's initial stock market liberalization, after controlling for other economic factors. A 6.6 percent revaluation takes place in the implementation month itself. Kim and Singal (2000), and Bekaert and Harvey (2000) also examine the relationship between stock market liberalization and stock returns. They find

evidence that emerging market stock returns are abnormally high in the months leading up to liberalization. Bekaert and Harvey (2000) find that abnormal returns may increase or decrease in the post-liberalization period, depending on the model specification, but liberalization reduces aggregate dividend yields throughout the periods studied. Kim and Singal (2000) find that stock returns decrease about one year after market liberalization. Patro and Wald (2003) find similar results as Henry (2000) and Kim and Singal (2000).

This paper complements the findings of the earlier papers, which did not cover China. In line with these papers, our research is an event study on China stock market liberalization. We use the natural experiment, the announcement of Qualified Foreign Institutional Investors (QFII) policy to study its impact on equity markets. We focus on market return changes. Previous studies use monthly data to observe long-term changes. Our study uses daily data to capture temporal as well as long-term changes. We test the validity of the theoretical international asset pricing models in these earlier papers on China. The study also complements researches on market segmentation and market efficiency. The findings can serve as early day evidence on the success of QFII policy.

Our research interest is to examine market reactions on this stock market liberalization announcement before and after the event. We divide the study period into four sections: the before-event period, pre-event period, post-event period and after-event period. We compare our findings with other studies on stock market liberalization. We try to observe the similarities and differences among the four China stock markets, and between China stock markets and other emerging markets on reactions towards market liberalization. We employ panel regression, which incorporates time series and cross-sectional analysis, in the same way Henry (2000) does.

We find that the only period with significant abnormal return is the post-event period, and the return is negative (-0.505 percent per day on average). Other periods are not much different from the estimation period. The abnormal return is attributed by Shenzhen A share

market, which records a marginally significant average daily loss of 0.618 percent. Besides this finding, there is no significant difference in reaction towards QFII announcement among the A and B share markets. Our findings contrast those in other studies, which show positive abnormal returns in the pre-event period and negative abnormal returns in the long-term after-event period.

The findings in this paper may have some practical implications for China policy makers. The negative abnormal returns in the post-event period suggest that investors have reservation on the effectiveness of QFII scheme. The lack of negative abnormal returns in the after-event period suggests that QFII may have limited effect in bringing down cost of capital. Maybe foreign investors already have enough avenues (H shares, B shares, FDI, etc) to invest in China, or QFII is too restrictive to attract significant foreign portfolio investments, or the cost of capital in China is lower than global average.

This paper is organized as follows. Section 2 provides the theoretical motivation for our research. Section 3 describes the event of market liberalization and the data used for this study. Section 4 develops the research methodology. Section 5 presents the empirical findings on how market returns change before, during and after the liberalization. Section 6 summarizes and concludes the paper.

2 Motivation

2.1 The Background

Closed for nearly half a century, China stock markets were re-opened in early 1990s. In the late 1980s, China transformed many state-owned-enterprises into stock companies. The first stock market in the history of the People's Republic of China, Shanghai Stock Exchange, opened on November 26, 1990. Shenzhen Stock Exchange opened on April 11, 1991. Initially only one class of shares, the public A shares, were allowed to trade on

exchanges. In 1992, a new class of shares, the B shares, was created for foreign investors.

The A-shares are domestic ordinary shares denominated and traded in renminbi by Chinese citizens only. The majority of A shares are issued by state-owned-enterprises and can be further divided into three classes – the state shares which are held by the government through a designated government agency, the legal shares (also called restricted institutional shares) which are held by "legal persons" which are enterprises or other economic entities besides individuals, and public shares which are owned by ordinary Chinese citizens. Only public shares are tradable at the exchanges. The B shares are ordinary shares denominated in renminbi but traded in foreign currencies (US dollars for Shanghai B shares, Hong Kong dollars for Shenzhen B shares). B shares are legally identical to A shares. Holders of B shares have the same rights and bear the same obligations as holders of A shares. The main differences are that B shares are restricted to foreign investors (before February 19, 2001), and that price quotes and dividend payments are in foreign currency. Individual investors are allowed to hold up to 25 percent of a firm's B shares, but the total foreign ownership of a firm cannot exceed 49 percent. The trading mechanism for B shares is similar to that for A shares. Besides A and B shares, Chinese companies are allowed to list shares overseas, which are known as H shares for those listed in Hong Kong, N shares for New York listing, L shares for London listing and S shares for Singapore listing. These overseas shares constitute a small proportion of a company's shareholding.

