CORPORATIONS, FOREIGN PORTFOLIO INVESTMENT AND THE ROLE OF SECURITIES MARKET REGULATION

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CORPORATIONS, FOREIGN PORTFOLIO INVESTMENT AND THE ROLE OF SECURITIES MARKET REGULATION

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My dissertation examines the effect of capital market regulations on the choices of firms and institutional investors in international financial markets.

Chapter 1 asks whether opening China's capital market through the Qualified Foreign Institutional Investor (QFII) Scheme has resulted in a significant reallocation of foreign demand away from globally traded Chinese equities towards domestically traded equities. Using a unique dataset of 5,273 securities, I study differences in shareholdings across investors with and without direct access to China's capital market. I find that direct access is associated with a significant increase in A-share-based exposure to China. Further, this entire increase represents *incremental* foreign demand rather than a *reallocation* of existing demand away from non-A-share equities towards A-shares. Domestically and internationally traded equities are mutually non-substitutable and China's capital markets remain segmented from global capital markets.

Chapter 2 examines the firm-level determinants of QFII portfolio allocations and the effect of foreign ownership in Chinese listed firms on stock return volatility and stock return synchronicity. Using foreign institutional ownership and financial data for Chinese listed firms for 2003-2012 I find strong evidence that QFII portfolios overweight large firms, firms with low book-to-market ratios, high profitability ratios and high strategic investment by domestic long-term investors while underweighting firms with strategic ownership by controlling shareholders. Foreign ownership is not associated with any significant change in return volatility and is associated with a significant *decrease* in stock return synchronicity.

Chapter 3 empirically examines the extent to which two alternative hypotheses – loss-of- competitiveness and voluntary un-bonding – explain foreign deregistrations from U.S. equity markets by testing their predictions regarding the effect of deregistration on a firm's capital raising ability and operating performance. Using a dataset of 141 voluntary deregistrations from U.S. capital markets during 2002-2008 I find that deregistering firms are significantly more profitable and raise significantly lower capital relative to benchmark peers that did not deregister. Higher profitability in the aftermath of deregistration suggests that firms deregister to save the monetary costs of listing while lower capital raising in the aftermath of deregistration suggests that deregistration is perceived as a signal of lower protections for minority investors.

BIOGRAPHICAL SKETCH

Parul Sharma graduated with a master's in Economics from the University of Delhi in 2002. She received a diplôme d'études approfondies in Comparative Politics from Sciences-Po Paris in 2004 and a Master of Public Policy degree from Duke University's Terry Sanford School of Public Policy in 2008. In August 2009 she began her doctoral studies in Applied Economics and Management at Cornell University.

To my parents

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1.1 INTRODUCTION

Over the last 30 years China has imposed some of the most restrictive capital controls in the world limiting cross-border flows of capital in and out of the country. Within China's regime of capital controls, different types of flows are subject to varying degrees of restrictions; the extent of controls vary according to whether they are inflows or outflows, as well as by asset class. China's international investment position – the stock of China's financial assets and liabilities with the rest of the world – for 2013 shows that inflows of foreign direct investment (FDI) constituted 25% of GDP and are comparable to the equivalent share for the United States (35% of GDP), which is one of the most financially open economies according to several measures of financial openness (Quinn et al., 2011).[1] In contrast inflows of portfolio investment for China stood at 4% of GDP while the equivalent share for the United States was 92.5%.[2] The composition of China's capital inflows – the high share of FDI inflows relative to foreign debt and portfolio inflows – has been explained by a policy mix of providing incentives such as tax concessions for foreign invested firms while

[1] State Administration of Foreign Exchange, International Monetary Fund
[2] Id.

simultaneously discouraging foreign debt and portfolio inflows (Prasad and Wei, 2007).

In 2002 China initiated the liberalization of inflows of foreign portfolio investment by introducing the Qualified Foreign Institutional Investor (QFII) Scheme which, for the first time, allowed qualified foreign institutional investors (QFIIs) to directly invest in Renminbi (RMB)-denominated Chinese assets—particularly A-shares listed on China' stock exchanges—through licenses and investment quotas granted by China's financial regulators. As of the end of December 2013, China's Securities Regulatory Commission (CSRC) had granted QFII licenses to 251 institutions from 27 countries and the State Administration of Foreign Exchange (SAFE) had approved aggregate quotas worth 51.3 billion US Dollars (USD) for 227 of the 251 institutions with licenses.

While a limited body of research on China's QFII Scheme explores the effect of this capital market opening regime on China's securities market, it has not addressed the question whether China's progressive removal of investability restrictions for foreign portfolio investment through the QFII Scheme has significantly affected the behavior of the QFIIs in terms of altering the specific channels that they utilize to acquire exposure to China.

This paper asks whether investability restrictions that foreign portfolio investors face vis-à-vis China's domestic financial market bind. I address this question by examining

changes in A-share exposure registered by QFIIs around the event of acquiring direct A-share market access through a QFII investment quota (see section 4 for key institutional details of China's QFII Scheme) relative to non-QFII peer institutions that also qualified for QFII status during this time period. The paper further asks whether the demand for A-shares met by the QFII Scheme represents *new* or *incremental* global demand for China exposure or merely a *reallocation* of preexisting global demand for China exposure away from non A-share, i.e., indirect, channels to the direct A-share channel that has been opened up exclusively through the QFII Scheme.

I construct a unique dataset of 8,610 "China-relevant" securities (not including debt-based financial instruments) issued by 6,384 unique entities that were actively trading on 60 financial exchanges as of the end of August 2013. I refer to this set of securities as "China-relevant" since they are issued by entities that have significant operational exposure to China's economy. These entities consist of companies with key operations and revenue generation based in China (Chinese companies) as well as foreign companies that have operational exposure to China via cross-border foreign direct investment deals with domestic Chinese companies. From among these 8,610 securities I identify institutional ownership data for 5,273 securities. These 5,273 securities constitute the final sample for the empirical analysis.

I use a difference-in-differences empirical strategy to examine whether QFIIs register significant changes in their holdings of A-shares as well as significant changes in the

holdings of other non-A-share categories of China-relevant securities around the event of acquiring direct A-share market access through a QFII investment quota.

I find that obtaining direct access to China's A-share market through a QFII quota is associated with a significant increase in the rate of A-share based exposure to China ranging from 0.7 to 1.1 percentage points. Qualification as a QFII is not associated with a significant change in the rate of exposure to China acquired through investment in non A-share equities—internationally traded Chinese equities or equities of foreign companies with cross-border FDI deals in China. The entire increase in the rate of A-share-based China exposure thus represents *incremental* or *new* global demand for investment exposure to China (that would not have materialized in the absence of the QFII Scheme) rather than a *reallocation* of existing global demand for China away from non A-share equities into A-shares. Evidence from China's capital market–opening regime indicates that domestically traded equities (A-shares) and internationally traded equities (non-A-shares) are mutually non-substitutable.

This paper is linked to several strands of research that examine the effects of relaxing restrictions on foreign portfolio investment in emerging markets by allowing foreign investors to directly invest in the local stock market or by allowing local financial assets to trade in overseas stock markets.

A vast literature uses cross-country macroeconomic and financial data to explore the effects of financial openness in emerging markets on outcomes such as equity market

volatility (Bekaert and Harvey, 1997), equity prices (Henry, 2000a), the growth rate of private investment (Henry, 2000b), cost of capital (Bekaert and Harvey, 2000; Edison and Warnock, 2003; Henry, 2003) and economic growth (Bekaert, Harvey and Lundblad, 2001, 2005). A parallel literature uses firm-level data to explore the effects of financial openness in emerging markets on outcomes such as expected future profitability and capital stock (Chari and Henry, 2008), operating performance (Mitton, 2006), information environment and disclosure (Bae et al., 2006) and the efficiency of allocating investment funds (Galindo et al., 2007).

A related strand of literature examines how and to what extent the gains from international diversification can be maximized in the absence of financial openness. Errunza et al., 1999 show that foreign investors can fully reap the gains from international diversification by holding a portfolio of domestically traded assets that mimics foreign indices rather than investing in assets that only trade abroad and are not fully accessible due to barriers to international investment.

Investability restrictions in the specific context of China's financial market have been studied from various perspectives. A vast body of literature has studied the phenomenon that B-shares (which are restricted predominantly to foreign investors) have traded at substantial price discounts compared with A- shares (which have, prior to China's QFII Scheme, remained restricted to domestic investors) even though the two share categories carry identical voting rights and dividends. Explanations for this phenomenon include differential risk premiums across the A- and B-share markets

(Bailey, 1994; Ma, 1996; Sun and Tong, 2000; Eun et al., 2001; Fernald and Rogers, 2002), differences in liquidity between A- and B-shares (Chen et al., 2001), the information asymmetries between domestic and foreign investors (Chakravarty et al., 1998; Chui and Kwok, 1998; Chan et al., 2008) and the differential impact of corporate governance in the valuation of A- and B-shares (Tong and Yu, 2012). The steady phasing out of the B-share market due to the combined effect of market forces and China's securities market regulations has rendered the A–B-share discount puzzle currently less relevant relative to its importance during the 1990s and the early-to-mid 2000s.

Another body of work studies the rapidly growing phenomenon of Chinese firms listing in overseas markets due, in part, to the unabated global demand for exposure to China's growth in the presence of foreign portfolio investment restrictions in China. This literature examines why Chinese firms choose to list their shares on overseas markets and the consequences thereof both for the firms that list overseas and for the financial markets where they choose to list.

Explanations for the steady rise in the listings of Chinese companies in overseas markets include the desire to reap the benefits of more stringent regulatory monitoring standards on international exchanges, an expanded shareholder base and high demand for external equity capital (Zhang and King, 2010; Sun et al., 2013). Yang and Lau (2006) show that different stock markets are associated with distinct benefits for Chinese firms that have overseas listings. Pan and Brooker (2014) argue that

regulatory factors such as the lengthy and cumbersome process required to list on China's domestic exchanges coupled with macroeconomic factors such as China's rapid economic growth and the expansion in the number of host markets[3] are important drivers of Chinese international listings. A more recent body of work examines the phenomenon whereby Chinese companies acquire overseas listings through backdoor channels such as cross-border reverse mergers (Siegel and Wang, 2013; Ang et al., 2012; Humphery-Jenner, 2012).

The limited research on China's QFII Scheme had explored its effect on China's securities market. Schuppli and Bohl (2010) focus on the relative propensity of domestic individual investors versus foreign institutional investors to follow trend-chasing strategies and find that the influence of trend-chasing in the A-share market has diminished after the entry of QFIIs. They therefore conclude that foreign institutional investors reduce the probability of speculative bubbles in stock prices and have a stabilizing effect on the A-share market. Lin and Swanson (2008) use daily data of market price indices of the Shanghai A-shares, Shanghai B-shares, Shenzhen A-shares, Shenzhen B-shares, Hong Kong Hang Seng market index, Japan's Nikkei 225 market index, S&P 500 market index and MSCI World index and conclude that the entry of foreign institutional investors has facilitated volatility transmission between China's stock markets and world markets but has had little impact on China's integration with regional markets. Ting et al. (2008) find that during the period

[3] Smaller and emerging financial markets such as Malaysia, Germany and Taiwan have joined more established financial centers such as Hong Kong, London, New York and Singapore as host markets for international listings of Chinese firms. More recently global stock exchanges have also expended resources to actively woo Chinese firms to list on them.

following the implementation of China's QFII Scheme audit opinions provide good signals revealing firms that have higher default risks. They therefore argue that foreign institutional investors play a significant monitoring role in Chinese firms.

More recent studies use firm and stock-level data to examine the investment preferences of QFIIs in China's financial market. Liu et al. (2014) compare the firm-level investment preferences of QFIIs and domestic institutional investors in China. They find that QFIIs invest in firms that are significantly different – in terms of size, profitability and managerial compensation – from the firms in which domestic funds invest and that the portfolios of QFIIs are less evenly distributed across different industries as compared to the portfolios of domestic funds. Further, indicators of corporate governance such as ownership structure and concentration play a key role in the investment decision of QFIIs.

To my knowledge, this is the first paper that uses the quasi-experimental setting offered by China's QFII Scheme to ask whether China's portfolio investment restrictions bind and whether the demand for A-shares soaked up by the QFII Scheme represents incremental demand for China-exposure or a reallocation of existing demand away from non A-share channels towards A-shares.

The rest of this paper is organized as follows. Section 2 describes the institutional moorings of China's QFII Scheme. Section 3 states the empirical methodology and

data structure. Section 4 describes the data. Section 5 discusses the empirical results. Section 6 concludes.

1.2 CHINA'S QFII SCHEME

1.2.1 The A-share market opens up to Foreign Institutional Investors

Since the inception of the Shanghai and Shenzhen stock exchanges in 1990 and 1991 China has restricted foreign portfolio investment in the domestic market by instituting an entire class of securities called A-shares that, prior to 2003, were restricted to domestic investors for their ownership, trade and transfer. B-shares on the other hand were, from 1992 until February 2001, restricted to foreign investors and were off-limits to all domestic investors.

The B-share market remains small relative to the A-share market in terms of the market capitalization of listed stocks, the number of listed companies, and the new listings that it has attracted over time. Investor interest in the B-share market has progressively waned due to limited B-share initial public offerings since 2001 and the fact that companies listed on the B-share market are regarded as too small and risky. On July 7, 2012 the CSRC instituted new and tougher delisting rules that brought certain B-share companies on the threshold of delisting, spurred fears of more B-share delistings, and led to a selling spree in the B-share market. Thus, from late 2012 onwards, companies have drifted away from the B-share market. This market-driven thrust towards the phasing out of the B-share market has been bolstered by the CSRC,

which has encouraged B-share companies to voluntarily withdraw their listings and re-launch A-share public offerings without having to undergo a lengthy application and review procedure. Given that the complete phasing out of the B-share market is imminent, China's QFII Scheme, which allows a small number of foreign investors (henceforth QFIIs) to participate in both the A and the B-share markets, is particularly relevant to relaxing foreign portfolio investment restrictions in China.

Introduced in December 2002, China's QFII Scheme allows QFIIs to convert foreign currency into RMB and invest in A-shares listed on the Shanghai and Shenzhen stock exchanges as well as in other RMB-denominated financial products approved by the CSRC. The Scheme seeks to promote the development of China's securities market by attracting high-quality and stable – medium-to-long-term – foreign portfolio investments while deterring short-term speculative inflows of foreign capital.

QFIIs are foreign fund-management institutions, insurance companies, securities companies, and other asset-management institutions that have been granted a license by the CSRC and an investment quota by the SAFE to invest in China's financial market and, more significantly, in the A-share market. The CSRC and the SAFE have established QFII eligibility criteria related to the country of domicile, the number of years of operation, the dollar value of total assets under management, sound financial status and corporate governance with the explicit goal of blocking short-term, speculative inflows of foreign capital and inviting long-term investors such as pension, insurance, mutual, and charitable funds. QFII eligibility criteria have been

progressively liberalized to allow smaller and lesser known foreign institutional investors to undertake portfolio investment in China.

1.2.2 QFII Licenses and Investment Quotas

The CSRC grants QFII licenses and reserves the discretion to adjust the number of licenses granted as well as the criteria for granting licenses in line with the broader strategic and policy objectives and practical demands of China's securities market. As of the end of December 2013 the CSRC had granted 251 QFII licenses to foreign institutional investors from 27 countries. QFIIs from advanced and industrial economies remain predominant with less than 5% being domiciled in emerging and developing markets. The highest number of QFIIs (45, or 18%) is domiciled in Hong Kong followed by the United States (38, or 15%) and the United Kingdom (27, or 11%). The rapid increase in QFII licenses beginning in late 2011 and continuing through most of 2012 (figure 1) indicates a concerted effort by the CSRC to increase the flows of long-term foreign portfolio investment into China.

A foreign institutional investor with a QFII license is required to apply to the SAFE for an investment quota within one year of receiving the license from the CSRC; QFIIs are permitted to apply for additional quotas over and above their first-time quotas. While there is no limit on the total number of quota applications per QFII, regulations impose a maximum limit of one quota re-application per QFII per year effective from September 2009.

The SAFE controls the aggregate investment quota set aside for the QFII Scheme in its entirety as well as investment quota limits for individual QFIIs. The SAFE is authorized to revise overall and institution-specific quotas in line with macroeconomic and financial factors in China such as the supply and demand in the foreign exchange market, changes in China's balance of payments, and so on. The SAFE has progressively liberalized the flows of foreign portfolio investment via the QFII channel. The aggregate amount available for QFII quotas has been increased from 6 billion USD in January, 2005 to 150 billion USD in July, 2013. Further, in September 2009, the maximum amount that each QFII can be granted in total quotas was raised from 800 million USD to 1 billion USD. As of the end of May 2015 the SAFE had allocated 74.47 billion USD in aggregate investment quotas (figure 2). The approval of QFII quotas is believed to be highly subject to market dynamics such as pressure on China to allow the RMB to appreciate, dramatic changes in capital inflows or outflows from China's capital markets and shifts in the volatility of equity markets (figures 3 and 4).

It is illegal for a QFII to transfer or to sell its quota. QFIIs are, however, allowed to issue market access products including derivatives such as P-shares to non-QFII investors, provided that these investors do not have the power to give buy or sell orders to the QFII with respect to the particular A-shares from which the market-access products are derived.

1.2.3 QFII Investments

QFIIs are allowed to invest in a range of RMB-denominated financial instruments that include A shares, B shares, treasuries, convertible bonds and enterprise bonds listed on China's stock exchanges, securities investment funds, warrants and other financial instruments approved by the CSRC.

Each QFII is allowed a maximum of six months from the initial quota approval date to remit its entire quota into China as portfolio investments in the domestic financial market. If the QFII fails to remit the full quota within six months but the amount remitted is more than 20 million USD, its quota is reduced to the amount actually remitted. A QFII's entire quota may stand revoked if the amount remitted into China within six months of getting the quota is less than 20 million USD. Institution-specific data on QFII quotas shows 18 instances among 13 QFIIs for which a part or the entire quota stood withdrawn. In all cases of quota withdrawals the relevant QFII had failed to fully remit its quota into China within the specified time limit. While there are no publicly available data on the rate of quota utilization, anecdotal evidence shows that portfolio allocation restrictions imposed on QFIIs constitute a key reason that the quotas of some QFIIs remain under-utilized and are eventually rescinded.

Investments by a QFII in any single company cannot exceed 10% of its total shares and the cumulative shares held by all QFIIs in any single company cannot exceed 20% of its total shares. Each QFII is required to hold no less than 50% of its total assets in equities or equity-related instruments and no more than 20% of its assets in cash. Each

QFII is also required to hold no less than 50% of its total assets in equities or equity-related instruments and no more than 20% of its assets in cash to avert QFIIs from placing the bulk of their assets in bonds and cash to speculate on the RMB's appreciation. More recently China has increased the floating range of the exchange rate to slow the appreciation of the RMB. Thus since 2012 QFIIs are not required to hold a minimum 50% of their investment portfolio in equity-related instruments; they are now allowed to have a flexible configuration of assets between equities and fixed-income securities. However, QFIIs still cannot hold more than 20% of their investment portfolio in cash.

1.3 EMPIRICAL METHODOLOGY AND DATA STRUCTURE

1.3.1 Empirical Methodology

Even though acquiring a QFII license is not a random event in the life of an institution, there are aspects of the QFII Scheme that render entry into China (via a QFII license) as well as the magnitude of access (via a QFII quota) partially exogenous to a particular institutional investor.

As stated above, both the CSRC and the SAFE have been authorized to revise the rate of issuance of new licenses and quotas in order to meet the broader policy objectives of China's securities market and in keeping with China's overall economic and financial situation as determined by such factors as supply and demand in the foreign exchange market, the balance of payments, and shifts in the volatility of the equity

markets. Both institutions have remained unpredictable regarding the issuance of QFII licenses and quotas and it remains difficult to extrapolate the rate of issuance of new licenses and quotas based on historical data. Further, beyond the minimum eligibility criteria related to years of operation and total assets under management that all QFII applicants are required to meet, the CSRC and the SAFE remain non-transparent regarding the exact criteria and their relative importance in the final assignment of QFII status within the total pool of QFII applicants at a given point of time. Thus it is reasonable to assume that, conditional upon meeting the minimum QFII eligibility criteria established by China's financial regulators, acquiring QFII status is partially exogenous to a particular institution.

The empirical implication of the above institutional setting is that the QFII Scheme can be treated as a quasi-experiment wherein assignment to the treatment (A-share market entry through a QFII license and quota) is partially exogenous to a particular institution. Thus the experimental design consists of picking quasi-control(s) for each QFII and estimating the treatment effect of acquiring QFII status through the following difference-in-differences specification, where *k* indicates a particular institution and *t* indicates the time period, i.e., the particular year and quarter in which an institution-specific outcome of interest is being observed.

$$\theta_{kt} = \beta_0 + \beta_1 QFII_k + \beta_2 Post_t + \beta_3 QFII_k * Post_t + \alpha_k + \lambda_t + \varepsilon_{kt} \quad (1)$$

In the above specification θ_{kt} is the outcome variable of interest for institution *k* in time period *t*, $QFII_k$ is the dummy variable for being an institutional investor with a QFII license and a quota to invest in China's A-share market for institution *k*, $Post_t$ is the dummy variable for time period *t* falling in the post-treatment period, $QFII_k*Post_t$ is the interaction dummy between the QFII dummy and the post-treatment-period dummy, α_k is a firm fixed effect, and λ_t is a time fixed effect. The coefficient of interest is β_3.

The specific components of the empirical model are:

i. ***Treatment:*** Receiving an investment quota from the SAFE. I define the treatment as the allocation of the first investment quota from the SAFE.[4]

ii. ***Treatment Date:*** Each QFII and its corresponding control institution's treatment date (see section 5.3) is the given quarter in the given year in which the QFII obtained its first investment quota.

iii. ***Treatment Window:*** For each QFII and its corresponding control institution, I consider a one-year treatment window: four quarters before the treatment date and four quarters after the treatment date with the treatment date itself considered as part of the post-treatment period.