By the end of August 2003, there were 1268 listed companies, of which 1127 companies issued A shares only, 24 companies issued B shares only, and 87 companies had both A and B shares. Market capitalization was RMB 4030.6 billion, of which RMB 1306.3 billion was the capitalization value of tradable shares. There were 623.9 billion shares issued, of which 401.8 billion shares were closely held. Among the 222.1 billion tradable shares, 165.7 billion were A shares, 17.5 billion were B shares, and the balance of 38.9 billion

shares was H, N L or S shares. . There were 69.8 million registered investor accounts[1]. This made China the ninth largest stock market in the world and the second largest (after Japan) in Asia based on market capitalization.

Similar to other developing countries, China set up legal restrictions on foreign ownership of domestic equities in order to maintain the control over local firms. The A and B share markets were completed segmented till February 19, 2001. Since then, China Securities Regulatory Commission allowed domestic investors to purchase B shares with certain conditions. A domestic investor has to open a bank account designated for trading B shares. Foreign exchange in such an account has to be transferred from foreign banks. Still, there is no arbitrage opportunity between the A and B share markets. Whether opening the B share market to domestic investors can be considered stock market liberalization is subject to argument, as the policy does not create new avenue to foreign investors. As Ahlgren, Sjoo and Zhang (2003) argue, the A and B share markets remain segmented after the opening.

On November 5, 2002, China regulatory authorities announced the Qualified Foreign Institutional Investors (QFII) scheme. The scheme opens the door for foreign investors to participate in China's major stock markets, the A share markets. This is the most important stock market liberalization policy enforced by China in last decade. Market responses will provide hints on its success and future direction of stock market liberalization.

2.2 Theoretical Framework

The foundation of this paper and studies of Henry (2000), Bekaert and Harvey (2000), and Kim and Singal (2000) are based on standard international asset pricing models and market segmentation. Chakravarty, Sarkar and Wu (1998) provide a detailed examination on

[1] All data are obtained from the official website of China Securities Regulatory Commission, http://www.csrc.gov.cn, as of September 30, 2003.

the issue of market segmentation in China's A and B share markets.

Corporate finance theories predict a fall in cost of equity capital upon market liberalization. When an emerging stock market is completely segmented from the rest of world stock markets, then the equity premium embedded in the market's aggregate valuation will be proportional to the variance of the country's aggregate cash flows. When the market is liberalized and fully integrate with the rest of the world, then the equity premium will be proportional to the covariance of the country's aggregate cash flows with those of a world portfolio. Bekaert and Harvey (2000), and Errunza and Miller (2000) show that the local price of risk (the variance) is higher than the global price of risk (the covariance). Thus when a segmented emerging stock market such as China is liberalized, the equity premium is expected to fall. Assuming constant future cash flows, the fall in equity premium will cause a permanent fall in the aggregate cost of equity capital and an attendant revaluation of the aggregate equity price index.

The theoretical derivation is based on Stulz (1999) and Bekaert and Harvey (2000). We take the common assumption that all investors in the world have the same constant relative risk aversion and only care about the expected return and variance of their investment. Let $E[R_M]$ be the expected rate of return on the aggregate domestic (i.e., China in this study) stock market before liberalization, and let r_f denote the domestic risk-free interest rate. We define the price of risk, T (which is a constant under our assumptions), as the aggregate risk premium, $E[R_M] - r_f$, divided by the variance of the aggregate market return, $Var\ (R_M)$:

$$E[R_M] = r_f + \mathrm{T}\ Var\ (R_M).$$

We also let $E[R'_M]$ be the expected rate of return on the market after liberalization and $E[R_W]$ be that on the world equity market. Let β_{MW} be the beta of the domestic stock market with the world stock market. When capital markets are completely open, the world risk-free rate, r_{wf}, becomes the relevant interest rate. We thus have:

$$E[R'_M] = r_{wf} + \beta_{MW}\,(E[R_W] - r_{wf})$$

As the market capitalization of China is small compared to that of global market, adding its stock market to the world market portfolio has a negligible effect on the variance and hence the risk premium of the world market portfolio. It follows that

$$E[R_W] = r_{wf} + \mathrm{T}\ Var(R_W), \text{ and}$$

$$E[R'_M] = r_{wf} + \mathrm{T}\ Cov(R_W, R_M)$$

The difference in the post- and pre-liberalization required rates of return is thus given by:

$$\Delta E[R_M] = E[R'_M] - E[R_M] = (r_{wf} - r_f) + \mathrm{T}\ \{Cov(R_W, R_M) - Var(R_M)\}$$

Since developing countries such as China have lower capital-to-labor ratios than developed countries, $r_{wf} < r_f$. Also, $Cov(R_W, R_M) < Var(R_M)$. Thus we have $\Delta E[R_M] < 0$, which means that stock market liberalization reduces the cost of equity capital of the liberalizing country.