1.3.2 Outcome Variables of Interest

I define the following outcome variables of interest:

[4] QFIIs are permitted to apply for multiple quotas and currently the maximum limit stands at one quota re-application per QFII per year. Eighty-five QFIIs within the sample of 228 QFIIs receive more than one quota to invest in RMB-denominated financial assets in China.

i. Overall percentage exposure rate to China (*ChinaExposure*)

ii. Indirect percentage exposure rate to China (*IndirectChinaExposure*)

iii. Channel-specific exposure rate to China (*ChannelSpecificChinaExposure*)

ChinaExposure is computed as follows:

$$ChinaExposure_{kt} = \frac{\sum_{s=1}^{j} ChinaHoldings_{skt}}{\sum_{s=1}^{m} Holdings_{skt}} * 100 \quad (2)$$

Where $ChinaHoldings_{skt}$ is the dollar value of the shareholding of China-relevant security *s* (see section 5) for institution *k* in time period *t* and $Holdings_{skt}$ is the dollar value of the shareholding of security *s* for institution *k* in time period *t.*

IndirectChinaExposure is computed as follows:

$$IndirectChinaExposure_{kt} = \frac{\sum_{s=1}^{j} IndirectChinaHoldings_{skt}}{\sum_{s=1}^{m} ChinaHoldings_{skt}} * 100 \quad (3)$$

Where $IndirectChinaHoldings_{skt}$ is the dollar value of the shareholding of security *s* that affords exposure to China through a non A-share, i.e., an indirect channel (see section 5) for institution *k* in time period *t* and $ChinaHoldings_{skt}$ is the dollar value of the shareholding of China-relevant security *s* (see section 4) for institution *k* in time period *t.*

Equations (2) and (3) imply that:

$$\frac{\sum_{s=1}^{j} IndirectChinaHoldings_{skt}}{\sum_{s=1}^{n} ChinaHoldings_{skt}} + \frac{\sum_{s=1}^{k} DirectChinaHoldings_{skt}}{\sum_{s=1}^{n} ChinaHoldings_{skt}} = 1 \quad (4)$$

ChannelSpecificChinaExposure is computed as follows:

$$ChannelSpecificChinaExposure_{kt} = \frac{\sum_{s=1}^{j} ChannelSpecificChinaHoldings_{skt}}{\sum_{s=1}^{m} IndirectChinaHoldings_{skt}} * 100 \qquad (5)$$

Where $ChannelSpecificChinaHoldings_{skt}$ is the dollar value of the shareholding of security *s* that affords exposure to China through a specific indirect channel (see section 4) for institution *k* in time period *t* and $IndirectChinaHoldings_{skt}$ is the dollar value of the shareholding of security *s* that affords exposure to China through any (as opposed to a specific) non-A-share, i.e., an indirect channel (see section 4) for institution *k* in time period *t.*

1.3.3 Sample of QFIIs

I use Lionshare Factset's quarterly institutional ownership data spanning the period 1999–2013 (see section 4) to identify all the above mentioned outcome variables of interest. Two hundred twenty-eight QFIIs obtained licenses and initial quotas before the end of December 2013. From among these 228 QFIIs, I locate quarterly shareholding data for 115 institutions through a careful name-matching exercise.[5] These 115 QFIIs constitute the sample for measuring the treatment effect of the QFII Scheme in terms of the outcome variables of interest specified above.

[5] The name-matching exercise reveals that Lionshare's institutional ownership data do not contain shareholding data for the remaining 113 QFIIs. The database however does offer descriptive details such as an institution's country of domicile, investment and manager style, etc., for 224 of the 228 institutions.

As mentioned, an institution's age and size (as measured by the total AUM in the latest fiscal year) constitute the key minimum qualifications that QFIIs must meet. The sample of QFIIs consists of relatively old institutions with 85% of the QFIIs having been in operation for at least 10 years and 37% of the QFIIs having been in operation for at least 30 years at the time of being assigned their first investment quotas. Using the latest reported total AUM as the metric of size, the sample of QFIIs consists of relatively large institutions: 90% of the QFIIs manage assets worth 5 billion USD or more. This available data on QFII age and size indicates that QFIIs are required to comply with stringent age- and size-related requirements that have been established by China's financial regulators.

1.3.4 Quasi-Control(s) for each QFII: One-to-One Matching Without Replacement

Despite the progressive easing of entry norms under the QFII Scheme, a relatively select set of institutions has been granted direct A-share market access through the QFII channel. Anecdotal evidence suggests that some foreign institutional investors, having met the minimum qualifications prescribed by China's regulators and having applied for QFII status, were not granted one. But observable data does not provide us with the exhaustive pool of institutions that applied for QFII status but were not granted one.

The exercise of picking a quasi-control for each QFII seeks to match each QFII to a unique non-QFII institutional investor that meets all the minimum prescribed

qualifications for QFIIs at the time when the QFII was granted its initial quota and that, based on observable data, has a likelihood of applying for A-share market access that is comparable to that of the QFIIs.

For each of the 115 QFIIs in the sample I pick a unique control institution from a universe of 4,338 non-QFII institutional investors for which Lionshare Factset provides shareholding data and that are domiciled in countries whose securities regulatory bodies have signed MOUs for maintaining regulatory cooperation with the CSRC.[6] Further, Lionshare provides data on the exact year of founding and the latest reported total AUM for each of these 4,338 non-QFII institutions. I drop 1,611 institutions for which I have shareholding data but for which I do not have the exact year of founding since I cannot ascertain whether these institutions meet the CSRC's QFII qualifications regarding the minimum number of years of operation. I drop an additional 2,509 institutions for which I have shareholding data but for which I do not have the total AUM for the latest fiscal year since I cannot ascertain whether these institutions meet the CSRC's qualifications related to minimum total AUM.

I pick a particular QFII's unique quasi-control by matching the two institutions on their rate of exposure to China during the quarter immediately preceding the quarter in which the QFII was treated, i.e., the quarter in which the QFII obtained its first investment quota. I measure an institution's exposure to China in a given period as the dollar value of China-relevant securities (see section 4) held over that period divided

[6] These institutions are non-QFIIs in the sense that they have not been granted QFII licenses by the CSRC as of the end of December 2013.

by the dollar value of all securities held over the same period. This matching criterion assumes that an institution's immediate pre-treatment exposure to China is a measure of its interest in acquiring direct access to China's A-share market and therefore serves as a proxy for that institution's likelihood of applying for QFII status. Thus the greater an institutional investor's voluntarily acquired exposure to China (via non-A-share channels) the higher the likelihood of its applying for direct A-share market access via the QFII channel. This in turn implies that two institutional investors that meet all QFII qualifications established by the CSRC and that have comparable exposure to China-relevant stocks in the immediate pre-treatment period when neither investor had direct A-share market access are equally likely to apply for QFII status. The key difference between the two sets of firms and one that is relevant to affecting the outcomes of interest is that the QFII is granted direct A-share market access while the non-QFII is not.

The precise matching exercise for each QFII entails picking all eligible non-QFII institutions whose China exposure during the one quarter before the QFII's treatment date falls within a ±5% window of the QFII's China exposure during that same period. Once I obtain the full set of controls for the QFII I pick the control whose China exposure most closely matches the QFII's China exposure. While picking controls for the remaining QFIIs I do not reconsider the used-up control, i.e., the control that has been matched to the QFII.

1.3.5 Data Structure

The unit of observation in the specifications is a given firm's aggregate holdings of a certain category of stocks (see section 4) in a given year and quarter. The institutional ownership data used in this paper consists of quarterly shareholding data from the first quarter of 1999 until the end of the third quarter of 2013. But the data is not reported uniformly for every single quarter for each institution. Some institutions may enter the dataset early, say in 1999, and keep reporting quarterly holdings until the end of 2013, while some may enter early and stop reporting early as well. Likewise some institutions may enter late and keep reporting until the end of 2013, while others may enter late and drop out after a few quarters of reporting.

Even though I observe shareholding data for 115 QFIIs, I do not have coverage for all nine quarters in the one-year pre-and-post-treatment periods for all these QFIIs. The matching criterion does not impose the restriction that the treated institutional investor (QFII) and its un-treated (non-QFII) match should have the same number of quarterly observations in the pre- and post-treatment periods. But I do impose the requirement that both the QFII and the matched non-QFII report shareholding data for at least one quarter in the pre-treatment period and at least one quarter in the post-treatment period. This constraint coupled with the other matching criteria discussed generates an unbalanced panel of 1,470 observations from 180 distinct firms: 90 treated institutional investors (QFIIs) and 90 un-treated (non-QFII) matches.

1.4 DATA DESCRIPTION

1.4.1 China-Relevant Securities

To restate this paper's goal, I seek to find whether China's foreign portfolio investment restrictions bind and whether the demand for A-shares met by the QFII Scheme represents new, or incremental, demand for China exposure versus a reallocation of existing demand for China exposure away from non A-share channels towards A-shares.

To accomplish this I construct a unique sample of 8,610 securities (not including debt-based financial instruments) that represent the entire universe of securities that afford either direct (A-share based) or indirect (non-A-share based) exposure to China's economy. I refer to this sample as the universe of "China-relevant" securities since these are issued by firms—both Chinese and non-Chinese—that have significant operations and revenue generation in China. I use Datastream and SDC Platinum's Mergers and Acquisitions dataset to construct this sample of China-relevant securities.

I first search through a universe of 110,650 securities trading actively as of the end of August 2013 across 175 financial exchanges and OTC markets based in 194 countries in six regions of the world. These markets constitute the comprehensive set of markets for which Datastream carries securities-level data for actively trading securities. My

search yields 4,152 securities issued by 3,143 companies domiciled in China and 92 closed-end investment companies based in China.[7]

I then complement the above sample of securities with an additional 4,458 securities issued by non-Chinese companies that have operational exposure to China via cross-border foreign direct investment (FDI) deals with Chinese companies. I arrive at these 4,458 securities by using SDF Platinum's Mergers & Acquisitions Database to construct a dataset of 3,920 completed cross-border FDI deals in China (where by definition the acquirer has a stake of at least 10% in the target Chinese company) worth 102 billion USD with the earliest deal dating to December 1985.[8] More than 95% of these deals are relatively recent since they were completed during or after 1996. The acquirer's stake stands at 50% or more in the case of 2,876, or 73%, of the deals while this stake falls at or above 95% for 1,915 deals (49% of all deals). I then map the acquirers from SDC Platinum to their corresponding actively trading securities covered by Datastream by using SEDOL numbers and company names. Thus I arrive at 4,458 securities issued by 973 foreign companies and 2,176 closed-end investment funds.

[7] I map each security from Datastream to its corresponding company-level identifier on Worldscope. I use the Worldscope country of domicile to identify Chinese companies. Worldscope's country of domicile is based on where the company conducts its major business operations and revenue generation. When a company's operations are globally distributed the following factors are also considered in determining the company's country of domicile: Generally Accepted Accounting Principles (GAAP) that the company follows, the currency in which the company reports its accounting data, and the country of the company's primary listing.

[8] I have dropped deals in which a group of investors (as opposed to a unique company) is the acquiring entity.

The total sample of China-relevant securities consists primarily of equities consists of securities that fall into two broad non-overlapping categories in terms of the kind of China exposure afforded: A-shares that afford *direct* exposure to China and non A-shares that afford *indirect* exposure to China.

1.4.1.1 A-Shares: Direct Exposure to China

A-shares afford direct exposure to China in the sense that they are listed on China's domestic stock exchanges and represent the bulk of China's stock market capitalization. Throughout the 2000s A-shares have represented more than 92% of China's stock market capitalization and starting with the second half of 2009 this number has stayed at or above 99%.[9] Even though foreign companies such as Coca-Cola, Wal-Mart, Unilever, and General Electric have expressed interest in listing their stocks in China,[10] China's financial market regulators have not yet allowed them to issue shares in China. Despite China's ten-year-old QFII Scheme, A-shares continue to be held predominantly by domestic retail and institutional investors in China. The sample consists of 2,408 A-shares issued by 2,406 Chinese companies and two closed-end investment companies based in China.

[9] Source: Shanghai Stock Exchange & Shenzhen Stock Exchange.
[10] *"Foreign Firms Line up to List in China,"* September 17, 2012, http://blogs.wsj.com/deals/2012/09/17/foreign-firms-line-up-to-list-in-china/; *"The Shanghai International Board: Challenges and Opportunities,"* June 2010, Report prepared for the City of London Corporation by Trusted Sources, http://cec.shfc.edu.cn/download/5a8b8166-384c-4e56-83ac-578c7f8adbe3.pdf

1.4.1.2 Non A-Shares: Indirect Exposure to China

The non A-shares in the sample consist of securities that can be held by foreign institutional investors but that afford only second-best exposure to China compared with A-shares that are issued by Chinese companies and listed on China's domestic stock exchanges. I further divide this set of securities into the following mutually exclusive categories with each category representing a distinct channel of providing exposure to China:

i) B-shares: Even though B-shares that trade on both the Shanghai and Shenzhen stock exchanges have been fully accessible to foreign investors since 1992, they afford only second-best exposure to China's growth compared with A-shares since the B-share market has remained very small and thinly traded compared with the A-share market (section 3). Through the greater part of the 2000s (except for the period spanning March, 2001 through December, 2006) B-shares have represented less than 5% of China's stock market's tradable market capitalization.[11] While the Shenzhen Stock Exchange leads in terms of the number of listed A-shares, both the exchanges are at par in terms of the number of listed B-shares. The sample consists of 101 B-shares issued by 101 Chinese companies.

ii) Internationally Listed Chinese Stocks: Owing to financial, regulatory, and macroeconomic reasons, several Chinese companies have chosen to bypass China's domestic financial market entirely and list only in overseas financial markets through

[11] Source: Shanghai Stock Exchange & Shenzhen Stock Exchange.

foreign IPOs and ADRs. The most commonly cited financial reasons include strong demand for external equity capital coupled with limited sources of domestic capital and a lower cost of raising capital internationally through: (a) a wider shareholder base and (b) lower listing costs. The key regulatory reason cited for the international listings of Chinese companies is the lengthy and cumbersome process required by the CSRC to list on China's domestic exchanges. The CSRC's requirements to list on China's domestic exchanges are more stringent compared with the listing requirements of most foreign exchanges. Regulatory uncertainty is considered to be the other reason driving Chinese international listings. The CSRC has been known to suspend domestic IPOs when it perceives that domestic capital markets are becoming speculative. Macroeconomic factors driving Chinese international listings include primarily China's rapid economic growth coupled with the expansion of the number of host markets for an international listing wherein smaller and emerging financial markets such as Malaysia, Germany, and Taiwan have joined more established financial centers such as Hong Kong, London, New York, and Singapore as host markets for Chinese international listings. More recently, global stock exchanges have also expended resources to actively woo Chinese firms to acquire overseas listings.

While they are subject to the CSRC's regulations for the initial approval needed for companies to list abroad,[12] the stocks issued by overseas-listed Chinese companies are not part of China's securities markets but are components of the stock markets on

[12] The CSRC started regulating overseas listings of Chinese firms in 1999. Owing to the stringent corporate governance and accounting standards imposed by the CSRC on firms that seek to list overseas, many Chinese firms have incorporated in offshore centers and then gone public in overseas stock markets without the approval of the CSRC.

which they trade. These stocks are fully accessible to international investors in terms of their ownership, trading, and transfer. However, they afford second-best exposure to China compared with A-shares because they are issued by companies that are confined to a few sectors such as energy and technology. The sample consists of 1,332 (1205 equities, 126 ADRs, and one investment trust) internationally listed Chinese stocks issued by 717 companies and 42 closed-end, China-based investment companies. In keeping with recent studies on Chinese overseas listings,[13] the vast majority of internationally listed Chinese stocks in the sample can be traced to the period after 2000 and more predominantly to the period after 2005. These stocks trade on 21 stock markets with 95% of them trading in key financial centers such as Hong Kong, Germany (the Frankfurt, Berlin, and Stuttgart stock exchanges), Singapore (Singapore Mainboard and Catalist) and the United States (the NASDAQ and New York stock exchanges as well as OTC markets) (table 1).

The majority—49%—of the sample's Chinese companies with overseas listings have two listings, followed by 37% with a single listing, 12% with three listings, and 1.5% with four listings. The average number of listings per company stands at 1.8. Only three companies have multiple listings on the same exchange.

iii) Dual-Listed Stocks of Chinese Companies: Some Chinese companies have sought to tap into global financial markets and meet international investors' demand for greater China exposure by cross-listing their stocks in overseas financial markets,

[13] See Pan, Fenghua and Daniel Brooker, 2014, "Going Global? Examining the Geography of Chinese firms' overseas listings on international stock exchanges," *Geoforum,* Vol. 52, pp. 1–11.

i.e., by acquiring an overseas listing over and above a listing in China's domestic financial market. The sample consists of 263 cross-listed securities (234 equities and 29 ADRs) issued by 85 Chinese companies and two China-based investment companies. More than 75% of the Chinese cross-listings in the sample can be traced to the period after 2000. These securities trade on 10 stock markets in the major financial centers of Germany, Hong Kong, the United States, Singapore, and the United Kingdom (table 2).

I observe a wide variation in the total number of cross-listings per company. The average number of cross-listings per company stands at 3.8. As compared with companies that directly list their stocks in overseas markets without maintaining an accompanying listing on China's domestic exchanges, stocks of a given Chinese company with dual listings exhibit more clustering on the same exchange and within the same geographical market. Fourteen companies have multiple cross-listings on the same exchange while 33 companies have multiple cross-listings on an exchange within the same country. The exchanges that attract multiple cross-listings by the same company are Frankfurt (10 companies), OTC markets in the United States (four companies) and XETRA (four companies that also have multiple cross-listings on the Frankfurt Stock Exchange). Germany attracts 134 multiple cross-listings by 32 companies followed by the United States, which attracts 16 multiple cross-listings by four companies (among which three also have multiple cross-listings in Germany).

iv) Stocks of Foreign Companies with Cross-Border FDI Deals in China: As stated earlier, I complement the sample of stocks issued by Chinese companies with stocks issued by foreign companies that have cross-border FDI deals in China. The sample consists of 4,485 securities issued by 973 foreign companies and 2,176 closed-end investment funds. These securities trade on 59 stock markets (table 3) and are issued primarily by foreign companies that are domiciled in advanced economies.

The majority—58%—of the foreign enterprises have an FDI deal with a single Chinese company followed by 11% that have FDI deals with two unique Chinese companies, 24% that have deals with three unique Chinese companies, and 6% that have deals with four or more unique Chinese companies. I calculate a firm's average equity stake as its total equity stake aggregated across all its target companies divided by the total number of unique target companies. The majority—73.3%—of the foreign enterprises have an average equity stake of 50% or more.

1.4.2 Institutional Ownership Data

I use Lionshare Factset's institutional ownership data for stock ownership. The database provides stock ownership data for 8,966 unique institutions domiciled in 87 countries with the majority of these institutions (more than 85%) being domiciled in advanced economies as per the IMF's country classification. For each institution, the ownership data provides quarterly data on: (a) the security held, identified by security name and the unique security identifier (CUSIP); (b) the country in which the security is domiciled; (c) the type of security held (ADR, convertible bond, etc.); (d) the

exchange on which the security is trading; (e) the total dollar value of the security held; and (f) the year and quarter for which the stockholding amount is reported. The ownership data extends from the first quarter of 1999 until the end of the third quarter of 2013 and covers 93,051 unique securities issued by 60,115 unique firms from 132 countries.

1.4.3 China-Relevant Securities with Institutional Ownership Data

I map the universe of 8,610 China-relevant securities described in section 4.1 to securities for which Lionshare Factset has shareholding data by using a combination of SEDOL numbers and ISIN codes. This matching exercise gives the final sample of 5,319 securities for which I can identify the specific channel through which the security affords investors exposure to China and for which I have institutional ownership data (table 4).

1.4.4 Data on QFII Licenses & Investment Quotas

I obtain data on QFII licenses and investment quotas from the CSRC and the SAFE respectively. For a given QFII the CSRC provides the date on which it obtained a license. The SAFE provides a detailed timeline of institution-specific investment quotas. For each QFII I get to observe the dollar amount of the initial investment quota granted and the date on which it was granted. For those institutions that were granted

incremental investment quotas I get to observe the total number of incremental quotas granted, the dollar amount granted each time, and the date on which it was granted.[14]

Data on investment quotas used in this paper include quotas granted through the end of December 2013 as well as incremental quotas granted through the end of February 2014 to QFIIs that were issued licenses before the end of 2013. The maximum number of initial quotas was issued in 2012 and 2013. From among the 228 QFIIs that were granted investment quotas before the end of December 2014, 85 QFIIs (37%) were granted one or more incremental quotas. Table 5 shows the investment quota timeline for the earliest five recipients of QFII licenses.

1.5 EMPIRICAL RESULTS & DISCUSSION

The matching exercise (section 3.4) gives us 90 unique controls for 90 QFIIs. Given the distribution of the number of unique observations per firm, I arrive at an unbalanced panel with 1,470 observations.

1.5.1 Event Study Analysis

A quarterly event study analysis of various measures of China exposure shows that, throughout the one-year treatment window, QFIIs, relative to their non-QFII peers, have: (a) a significantly higher rate of exposure to B-shares; (b) a significantly higher

[14] While I know that QFII regulations impose a maximum limit of one quota re-application per year, I can neither observe the total number of times that a particular QFII re-applied for a quota nor the dollar amount for which the QFII applied. Anecdotal evidence suggests that the actual demand for QFII quotas outstrips the amount allocated in quotas.

rate of exposure to cross-listed Chinese stocks; and (c) a significantly lower rate of exposure to shares of foreign firms with cross-border FDI deals in China. I further find that QFIIs, relative to their non-QFII peers, have a significantly lower rate (amounting to -2 percentage points) of indirect exposure to China during the treatment quarter and the one quarter immediately following the treatment quarter. I follow with a difference-in-differences regression analysis to identify a potential causal relationship between being a QFII and exposure to China.

1.5.2 Difference-in-Differences Regression Analysis

I estimate a difference-in-differences panel regression of measures of exposure to China. For each measure of China exposure I first run the basic difference-in-differences specification. I then successively augment the specification with time and firm fixed effects. Multiple observations per firm allow us to control for firm fixed effects that control for time-invariant firm-specific factors that may affect a given institutional investor's overall or channel-specific China exposure. Time fixed effects allow us to control for time-specific, institutional investor–invariant factors that may affect overall or channel-specific exposure to China.

I find that direct access to China's A-share market through a QFII investment quota is not associated with a significant change in the overall rate of exposure to China but is associated with a decline of 1.1 percentage points in the rate of exposure to China through indirect channels, i.e., in the holdings of non A-share China-relevant stocks as a share of total holdings of China-relevant stocks (tables 6 and 7). This suggests that

portfolio investability restrictions in China are binding. Further, I do not observe any significant change in channel-specific exposure to China for any of the four indirect or non-A-share channels that I have outlined as pathways for acquiring exposure to China.

By definition the entire decline in the rate of indirect China exposure reflects a corresponding and equivalent increase in the rate of direct China exposure, i.e., China exposure realized through investment in A-shares (equation 4). These results thus support the conclusions that: (a) the QFII Scheme is associated with a significant increase in exposure to China realized through A-shares and (b) this increase in direct exposure represents *incremental*, i.e., *additional* or *new* global demand for China-exposure rather than a *reallocation* of existing global demand for China-exposure away from indirect or non-A-share channels to the A-share channel that has been opened up by the QFII Scheme.

In order to better understand the magnitude of the incremental global demand for China exposure generated by the QFII Scheme I compute the dollar value of the estimated decline in the rate of indirect China exposure through the following formulation:

$$\Delta IndirectChinaExposure_{DollarValue} = (\frac{\beta + \beta_{pre}}{100}) * \overline{ChinaHoldings} - (\frac{\beta_{pre}}{100}) * \overline{ChinaHoldings} \quad (6)$$

where $\Delta IndirectChinaExposure_{DollarValue}$ is the estimated dollar value associated with the one-percentage-point decline in the rate of indirect exposure to China, β is the

estimated percentage point change in the rate of indirect China exposure attributable to direct A-share access through the QFII Scheme, β_{pre} is the in-sample observed rate of indirect China exposure in the pre-treatment period, and $\overline{ChinaHoldings}$ is the average dollar value of the holdings of China-relevant stocks observed in the sample.