Market reactions can also be explained by investment theories. In a segmented market, the market portfolio against which securities are priced is the home market index. When the market is liberalized, the market portfolio becomes the world index, and securities are revalued according to world market price of risk. As international diversification reduces risk, investors are willing to accept lower returns on their investments after market liberalization. Researches by Errunza and Losq (1985, 1989), Eun and Janakiramanan (1986), and Stulz (1999) also conclude that stock market liberalization results in risk sharing between domestic and foreign investors. Thus, we would expect a long-term reduced market return after the liberalization announcement. If there were information leakage before the announcement, which is common phenomenon for emerging markets, then there would be a short short-term surge in stock price levels around market liberalization announcement. Theoretical derivation is similar to that developed for the cost of capital argument.

If the above theories apply to China, then we would expect an increase in the A share market index levels in the period running up to the QFII announcement (as insider investors buy ahead of the news), and in the short period after the announcement. In the long run, the

A share stock markets will return less than the before-event period to reflect a fall in cost of equity capital.

Kim and Verrecchia (1991a, 1991b) illustrate that different classes of investors perceive the same public information with different values, and react differently. The A share market is exclusively for domestic investors and B share market caters foreign investors, and to a lesser extent, domestic investors. Both markets are highly segmented, even after the policy of opening B share markets to domestic investors (see Ahlgren, Sjoo and Zhang (2003)). The impact of the QFII announcement to B share markets is likely to be negative as foreign investors now face more investment opportunities in China stock markets. We would expect the B share markets to underperform with respect to the A share markets.

3 Event and Data

On November 5, 2002, the People's Bank of China and China Securities Regulatory Commission jointly release Order 12 (the Order) – Temporary Measures on Administration of Domestic Securities Investment by Qualified Foreign Institutional Investors (QFII). The Order came into effect on December 1, 2002. The policy allows QFII to buy, hold and sell A shares, government bonds and corporate bonds listed on the exchanges. Candidates for QFII can be investment management companies, insurance companies, securities firms or commercial banks that satisfy the paid-in capital, asset-under-management (AUM) and experience requirements. The first batch of five domestic QFII custodians was approved on February 27, 2003. The first batch of three international QFII custodians was approved on March 14, 2003. The first batch of QFII was approved on May 26, 2003. As of end of September 2003, eight international financial institutions were admitted as QFII.

The period under study is from December 26, 2001 to September 2, 2003, which spans 200 trading days before and 200 days after the event day, respectively. The event day is November 5, 2002, the date the QFII Order was released. We use Shanghai A-share Index

and Shenzhen A-share Index to represent the A-share market in both exchanges. The same token, Shanghai B-share Index and Shenzhen B-share index represent the B-share market in both exchanges. Daily index closing prices and exchange rates are taken from Bloomberg financial information provider. It is noted that renminbi is virtually pegged at 8.277 with US dollar during this study period, and Hong Kong dollar is fixed at 7.800 with US dollar. Returns on B-share indices are converted into renminbi.

4 Research Methodology

Classical event-study methodology is employed to examine the information contents of the QFII announcement and market reactions. We want to study the following issues:

(1) Are there abnormal returns in the pre-event period, which indicate information leakage ahead of the QFII announcement?

(2) Are there abnormal returns in the post-event period, when market revaluations take place in response to the liberalization announcement?

(3) Are there negative abnormal returns in the after-event period, when the liberalization information is fully digested by all investors?

(4) Do investors in the A and B share markets react differently to the liberalization announcement?

(5) Are China stock markets different from other emerging markets in reaction to the liberalization announcement?

The event day (day 0) is set to be November 5, 2002, the date the Order was officially released. In efficient markets, security prices react to an event when it is made known, not when it is implemented. We therefore use announcement date instead of implementation date. The estimation period is from day -200 to day -21, i.e., (-200, -21), which covers 180 trading days. Four event windows are defined: (-200, -21) for before-event period, (-20, 0) for pre-event period, (1, 20) for post-event period, and (21, 200) for after-event period.

The before-event period is the estimation period that provides the basis for analysis on other event window behavior. The pre-event period measures market activities when the market learns or speculates that market liberalization is going to occur. Errunza and Miller (2000) argue that there is likely to be information leakage prior to any official announcement in emerging markets. If that is the case, most of the reactions to the liberalization information will take place in this pre-event period. If the market subscribes to international asset pricing models, then market revaluation on the liberalization information will take place and will result in an increase of market index level. Be it the case for China, the A share indices would record statistically significant excess returns in this pre-event period.

Market reactions in the post-event period are mixed in previous studies. Post-event market performance is dependent on market behavior in the pre-event period. Henry (2000) points out that there is no theoretical reason to expect stock revaluation induced by stock market liberalization after policy implementation, as most of the activities occurred prior to the liberalization announcement due to information leakage. Bekaert and Harvey (2000) find that abnormal returns may increase or decrease in the post-liberalization period. Kim and Singal (2000) find a positive price reaction following liberalization. When China opened its B-share market to domestic investors on February 28, 2001, the B-share market responded with heavy turnovers and huge surge in stock prices that lasted for several weeks. We include the post-event period to examine whether such a kneejerk reaction recurs on QFII announcement.

The after-event period measures the long-term market performance after revaluation on stock market liberalization has been accounted for by investors. As the liberalization reduces cost of equity capital and equity risk premium, we expect lower market returns from the A share markets in the after-event period versus before-event period.

We expect the B share markets to underperform the corresponding A share markets as the investment universe for foreign investors is now expanded. The extent of

underperformance reflects the degree of market segmentation. The more the markets are segmented, the more the underperformance will be.

Let $R_{SA,t}$ be the return of Shanghai A share index on day t, $R_{ZA,t}$ be the return of Shenzhen A share index on day t, $R_{SB,t}$ be the return of Shanghai B share index on day t, $R_{ZB,t}$ be the return of Shenzhen B share index on day t. Using the common practice of continuously compounding method, R_{it} ($i = SA, ZA, SB, ZB$) is calculated as:

$$R_{it} = \ln P_{it} - \ln P_{i,t-1} \quad (1)$$

where P_{it} is the level of market index i on day t, i = SA, ZA, SB, ZB.

We use panel regression approach adopted by Henry (2000) to examine the magnitude and statistical significance of abnormal returns of the four markets represented by SA, SB, ZA and ZB during the study period. Panel regression allows pooling of time series and cross-sectional data for estimation efficiency.

$$R_{it} = \alpha_i + \gamma_1 PRE_{it} + \gamma_2 POST_{it} + \gamma_3 AFTER_{it} + \varepsilon_{it} \quad (2)$$

The α_i are market-specific dummies. PRE_{it} is a dummy variable that takes on the value one in each of the (-19, 0) pre-event period and zero in other times, $POST_{it}$ is a dummy variable that takes on the value one in each of the (1, 20) post-event period and zero in other times, $AFTER_{it}$ is a dummy variable that takes on the value one in each of the (21, 200) after-event period and zero in other times. Thus the parameters γ_1, γ_2 and γ_3 measure the average daily abnormal return in the pre-event, post-event and after-event periods, respectively, across both A and B share markets in Shanghai and Shenzhen exchanges. Such abnormal returns are relative to the daily average returns in the estimation period (-199, -20). Price on day -200 is used for computing return on day -199.

If China stock markets behave as the international asset pricing models depict, then γ_2 will be positive (market revaluation), and γ_3 will be negative (reduced cost of equity capital). If there is information leakage ahead of QFII announcement, then γ_1 will be positive; otherwise, γ_1 will be statistically insignificant. If information leakage leads to serious insider

trading, then γ_1 will be significantly greater than γ_2, and may even render γ_2 negative.

The panel regression provides an aggregate analysis on market reactions to QFII announcement. We further investigate how each market reacts to the announcement, and examine whether these four A and B share markets at Shanghai and Shenzhen stock exchanges respond differently to the market liberalization announcement. We apply equation (2) to each market:

$$R_{SA,t} = \alpha_{SA,i} + \gamma_{SA,1}\, PRE_{SA,t} + \gamma_{SA,2}\, POST_{SA,t} + \gamma_{SA,3}\, AFTER_{SA,t} + \varepsilon_{SA,t} \quad (3)$$

$$R_{ZA,t} = \alpha_{ZA,i} + \gamma_{ZA,1}\, PRE_{ZA,t} + \gamma_{ZA,2}\, POST_{ZA,t} + \gamma_{ZA,3}\, AFTER_{ZA,t} + \varepsilon_{ZA,t} \quad (4)$$

$$R_{SB,t} = \alpha_{SB,i} + \gamma_{SB,1}\, PRE_{SB,t} + \gamma_{SB,2}\, POST_{SB,t} + \gamma_{SB,3}\, AFTER_{SB,t} + \varepsilon_{SB,t} \quad (5)$$

$$R_{ZB,t} = \alpha_{ZB,i} + \gamma_{ZB,1}\, PRE_{ZB,t} + \gamma_{ZB,2}\, POST_{ZB,t} + \gamma_{ZB,3}\, AFTER_{ZB,t} + \varepsilon_{ZB,t} \quad (6)$$

5 Empirical Findings

5.1 Descriptive Analysis

Table I provides the summary return statistics for each event period. Graph 1 is a visual representation of the relative market movements in the study period. Graph 2 shows the same information in the pre-event and post-event periods only. It appears the four markets move in synchrony most of the time. The markets are in general losing ground during the study period. There is no observable difference in performance among the four A and B share markets in the study period. Another interesting observation is that the after-period return volatilities in all markets appear to be much less than the volatilities in the before-event period (this comparison is meaningful as both periods have same number of observations).