Equation (6) and the finding that the entire decline in non-A-share-based China exposure attributable to the QFII Scheme is unaccompanied by any significant change in channel-specific non-A-share-based China exposure leads us to the following conclusions: (a) access to China's domestic financial market through the QFII Scheme is associated with an *increase* of 26 million USD in the holdings of A-shares for the average QFII and (b) this increase does not represent a reallocation of existing global demand for China exposure away from non-A-share channels that are accessible without a QFII quota; it instead represents global incremental demand for China exposure that would not have materialized in the absence of the QFII Scheme. The estimated magnitude of 26 million USD new A-share investments representing the underlying new global demand for China exposure amounts to 21.7% of the average initial QFII quota in the sample. This number indicates that the asset allocation restrictions with which QFIIs have to comply (section 2.3) may mean that the average QFII in the sample finds it optimal to invest only about a fifth of its initial quota in A-shares.

I then try to determine the precise time window around the treatment date for which I can expect to observe the aforementioned change in investment behavior attributable to the QFII Scheme. I re-create separate panels by retaining only observations in the

quarter 1, quarter 2, and quarter 3 pre-and-post-treatment windows, respectively. While I do not find any significant change in the rate of indirect exposure to China over the quarter 1 or quarter 2 pre-and-post-treatment windows, I do find a significant decline of one percentage point in the rate of indirect exposure to China over the quarter 3 pre-and-post-treatment window (table 8). This result is consistent with the fact that QFII regulations allow QFIIs a maximum of six months from the quota approval date to remit their entire quota into China's domestic financial market and that I can observe only 18 instances of quota withdrawals throughout the 10-year history of the QFII Scheme that this paper covers (section 2.3).

1.5.3 Two-Step Consistent Estimates

The abovementioned results are based on a specification that includes both time and firm fixed effects. Time fixed effects control for time-varying and firm-invariant unobservable factors that may affect the rate of exposure to China. Firm fixed effects control for firm-specific, time-invariant unobservable factors that may affect the rate of exposure to China.

But this specification does not control for firm-specific unobservable factors—either those that vary over time or those that are time-invariant—that may affect a given institutional investor's direct access to the A-share market via the QFII channel and render the binary treatment variable, θ_k **,** endogenous, leading to an inconsistent

estimate of the QFII Scheme's average treatment effect on various outcome measures of interest.

In order to address this issue I implement an endogenous-treatment-effects model, which addresses endogeneity introduced through the treatment variable. The estimation follows a procedure parallel to the two-stage Heckman model. In the first step I estimate a selection equation using variables that affect selection into the treatment, i.e., variables that affect the likelihood of being a QFII but are not likely to affect the outcome variable(s) of interest. In the second step I estimate the outcome equation as the standard difference-in-differences specification with time and firm fixed effects and the hazard estimated from the first step.

In the first step I estimate the selection equation by using a firm's age as of the treatment date and its size as captured by the dollar value of total shareholdings in a given time period as selection variables. These two variables seem to be logical choices since QFII regulations clearly specify an institution's age and size as they key QFII qualification criteria and since age and size are not likely to affect an institutional investor's rate of exposure to China. I find that both age and size are significant at the 5% level, suggesting that my selection criteria are appropriate.

The second-step outcome equation shows that the QFII Scheme's average treatment effect amounts to a significant decline of 1.2 percentage points in the rate of indirect exposure to China. The hazard ratio estimated in the first-stage equation was not

significant in the second-stage equation, indicating that the treatment was not endogenous to begin with.

1.5.4 Robustness Checks using Sub-Sample of Firms with Data for all 9 Quarters in the Treatment Window

Since my experimental design consists of comparing the outcome variables of interest over a one-year before-and-after-treatment window, I retain only those QFIIs for which all four quarters of shareholding data before the treatment date are available and all four quarters of shareholding data after the treatment date are available. Likewise, for a given QFII I consider a unique control institution that, besides meeting the matching criteria (section 3.4), also has shareholding data available for all four quarters in the pre-treatment period and for all five quarters in the post-treatment period. This constraint reduces my sample of QFIIs from 115 institutions to 62 institutions. I thus arrive at a balanced panel with 124 firms—62 QFIIs and 62 corresponding controls—and nine observations per firm leading to a total of 1,116 observations. One observation is a given firm's shareholding in a given year and quarter.

The key result that I obtained using the full sample of 180 firms (90 QFIIs and 90 non-QFII controls) is sustained directionally when I use the subsample of 124 firms that have data available for all nine quarters comprising the pre-and-post-treatment windows. Entry into China's A-share market via the QFII Scheme is thus associated with a significant decline in the rate of indirect exposure to China. But the magnitude

of the decline drops by almost 40% compared with the decline in the rate of indirect exposure registered for the full sample; A-share market entry through the QFII Scheme is associated with a significant decline of 0.7 percentage points in the rate of indirect exposure to China (table 9). But unlike the finding for the larger sample, I do not find any significant decline in the rate of indirect exposure to China over a treatment window of less than four quarters around the treatment quarter. Figure 5 shows that the bulk of the decline in the rate of indirect China exposure is concentrated during the first two quarters immediately after the treatment date.

In keeping with the results for the larger sample I continue to find no significant change in channel-specific exposure to China. This result supports the conclusion that the decline in the rate of indirect China exposure and the corresponding equivalent increase in the rate of direct China exposure represent *new* global demand for China rather than a *reallocation* of existing global demand for China away from non A-share channels towards A-shares. Using equation (6) I find that A-share market access through the QFII Scheme is associated with an increase of 19 million USD in A-share holdings for the average QFII, which amounts to 15.4% of the average initial QFII quota for the smaller sample of QFIIs having data for all nine quarters constituting the treatment period.

I further find that direct A-share market access is associated with a significant increase of 0.2 percentage points in the rate of *overall* A-share exposure, i.e., in A-share holdings as a share of total holdings and not just as a share of the holdings of China-

relevant stocks (table 10) and a significant increase of one percentage point in the overall rate of China exposure (table 11). More than 50% of the increase in overall A-share exposure is concentrated in the second, third, and fourth quarters after the treatment date (figure 6), while almost the entire increase in the rate of China exposure occurs within the first quarter of the treatment date (figure 7). These results are not upheld for the larger sample that constitutes the baseline results, but they indicate that a richer coverage of the shareholding patterns of institutional investors over the treatment window supports the findings with which being a QFII is associated: (a) a significant increase in the rate of overall exposure to China and (b) a significant increase in A-share exposure both as a share of total holdings and as a share of China-relevant shareholdings.

1.6 CONCLUSION

China's QFII Scheme was introduced in December 2002 and for the first time allowed qualified foreign institutional investors to invest in the domestic A-share market. This paper for the first time uses the quasi-experimental setting offered by China's QFII Scheme to examine whether China's foreign portfolio investability restrictions bind by asking whether being a QFII is associated with a significant change in the overall as well as channel-specific rate of exposure to China. I further ask whether the demand for A-shares met by the QFII Scheme represents *incremental* global demand for China exposure or merely a *reallocation* of already existing global demand for China exposure away from non A-share or indirect channels to the direct A-share channel that has been opened up exclusively through the QFII Scheme.

I find that obtaining direct access to China's A-share market through a QFII quota is associated with a significant decline in the rate of indirect exposure to China ranging from 0.7 to 1.1 percentage points. I fail to find that being a QFII is associated with any significant change in the rate of channel-specific exposure to China for any of the four indirect or non-A-share channels that I have outlined as pathways for acquiring exposure to China. Since the entire decline in the rate of indirect China exposure reflects a corresponding and equivalent increase in the rate of direct or A-share-based China exposure, my findings suggest that being a QFII is associated with a significant increase in the rate of China exposure realized through A-shares and that this exposure represents *incremental* or *new* global demand for China exposure (that would not have materialized in the absence of the QFII Scheme) rather than a *reallocation* of existing global demand for China exposure away from non A-share channels into A-shares. Based on my estimates I find that the dollar magnitude of the incremental global demand for A-share based China-exposure generated by the QFII Scheme ranges from 26 million USD to 19 million USD for the average QFII, or 21.7% to 15.4% of the average initial QFII quota. I conclude that the asset allocation restrictions with which QFIIs are required to comply may mean that the average QFII finds it optimal to invest a maximum of about one-fifth of its initial investment quota in A-shares while investing the remaining in alternative RMB-based financial instruments that are accessible to QFIIs.

In conclusion, the evidence reported in this paper suggests that channels of direct and indirect exposure to China serve as mutual complements rather than mutual substitutes. Future research would benefit from shedding light on precisely why A-share- and non-A-share-based exposure are mutual complements and why, despite direct A-share access, foreign institutional investors find it optimal to retain the same rate of indirect channel-specific exposure to China that they did in the absence of this access.

1.7 REFERENCES

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1.8 FIGURES

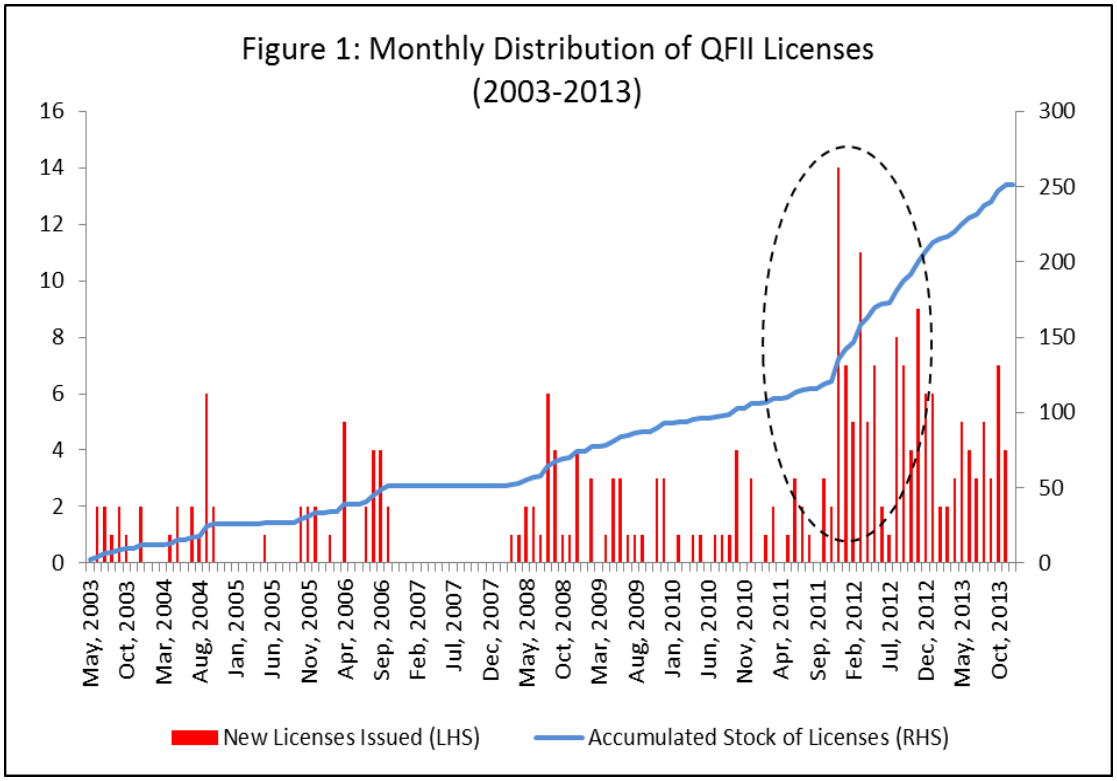

Figure 1-1: Monthly Distribution of QFII Licenses (2003-2013)

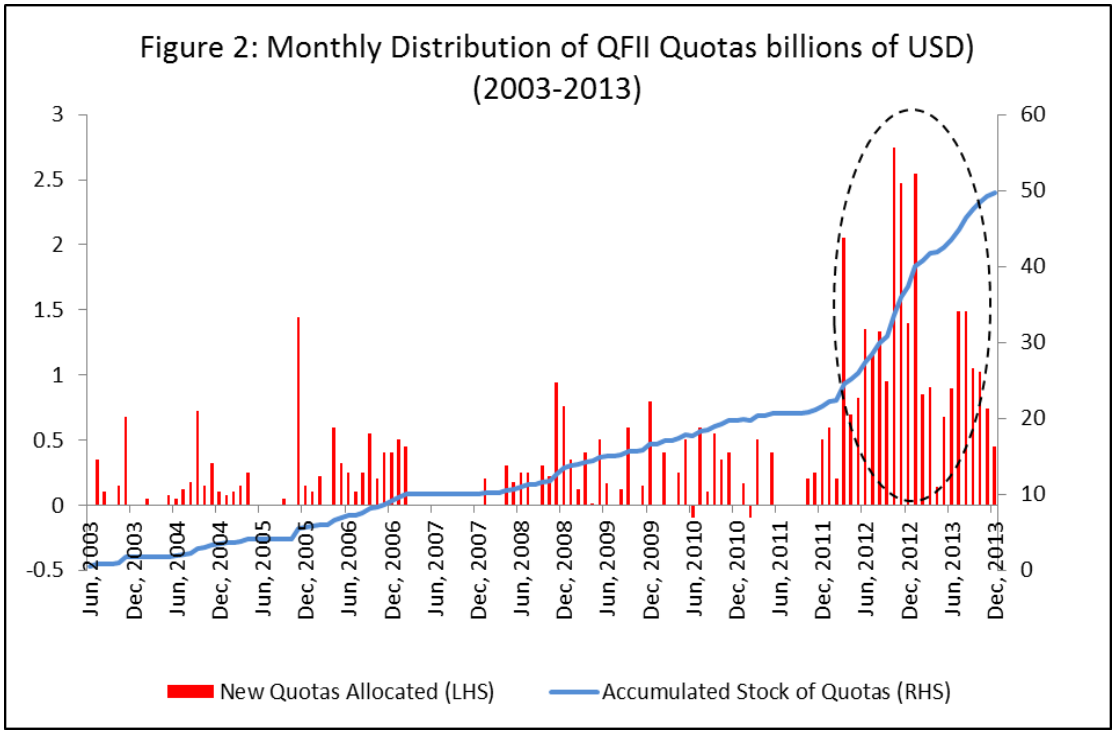

Figure 1-2: Monthly Distribution of QFII Quotas billions of USD (2003-2013)

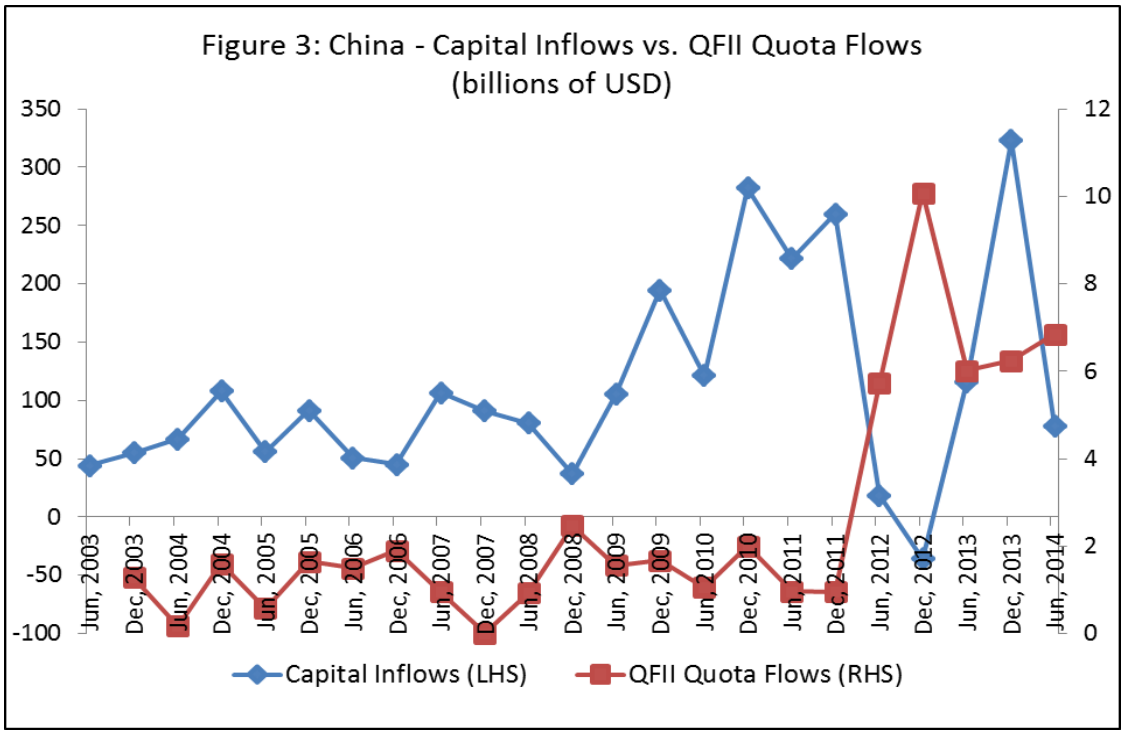

Figure 1-3: China - Capital Inflows vs. QFII Quota Flows (billions of USD)

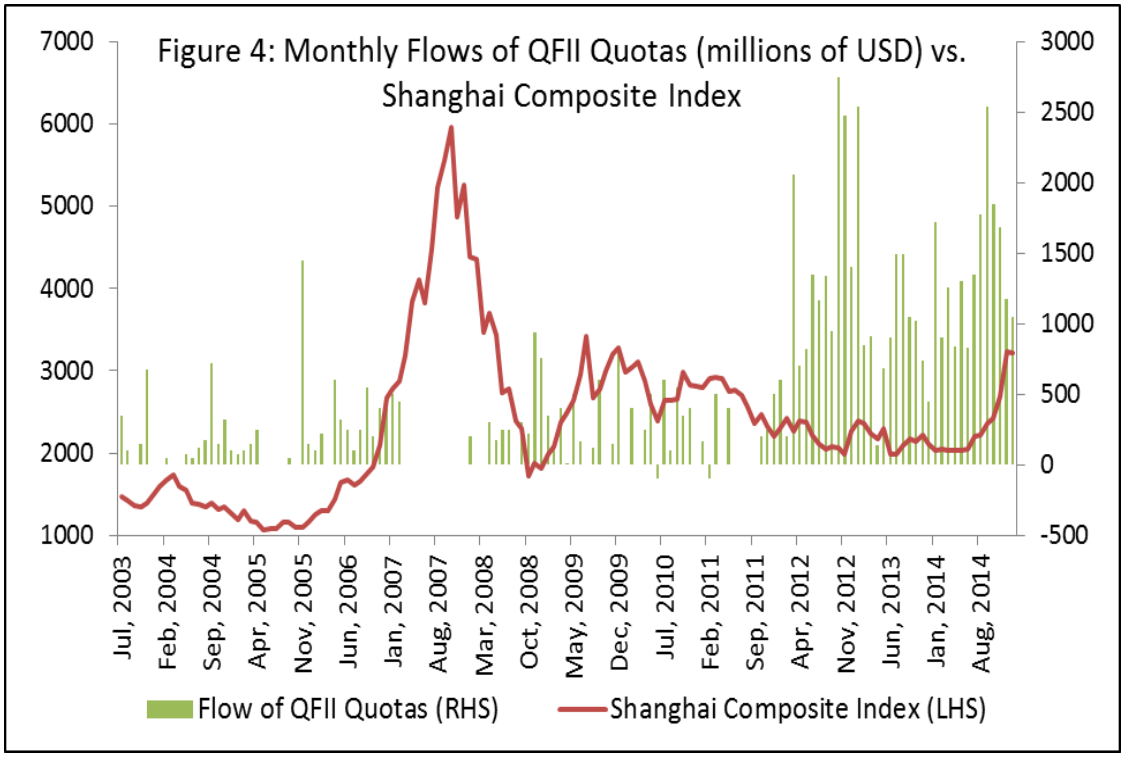

Figure 1-4: Monthly Flows of QFII Quotas (Millions of USD) vs. Shanghai Composite Index

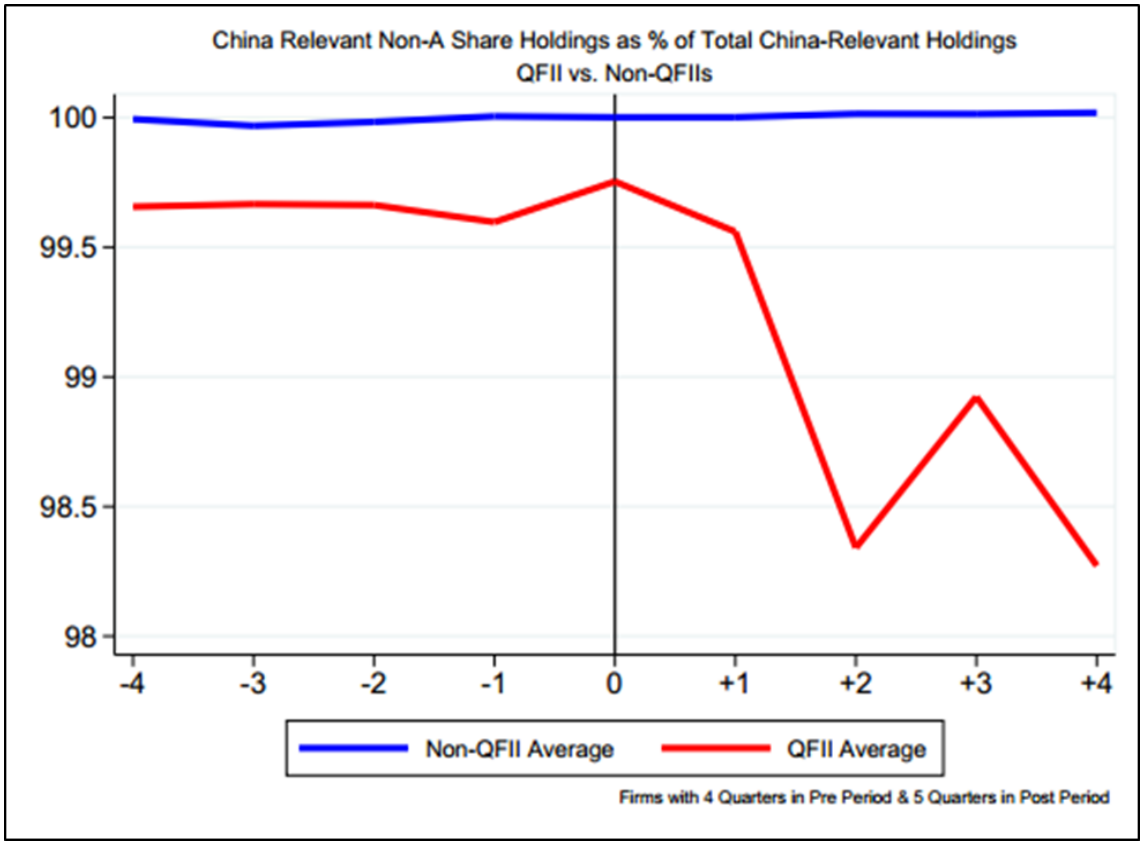

Figure1-5: Quarterly % Non A-Share China Exposure (QFIIs vs. Non-QFIIs: 1-Year Before-&-After-Treatment Window)
(Based on event study regression with firm fixed effects)

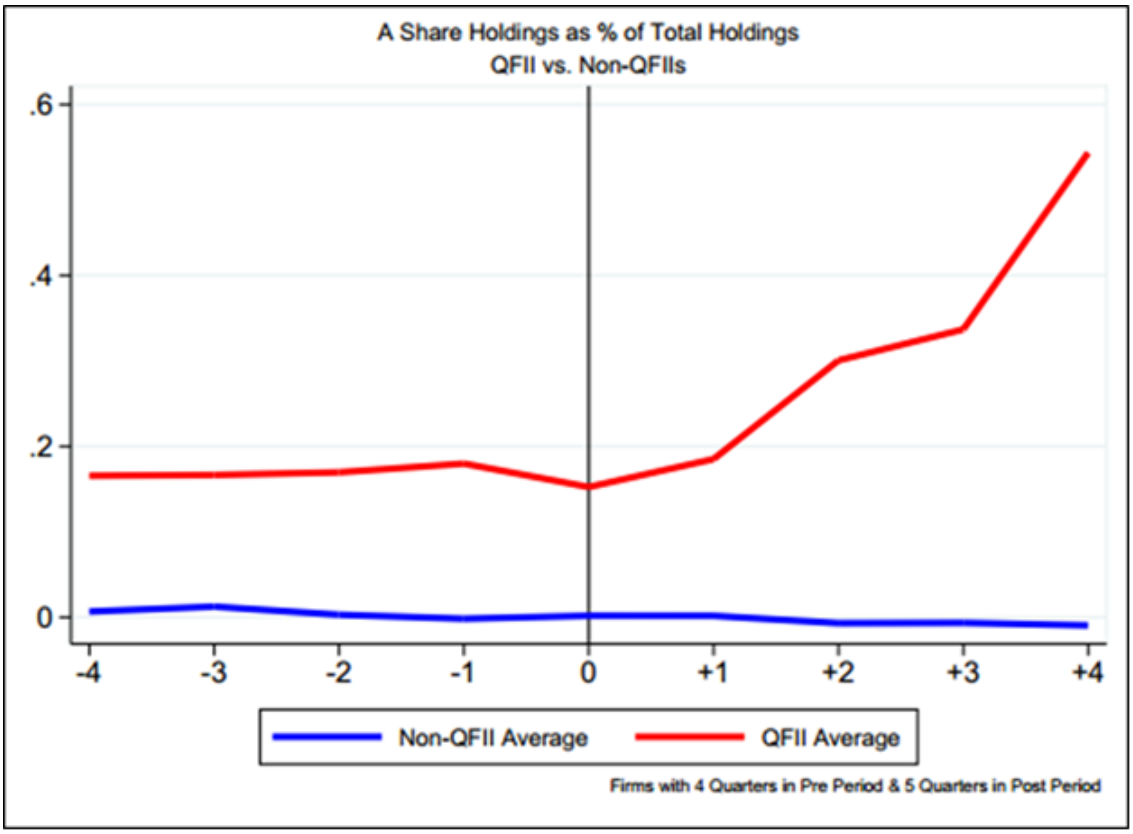

Figure 1-6: Quarterly % A-Share Exposure (QFIIs vs. Non-QFIIs: 1-Year Before-&-After-Treatment Window)

(Based on event study regression with firm fixed effects)

1.9 TABLES

Table 1-1: Internationally Listed Chinese Securities by Exchange

Exchange Name	Number of Securities	% Share of Securities
Hong Kong	314	23.6
Frankfurt	292	21.9
Other OTC	273	20.5
Berlin	128	9.6
Nasdaq	85	6.4
Singapore	73	5.5
New York	44	3.3
Stuttgart	32	2.4
OTC Bulletin Bd.	23	1.7
XETRA	19	1.4
London	17	1.3
Munich	7	0.5
NYSE MKT	5	0.4
Taiwan	5	0.4
Bursa Malaysia	4	0.3
Catalist	4	0.3
Euronext Paris	2	0.2
Taiwan OTC	2	0.2
Australian	1	0.1
SEAQ International	1	0.1
TSX Venture	1	0.1

Table 1-2: Cross-Listed Chinese Securities by Exchange

Exchange Name	Number of Securities	% Share of Securities
Frankfurt	78	29.7
Hong Kong	78	29.7
Other OTC	44	16.7
XETRA	32	12.2
New York	10	3.8
Singapore	9	3.4
Berlin	7	2.7
SEAQ International	3	1.1
Munich	1	0.4
Stuttgart	1	0.4

Table 1-3: Securities of Foreign Companies with Cross-Border FDI Deals by Exchange

Exchange Name	Number of Securities	% Share of Securities
Frankfurt	553	12.4
Other OTC	398	8.9
New York	189	4.2
Hong Kong	173	3.9
London	149	3.3
XETRA	146	3.3
SIX Swiss	112	2.5
Singapore	103	2.3
Tokyo	89	2
Berlin	86	1.9
Nasdaq	68	1.5
Korea	67	1.5
Toronto	51	1.1
Milan	44	1
Australian	42	0.9
Euronext Paris	41	0.9
Stuttgart	34	0.8
Stockholm	25	0.6
Taiwan	25	0.6
Nasdaq Smallcap	19	0.4
Euron. Amsterdam	16	0.4
National India	15	0.3
Bursa Malaysia	14	0.3
Helsinki	12	0.3
Euron. Brussels	11	0.3
Catalist	10	0.2
London OTC	10	0.2
SEAQ International	10	0.2
Others*	144	3.2

*The category "Others" includes 30 exchanges on which the number of actively trading securities falls below 10. These are Johannesburg (9), Thailand (9), Budapest (8), Kosdaq (8), Lima (8), Madrid-SIBE (8), New Zealand (8), TSX Venture (8), NYSE MKT (7), OTC Bulletin Board (7), Munich (6), Thailand Foreign (6), Bogota (5), Copenhagen (5), Santiago (5), Taiwan OTC (5), Indonesia SE (4), Jasdaq (4), Philippe SE (4), Bucharest (3), Dublin (3), Luxembourg (3), Mexico City (2), Oslo (2), Vienna (2), Hamburg (1), Kazakhstan (1), Malaysia ACE Market (1), Sao Paulo (1), and Tel Aviv (1).

Table 1-4: Sample of Securities with Shareholding Data by Channel of China-Exposure

Channel via which Security Offers Exposure to China	No. of Securities	% Share of Securities
A-Shares	2,415	45.4
B-Shares	101	1.9
Chinese International Single Listed	967	18.2
Chinese Dual Listed	116	2.2
Foreign with CBD FDI Deals in China	1,720	32.3
Total	5,319	100

Table 1-5: Quota Timeline for Oldest 5 QFIIs

Institution Name	Date of Quota Approval	Investment Quota (millions of USD)
UBS AG	June 4, 2003	300
	November 11, 2003	300
	September 15, 2004	200
	January 6, 2011	-10
	Total Quota	**790**
Nomura Securities Co., Ltd.	June 4, 2003	50
	November 7, 2006	300
	Total Quota	**350**
Citigroup Global Markets Ltd.	June 18, 2003	75
	November 3, 2003	125
	September 15, 2004	200
	November 24, 2005	150
	Total Quota	**550**
Morgan Stanley & Co. International Ltd.	July 1, 2003	300
	February 24, 2005	100
	December 24, 2012	200
	Total Quota	**600**
Goldman, Sachs & Co.	July 24, 2003	50
	April 18, 2005	100
	September 5, 2006	150
	Total Quota	**300**

Source: State Administration of Foreign Exchange

Table 1-6: Difference-in-Differences Estimates of the Effect of A-Share Access on % China-Exposure

VARIABLES	(1) % China-Exposure	(2) % China-Exposure	(3) % China-Exposure	(4) % China-Exposure
QFII Dummy	0.784	0.830	0.836	47.035***
	(2.058)	(2.022)	(2.038)	(0.727)
Post Dummy	-1.698*	-1.995**	-2.132**	-1.436*
	(0.862)	(0.994)	(1.045)	(0.747)
Post*QFII Dummy	0.931	0.859	0.837	0.958
	(1.110)	(1.094)	(1.119)	(0.845)
Constant	21.626***	23.553***	23.551***	-8.014**
	(1.370)	(1.380)	(1.393)	(3.589)
Observations	1,470	1,470	1,470	1,470
R-squared	0.005	0.043	0.047	0.903
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table 1-7: Difference-in-Differences Estimates of the Effect of A-Share Access on % Indirect China-Exposure

VARIABLES	(1) % Indirect China-Exposure	(2) % Indirect China-Exposure	(3) % Indirect China-Exposure	(4) % Indirect China-Exposure
QFII Dummy	-0.841	-0.844	-0.838	0.514
	(0.720)	(0.723)	(0.725)	(0.320)
Post Dummy	0.002	-0.049	-0.081	0.283
	(0.010)	(0.164)	(0.163)	(0.236)
Post*QFII Dummy	-0.641	-0.640	-0.632	**-1.089****
	(0.405)	(0.430)	(0.425)	**(0.486)**
Constant	99.988***	100.422***	100.419***	100.921***
	(0.008)	(0.470)	(0.472)	(2.541)
Observations	1,457	1,457	1,457	1,457
R-squared	0.013	0.021	0.024	0.780
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table 1-8: Difference-in-Differences Estimates of the Effect of A-Share Access on % Indirect China Exposure

VARIABLES	(1) % Indirect China-Exposure	(2) % Indirect China-Exposure	(3) % Indirect China-Exposure	(4) % Indirect China-Exposure
QFII Dummy	-0.847	-0.849	-0.847	0.179
	(0.743)	(0.747)	(0.757)	(0.206)
Post Dummy	0.001	-0.011	-0.079	0.390
	(0.015)	(0.208)	(0.206)	(0.316)
Post*QFII Dummy	-0.790*	-0.790	-0.773	**-0.985***
	(0.455)	(0.491)	(0.484)	**(0.573)**
Constant	99.985***	100.475***	100.424***	101.519***
	(0.011)	(0.447)	(0.487)	(3.988)
Observations	1,026	1,026	1,026	1,026
R-squared	0.012	0.022	0.024	0.809
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1-9: Difference-in-Differences Estimates of the Effect of A-Share Access on % Indirect China Exposure

VARIABLES	(1) % Indirect China-Exposure	(2) % Indirect China-Exposure	(3) % Indirect China-Exposure	(4) % Indirect China-Exposure
QFII Dummy	-0.133	-0.133	-0.133	-0.466***
	(0.121)	(0.122)	(0.124)	(0.102)
Post Dummy	0.022	0.056	0.059	0.679***
	(0.015)	(0.071)	(0.092)	(0.226)
Post*QFII Dummy	**-0.698*** **	**-0.698*** **	**-0.698** **	**-0.698** **
	(0.267)	**(0.264)**	**(0.267)**	**(0.281)**
Constant	99.968***	100.066***	100.066***	103.944***
	(0.022)	(0.077)	(0.079)	(1.484)
Observations	1,116	1,116	1,116	1,116
R-squared	0.033	0.042	0.054	0.240
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1-10: Difference-in-Differences Estimates of the Effect of A-Share Market Access on % A-Share Exposure

VARIABLES	(1) % Overall A-share Exposure	(2) % Overall A-share Exposure	(3) % Overall A-share Exposure	(4) % Overall A-share Exposure
QFII Dummy	0.011	0.011	0.011	0.191***
	(0.021)	(0.022)	(0.022)	(0.019)
Post Dummy	-0.009	-0.005	-0.001	-0.151**
	(0.007)	(0.013)	(0.016)	(0.059)
Post*QFII Dummy	0.142***	0.142***	0.142***	0.142***
	(0.051)	(0.051)	(0.051)	(0.053)
Constant	0.015	-0.006	-0.006	-0.898**
	(0.013)	(0.012)	(0.012)	(0.400)
Observations	1,116	1,116	1,116	1,116
R-squared	0.030	0.036	0.053	0.255
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1-11: Difference-in-Differences Estimates of the Effect of A-Share Market Access on % China Exposure

VARIABLES	(1) % China-Exposure Rate	(2) % China-Exposure Rate	(3) % China-Exposure Rate	(4) % China-Exposure Rate
QFII Dummy	-0.311	-0.311	-0.311	12.215***
	(1.889)	(1.788)	(1.807)	(0.448)
Post Dummy	-0.558	-0.162	-0.281	-1.439*
	(0.744)	(0.823)	(0.903)	(0.811)
Post*QFII Dummy	1.442*	1.442	1.442	**1.442***
	(0.833)	(0.879)	(0.903)	**(0.869)**
Constant	20.214***	24.124***	24.124***	10.543***
	(1.351)	(1.051)	(1.061)	(2.849)
Observations	1,116	1,116	1,116	1,116
R-squared	0.002	0.101	0.110	0.894
Year Fixed Effects	No	Yes	No	No
Time Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	Yes

Clustered (at the firm-level) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2 CHAPTER 2: FOREIGN INSTITUTIONAL INVESTOR PORTFOLIO PREFERENCES AND THE EFFECT OF FINANCIAL OPENNESS ON STOCK RETURN VOLATILITY IN CHINA

2.1 INTRODUCTION

China has been the fastest growing economy in terms of real GDP over the last 20 years. Even as China's importance in the global economy has steadily grown, its openness to international flows of goods and services stands in stark contrast to its openness to cross border flows of capital: in 2013 the value of China's exports and imports as a share of world exports and imports stood at 11.3%[15] while China's total external assets and liabilities as a share of world total external assets and liabilities stood at 4%.[16] This contrast is a direct consequence of China's policy of imposing restrictive capital controls – especially in regards to portfolio investment – that regulate cross-border flows of capital.

In 2002 China took the first step to opening its capital market to flows of foreign portfolio investment by introducing the Qualified Foreign Institutional Investor (QFII) Scheme which, for the first time, allowed qualified foreign institutional investors (QFIIs) to directly invest in Renminbi (RMB)-denominated assets—particularly A-shares listed on China' stock exchanges—through licenses and investment quotas granted by China's financial regulators. As of the end of December 2013, China's

[15] International Monetary Fund, Direction of Trade Statistics (DOTS)
[16] International Monetary Fund, Balance of Payment Statistics

Securities Regulatory Commission (CSRC) had granted QFII licenses to 251 institutions from 27 countries and the State Administration of Foreign Exchange (SAFE) had approved aggregate quotas worth $ 51.3 billion.

This paper adds to the limited body of work on the role of QFIIs in China's financial markets by posing two questions: what are the firm-level determinants of QFII portfolio allocations and what is the effect of foreign ownership through QFII investment allocations on stock return volatility?

The paper proceeds in two steps. I first employ detailed firm-specific foreign institutional ownership, market price and financial statement data for Chinese listed firms over the period 2003-2012 to examine the firm-level determinants of the portfolio allocation choices of QFIIs in China.

Past work using firm-level data that has examined the determinants of foreign portfolio investment allocations has primarily focused on markets where foreign ownership restrictions are non-binding and where foreigners own a substantial share in domestic listed companies. Examples include Kang and Stulz (1997) who study foreign shareholdings in Japan during 1975-1991, Liljeblom & Löflund (2005) who study foreign ownership in Finnish listed firms over 1993-1998, Dahlquist and Robertsson (2001) who study foreign equity ownership in Swedish listed firms over 1991-1997 and Kim and Yoo (2009) who examine foreign portfolio decisions in Korea over the periods 1993-1996 and 1999-2000.

Given the several binding restrictions on foreign portfolio investment in China in terms of the value, time-frame and asset allocation of investments (see Section 2.1), it may be argued that foreign ownership data for Chinese firms does not reflect the "true" choices of QFIIs but instead reflects the potential distortions of binding constraints on foreign ownership. Even though it is hard to disentangle what part of the portfolio preferences of QFIIs reflects explicit barriers to investment and what part reflects implicit barriers, I attempt to examine what observable firm characteristics drive QFII investments *given* binding restrictions on investment.

Empirical evidence on the portfolio preferences of China's QFIIs remains limited. Liu et al. (2014) examine the firm level characteristics of stocks that QFIIs invest in as well as whether stock preferences vary across foreign and domestic fund managers over the period 2003-2009. They find that QFIIs invest in firms that are significantly different – in terms of size, profitability and managerial compensation – from the firms in which domestic funds invest and that the portfolios of QFIIs are less evenly distributed across different industries as compared to the portfolios of domestic funds. Further, indicators of corporate governance such as ownership structure and concentration play a key role in the investment decisions of QFIIs. Mishra and Ratti (2011) examine the role of corporate governance in foreign equity investment in Chinese companies and find that foreign ownership is negatively related to large holdings by legal persons and positively related to large foreign institutional holdings, with the implication that the latter provide a monitoring function that reduces agency

problems. However their sample is restricted to 2006 and is primarily focused on foreign strategic ownership of 5% or more rather than foreign institutional ownership.

This is the first paper which spans the ten year period – 2003-2012 – over which the number of QFIIs in China increased from 12 to 251, the dollar value of QFII quotas increased from $ 1.7 billion to $ 251 billion, QFII qualification criteria were loosened, investment quota ceilings raised and capital flow restrictions on both the inward remittance of capital and the repatriation of funds relaxed. Thus QFIIs had progressively had more leeway to act upon their true preferences over the sample period.

I find strong evidence to support the fact that QFIIs overweight large firms, "growth" firms with low book-to-market ratios and more profitable firms in their portfolios. My results also largely support the fact that QFIIs are contrarians i.e. they do not invest on the basis on past performance. I only find limited evidence to suggest that QFIIs prefer to invest in firms with foreign listings i.e. firms that may be better known to foreign investors. Among non-financial variables I find strong evidence to support the fact that QFIIs underweight firms with strategic ownership of 5% or more by those with significant voting power (typically family members) and overweight firms with strategic ownership of 5% or more by long-term investors such as investment banks. Somewhat counterintuitively, I also only find limited evidence to suggest that QFIIs overweight firms that have strategic ownership of 5% or more by foreign institutions.

The second part of the paper uses firm-level data on foreign ownership to understand how financial openness affects the return volatility of individual stocks. I determine the investibility of each firm based on *actual* foreign institutional ownership data for the firm rather than proxying for it by using a stock's foreign ownership limit (Bae et al., 2004) or by limiting myself to large foreign block holders (Li et al., 2011). My stock-level measure of financial openness thus comes closer to a stock's actual time-varying level of foreign investibility since the stock's foreign ownership limit may not necessarily reflect its actual foreign ownership and since QFII ownership reflects a facet of foreign investibility not reflected in ownership of 5% or more by large foreign block holders.

Evidence on the effect of QFIIs on volatility in China's domestic financial market remains limited. Schuppli and Bohl (2010) focus on the relative propensity of domestic individual investors versus foreign institutional investors to follow trend-chasing strategies and find that the influence of trend-chasing in the A-share market has diminished after the entry of QFIIs. They therefore conclude that foreign institutional investors reduce the probability of speculative bubbles in stock prices and have a stabilizing effect on the A-share market. This paper builds upon the work of Chen et al., (2013) who examine the impact of foreign institutional ownership on firm-level stock return volatility for 1,458 Chinese firms over the period 1998-2008 and find that foreign institutional ownership as well as domestic institutional ownership is associated with a significant increase in firm-level return volatility in Chinese listed

firms even after controlling for the complete ownership structure, firm size, turnover and leverage and correcting for potential endogeneity problems.

I find that foreign ownership is, for the most part, not associated with any significant change in stock return volatility. This result is robust to using different measures of return volatility and controlling for firm size, turnover, leverage and ownership structure as well year and firm fixed-effects. In certain specifications foreign ownership is associated with an increase in stock return volatility and confirms the findings of Chen et al. (2013). I also find that foreign ownership is associated with a significant decrease in stock return synchronicity. But this result is not robust to controlling for time fixed-effects.

The rest of this paper is organized as follows. Section 2 describes the data. This section also provides a brief description of China's QFII Scheme and an insight into aggregate foreign institutional ownership in China. Section 3 describes variable construction and the estimation methodology. Section 4 discusses the empirical results. Section 5 concludes.

2.2 DATA DESCRIPTION

The key data sources used in this study are: **Lionshare Factset Institutional Ownership Database**, **Datastream** and **Worldscope**.

I use the **Lionshare Institutional Ownership** database to obtain stock-year level foreign ownership data. The database provides quarterly institutional ownership data extending from the first quarter of 1999 until the end of the third quarter of 2013 for 95,786 unique equities and ADRs issued by 65,969 unique firms domiciled in 140 different countries. The database provides institutional ownership data for 2,793 Chinese equities that are listed on the Shanghai or the Shenzhen stock exchange or that were actively listed on these exchanges at some point in time between 1999 and 2012 but are currently delisted. From among the 228 QFIIs that had active licenses and investment quotas to invest in China's financial market as of the end of 2013, Lionshare has shareholding data for 222 institutions.

In a given time period the database provides data on the following variables for each stock: (a) the institutional investor – identifiable by a unique Factset identifier –that holds the security; (b) the country in which the institutional investor is domiciled; (c) the number of stocks held by the institutional investor and (d) the market value of the institutional investor's stockholding. For each security the database further provides descriptive data such as the security's name, the type of security, the security's classification based on market capitalization, the exchange on which the security is listed and the country of domicile of the security's issuing entity.

For each stock-year observation in the Lionshare institutional ownership universe I compute the following measures of foreign ownership: (i) the number of unique FIIs

that hold the stock in a given year[17]; (ii) earliest year in which the security becomes held by an FII; (iii) the last year in which the security becomes held by an FII; (iv) the security's total number of shares held by FIIs; (iv) the market value (in dollars) of the security's shares held by FIIs. For the last two measures I aggregate the total securities and the market value of securities held across all FIIs that hold the particular stock.

My sample consists of the entire universe of A and B shares listed on the Shanghai and the Shenzhen stock exchanges[18] for which Datastream has market price data and for which Lionshare Factset provides institutional ownership data. I first match stocks across Datastream and Lionshare based on SEDOL codes and ISIN codes. I follow this by manually matching on the type of stock and the primary exchange on which the stock trades to weed out the inaccurate matches. Table 1 shows that the match rate across Datastream and Lionshare Factset is high being 92.5% for A-shares and 100% for B-shares.

In line with the literature that uses financial statement data, e.g. Kang & Stulz (1997) I restrict my sample to non-financial firms given that several accounting variables such as leverage or export ratio are either non-existent for financial firms or non-comparable to these variables for financial firms. My sample period extends from 2003-2012.

[17] Liu et al., 2014 compare the firm-level characteristics of firms that have at least one QFII holding their equity with the firm-level characteristics of firms with no QFII presence. They extract ownership data from the WIND database and financial and corporate governance data from the China Stock Market Accounting Research (CSMAR) database. They do this analysis for the time period: 2003-2009. In their sample the foreign funds' portfolio holdings consist of 858 firm-year observations.