The average daily returns in the estimation period (the before-event period) are, respectively, -0.023 percent for Shanghai A share index, -0.017 percent for Shenzhen A, -0.104 percent for Shanghai B, and –0.092 percent for Shenzhen B. Table 1 suggests that the pre-event period performance of both Shanghai and Shenzhen A and B share markets is

slightly worse than that in the before-event period. Both the mean and median daily returns in the pre-event period for all markets are less than the corresponding ones in the estimation period. However, the difference is statistically insignificant. For both A share markets and Shanghai B share market, the post-event period appears to react to the market liberalization information more profoundly than the pre-event period does. The daily returns (in absolute values) and market volatilities in the post-event period are greater than the corresponding ones in the pre-event period. Only Shenzhen B share market seems to be indifferent to QFII announcement in the post-period. Average daily returns in the after-event period are not much different from daily returns in the before-event period. In fact returns in the after-event period are better than those in the before-event period and post-event period, albeit statistic insignificance, suggesting recoveries from the seemingly overreaction in the post-event period.

5.2 Panel Regression Results

The results from estimating equation (2) are given in Table II. The market specific dummies α_i are statistically insignificant. The coefficient for *PRE,* γ_1, is a statistically insignificant -0.100 percent, suggesting that there is no information leakage ahead of the QFII announcement. Our analysis on changes in trading volume in the pre-event period, results of which are not reported in this paper, also supports this argument. There is no significant increase in market turnovers in the pre-event period. In fact average daily turnovers in the pre-event and post-event periods in the four stock markets decrease with respect to those in the before-event period. The coefficient for *POST,* γ_2, is - 0.505 percent, and is statistically significant at the one percent level. The negative coefficient suggests an immediate negative response to market liberalization. Apparently, investors have reservation on the effectiveness of QFII implementation in improving China's capital market infrastructure and in lowering cost of equity capital. It is unlikely that the reactions are a one-time equity price

revaluation in the markets that results from an expected fall in the cost of equity capital and equity risk premium upon implementation of the market liberalization policy. If this argument stands, then we would expect revaluation to occur in the pre-event period, causing positive stock market abnormal returns in the pre-event period, and negative abnormal returns in the after-event period. International asset pricing models predict a negative coefficient for *AFTER*. In the panel regression, the coefficient for *AFTER,* γ_3, is an insignificant 0.067 percent. If costs of equity capital fall after liberalization, the four markets would have eased in the after-event period. Now that the four markets stabilize in the after-event period, QFII may not lead to a fall in cost of equity capital and equity premium in the A share markets. It also suggests that the B share markets perceive no threat of capital outflow upon QFII implementation. An investigation on the changes in B share discount to A shares, results of which are not reported here, supports this argument.

It seems that the kneejerk reaction to the QFII announcement is short lived and has no permanent effect on stock market performance. This contrasts the situation when B share markets were opened to domestic investors. Opening B share markets to domestic investors is a limited measure, if any, of capital account liberalization. Yet the B share markets react overwhelmingly. B share prices surged by more than 200 percent in the three months following B share markets' reopening on February 28, 2001. The surge was accompanied by explosive increase in turnovers. Researches by Lui (2002) and others suggest that A share markets are neutral to the B share market opening information, but B shares react positively upon announcement. The kneejerk reaction did change the fundamental market mechanism. Discounts of B shares to their corresponding A shares fell by half, from about 70 percent to 35 percent, and remain about that level since then.

It is worth noting that index price levels of the four China stock markets are losing grounds in the study period. This phenomenon is uncommon in emerging markets, where policy changes to liberalize stock market or other financial infrastructure are usually

perceived as positive by the populous investors.

5.3 Market Performance Comparison

Regression estimates for equations (3), (4), (5) and (6) are summarized in Table II, alongside with those for equation (2). The market specific dummies are all insignificant for all four markets. The coefficients for PRE and AFTER are also statistically insignificant for all four markets. The only coefficient that bears marginally statistical significance is the estimate for *POST* for Shenzhen A share market, which is – 0.618 percent. Shenzhen A share index loses an average daily value of 0.618 percent in the post-event period. Though regression results indicate that other market indices also ease in the post-event period, the magnitude is not statistically different from zero. Performance of Shenzhen A share market in the post-event period contributes to the statistically significant aggregate market performance in this post-event period. Shenshen A shares are in general smaller companies with more diverse shareholding. Qualified Foreign Institutional Investors are likely to favor large capitalized companies which are mostly listed in Shanghai exchange. Whether such firm characteristics lead to more negative market reaction remains to be researched.

The lukewarm reactions of both Shanghai and Shenzhen A share markets are further supported by the lack of abnormal reaction of both B share markets towards the QFII announcement. Observations from the B share markets, which have no significant reactions, provide further support on investors' reservation about the effectiveness of QFII in bringing in foreign investment and reducing Chinese companies' cost of equity capital in the A share markets.