[18] I exclude ADRs. Some papers like Kang & Stulz (1997) include ADRs and count all ADRs as 100% foreign owned.

In order to compute market price based variables such as annualized stock returns and stock return volatility I extract official closing daily stock price data adjusted for subsequent capital actions from **Datastream**. I use the previous year's daily prices to compute annual market price based variables. Further, in order to compute annual measures from daily prices I only retain those stocks and years in which I have daily price data for at least 150 trading days. I use year-end financial statement data from **Worldscope** to arrive at year-end financial statement data.

2.2.1 China's QFII Scheme – Access to the A-Share Market with Barriers to Investment

Since the inception of the Shanghai and Shenzhen stock exchanges in 1990 and 1991, respectively, China restricted foreign portfolio investment in the domestic market by instituting an entire class of securities called A-shares that, prior to 2003, were restricted to domestic investors for their ownership, trade and transfer. B-shares on the other hand were, from 1992 until February 2001, restricted to foreign investors and were off-limits to all domestic investors.

Introduced in December 2002, China's QFII Scheme allows qualified foreign institutional investors to convert foreign currency into RMB and invest in A-shares listed on the Shanghai and Shenzhen stock exchanges as well as in other RMB-denominated financial products approved by the CSRC. QFIIs are foreign fund-management institutions, insurance companies, securities companies, and other asset-

management institutions that have been granted a license by the CSRC and an investment quota by the SAFE to invest in China's financial market and, more significantly, in the A-share market. As of the end of December 2013, there were 230 QFIIs with allocated investment quotas worth $ 49.7 million. China's financial regulators – the China Securities Regulatory Commission (CSRC) and the State Administration of Foreign Exchange (SAFE) – have exhibited a concerted policy thrust to increase the flows of long-term portfolio investment into China by substantially expanding the allocation of QFII licenses and quotas. Figure 1 shows that during the period 2003 – 2013 the number of institutions with QFII licenses expanded from 12 to 251. This highest number of QFIIs (45, or 18%) is domiciled in Hong Kong followed by the United States (38, or 15%) and the United Kingdom (27, or 11%). Figure 1 further shows a marked uptick in the number of new QFII licenses issued between 2011 and 2012 with the maximum number of new licenses (72) since the QFII Scheme's inception having been issued in 2012. Figure 2 shows that during the period 2003-2013 the SAFE allocated a total stocks of investment quotas worth $ 51.42 billion. Mirroring the trend in license allocations, figure 2 shows a marked increase in the value of investment quotas allocated between 2011 and 2012 with the maximum value of new investment quotas since the QFII Scheme's inception having been allocated in 2012.

Portfolio investments by QFIIs are subject to several binding restrictions. A QFII's investment principal amount cannot exceed the investment quota – having a current ceiling of $ 1 billion – which it has been granted by the SAFE. Each QFII is allowed a

maximum of six months from the initial quota approval date to remit its entire quota into China as portfolio investments. Investments by a single QFII in individual listed firms cannot exceed 10% of the firm's total shares while cumulative shareholding across all QFIIs cannot exceed 20%. Each QFII is also required to hold no less than 50% of its total assets in equities or equity-related instruments and no more than 20% of its assets in cash to avert QFIIs from placing the bulk of their assets in bonds and cash to speculate on the RMB's appreciation. More recently China has increased the floating range of the exchange rate to slow the appreciation of the RMB. Thus since 2012 QFIIs are not required to hold a minimum 50% of their investment portfolio in equity-related instruments; they are now allowed to have a flexible configuration of assets between equities and fixed-income securities. However, QFIIs still cannot hold more than 20% of their investment portfolio in cash.

2.2.2 Foreign Ownership in China: A First Look

Table 2 provides a summary of the ownership data. Column 2 shows the total number of firms listed each year on the Shanghai and the Shenzhen stock exchanges. Column 3 shows the number of sample firms for each year both in absolute terms and as a percentage share of the listed companies. For each year in the sample period the sample includes more than 90% of the listed firms. Since the sample consists of firms for which foreign ownership and market price data is available, column 3 of table 2 affirms that the proportion of listed firms for which foreign institutional ownership data is available remains high for all years of the sample period 2003-2012. Further, this number rises consistently over time with the exception of the year 2010.

Column 6 shows the number of sample firms with positive foreign ownership. A firm is considered to have positive foreign ownership if it has at least one QFII that owns its shares. It is apparent that as the number of QFIIs that have quotas to invest in China rises, the number of sample firms with QFII ownership also increases. Figure 3 shows the annual breakdown of the total number of listed firms, the total number of sample firms and the number of sample firms with positive foreign ownership.

I arrive at an equally-weighted measure of foreign ownership by computing the percentage of shares owned by QFIIs in each firm and averaging this across all firms. I also arrive at a value-weighted measure of foreign ownership as the total market value of shares held by QFIIs as a percentage of the total market capitalization of all sample firms. Table 3 provides a summary of this data.

Columns 2 and 4 show that both the equally and the value weighted measures of foreign ownership remain small throughout the sample period. The market value of QFII held shares as a percentage of total market capitalization of the sample firms does not exceed 0.2% while the value of QFII held shares as a percentage of the free float market capitalization of sample firms does not exceed 0.4% even though the absolute value of the market capitalization of QFII held shares has increased almost twenty-fold between 2003 and 2013 (figure 4). These low numbers may, in a large measure, reflect that the aggregate amount allocated in QFII investment quotas has itself remained a very small share of total tradable A-share market capitalization

(figure 5). QFII A-share investments as a share of tradable A-share market capitalization peaked at 4.7% in November 2005 but have, on average, stayed at 1.6% for the entire period extending from June 2003 through April 2014.

Both the value weighted measures of foreign ownership (columns 3 and 5) are always larger than their corresponding equally weighted measures. This difference reflects the underlying fact that QFIIs have disproportionately greater shares of larger firms where size is measured by market capitalization. Figure 6 shows the annual breakdown of the equally weighted and the value weighted measures of foreign ownership for the sample firms for the period 2003-2012.

2.3 VARIABLE CONSTRUCTION & ESTIMATION METHODOLOGY

2.3.1 Measures of Foreign Ownership:

In this paper I follow Cooper and Kaplanis (1994), (Kang and Stulz (1997) and Dahlquist et al. (2003) and treat the market-weighted portfolio as a first approximation of the true optimal portfolio. Given this simplified assumption, in time period *t* QFIIs would invest in stock *i* roughly in proportion to the stock's weight in the market portfolio. My key dependent variable thus captures the deviation of the QFII portfolio weight from the market portfolio weight for each firm-year as follows:

$$y_{it} = \frac{w_{it}^{F} - w_{it}^{M}}{w_{it}^{M}} \qquad (1)$$

Where w_{it}^{F} is the weight of firm *i* in year *t* in the portfolio of QFIIs and w_{it}^{M} is the weight of firm *i* in year *t* in the market portfolio. More specifically w_{it}^{F} and w_{it}^{M} are defined as follows:

$$w_{it}^{F} = \frac{M_{it}^{F}}{M_{Ct}^{F}} \quad \text{and} \quad w_{it}^{M} = \frac{M_{it}}{M_{Ct}} \tag{2}$$

Where M_{it}^{F} is the market value of firm *i'*s equity held by foreign institutional investors in time period *t*, M_{Ct}^{F} is the market value of all the Chinese firms held by foreign investors in the sample in time period *t*, M_{it} is the market value of firm *i'*s equity in time period *t* and M_{Ct} is the market value of all Chinese firms in the sample in time period *t*. A positive value of y_{it} indicates that QFIIs weight the equities of firm *i* more than the benchmark market portfolio while a negative value indicates the opposite. I call this measure: REL_OWN.

I construct an alternative measure of QFII ownership relative to the market as follows:

$$y_{it}^{ff} = \frac{w_{it}^{F} - w_{it}^{ffM}}{w_{it}^{ffM}} \tag{3}$$

Where w_{it}^{ffM} is the weight of firm *i* in year *t* in the free float market portfolio. More specifically w_{it}^{ffM} is defined as follows:

$$w_{it}^{ffM} = \frac{M_{it}^{ff}}{M_{Ct}^{ff}} \tag{4}$$

Where M_{it}^{ff} the market value of the firm's free float shares in year *t* and M_{Ct}^{ff} is the market value in year *t* of all free float shares of all the firms in the sample. The measure in equation (3) recognizes the fact that blocks of shares held by controlling shareholders cannot be purchased by ordinary shareholders. I call this measure: RELFF_OWN.

Both REL_OWN and RELFF_OWN measure the relative difference between a firm's weight in the QFII portfolio and its weight in the Chinese market portfolio.

Other measures of foreign ownership for each firm-year include: (i) an indicator for whether the firm has at least one QFII owner (QFII_OWNED); (ii) the number of QFIIs owning the firm's shares (NOF_QFIIS); (iii) the percentage of the firm's ordinary shares owned by QFIIs (QFIIOWN); (iv) the percentage of the firm's free float ordinary shares owned by QFIIs (QFIIOWN_FF).

At the firm-level I also consider an indicator for whether a firm's shares have been owned by QFIIs in at least one time year over the sample period 2003-2012 (EVER_QFII_OWNED). Table 4 shows that the securities of around 55% of the sample firms are QFII owned at least once during the sample period (2003-2012).

Table 5 reports the descriptive statistics of foreign ownership variables for the sample. Both the relative and raw measures of foreign ownership are winsorized at the 1st and 99th percentiles to remove the effect of outliers. The home bias measure – REL_OWN

– ranges from -1 to 18.6 while the unadjusted foreign ownership measure – QFIIOWN – ranges from 0 to 5.1%.

2.3.2 Measures of Stock Return Volatility

Following past literature I measure annual firm-level stock return volatility in two ways:

i. $$VL_i = \frac{1}{n}\sum_{t=1}^{n} \ln(return_{i,t}^2) \quad (5)$$

ii. $$SD_i = \sqrt{\frac{1}{n-1}\sum_{t=1}^{n}(return_{i,t} - MEAN_{i,t})^2} \quad (6)$$

where $return_{i,t}$ is the daily stock return for stock *i* on day *t*, and *n* is the number of trading days in 1 year[19]. I construct these volatility measures using daily "local" returns i.e. daily returns computed from adjusted prices measured in local currency. Further, in order to compute annual measures from daily prices I only retain those stocks and years wherein I have daily price data for at least 150 trading days.

My final measures of return volatility are the residual variance (RESIDVAR) and standard deviation (SIGMA) of the market model estimated in equation (7).

2.3.3 Measure of Stock Return Synchronicity

I estimate the following three factor market model:

[19] The number of trading days equals the number of days in the year for which the stock has non-missing adjusted price data.

$$R_{i,t} = \alpha + \beta_{i1} R_{w,t} + \beta_{i2} \varepsilon_{m,t} + \beta_{i3} \varepsilon_{erate,t} + \varepsilon_{i,t} \quad (7)$$

where $R_{i,t}$ is the raw return of stock *i* at day *t*, $R_{w,t}$ is the return on the MSCI Global Index at day *t*, $\varepsilon_{m,t}$ is the orthogonalized return on the A-share index at day and $\varepsilon_{erate,t}$ is the "double-orthogonalized" return on the USD/RMB exchange rate at day *t*. I generate orthogonalized A-share index returns by estimating the following regression and taking the residuals from it:

$$R_{m,t} = \alpha + \beta R_{w,t} + \varepsilon_{m,t} \quad (8)$$

where $R_{m,t}$ is the daily RMB return on day *t* on Datastream's China A-Index and $R_{w,t}$ is the daily USD return on the MSCI World Index. I generate the "double-orthogonolized" returns on the USD/RMB exchange rate by estimating the following regression and taking the residuals from it:

$$R_{erate,t} = \alpha + \beta_1 R_{w,t} + \beta_2 R_{m,t} + \varepsilon_{erate,t} \quad (9)$$

Finally I have used the formula: $R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t}}$ to compute the raw returns of stock *i* for day *t*.

Following Morck et al. (2000) I define the synchronicity for stock *i* in year *t* as:

$$SYNCH_{i,t} = \log\left(\frac{R^2}{1-R^2}\right) \quad (10)$$

where R^2 is the coefficient of determination from the estimation of equation (5) for the firm *i* in year *t*. $SYNCH_{i,t}$ is measured for each firm based on the daily return

observations of the year provided there are a minimum of 150 daily observations in the year.

2.3.4 Firm Level Determinants of Foreign Ownership

In keeping with the past literature I use the firm characteristics listed below as potential determinants of portfolio investment preferences of QFIIs.

2.3.4.1 Variables Proxying Investment Barriers

i. **Size:** firm size is measured by the log of the market capitalization of common stocks at the end of the year. The literature treats this variable as a proxy for the degree of information asymmetry since more information is available for large firms. Thus information asymmetries between domestic Chinese investors and QFIIs are expected to be less relevant for larger firms. Further, transaction costs are lower for larger firms. Thus if high transaction costs constitute a barrier to international investment, larger firms are expected to be more accessible to QFIIs.

ii. **Turnover Rate:** Turnover rate is used as a measure of the market liquidity of a firm's common stock and is obtained by dividing the total market value of the firm's common stocks traded over a year by the firm's year-end market capitalization. Liquidity is a proxy for transaction costs such as spreads with more liquid stocks having lower spreads. Tesar and Werner (1995) document that the turnover rate on international equity investments is high both compared with the turnover rate in the investors' home country and when

compared to the market of the foreign security. It is therefore expected that a stock's market liquidity is an important determinant of QFII ownership.

iii. **Foreign Listing:** This is an indicator variable which takes on a value of one if a firm has shares listed abroad. This variable is a proxy for the degree of information asymmetry: firms with foreign listings are, in general, expected to be better known to global investors.

iv. **Dividend Yield:** Dividend yield is measured as the ratio of all dividends paid on common stocks during the year by the year-end market value of a firm. This variable is used to capture dividend taxation differences between QFIIs and domestic investors. The higher the dividends paid out by a company, the higher the part of total income which is taxable for the investor. QFIIs might be expected to avoid very high yield stocks.

2.3.4.2 Stock Selection Criteria related to Valuation and Risk

v. **Leverage Ratio:** This variable is used as a measure of the firm's long-term financial health. It is measured as the year-end ratio of total debt to total equity. It is expected that QFIIs would underinvest in firms with the highest leverage.

vi. **Current Ratio:** Current ratio is defined as the ratio of year-end current assets to current liabilities and is used as a measure of a firm's short-term financial health.

vii. **Book-to-Market Ratio:** The book-to-market ratio is measured as the year-end book value of common stocks divided by the year-end market value of common stocks. This is a valuation measure of the firm. "Growth firms"

typically have low book-to-market ratios, while firms with higher ratios are referred as "value firms". Since the future financial performance of low book-to-market firms is more transparent than that of high book-to-market firms, it is expected that QFIIs would exhibit a preference for firms with low book-to-market ratios.

viii. **Return on Equity:** Return on equity is measured as net income divided by the book value of equity at year-end and represents the firm's profitability.

ix. **Return:** the yearly return computed as the cumulative compounded return based on daily returns for one year preceding the year-end. This variable is included to examine whether QFIIs are contrarians or extrapolative i.e. whether they invest on the basis of past performance.

x. **Residual Variance:** Residual variance is the variance of the market model error estimated using daily returns for the previous calendar year. This variable measures a firm's idiosyncratic risk. Diversification benefits may drive QFIIs to invest into firms that have a higher degree of idiosyncratic risk. This variable is therefore expected to have a positive sign.

xi. **Domestic Beta:** Beta is the market model beta estimated using daily returns for the previous calendar year. The market portfolio is Datastream's China A-Index. Models of barriers to international investment that treat these barriers as proportional taxes conclude that foreign investors facing barriers to international investment hold disproportionately more foreign high beta stocks (Kang and Stulz, 1997).

2.3.4.3 Variables Proxying for Corporate Governance

I further use firm-level measures of strategic or controlling ownership which could proxy for a firm's quality of corporate governance. The presence of controlling shareholders can affect the quality of firm-level corporate governance and thereby influence QFII portfolio investment. Controlling shareholders have the potential to serve as monitors of actions taken by the management thereby serving to enhance firm-value and attracting QFII investment. Alternatively, the presence of controlling shareholders may reduce firm-value through the entrenchment of insiders and thereby impede QFII investment. These ownership variables also measure explicit firm-level barriers to foreign portfolio investment: the shareholdings of QFIIs fall directly as a consequence of an increase in insider ownership since shares owned by controlling block holders are not accessible to QFIIs. I include the following strategic ownership categories:

xii. **Family Ownership:** Family ownership is measured as the percentage of strategic holdings of 5% or more held by employees or by those with a substantial position in a company that provides significant voting power at an annual general meeting (typically family members).

xiii. **Long-Term Investor Ownership:** Long-term investor ownership is measured as the percentage of strategic holdings of 5% or more held as long term strategic holdings by investment banks or institutions seeking a long term return.

xiv. **Foreign Strategic Ownership:** Foreign ownership is measured the percentage of strategic holdings of 5% or more held by an institution domiciled in a country other than China.

xv. **Company Ownership:** Company ownership is measured as the percentage of strategic holdings of 5% or more of the firm held by another firm.

Table 6 reports the descriptive statistics of the abovementioned variables. All variables are winsorized at the 1st and 99th percentiles to remove the effect of outliers.

I estimate the relationship between foreign ownership and firm-level characteristics by running the following panel regressions:

$$y_{it} = z_t + \beta' x_{it} + v_i + \varepsilon_{it} \quad (11)$$

Where x_{it} is a vector of firm characteristics associated with firm *i* in year *t*, β is a vector of parameters, z_t is a vector representing year fixed-effects, v_i represent firm fixed-effects and ε_{it} is an error term.

I test the relationship between foreign institutional ownership and firm-level stock return volatility and synchronicity by estimating the following panel data regressions:

$$Volatility_{i,t} = \alpha + \beta_1 QFIIOWN_{i,t} + \beta_2 Con_{i,t} + \varepsilon_{i,t} \quad (12)$$

$$SYNCH_{i,t} = \alpha + \beta_1 QFIIOWN_{i,t} + \beta_2 Con_{i,t} + \varepsilon_{i,t} \quad (13)$$

Where $Volatility_{i,t}$ is the return volatility of stock *i* in year *t*, $SYNCH_{i,t}$ is the return synchronicity of stock *i* in year *t*, $QFIIOWN_{i,t}$ is the percentage of firm *i*'s ordinary shares owned by QFIIs in year *t* and $Con_{i,t}$ is a vector of control variables.

2.4 EMPIRICAL RESULTS

2.4.1 Foreign Ownership and Firm Characteristics

Table 7 reports the results of panel data multivariate regressions of market adjusted foreign ownership on firm characteristics. The intercept and fixed effects are not reported. Column 4 reports the results of panel data regressions that control for firm-level financial characteristics as well as strategic ownership characteristics that represent explicit barriers to investment and may also proxy for a firm's quality of corporate governance. It shows that QFIIs significantly overweight their portfolios in favor of firms with high dividend yields, high profitability ratios and high past returns as well as firms that have a foreign listing in the form of an ADR. Meanwhile they significantly underweight their portfolios against firms with high current ratios, high domestic beta and high idiosyncratic risk. In terms of ownership structure QFIIs overweight firms that have strategic ownership of 5% or more by long-term investors such as investment banks and foreign institutions while underweighting firms with strategic ownership of 5% or more by family members and strategic crossholdings of 5% or more by other firms. Column 5 reports results of panel data regressions after controlling for time and industry fixed effects. All coefficients retain their sign,

significance and magnitude with the exception of domestic beta which ceases to matter as a determinant of QFII portfolio allocations.

Columns 6 and 7 report results of panel data regressions of market adjusted foreign ownership on firm-characteristics after controlling for firm fixed-effects alone and after controlling for firm and year fixed-effects simultaneously. Column 6 shows that controlling for firm fixed-effects i.e. time invariant unobservable firm characteristics changes several results. The effect of dividend yield, current ratio, domestic beta and idiosyncratic risk on QFII portfolio preferences becomes indistinguishable from zero. Further strategic ownership of 5% or more by foreign institutions and domestic corporations cease to matter. Controlling for firm fixed-effects retains the sign and significance of certain other variables while reducing the magnitude of their importance. QFIIs continue to overweight firms with higher profitability ratios, foreign listings and strategic ownership by long-term investors while underweighting firms with strategic ownership by family members. But the magnitude of each of these variables drops. Apart from these firm characteristics controlling for firm fixed-effects also generates some new and intuitively appealing results. QFIIs significantly overweight larger firms and firms with low book-to-market ratios in their portfolios. These results continue to hold with the same or larger magnitude when I simultaneously control for firm and time fixed-effects (column 7). The only result that disappears is the preference for firms with foreign listings. Further it emerges that QFIIs significantly underweight firms with high past returns.

QFII preference for large firms and growth (low book-to-market) stocks in China is in line with past evidence on the portfolio preferences of foreign institutional investors in developed markets like Japan (Kang and Stulz, 1997) and Sweden (Dahlquist and Robertsson, 2001) and in emerging markets like Korea (Kim & Yoo, 2009) and Taiwan (Lin and Shiu, 2003). The positive importance of size in the portfolios of QFIIs stands in contrast to Liu et al.'s (2014) finding that firm size is not a strong determinant of QFII investment decisions in China. The divergence from their result may be explained by different sample periods and sample selection bias. Liu et al.'s sample period ends in 2009 whereas my sample period extends up until 2012. This is significant because during the period 2009-2012 both the number of QFIIs and the dollar value of QFII investment quotas tripled (table 2). Further, while this study includes all firms – both those with zero and those with positive foreign ownership – for which institutional ownership data exists in Lionshare, Liu et al.'s sample only includes firms whose stocks are held by QFIIs, domestic funds or both. QFII preference for firms with low past returns supports the hypothesis that QFIIs are contrarians rather than momentum investors who chase past returns.

QFII preference for firms with *low* strategic ownership by employees and family members supports the conjecture that entrenchment of insiders and its possible negative effects on firm value induces lower QFII investment. This result is consistent with the findings of Dahlquist & Robertsson (2001) who find that foreign investors in Sweden underweight firms with a dominant owner and with the findings of Kim and Yoo (2009) for the Korean market. Another intuitively appealing result is that QFIIs

overweight investment in firms that have strategic holdings by long-term investors. One possible explanation is that stocks that have ex-ante investment by long-term domestic investors are viewed as safer investment options by QFIIs who are traditionally long-term investors and are also subject to lock-in period ranging from 3 months to 1 year. This finding supports the conjecture that given the information asymmetries that they encounter relative to China's financial market, QFIIs ally their investment strategies with those of domestic long-term investors. This result is however not consistent with Mishra and Ratti's (2011) finding that strategic holdings by long-term investors do not matter in determining foreign equity ownership in China. This difference may arise because their study is restricted to 2006 and they use a different measure of foreign ownership.

The importance of large size and low book-to-market ratios holds both on the extensive margin as well as on the intensive margin (Table 7, columns 2 and 3) while high profitability and long-term investor ownership and low family ownership and low past returns only matter on the extensive margin (Table 7, column 2).

I proceed to examine whether these results hold with alternative measures of foreign ownership. I first examine firm-level determinants of market adjusted free-float QFII ownership – RELFF_OWN – constructed as per equation (3). The results continue to hold. The only result that ceases to hold is the negative effect of family ownership on QFII holdings. Further, some new and intuitively appealing results emerge. QFIIs significantly overweight firms that have foreign listings, firms with foreign strategic

ownership and firms with strategic crossholdings by domestic corporations. The first result is in line with past literature that finds that finds that foreign investors overweight shares of firms with ADRs (Kang and Stulz, 1997). When combined with the positive importance of size and strategic ownership by foreign institutions, the overall evidence is consistent with the fact that the portfolio preferences of QFIIs in China's domestic market are driven by information asymmetries relative to this market.

Table 8 proceeds to report results for raw i.e. unadjusted measures of foreign ownership. The first measure – QFIIOWN – is the percentage of a firm's total ordinary shares held by QFIIs. The second measure – QFIIOWN_FF – is the percentage of a firm's free float ordinary shares held by QFIIs. The key results – the importance of size, low book-to-market ratios, high profitability ratios, low past returns and positive strategic investment by domestic long-term investors in determining QFII portfolio allocations – continue to hold. Further, there is evidence of the positive importance of high dividend yields as well as that of visibility in international financial markets through strategic ownership by foreign institutions. Contrary to the results for market adjusted foreign ownership I find that having foreign listings through ADRs is negatively associated with unadjusted foreign ownership.

2.4.2 Foreign Ownership and Stock Return Volatility and Synchronicity

Tables 9 and 10 report panel regression results of the relationship between foreign ownership as measured by the percentage of a firm's total ordinary shares owned by QFIIs (QFIIOWN) and stock return volatility.

Table 9 shows that the regression coefficient on foreign ownership is indistinguishable from zero both while using the logarithmic transformation of squared returns (VL) as a measure of stock return volatility (column 7) and while using the standard deviation of daily returns to as a proxy of volatility (column 14). These results emerge after controlling for time and firm fixed-effects while also controlling for time-varying financial and ownership characteristics that are likely to affect stock return volatility. These preliminary results suggest that QFIIs, through their investment strategies, play no significant role in stabilizing China's stock market. Further, ownership by long-term domestic institutions also emerges as insignificant as a determinant of stock return volatility. Both these results contradict the findings of Chen et al. (2013) who find that both foreign and domestic institutional ownership is associated with a significant increase in firm-level return volatility in Chinese listed firms. This result however supports Schuppli and Bohl's (2010) finding that the influence of trend chasing behavior in the A-share market has diminished after the entry of QFIIs and that QFIIs therefore have a stabilizing effect on the A-share market. Table 9 further shows that firm size emerges as negatively significant in regressions with VL as the dependent variable which confirms past evidence from firm-level studies on stock

financial openness and stock return volatility in emerging markets (Bae et al., 2004; Li at al., 2011).

Table 10 uses stock-level idiosyncratic risk to proxy for return volatility and confirms the finding that, after controlling for time-invariant firm characteristics through firm fixed-effects as well as relevant time-varying financial and ownership characteristics, QFII ownership is associated with a significant increase in volatility (column 5). However, this result disappears when I further control for time fixed-effects (column 6). These results are congruous with the results showcased in Table 9. The other result that emerges is that ownership by long term domestic institutional investors is associated with an *increase* in volatility. These results confirm past evidence on herding behavior by domestic institutions in China. Table 10 further confirms that positive foreign ownership is associated with a significant decrease in stock price synchronicity after controlling for firm fixed-effects and relevant time-varying financial and ownership characteristics (column 11). But this result is not robust to controlling for time fixed-effects. Table 11 reports the results of the association between foreign ownership and stock return volatility (columns 2-7) and stock return synchronicity (columns 8-13) for the subsample of stocks-year observations for which the share of securities held by QFIIs is strictly positive. In keeping with the results for the entire sample, I find that foreign ownership is associated with a significant increase in stock return volatility (column 6) and a significant decrease in stock return synchronicity (column 12) after controlling for time-invariant firm characteristics through firm fixed-effects as well as relevant time-varying financial and ownership

characteristics. But these results are not robust to controlling for time fixed-effects; in line with the results for the entire sample foreign ownership is not associated with any significant change in stock return volatility (column 7) or stock return synchronicity (column 13).

2.5 CONCLUSION

This paper adds to the limited body of work on the role of QFIIs in China's financial economy by posing two questions: what are the firm-level determinants of QFII portfolio allocations and what is the effect of foreign ownership on stock return volatility and stock return synchronicity? I employ detailed firm-specific foreign institutional ownership, market price and financial statement data for Chinese listed firms over the period 2003-2012 and find strong evidence that QFIIs are contrarians and overweight large firms, "growth" firms with low book-to-market ratios and more profitable firms in their portfolios. I only find limited evidence to suggest that QFIIs prefer to invest in firms with foreign listings i.e. firms that may be better known to foreign investors. Among non-financial variables I find strong evidence to support the fact that QFIIs underweight firms with strategic ownership of 5% or more by those with significant voting power (typically family members) and overweight firms with strategic ownership of 5% or more by long-term investors such as investment banks. Somewhat counterintuitively, I only find limited evidence to suggest that QFIIs overweight firms that have strategic ownership of 5% or more by foreign institutions. I further find that foreign ownership is at worse associated with no change in return volatility and at best associated with a significant *decrease* in return volatility. This

result is robust to using different measures of return volatility and controlling for firm size, turnover, leverage and ownership structure as well year and industry fixed-effects. I also find that foreign ownership is associated with a significant *increase* in stock return synchronicity. This finding bolsters the conjecture that QFIIs play a stabilizing role in China's A-share market.

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2.7 FIGURES

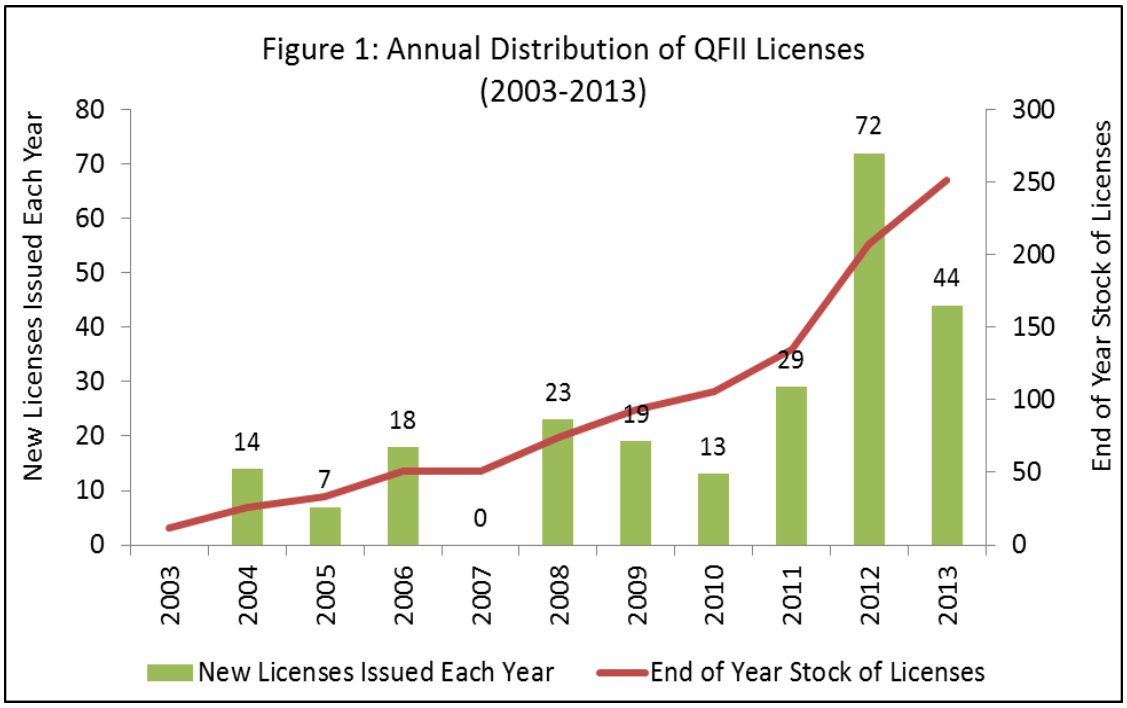

Figure 2-1: Annual Distribution of QFII Licenses (2003-2013)

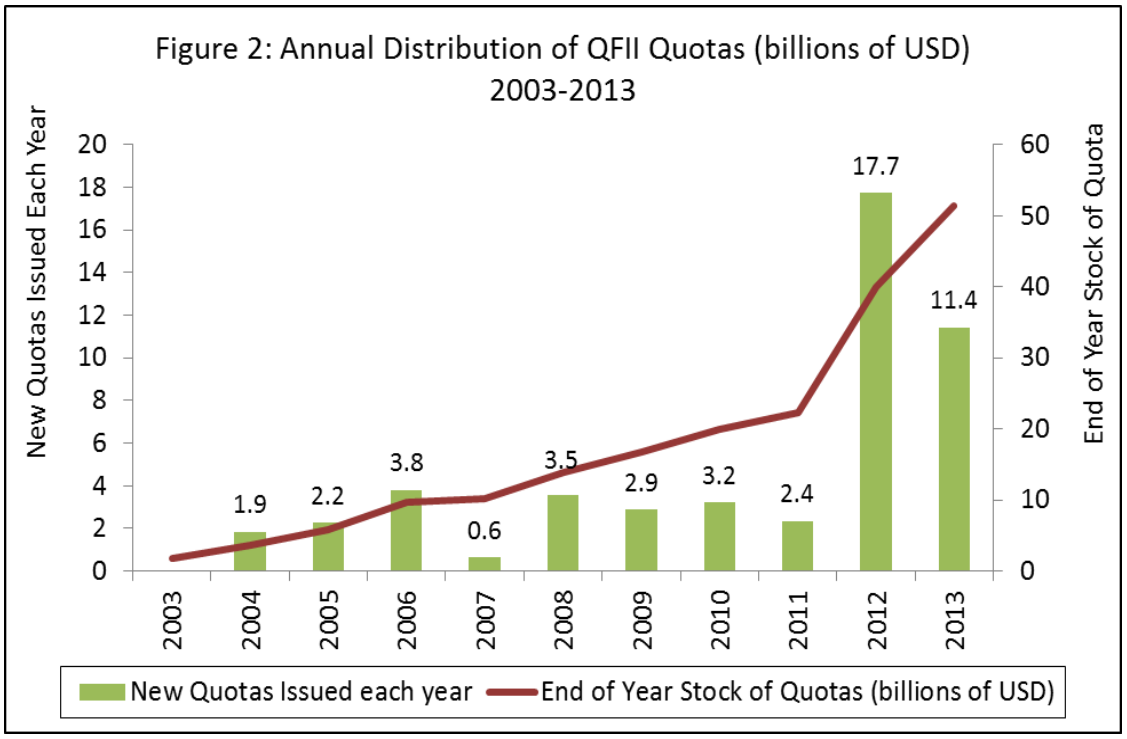

Figure 2-2: Annual Distribution of QFII Quotas (billions of USD) (2003-2013)

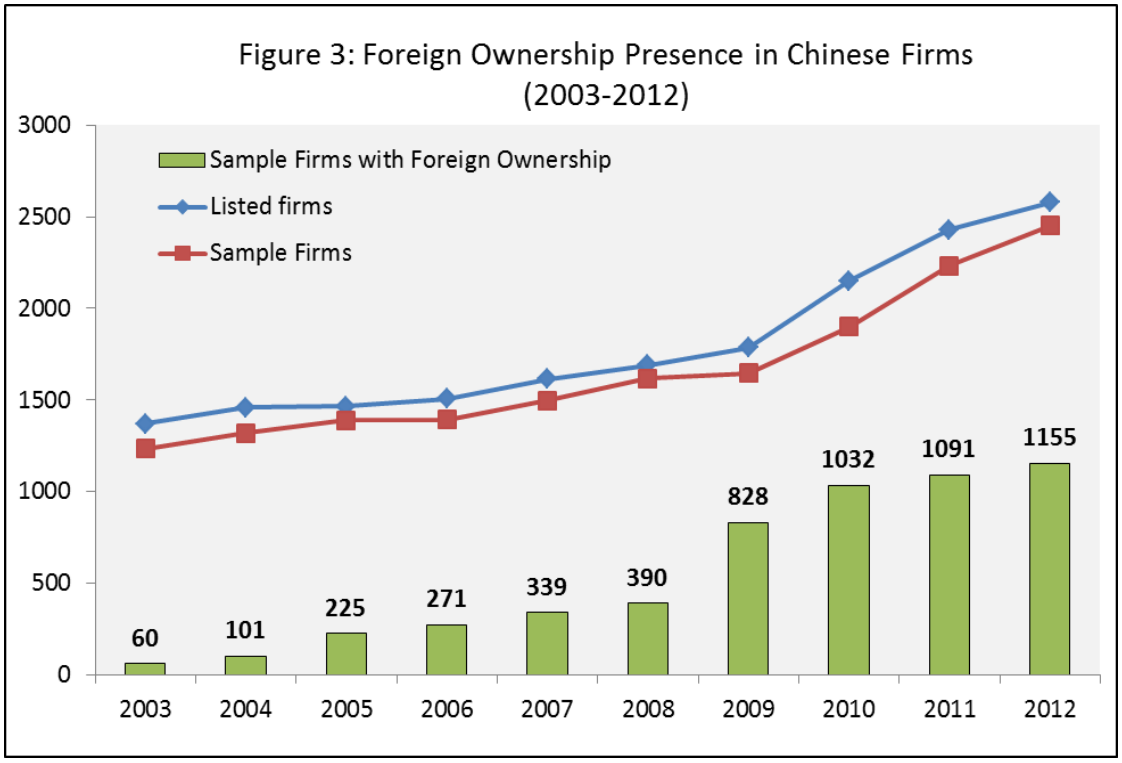

Figure 2-3: Foreign Ownership Presence in Chinese Firms(2003-2012)

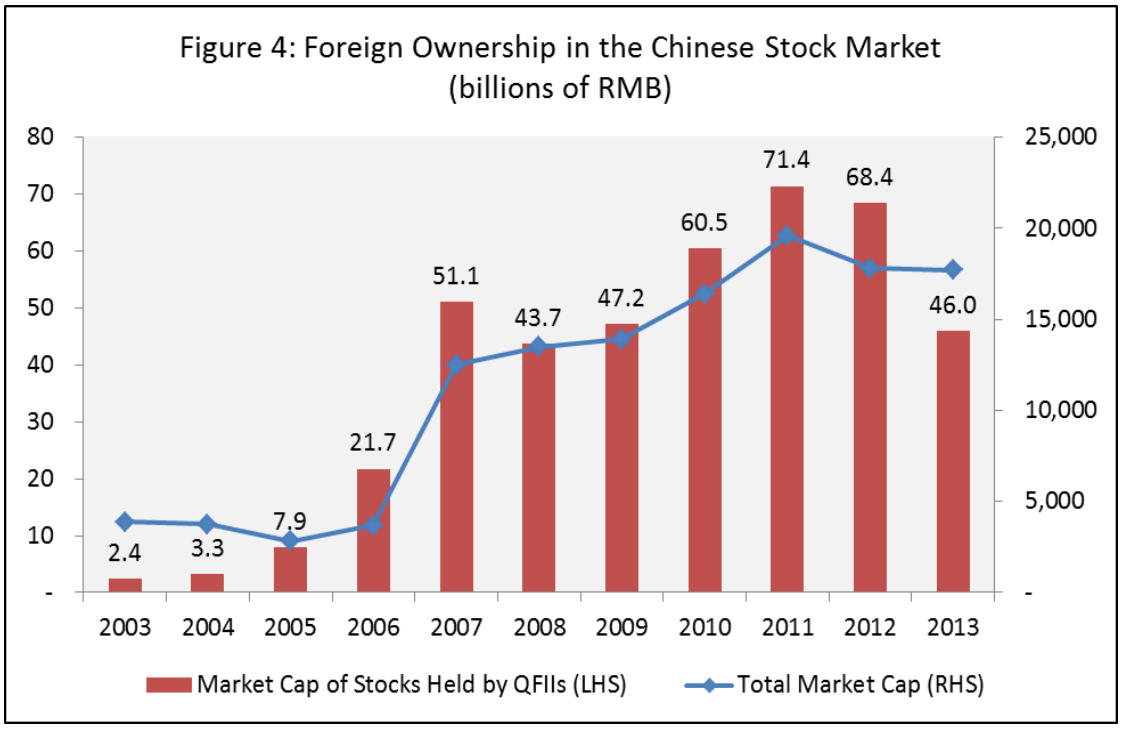

Figure 2-4: Foreign Ownership in the CHinese Stock Market (billions of RMB)

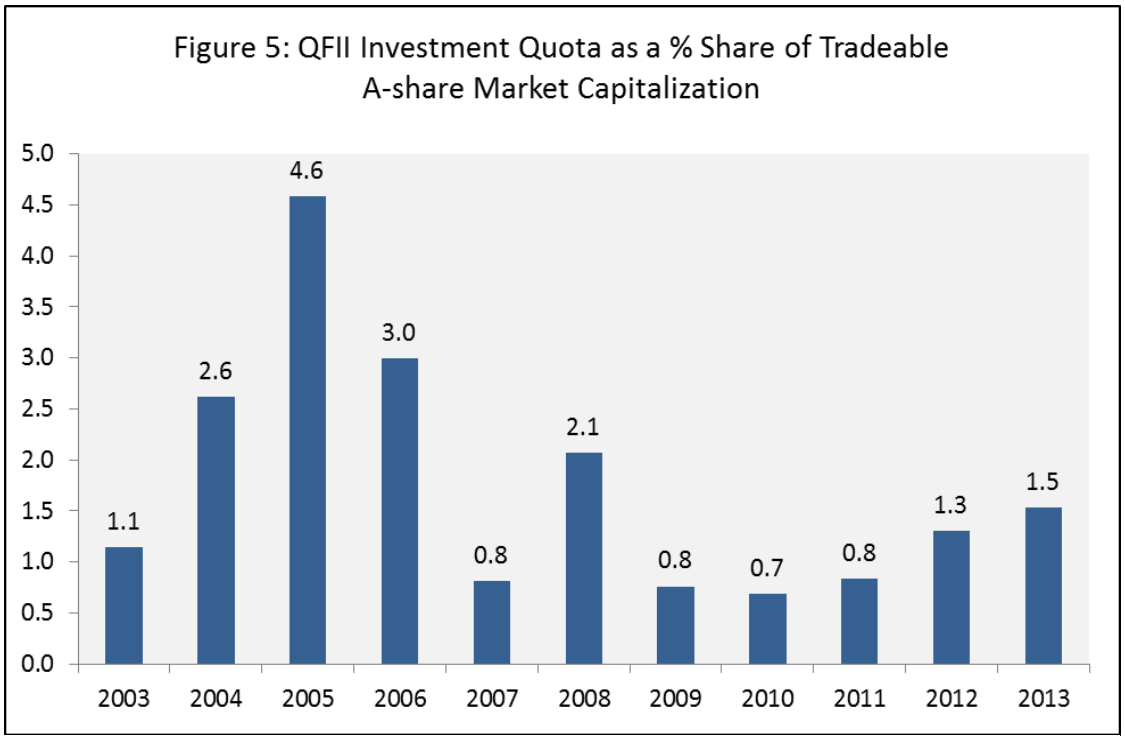

Figure 2-5: QFII Investment Quota as a % Share of Tradeable A-share Market Capitalization

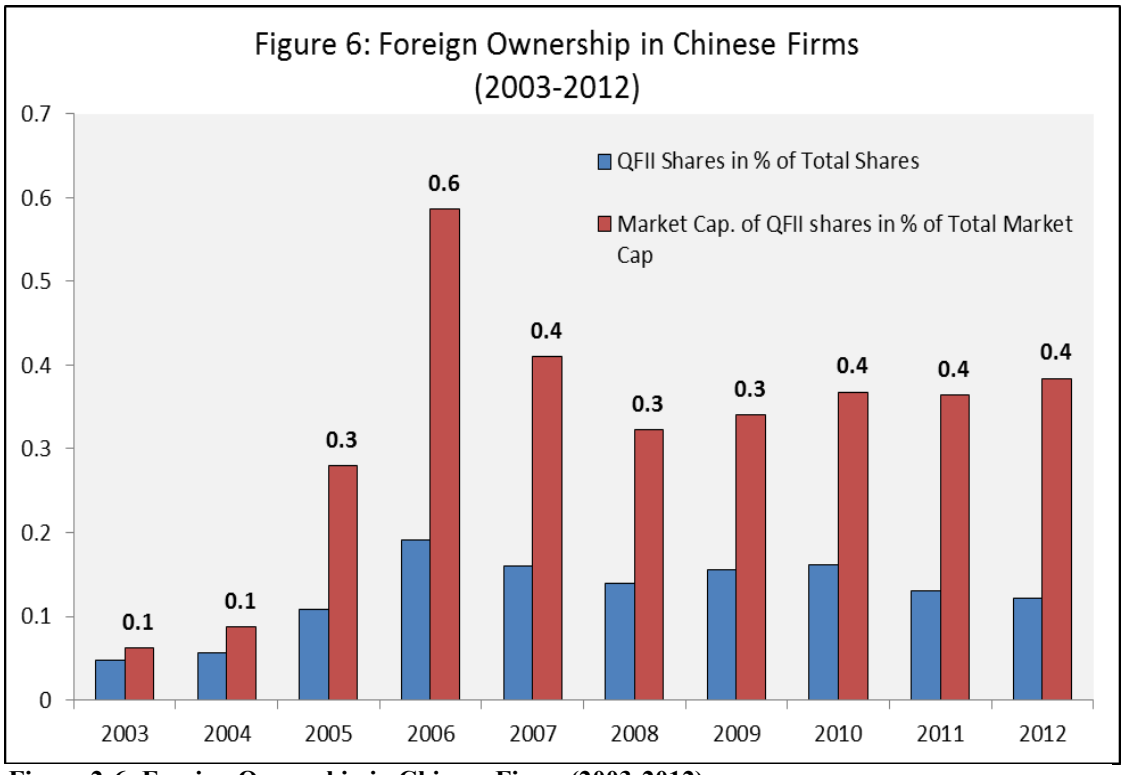

Figure 2-6: Foreign Ownership in Chinese Firms (2003-2012)

2.8 TABLES

Table 2-1: Match Rate across Lionshare Factset & Datastream

Security Category	No. of Actively Trading Securities as of the end of 2013	No. of Securities with Ownership Data	% Match Rate
	Each Security has a Unique Datastream Code	Each Security has a Unique Datastream Code & a Unique Factset Identifier	
A-Shares	2,663	2,464	92.53
B-Shares	104	104	100