5.4 Other Considerations

It is possible that the markets may react to other forms of liberalization policies such as macroeconomic stabilization, privatization, capital account liberalization (including easing

exchanging controls), and trade liberalization. Our model has to control for these variables if any of them occurs in the study period. However, during the study period, there was no announcement on such policies. China's entry to WTO is a trade liberalization issue. China accepted WTO agreement in November 2001, and became a WTO member on December 1, 2001. Yet the news was already expected during the prolonged and intense negotiation process in second half of year 2001. Our estimation period started on December 26, 2001, by which time the residual effects of WTO news to the markets, if any, were insignificant. The effect of opening the B share markets to domestic investors in February 2001, which is a capital account liberalization issue, subsided in late 2001, before the study period.[2] We thus do not run the regression with controlling variables on these reform events.

It is common for policy makers to announce stock market liberalization when stock markets perform well. In such circumstances, the standard event study may have upward-biased estimates. However, China government announced QFII scheme when markets were on their down trend for some time. In the second half of 2001, Shanghai A share index lost 25.5 percent, Shenzhen A share index lost 27.3 percent, Shanghai B share index lost 19.6% and Shenzhen B share index lost 26.8%. Our estimates are not subject to upward-bias problem; rather, they may be subject to downward bias.

Panel regression may understate the regression estimates if the return vectors are negatively correlated. In this study, the A share markets and B share markets are positively correlated. The pairwise correlation between Shanghai and Shenzhen A share market is 0.980, Shanghai A and Shanghai B 0.842, Shanghai A and Shenzhen B 0.841, Shenzhen A and Shanghai B 0.844, Shenzhen A and Shenzhen B 0.851, Shanghai B and Shenzhen B 0.904. Not only the A-share markets and B-share markets are pairwise highly correlated, the cross-market correlations between A and B share markets are also highly correlated.

We also adjust length of event windows. When the pre-event and post-event

[2] Based on data from Ahlgren, N., Boo Sjoo and Jianhua Zhang (2003).

windows are shortened to 10 days, returns in all periods in the four markets show no significant difference. When the pre-event and post-event windows are lengthened to 40 days, returns again show no significance difference across all markets and periods (results not shown here). We adopt 20 trading days, which is about one calendar month. We note that 20 days is a commonly adopted event window for examining daily changes (see Brown and Warner (1985)).

The mean-adjusted daily abnormal returns and cumulative daily abnormal returns for the pre-event, post-event and after-event periods, as prescribed by Brown and Warner (1985), are computed. The results are not reported here. The analysis gives the same conclusions as this paper delivers.

6 Summary and Conclusion

This paper is an event study that contributes to the existing literature on the causal link between stock market liberalization and market performance. We focus on China, a major emerging market not covered in previous studies on stock market liberalization. We use a natural experiment, the announcement of QFII scheme. We investigate market reactions in the period leading to the liberalization announcement and thereafter. International asset pricing models under market segmentation predict that a country's aggregate cost of equity capital will fall upon opening of its stock market to foreign investors. These models imply that market returns would be higher around the liberalization event, i.e., shortly before and after the announcement, and lower in the long term.

This paper examines whether the situation in China is consistent with the prediction of international asset pricing models. Specifically, we examine whether A and B share markets behave differently, and whether China stock markets in the aggregate react differently from other emerging markets in light of market liberalization announcement. We employ panel

regression, which incorporates time series and cross-sectional analysis.

We find that the only period with significant abnormal return is the short-term period after the event, and the return is negative. This negative abnormal return is primarily attributed by Shenzhen A share market. Daily returns in others are not much different from those in the estimation period. Our findings contrast with those in other studies, which show positive abnormal returns around the event, and negative abnormal returns in the long-term period after the event. We also find that the four A and B share markets do not have significantly different reactions on QFII announcement.

The lack of abnormal returns in the short-term period before the event suggests that there was no information leakage ahead of the QFII announcement. However, the negative abnormal returns in the short-term period after the event suggest that the markets may receive QFII announcement with reservation. Furthermore, the long-term lack of response on this market liberalization announcement suggests that the QFII scheme does not help much in reducing cost of equity capital of Chinese companies listed on A markets. The findings in this paper may have some practical implications for China policy makers. It is possible that the QFII scheme is perceived to be too restrictive to attract foreign investors. Further research works are in demand.