Table 2-2: Presence of Foreign Ownership for Nonfinancial Chinese Firms by Year

Year	No. of Listed Firms	No. of Sample Firms (in % of listed firms)	No. of QFIIs with Investment Quotas	Aggregate Allocated Investment Quotas (billions of USD)	Sample Firms with Foreign Ownership (in % of total sample)
2003	1372	1235	10	1.70	60
		(90.02)			(4.86)
2004	1459	1320	24	3.55	101
		(90.47)			(7.65)
2005	1464	1390	31	5.80	225
		(94.95)			(16.19)
2006	1507	1392	44	9.60	271
		(92.37)			(19.47)
2007	1616	1496	49	10.25	339
		(92.57)			(22.66)
2008	1690	1618	66	13.79	390
		(95.74)			(24.10)
2009	1786	1647	85	16.67	828
		(92.22)			(50.27)
2010	2149	1899	97	19.89	1032
		(88.37)			(54.34)
2011	2428	2232	112	22.24	1091
		(91.93)			(48.88)
2012	2579	2453	171	39.99	1155
		(95.11)			(47.09)

Table 2-3: Foreign Ownership for Nonfinancial Chinese Firms by Year

Year	Shares held by QFIIs as a % of Total Ordinary Shares	Market Cap of Shares Held by QFIIs as a % of Total Market Cap	Shares held by QFIIs as a % of Total Free Float Shares	Market Cap of Shares Held by QFIIs as a % of Free Float Market Cap
2003	0.047	0.062	0.185	0.249
	(0.304)		(0.858)	
2004	0.057	0.087	0.182	0.289
	(0.386)		(0.827)	
2005	0.108	0.280	0.187	0.365
	(0.434)		(0.698)	
2006	0.191	0.586	0.408	1.458
	(0.608)		(1.246)	
2007	0.160	0.410	0.315	0.949
	(0.522)		(1.001)	
2008	0.140	0.323	0.250	0.768
	(0.463)		(0.779)	
2009	0.155	0.340	0.320	0.859
	(0.427)		(0.889)	
2010	0.161	0.368	0.328	0.901
	(0.450)		(0.861)	
2011	0.130	0.364	0.258	0.884
	(0.410)		(0.756)	
2012	0.122	0.384	0.240	0.911
	(0.365)		(0.684)	

*Cross-Sectional Standard deviation in parentheses

Table 2-4: Summary Statistics for Foreign Ownership Variables

Variable	Obs.	Mean	Std.	Min	Max
QFII Owned (QFII_OWNED)	16,682	0.329	0.470	0	1
No. of QFIIs Owning the Stock in a Year (NOF_QFIIS)	16,682	1.173	3.537	0	91
% QFII Equity Ownership (QFIIOWN)	16,516	0.134	0.466	0	5.92
% QFII Free Float Equity Ownership (QFIIOWN_FF)	14,370	0.288	0.910	0	10.18
Relative QFII Equity Ownership (REL_QFIIOWN)	16,516	-0.591	1.581	-1	20.97
Relative QFII Free Float Equity Ownership (RELFF_QFIIOWN)	14,370	-0.650	1.150	-1	13.02

Table 2-5: Descriptive Statistics of Firm-Level Characteristics

Variable	Obs.	Mean	Std.	Min	Max
Size	16,348	21.67	1.08	17.93	24.87
Turnover Rate (%)	16,195	428.41	373.28	25.82	2201.21
Dividend Yield (%)	16,390	0.81	1.13	0.00	6.01
Book-to-Market Ratio	16,213	0.42	0.27	-0.40	1.37
Current Ratio	16,129	1.79	1.93	0.10	16.23
Leverage Ratio (%)	16,334	76.54	92.27	-161.93	700.85
Return on Equity (%)	15,835	6.71	13.38	-93.56	44.06
Foreign Listing	16,682	0.02	0.14	0	1
Domestic Beta	16,349	1.02	0.28	0.03	1.71
Residual Variance	16,350	0.001	0.000	0.000	0.002
Return	16,349	0.01	0.58	-1.42	1.55
Family Ownership (%)	14,378	2.69	9.84	0	62
Long-Term Investor Ownership (%)	14,390	0.38	1.63	0	12
Company Ownership (%)	14,387	36.10	23.89	0	86
Foreign Strategic Ownership (%)	14,391	0.365	2.57296	0	30

Table 2-6: Regressions of Market Adjusted Foreign Ownership on Firm-Characteristics

VARIABLES	(1) REL_QFIIOWN	(2) REL_QFIIOWN	(3) REL_QFIIOWN	(4) REL_QFIIOWN	(5) REL_QFIIOWN	(6) REL_QFIIOWN
Size	-0.145**		-0.027	-0.068	0.209***	0.388***
	(0.072)		(0.053)	(0.065)	(0.051)	(0.085)
Turnover Rate	-0.000***		-0.000***	-0.000***	-0.000*	-0.000
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Dividend Yield	0.134***		0.140***	0.146***	0.008	-0.002
	(0.030)		(0.037)	(0.036)	(0.020)	(0.018)
Book-to-Market	0.217*		0.023	0.130	-0.348***	-0.498***
	(0.124)		(0.125)	(0.117)	(0.101)	(0.126)
Current Ratio	-0.045***		-0.047***	-0.049***	-0.019	-0.019
	(0.008)		(0.009)	(0.009)	(0.014)	(0.013)
Leverage Ratio	0.000		-0.000	0.000	-0.000	-0.000
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Return on Equity	0.011***		0.012***	0.010***	0.003**	0.003**
	(0.002)		(0.002)	(0.002)	(0.001)	(0.001)
Foreign Listing	0.960*		1.210**	1.167**	0.504***	0.112
	(0.497)		(0.536)	(0.535)	(0.062)	(0.237)
Domestic Beta	-0.184*		-0.329**	-0.148	0.010	-0.027
	(0.107)		(0.136)	(0.118)	(0.073)	(0.065)
Residual Variance	-471.001***		-220.600*	-488.380***	4.446	-96.125
	(99.454)		(115.403)	(106.769)	(76.130)	(81.755)
Return	0.273**		0.135*	0.227**	-0.058	-0.175***
	(0.107)		(0.074)	(0.103)	(0.043)	(0.053)
Family Ownership		-0.013***	-0.012***	-0.012***	-0.005***	-0.002**
		(0.002)	(0.003)	(0.002)	(0.002)	(0.001)
Long-Term Investor Ownership		0.075***	0.075***	0.068***	0.019**	0.017**
		(0.010)	(0.010)	(0.008)	(0.008)	(0.007)
Company Ownership		-0.010***	-0.011***	-0.012***	-0.000	0.001
		(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Foreign Strategic Ownership		0.050***	0.049***	0.049***	-0.010	-0.007
		(0.017)	(0.018)	(0.017)	(0.014)	(0.014)
Observations	13,753	13,855	11,471	11,471	11,471	11,471
R-squared	0.087	0.066	0.087	0.122	0.582	0.587
Year Fixed-Effects	Yes	Yes	No	Yes	No	Yes
Industry Fixed-Effects	Yes	Yes	No	Yes	No	No
Firm Fixed-Effects	No	No	No	No	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table 2-7: Regressions of Market Adjusted Foreign Ownership on Firm Characteristics

VARIABLES	REL_QFIIOWN (extensive margin)	REL_QFIIOWN (intensive margin)	RELFF_QFIIOWN (extensive margin)	RELFF_QFIIOWN (intensive margin)
Size	0.388***	0.495***	0.304***	0.436***
	(0.085)	(0.186)	(0.050)	(0.135)
Turnover Rate	-0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Dividend Yield	-0.002	0.001	0.022	0.068
	(0.018)	(0.035)	(0.014)	(0.042)
Book-to-Market	-0.498***	-0.975**	-0.388***	-0.738**
	(0.126)	(0.392)	(0.112)	(0.339)
Current Ratio	-0.019	-0.032	-0.008	0.006
	(0.013)	(0.026)	(0.009)	(0.019)
Leverage Ratio	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.001)
Return on Equity	0.003**	0.005	0.002*	0.004
	(0.001)	(0.005)	(0.001)	(0.003)
Foreign Listing	0.112	-2.476***	1.506***	-1.073
	(0.237)	(0.231)	(0.199)	(0.691)
Domestic Beta	-0.027	-0.094	-0.045	-0.164
	(0.065)	(0.180)	(0.049)	(0.174)
Residual Variance	-96.125	-234.963	-65.691	-208.289
	(81.755)	(279.680)	(50.667)	(220.609)
Return	-0.175***	-0.184	-0.106***	-0.104
	(0.053)	(0.118)	(0.039)	(0.087)
Family Ownership	-0.002**	-0.009	-0.000	-0.003
	(0.001)	(0.009)	(0.001)	(0.005)
Long-Term Investor Ownership	0.017**	0.005	0.028***	0.028**
	(0.007)	(0.013)	(0.008)	(0.012)
Company Ownership	0.001	0.007	0.004***	0.020***
	(0.001)	(0.004)	(0.001)	(0.005)
Foreign Strategic Ownership	-0.007	0.007	0.013***	0.064***
	(0.014)	(0.045)	(0.005)	(0.024)
Observations	11,471	4,222	11,494	4,245
R-squared	0.587	0.682	0.560	0.658
Year Fixed-Effects	Yes	Yes	Yes	Yes
Industry Fixed-Effects	No	No	No	No
Firm Fixed-Effects	Yes	Yes	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2-8: Regressions of Unadjusted Foreign Ownership on FirmCharacteristics

VARIABLES	QFIIOWN (extensive margin)	QFIIOWN (intensive margin)	QFIIOWN_FF (extensive margin)	QFIIOWN_FF (intensive margin)
Size	0.134***	0.153***	0.241***	0.288***
	(0.025)	(0.048)	(0.038)	(0.100)
Turnover Rate	0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Dividend Yield	0.012**	0.037*	0.020**	0.069**
	(0.005)	(0.021)	(0.010)	(0.034)
Book-to-Market	-0.165***	-0.307**	-0.354**	-0.703**
	(0.053)	(0.130)	(0.138)	(0.286)
Current Ratio	-0.005	-0.008	-0.010	-0.003
	(0.004)	(0.010)	(0.009)	(0.018)
Leverage Ratio	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)
Return on Equity	0.001***	0.001	0.001**	0.002
	(0.000)	(0.001)	(0.001)	(0.002)
Foreign Listing	0.053	-0.550***	1.388***	-0.885**
	(0.071)	(0.205)	(0.157)	(0.344)
Domestic Beta	-0.018	-0.110	-0.007	-0.150
	(0.027)	(0.071)	(0.053)	(0.122)
Residual Variance	-28.373	-87.252	-73.915	-197.167
	(23.458)	(94.442)	(48.750)	(222.506)
Return	-0.039***	-0.026	-0.072**	-0.076
	(0.013)	(0.032)	(0.032)	(0.082)
Family Ownership	-0.001	-0.005	0.001	-0.000
	(0.001)	(0.003)	(0.001)	(0.005)
Long-Term Investor Ownership	0.011***	0.008**	0.025***	0.028**
	(0.003)	(0.004)	(0.008)	(0.012)
Company Ownership	0.000	0.002	0.004***	0.016***
	(0.000)	(0.001)	(0.001)	(0.004)
Foreign Strategic Ownership	0.006**	0.024**	0.011*	0.039*
	(0.003)	(0.010)	(0.006)	(0.022)
Observations	11,469	4,220	11,493	4,244
R-squared	0.547	0.649	0.530	0.648
Year Fixed-Effects	Yes	Yes	Yes	Yes
Industry Fixed-Effects	No	No	No	No
Firm Fixed-Effects	Yes	Yes	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2-9: Regressions of Stock Return Volatility on Unadjusted Foreign Ownership and Firm Characteristics

VARIABLES	(1) VL	(2) VL	(3) VL	(4) VL	(5) VL	(6) VL	(1) SD	(2) SD	(3) SD	(4) SD	(5) SD	(6) SD
QFIIOWN	0.002	-0.017	0.016	0.005	0.012	0.001	-0.001***	-0.001***	-0.001***	-0.001***	0.000	-0.000
	(0.020)	(0.033)	(0.018)	(0.020)	(0.019)	(0.009)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size	-0.108***		-0.118***	-0.103***	-0.172**	-0.016	0.000		-0.000	0.000	0.001	0.004***
	(0.020)		(0.025)	(0.021)	(0.086)	(0.034)	(0.000)		(0.000)	(0.000)	(0.002)	(0.001)
Leverage Ratio	0.000***		0.000***	0.000***	-0.000	0.000**	0.000***		0.000**	0.000***	-0.000	0.000***
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Turnover Rate	0.000***		0.000**	0.000***	0.000*	0.000***	0.000***		0.000***	0.000**	0.000**	0.000**
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Lag VL	0.212**		0.362***	0.193**	0.288**	0.057**						
	(0.086)		(0.128)	(0.083)	(0.123)	(0.026)						
Lag SD							-0.014		0.063*	-0.018	-0.072	-0.179**
							(0.018)		(0.036)	(0.018)	(0.092)	(0.076)
Family Own		-0.002*	-0.004***	-0.000	-0.001	-0.000		0.000	-0.000*	0.000**	-0.000**	0.000
		(0.001)	(0.001)	(0.001)	(0.002)	(0.001)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Long-Term Investor Own		0.001	0.005	0.001	0.013	0.002		0.000	0.000	-0.000	0.000	-0.000
		(0.003)	(0.007)	(0.002)	(0.008)	(0.002)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Company Own		-0.004***	0.001*	-0.000	0.001	0.000		-0.000	0.000**	0.000	-0.000	-0.000
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Foreign Strategic Own		0.004	-0.002	-0.000	-0.001	0.000		0.000	-0.000	0.000	-0.000	0.000
		(0.003)	(0.002)	(0.002)	(0.004)	(0.002)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	13,055	13,759	11,684	11,684	11,684	11,684	13,067	13,857	11,696	11,696	11,696	11,696
R-squared	0.705	0.211	0.334	0.716	0.461	0.831	0.191	0.135	0.027	0.183	0.198	0.374
Year Fixed-Effects	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Industry Fixed-Effects	Yes	Yes	No	Yes	No	No	Yes	Yes	No	Yes	No	No
Firm Fixed-Effects	No	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2-10: Regressions of Idiosyncratic Risk and Stock Return Synchronicity on Firm Characteristics

VARIABLES	(1) RESIDVAR	(2) RESIDVAR	(4) RESIDVAR	(5) RESIDVAR	(6) RESIDVAR	(1) SYNCH	(2) SYNCH	(3) SYNCH	(4) SYNCH	(5) SYNCH	(6) SYNCH
QFIIOWN	-0.083***	-0.105***	-0.077***	0.064**	0.014	0.031**	0.078***	-0.019	0.027**	-0.093***	-0.024
	(0.016)	(0.028)	(0.019)	(0.027)	(0.011)	(0.013)	(0.016)	(0.019)	(0.014)	(0.034)	(0.015)
Size	-0.033*		-0.036**	-0.063	0.268***	0.070***		0.133**	0.074***	0.180	-0.052
	(0.019)		(0.017)	(0.106)	(0.036)	(0.019)		(0.061)	(0.020)	(0.156)	(0.062)
Leverage Ratio	0.000***		0.000**	-0.000	0.000***	0.000		0.000	0.000	0.000	-0.000
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Turnover Rate	0.000***		0.000***	0.000***	0.000***	0.000		-0.000	0.000	0.000	0.000
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Lag RESIDVAR	0.010		-0.013	0.054	-0.133***	0.401***					
	(0.092)		(0.086)	(0.096)	(0.027)	(0.025)					
Lag SYNCH								0.327***	0.396***	0.114*	0.111**
								(0.045)	(0.027)	(0.063)	(0.047)
Family Own		0.003***	0.003***	-0.004***	-0.000		-0.001	-0.002*	-0.000	-0.001	0.003**
		(0.001)	(0.001)	(0.001)	(0.001)		(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
Long-Term Investor Own		0.014***	0.008**	0.015**	0.006***		-0.006*	-0.001	-0.005***	0.004	-0.004
		(0.004)	(0.003)	(0.007)	(0.002)		(0.004)	(0.008)	(0.002)	(0.009)	(0.003)
Company Own		-0.001	0.001*	0.002	-0.000		0.000	-0.004	-0.001**	-0.005	0.002**
		(0.001)	(0.001)	(0.002)	(0.001)		(0.001)	(0.003)	(0.000)	(0.004)	(0.001)
Foreign Strategic Own		0.003	0.001	-0.003	0.002		-0.003	0.003	-0.000	0.001	-0.001
		(0.002)	(0.002)	(0.004)	(0.002)		(0.003)	(0.004)	(0.002)	(0.004)	(0.002)
Observations	13,055	13,759	11,684	11,684	11,684	12,639	13,470	11,296	11,296	11,296	11,296
R-squared	0.480	0.124	0.493	0.342	0.698	0.440	0.309	0.169	0.445	0.363	0.593
Year Fixed-Effects	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Industry Fixed-Effects	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No
Firm Fixed-Effects	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2-11: Regressions of Idiosyncratic Risk and Stock Return Synchronicity on Firm Characteristics (Intensive Margin)

VARIABLES	(1) RESIDVAR	(2) RESIDVAR	(3) RESIDVAR	(4) RESIDVAR	(5) RESIDVAR	(6) RESIDVAR	(1) SYNCH	(2) SYNCH	(3) SYNCH	(4) SYNCH	(5) SYNCH	(6) SYNCH
QFIIOWN	-0.032***	-0.069***	0.082**	-0.030***	0.130***	-0.003	-0.013	0.002	-0.035	-0.014	-0.125***	-0.035*
	(0.009)	(0.019)	(0.033)	(0.011)	(0.029)	(0.015)	(0.009)	(0.014)	(0.050)	(0.011)	(0.047)	(0.019)
Size	-0.013		-0.044***	-0.019	-0.124	0.283***	0.040**		0.070***	0.044***	0.092	-0.172*
	(0.014)		(0.017)	(0.014)	(0.098)	(0.055)	(0.018)		(0.022)	(0.017)	(0.143)	(0.100)
Leverage Ratio	0.000*		-0.000	0.000*	-0.001**	0.000**	0.000		0.000**	0.000	0.000	-0.000*
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Turnover Rate	0.000***		0.000***	0.000***	0.000***	0.000***	-0.000		-0.000	-0.000	-0.000**	-0.000
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Lag RESIDVAR	0.367***		0.569***	0.357***	0.467***	-0.074						
	(0.038)		(0.052)	(0.039)	(0.058)	(0.075)						
Lag SYNCH							0.347***		0.343***	0.345***	0.053	-0.041
							(0.042)		(0.056)	(0.046)	(0.063)	(0.068)
Family Own		0.004***	-0.001	0.003***	-0.006***	-0.002		-0.005*	-0.003	-0.002**	-0.000	0.004*
		(0.001)	(0.001)	(0.001)	(0.001)	(0.002)		(0.002)	(0.002)	(0.001)	(0.003)	(0.002)
Long-Term Investor Own		0.014***	0.002	0.006***	0.005	0.004*		-0.010***	-0.005	-0.004	-0.002	-0.007
		(0.003)	(0.005)	(0.002)	(0.005)	(0.002)		(0.003)	(0.006)	(0.003)	(0.007)	(0.005)
Company Own		-0.001*	0.001	0.001	-0.001	-0.000		0.001	-0.001	-0.001	-0.001	0.001
		(0.001)	(0.001)	(0.000)	(0.002)	(0.001)		(0.001)	(0.001)	(0.001)	(0.003)	(0.001)
Foreign Strategic Own		0.000	-0.001	-0.001	0.001	0.003		-0.003	0.000	-0.003	0.002	-0.001
		(0.005)	(0.004)	(0.004)	(0.005)	(0.003)		(0.006)	(0.004)	(0.004)	(0.006)	(0.005)
Observations	4,651	5,019	4,460	4,460	4,460	4,460	4,475	4,924	4,288	4,288	4,288	4,288
R-squared	0.589	0.336	0.399	0.592	0.550	0.768	0.379	0.297	0.169	0.378	0.486	0.621
Year Fixed-Effects	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Industry Fixed-Effects	Yes	Yes	No	Yes	No	No	Yes	Yes	No	Yes	No	No
Firm Fixed-Effects	No	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes

Clustered (by firm and year) standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3 CHAPTER 3: THE LONG-TERM ECONOMIC CONSEQUENCES OF FOREIGN DEREGISTRATIONS FROM U.S. EQUITY MARKETS

3.1 INTRODUCTION

The 1980s and 1990s witnessed the phenomenon of a rising number of firms cross-listing their shares on international stock exchanges of major capital markets such as the United States. More recently, firms choosing to de-list and deregister their stock from major capital markets such as the United States have outnumbered those choosing to cross-list (Karolyi, 2010; Doidge, Karolyi & Stulz 2010). For a foreign firm to escape all legal obligations that it accepts by listing on a U.S. stock exchange it must delist from the exchange and terminate registration and reporting requirements i.e. deregister with the U.S. Securities & Exchange Commission (SEC).

On March 21st 2007 the U.S. SEC adopted the Exchange Act Rule 12h-6 which greatly eased the regulatory requirements that non-U.S. firms have to comply with in order to deregister from U.S. equity market. Following the Rule's adoption more exchange listed firm deregistered in 2007 and 2008 than in the entire period from 2002 until the Rule's adoption (Doidge, Karolyi & Stulz, 2010). This paper empirically examines the extent to which two key hypotheses explain a foreign firm's decision to deregister from U.S. equity markets.

The first hypothesis states that a foreign firm deregisters its stock despite an ongoing need for external capital because successive U.S. capital market regulations such as the Sarbanes-Oxley Act of 2002 have raised the regulatory burden of retaining the U.S. cross-listing to the extent that its net benefits have become negative; the tightening of U.S. capital market regulations has reduced the competitiveness of U.S. capital markets as a destination for non-U.S. companies. This line of argument has been referred to as the loss-of-competitiveness (LOC) hypothesis.[20]

The second hypothesis emerges from the bonding theory of cross-listing which was inspired by Stulz (1999) and Coffee (1999 & 2002) and has been empirically supported by Reese & Weisbach (2002); Doidge, Karolyi & Stulz (2004, 2009); Hail & Leuz (2009); Doidge (2004); Ayyagari & Doidge (2010) and Doidge, Karolyi & Stulz (2010).

The bonding theory argues that given the need for external capital, a non-U.S. firm will cross-list its shares on a U.S. exchange to lower its cost of equity capital primarily via an improvement in its corporate governance and an ensuing reduction in its agency costs.[21] Firms that cross-list in the U.S. are typically subject to capital market and institutional controls that afford stronger protections of the

[20] See Zingales (2007), a Report by McKinsey and Company (2007) and DKS (2010).

[21] This does not preclude other benefits from cross-listing that also contribute towards lowering a firm's cost of equity capital e.g. more visibility, greater risk-diversification, lower transaction costs etc. All these factors together go into determining the overall value of a U.S. cross-listing for a firm.

interests of minority shareholders compared with the protections afforded in the firms' country of domicile.[22] A U.S. cross-listing thus signals a stronger protection of the interests of minority investors worldwide and facilitates the firms' access to lower cost equity capital globally and not just within the U.S.