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Table I: Summary Description of Index Daily Returns for Different Event Periods

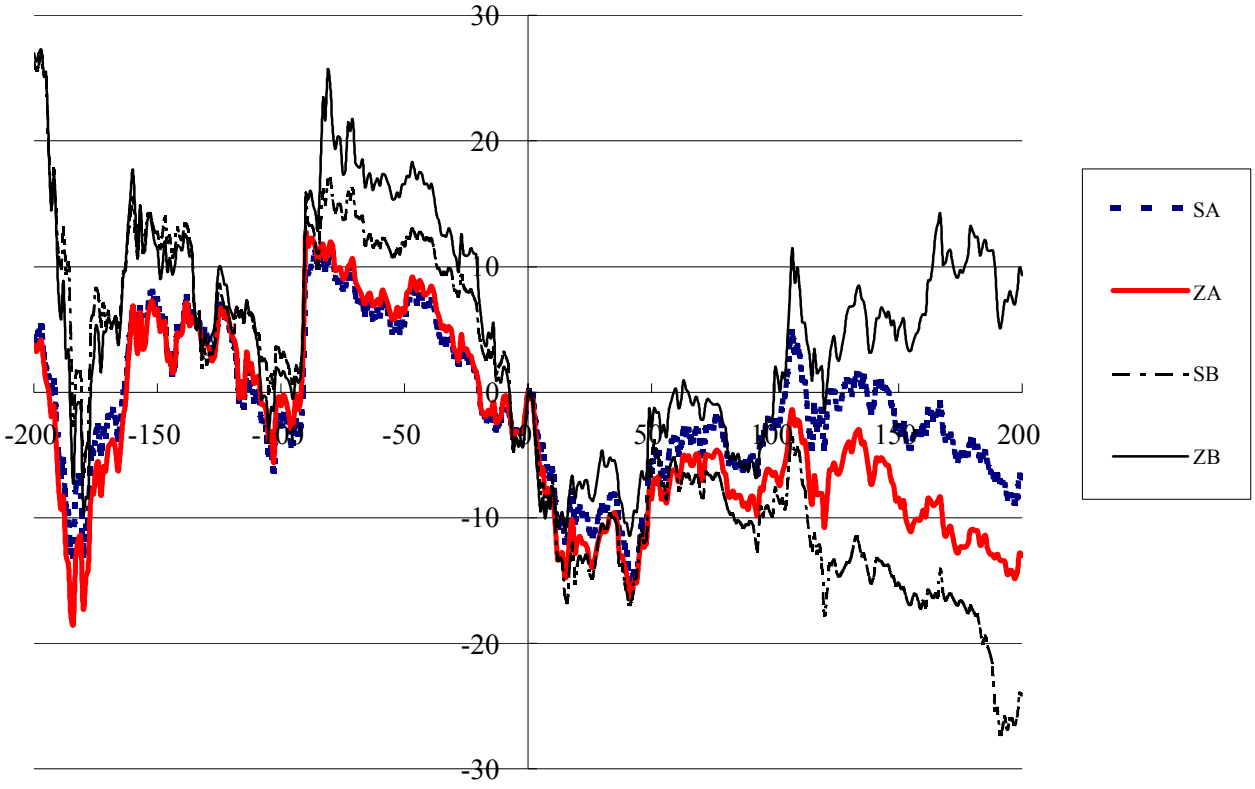
The period under study is from December 26, 2001 to September 2, 2003, which spans 200 trading days before and 200 days after the event day, respectively. The event day is November 5, 2002, the date the QFII scheme was announced. Four event windows are defined: (-200, -21) for before-event period, (-20, 0) for pre-event period, (1, 20) for post-event period, and (21, 200) for after-event period. The before-event period serves as the estimation period that provides the basis for analysis on market behavior in other event windows.

	max.	min.	median	mean	S.D.
			Shanghai A Share Index		
Before-event Period	8.842%	-6.505%	-0.088%	-0.023%	1.643%
Pre-event Period	1.696%	-1.799%	-0.006%	-0.011%	0.970%
Post-event Period	2.759%	-2.706%	-0.125%	-0.500%	1.477%
After-event Period	5.631%	-3.063%	-0.047%	0.016%	1.125%
			Shenzhen A Share Index		
Before-event Period	8.649%	-6.746%	-0.077%	-0.017%	1.795%
Pre-event Period	1.586%	-1.989%	0.054%	-0.029%	1.024%
Post-event Period	2.853%	-3.327%	-0.317%	-0.630%	1.753%
After-event Period	4.514%	-3.177%	-0.013%	-0.007%	1.070%
			Shanghai B Share Index		
Before-event Period	9.389%	-8.289%	-0.126%	-0.104%	1.927%
Pre-event Period	2.376%	-4.081%	-0.290%	-0.231%	1.505%
Post-event Period	3.584%	-3.853%	-0.484%	-0.735%	2.195%
After-event Period	6.545%	-4.568%	-0.161%	-0.072%	1.322%
			Shenzhen B Share Index		
Before-event Period	9.402%	-9.123%	-0.114%	-0.092%	2.215%
Pre-event Period	2.400%	-4.384%	-0.305%	-0.366%	1.704%
Post-event Period	2.118%	-3.525%	-0.492%	-0.391%	1.751%
After-event Period	5.493%	-3.575%	0.037%	0.093%	1.301%

Table II: Regression Results on Stock Market Reactions to QFII Announcement

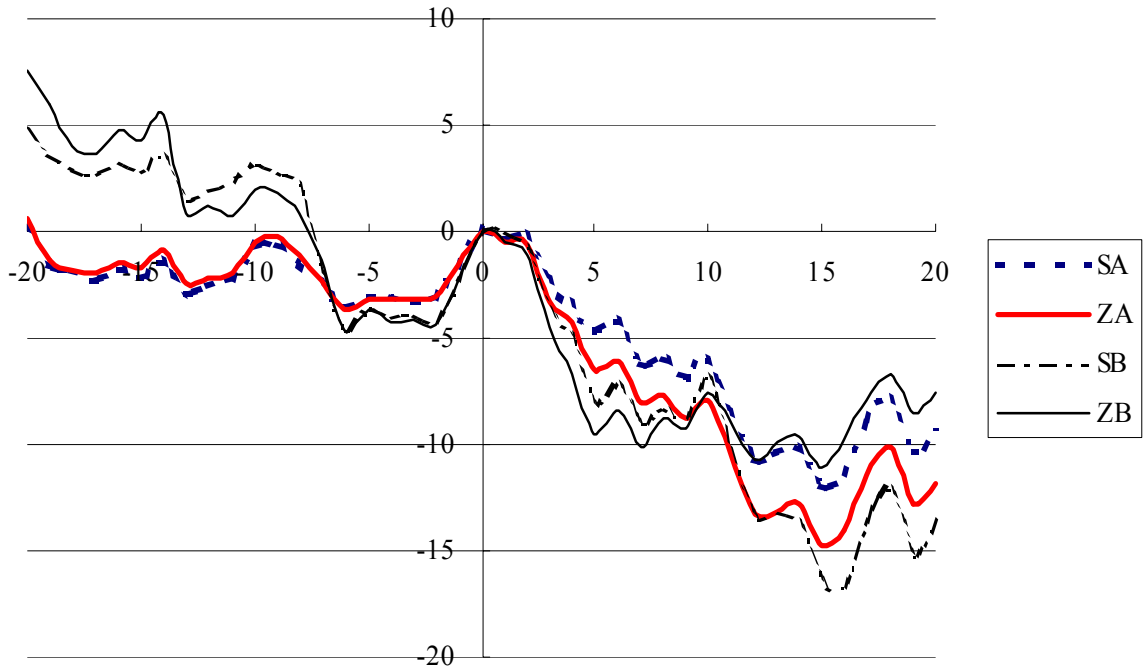
The regressions are performed using daily market data from December 26, 2001 to September 2, 203 for both A and B share markets in Shanghai and Shenzhen. The Shanghai A-share Index and Shenzhen A-share Index are used to represent the A-share market in both exchanges. The same token, Shanghai B-share Index and Shenzhen B-share index are used to represent the B-share market in both exchanges. Shanghai A, Shenzhen A, Shanghai B and Shenzhen B are market dummies. PRE is a dummy variable for the pre-event period (-19, 0). POST is a dummy variable for the post-event period (1, 20). AFTER is a dummy variable for the after-event period (21, 200). The event day is November 5, 2002, the date the QFII scheme was announced. The standard errors are in italics, below the regression coefficients. Statistically significant coefficients at the ten, five and one percent levels are indicated with *, ** and ***, respectively.

	Regression Estimates for Equations (2) to (6)				
	(2)	**(3)**	**(4)**	**(5)**	**(6)**
Shanghai A	-0.028% *0.0009*	-0.023% *0.0010*			
Shenzhen A	-0.015% *0.0011*		-0.017% *0.0011*		
Shanghai B	-0.099% *0.0011*			-0.104% *0.0012*	
Shenzhen B	-0.009% *0.0011*				-0.092% *0.0013*
PRE	-0.100% *0.0019*	0.012% *0.0033*	-0.012% *0.0035*	-0.127% *0.0040*	-0.274% *0.0043*
POST	-0.505% *** *0.0019*	-0.477% *0.0033*	-0.613% * *0.0035*	-0.631% *0.0040*	-0.299% *0.0043*
AFTER	0.067% *0.0008*	0.039% *0.0015*	0.010% *0.0016*	0.032% *0.0018*	0.185% *0.0019*
R^2	0.0066	0.0062	0.0084	0.0074	0.0063
No. of Obs.	1,600	400	400	400	400



Graph 1: Relative Market Performance in the Study Period (with respect to event day)

The variable on the y-axis is the relative return in day *t,* which is the cumulative return from day *t* to day *0* for negative *t*, or day *0* to day *t* for positive *t*. The event day (where $t = 0$) is November 5, 2000, the date the QFII scheme was announced.



Graph 2: Relative Market Performance in the Pre-event and Post-event Periods (with respect to event day)

The variable on the y-axis is the relative return in day *t,* which is the cumulative return from day *t* to day *0* for negative *t*, or day *0* to day *t* for positive *t*. The event day (where $t = 0$) is November 5, 2000, the date the QFII scheme was announced.