But lower agency conflicts restrict the discretion of the firm's controlling shareholders to extract private benefits of control[23] at the expense of minority shareholders thereby making the cross-listing costly for the former party. In effect, controlling shareholders of firms that cross-list their stock voluntarily 'bond' with U.S. capital market regulations and the higher standards of protection these regulations afford for minority shareholders only when the gains from cross-listing (in terms of access to lower cost capital) outweigh the costs (in terms of lower expected private benefits of control).

The bonding theory argues that firms previously cross-listed in the U.S. may choose to deregister despite an ongoing need for external capital because the costs of the cross-listing – in terms of the reduced private benefits accruing to controlling shareholders – outweigh the benefits in terms of lower cost access to global capital. Controlling shareholders of such firms expect to derive

[22] See Coffee (1999) and Greene, Beller, Rosen, Silverman, Braverman & Sperber (2000) for a discussion of the regulatory and listing requirements for U.S. listings.

[23] Johnson et al (2000) emphasize that there are a number of ways in which controlling shareholders can transfer the
firm's wealth to themselves, including outright theft or fraud, asset sales or transfer pricing arrangements benefiting the majority shareholders and excessive executive compensation or loan guarantees from the firm. They also point that there is substantial variation across countries in the enforcement of laws that control the transfer of the firm's wealth away from minority shareholders.

greater private benefits of control subsequent to deregistering and 'un-bonding' with U.S. capital market regulations by finding themselves in a position to comply with weaker protections for minority shareholders. Such firms are expected to be saddled with significantly higher agency costs in relation to their growth opportunities.

The loss-of-competitiveness and bonding hypotheses make clear predictions regarding the effect of deregistration on a firm's equity issuing activity and operating performance in the aftermath of the decision to deregister. This paper empirically examines the extent to which loss-of-competitiveness versus voluntary un-bonding explains a firm's decision to deregister from U.S. equity markets by testing these specific predictions using a sample of firms that voluntarily deregistered from U.S. equity markets over the period 2002-2008 and a history of their equity issues and operating performance fundamentals.

I find that deregistering firms are significantly more profitable and raise significantly lower equity capital in the aftermath of the decision to deregister relative to benchmark peers that did not deregister. I further find that the quality of governance in a firm's home country is not a significant determinant of changes in profitability and capital raising activity. Higher profitability in the aftermath of deregistration supports the hypothesis that firms deregister from U.S. equity markets to save the monetary costs of cross-listing. But it is not clear whether they do so *after* reaping maximum bonding benefits or given no bonding benefits to begin with. Lower equity issues in the aftermath of deregistration support the hypothesis that

deregistration is perceived as a signal of lower protections for minority investors.

The rest of this chapter is organized as follows. Section 2 briefly discusses the Exchange Act Rule 12h-6 under which the majority of the firms in the data – 53 percent – deregistered from U.S. equity markets. Section 3 summarizes the literature on foreign deregistrations from U.S. equity markets. Section 4 provides an intuitive discussion of the expected empirical relationship between deregistration and a firm's equity offerings and operating performance. Section 5 describes the data and discusses the experimental design. Section 6 presents the results. Section 7 concludes.

3.2 THE EXCHANGE ACT RULE 12H-6

Until recently foreign firms with a U.S. cross-listing were required to deregister under the Exchange Act Rule 12g-4. This rule made it legally very difficult to terminate reporting requirements with the U.S. SEC because the particular class of securities being deregistered was required to be held by less than 300 residents in the United States (or 500 residents if assets were less than $10 million in value). Reporting requirements of firms that met this limit were suspended but were liable to being resumed if, at the end of the fiscal year, the number of U.S. holders of the securities exceeded the stipulated limit. Thus a firm's process of exiting U.S. equity markets by delisting from the U.S. exchange on which its stock was trading could begin several years before its actual and final deregistration took effect.

On March 21st 2007 the U.S. SEC adopted the Exchange Act Rule 12h-6 which made it much easier to deregister. The Rule became effective on June 4th 2007. Under Rule 12h-6 a firm qualifies for deregistration if less than 5% of its worldwide average daily trading volume (ADTV) over the last one year takes place on U.S. markets. Additionally, the firm is required to: (a) have been a reporting company for at least one year (b) not have sold securities in a registered offering for at least one year and (c) maintain a listing in its primary trading market for at least one year. Any foreign firm can thus easily deregister after one year of delisting its securities from the U.S. exchange on which it is trading since delisting automatically reduces U.S. trading volume and brings it in line with the trading volume requirement for deregistration.

The rule change created a strong impetus for foreign deregistrations for U.S. equity markets; in the 8 months subsequent to the rule change 80 firms announced their intention to deregister from U.S. exchanges, the largest yearly total in history (Fernandes, Lel & Miller, 2010). Figure 1 shows that this number stands in stark contrast to the number of voluntary foreign deregistrations for the entire period extending from 1980 to 2006. Figure 2 further shows that around the passage of the Exchange Act Rule 12h-6 the rate of foreign delistings from the New York Stock Exchange was more than twice the rate of domestic delistings.

3.3 RECENT EVIDENCE ON FOREIGN DEREGISTRATIONS FROM U.S. EQUITY MARKETS

Most recent empirical evidence on the causes and consequences of deregistration from U.S. markets is based on examining stock price reactions around delisting and deregistration announcements.

Doidge, Karolyi and Stulz (2010) examine the determinants and consequences for shareholders of foreign deregistrations from U.S. markets in the aftermath of the SOX using a sample of 141 voluntary deregistrations over the period 2002-2008. They find evidence that deregistering firms have characteristics that reduce the value of a cross-listing according to the bonding theory in that: (a) firms that deregistered had lower growth opportunities and lower external funding requirements than firms that did not deregister and (b) firms with large external financing needs incurred a significantly negative stock-price reaction to deregistration announcements. They also find some evidence that is inconsistent with bonding e.g. they find limited evidence that proxies for agency costs help to explain deregistration, and deregistering firms such as Air France, British Airways, and Bayer have large potential future financing needs which should make them poor candidates for deregistration. There is some evidence, as well, that is consistent with the LOC theory; in general firms that were hurt by SOX benefitted more from the passage of Rule 12h-6 that made it easier for them to leave U.S. capital markets. At the same time the impact of SOX on a foreign firm is not found to be a significant determinant of its decision to deregister from U.S. equity markets.

Fernandes, Lel & Miller (2010) examine the stock price reaction to the announcement of Rule 12h-6. The bonding theory interprets Rule 12h-6 to be a capital market regulation that makes a U.S. cross-listing less valuable because it makes it easier for foreign firms to opt out of superior disclosure and investor protection regulations in the U.S. The authors find negative abnormal stock returns over the 3 day window surrounding the rule change among firms from countries with poor disclosure and low levels of judicial efficiency. In contrast they find that the market reaction is insignificant for firms from countries with high levels of investor protections. They also find the negative abnormal returns around the rule change to be concentrated among cross-listed firms complying with SEC disclosure requirements (firms with level II and III ADRs) rather than cross-listed firms exempted from disclosure requirements (OTC and Rule 144a ADRs). The authors interpret their results to be supportive of the bonding theory because Rule 12h-6's negative impact is concentrated among deregistering firms that stand to suffer the greatest rise in agency costs i.e. firms bound by the strongest disclosure requirements before deregistering from U.S. equity markets.

While the evidence on the consequences of foreign deregistrations after the adoption of the Exchange Act Rule 12h-6 is limited, prior evidence has involved studying the relatively few atypical firms that could meet the stringent deregistration requirements imposed by older rules of deregistration (Fernandes, Lel & Miller, 2010). Further, evidence postdating Rule 12h-6 that is based on larger samples primarily focuses on

the short-term economic consequences i.e. the immediate market reaction to the enhanced ability to deregister or to deregistration itself.

This paper goes a step further in focusing on the longer term economic consequences of deregistration by examining the effect of deregistration on equity issuance activity and operating performance up to two years after deregistration.

3.4 THEORIES OF DEREGISTRATION AND IMPLICATIONS FOR THE DATA

How should a firm's decision to deregister be related to its equity issuance activity and operating performance? A cross-listed firm deregisters if the expected costs of a U.S. cross- listing exceed its expected benefits. The expected relation between deregistration and capital raising activity or operating performance depends on the exact nature of the benefits that accrue to a firm from the act of deregistration.

Since maintaining a cross-listing is costly, all theories of deregistration predict that firms whose growth opportunities can be financed through internally generated funds or riskless debt i.e. firms with no foreseeable need for external capital will choose to deregister. The LOC theory states that deregistration allows the firm to escape the monetary costs of listing and is unambiguously good for firm value. The bonding theory argues that the controlling shareholders of firms with no foreseeable need for external capital do not find it rational to bear either the direct monetary costs of cross-listing or the indirect cost of limiting their ability to expropriate capital away from

minority shareholders. Thus even if it allows the firm to save monetary costs, deregistration may not be unambiguously positive for firm-value because it may be associated with lower protections for minority shareholders and therefore higher extraction of private benefits by corporate insiders. Thus case 1 consists of firms that deregister because they no longer need external capital to support any foreseeable growth opportunities. Hypothesis 1: other things being equal deregistration is not expected to be associated with any change in equity issuance activity or operating performance.

The bonding hypothesis states that even if deregistration increases the firm's agency costs, this change will not translate into any change in capital raising or operating performance outcomes because the firm would have deregistered irrespective of the changing benefits and costs of deregistration. Likewise the loss-of-competitiveness hypothesis states that even if deregistration allows the firm to save on the monetary costs of listing, this change will not translate into a significant change in the firm's capital raising and operating performance outcomes since the act of deregistration is not linked to these outcomes. Thus in both cases changes in the firm's regulatory environment due to deregistration do not translate into any changes in the firm's ability to raise capital or in its operating performance.

Case 2 consists of firms that deregister to avoid the heavy monetary costs associated with cross-listing on a U.S. exchange. Hypothesis 2a: other things being equal deregistration is expected to be associated with an increase in equity issuance activity

and an improvement in operating performance. The LOC hypothesis argues that deregistration reduces a firm's cost of complying with burdensome regulations like SOX, improves investor expectations and lowers the cost of capital. The effect of deregistration on the firm's agency costs is unimportant because the act of deregistration is not predominantly motivated by the desire of controlling shareholders to extract greater private benefits of control. Thus deregistration is expected to be associated with an increase in equity offerings in the non-U.S. capital markets where the firm's stock is trading. Further, because deregistration improves a firm's ability to raise equity capital, it is expected to be associated with improved operating performance especially for those firms that have a high need for external capital to finance their growth. Hypothesis 2b: other things being equal deregistration is expected to be associated with an increase in equity issuance activity as well as operating performance with the increase being higher for firms that have lower agency costs e.g. firms domiciled in countries with strong legal protections for minority shareholders.

Bonding argues that contingent on a cross-listed firm's continuing need for external capital, compliance with regulations such as SOX increases the value of the cross-listing by more effectively reducing agency costs, improving investor expectations and lowering the cost of capital. But cross-listed firms will still choose to deregister if SOX increases the direct costs of maintaining the listing more than it increases the benefits accruing from lower agency costs. This is expected to be true for firms that find it very costly to comply with SOX and/or firms that do not derive high

governance benefits from U.S. capital market regulations e.g. firms domiciled in countries with strong protections for minority investors and a strong internal corporate governance system. For such firms deregistration is expected to save costs and increase equity issues in the firms' non-U.S. capital markets as well as improve operating performance particularly when the need for external finance to fund growth opportunities is high. Thus case 3 consists of firms that deregister so that controlling shareholders are enabled to extract greater private benefits of control due to a weaker regulatory environment. Hypothesis 3: other things being equal deregistration is expected to be associated with a lower level of equity issuance activity and lower operating performance with the decrease being higher for firms that have higher agency costs e.g. firms domiciled in countries with weak legal protections for minority shareholders.

The bonding theory argues that a key benefit of a U.S. cross-listing is a reduction in a firm's agency costs and a subsequent decrease in its cost of equity capital. Since this very benefit of a U.S. cross-listing also reduces the ability of the firm's controlling shareholders to extract private benefits of control, they consider the long-term effects of deregistration on both their expected private benefits and on the public value of their shares.

Bonding predicts that a cross-listing firm will deregister despite a continuing need for external capital when the expected private benefits to controlling shareholders from their ability to expropriate away from minority shareholders exceed the benefits of

retaining the cross-listing and raising lower cost capital. This form of deregistration is likely to happen for firms that have low external capital financing needs in relation to their growth opportunities and whose insiders stand to gain a lot by un-bonding from U.S. capital market regulations e.g. firms that are domiciled in countries with weak protections for minority shareholders. Deregistration activity of this nature hurts the interests of the firm's minority shareholders and is expected to be detrimental to firm-value on two accounts: (a) greater expropriation by corporate insiders and (b) decrease in investors' expectations of future cash flows and a subsequent increase in the cost of equity capital.

If a deregistering firm derived a large gain in governance – a great reduction in agency costs – from its U.S. cross-listing, deregistration is expected to lower protections for minority shareholders thereby worsening the firm's ability to raise capital globally. Specifically bonding predicts that deregistration should lower equity financing in international capital markets with the decrease being higher for firms from countries with relatively weak legal protections for minority shareholders. Further, the higher a firm's dependence on external capital, the more negative the impact of reduced equity financing on its operating performance.

3.5 DATA AND EXPERIMENTAL DESIGN

I test each of the hypotheses discussed above by comparing the equity capital issuing and operating performance outcomes of a sample of firms that deregistered from U.S.

equity markets relative to the outcomes of observationally equivalent peers that did not deregister within the same time-frame.

The key capital issuing outcomes that I analyze are: (a) proceeds from equity issued as a share of total assets; (b) proceeds from equity issued in domestic capital markets as a share of total assets and (c) proceeds from equity issued in non-domestic markets as a share of total assets. The key outcomes related to a firm's operating performance that I analyze are: (a) the percentage return on equity as a measure of the firm's profitability; (b) corporate investment defined as the ratio of capital expenditures plus expenditures on research and development scaled by total assets (c) the percentage sales growth rate which is a proxy for the firm's growth opportunities.

3.5.1 The Sample of Deregistering Firms

This study uses the sample of 141 non-U.S. firms that Doidge, Karolyi & Stulz, 2010 (DKS 2010) identify as firms that voluntarily deregistered their stock with the U.S. SEC during the period 2002-2008. A deregistration is considered to be involuntary when it is associated with a delisting due to noncompliance with a U.S. exchange's listing requirements, a merger, acquisition, restructuring or liquidation. Given that one of the key objectives of DKS 2010 is to evaluate the importance of the Sarbanes Oxley Act (SOX) enacted on July 29th 2002 as a determinant of deregistration, the authors restrict their sample in the following two ways to ensure that SOX applied to all firms at the time the firm chose to exit U.S. equity markets:

i. Prior to deregistration the firm had its stock listed on one of the major U.S. exchanges – NASDAQ, New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX) – either directly or more generally in form of an American Depositary Receipt (ADR).

ii. The firm's process of exiting U.S. public equity markets occurred in the aftermath of the SOX. A firm's process of exiting U.S. public equity markets begins with delisting from the U.S. exchange on which its stock is trading. Owing to the disjuncture between delisting and deregistration for non-U.S. firms prior to the adoption of Rule12h-6 in 2007, a foreign firm's process of exiting U.S. equity markets could begin years before its deregistration came into effect. DKS 2010's sample of 141 deregistations excludes firms whose process of exiting U.S. equity markets via delisting began before SOX even if the final deregistration took place in aftermath of the SOX.

The sample has been constructed from Form 15 filings on the SEC's website; 66 firms deregistered before the adoption of Rule 12h-6 while 75 firms deregistered afterwards. Deregistering firms consist of firms incorporated in 26 countries. In the period prior to the enactment of Rule 12h-6 firms from the United Kingdom comprise the largest contingent (14) of deregistering firms. After Rule 12h-6 European firms continue to comprise the majority of deregistering firms including 13 from the U.K. and 12 from France.

Although the 141 sample firms were all required to have Worldscope and Datastream data at the time that the sample was constructed, 22 of these firms became "inactive" Worldscope firms within 2 years of their date of deregistration i.e. Worldscope stopped reporting annual accounting data for these firms. 9 of these firms were acquired by another firm, 2 merged with another firm, 8 stopped providing data because they had delisted and thus stopped being publicly listed companies and 3 firms do not provide the exact reason for not reporting accounting data in subsequent years. Owing to their missing accounting data over the event window during which I analyze capital raising and operating performance outcomes these firms will not contribute to the analyses conducted in a regression framework where I control for observable firm characteristics. Table 1 gives the chronological pattern of deregistrations within the sample.

3.5.2 The Universe of Benchmark Firms

The universe of benchmark firms consists of 791 firms. Since I seek to compare outcomes of deregistering firms to the outcomes of equivalent peers that did not deregister up to two years before and within two years after the date of deregistration, I only include those firms in the benchmark universe that have an active level II or III ADR or a direct listing on a major U.S. exchange over a valid four year window. The first firm in the sample deregistered on May 30th 2002 while the last firm deregistered on October 21st 2008. Since I need an eligible control to have a U.S. listing throughout the period over which I compare the outcomes of interest I exclude two classes of firms from the benchmark universe. First I exclude all foreign firms that had

a U.S. exchange listing but delisted prior to May, 2000; these firms were not secondarily listed on a U.S. exchange long enough to be eligible controls for even the earliest deregistering firm in my sample. Second I exclude all foreign firms that got secondarily listed on a U.S. exchange after October, 2006; such firms got listed so late as to not be eligible controls for even the last deregistering firm in my sample.

As stated each firm in the benchmark universe is required to have an exchange listing in the U.S. over a valid four-year window. The validity of the four-year window is defined by the deregistration dates of the sample of deregistering firms. I define the universe of controls for firms that deregistered in a particular year as the set of non-U.S. firms with an active secondary exchange listing in the U.S. over the period extending from two years before the earliest deregistration date in that year till two years after the latest deregistration date for that year (refer to table 1 for earliest and latest deregistration dates in each year). For example, the universe of eligible controls for the 7 firms that deregistered in 2002 consists of 380 non-U.S. firms that had an active exchange listing within the U.S. over the period May 30th 2000 to December 19th 2004.

I restrict the benchmark universe to exclude level I OTC listings and Rule 144a private placements because the sample of deregistering firms also comprises of only exchange listings and I seek to compare capital raising outcomes of equivalent peers in terms of the level of investor protection norms in the U.S. markets to which the firms were bonded over the sample period. I further exclude firms that are incorporated in tax

havens such as the Cayman Islands, Channel Islands and Bermuda. Finally, the benchmark universe is restricted to only include cross-listed firms for which firm-level accounting data exists in Worldscope. This benchmark universe consists of firms incorporated in 44 countries with the largest number of firms from Canada (263) followed by the U.K. (81).

3.5.3 Matching

I consider three alternative matching scenarios to match each deregistering (treatment) firm to a firm from the benchmark universe:

3.5.3.1 Matching by country of incorporation, year of deregistration and excess-q:

A firm's excess-q is computed as the difference between its Tobin's q and the median Tobin's q of all firms not cross-listed in the firm's country of domicile. A firm's excess-q is thus a measure of its cross-listing valuation premium relative to the home market. This represents a measure of the firm's gains from cross-listing relative to trading only on its home exchange. Each firm's Tobin's q is computed as the ratio of the book value of total assets minus the book value of equity plus the market value of equity to the book value of total assets. All variables are in local currency of the firm's country of domicile. I borrow values of the median Tobin's q of all non-cross-listed firms in a firm's country of domicile from Doidge, Karolyi and Stultz (2007).

Each deregistering firm-year is matched to a firm-year from the benchmark universe where the benchmark firm is incorporated in the same country as the treatment firm,

the year is the same as the treatment firm's year of deregistration and the excess-q is the closest match to the treatment firm's excess-q in the last year for which the treatment firm was cross-listed i.e. around the time when the treatment firm was about to deregister. I match with replacement i.e. the same firm-year observation can be a match for multiple treatment firms. I locate matches for 138 treatment firms using these criteria.

3.5.3.2 Propensity Score Matching:

I construct a propensity score for each firm-year observation based on a probit regression of the binary deregistration indicator variable on the firms' observable accounting data as well as the annual data of the firm's country of incorporation. Each deregistering firm-year is matched to the benchmark firm-year whose propensity score is closest to the treatment firm's own propensity score in its year of deregistration. I match without replacement i.e. the same firm-year observation is not allowed to be a match for multiple treatment firms. I locate matches for 133 treatment firms using these criteria.

3.5.3.3 Matching by excess-q and the Anti Self-Dealing Index (ASDL) of the country of incorporation:

The ASDL is constructed by Djankov et al (2008) and is a measure of the legal protections in a country afforded to minority shareholders against self-dealing

by corporate insiders. The index takes on values between 0 and 1 with higher values representing a higher level of protection afforded to minority shareholders.

Each deregistering firm is matched to a benchmark firm-year observation where the firm's home country ASDL is within 1 standard deviation of the treatment firm's home country ASDL and the benchmark firm-year's excess-q is closest to the treatment firm's excess-q in the last year for which the treatment firm was cross-listed. In considering the nearest neighbor match for the excess-q I do not restrict myself to benchmark-firm years that correspond to the treatment firm's year of deregistration. I match without replacement i.e. the same benchmark firm-year observation is not allowed to be a match for multiple treatment firms.

In all matching scenarios a given treatment firm is only matched to a benchmark firm that constitutes an eligible control for the year in which the treatment firm deregisters i.e. a benchmark firm that has an active exchange listing in the U.S. over the period extending from two years before the earliest deregistration date in that year till two years after the latest deregistration date for that year (refer to table 1 for earliest and latest deregistration dates in each year).

The three matching scenarios embody different matching approaches in terms of where the matching process is allowed to be most flexible. For example, in scenario 1 I undertake exact matching on the country of incorporation and year of deregistration but I allow full replacement of benchmark firm-year observations

during the matching process. In scenario 3 I allow flexibility in matching on the year of deregistration and the country of incorporation i.e. rather than match each treatment firm to a benchmark firm from the same country I match each treatment firm to a benchmark firm from a similar country as far as investor protections go. But I match without replacement of firm-year observations.

3.5.4 Data on Capital Issues

I obtain data on new equity issues from the Securities Data Company's (SDC) Global New Issues Database. This database provides information on primary equity issues (both IPOs and SEOs) with detailed data such as the issue date, the market of issue and the dollar value of proceeds from each issue. Transactions are organized by the date of issue and a particular issuer could have multiple transactions within a year. For each issue I download the filing date, total dollar proceeds, offer price, number of shares offered, type of security, currency of issue, market of issue and primary exchange where the issue will be listed. An equity issue is defined as domestic if the market of issue coincides with the issuing firm's country of incorporation.

3.5.5 Data on Firm Level Controls

In the analysis that follows I employ several firm-level characteristics as controls. All firm level variables are taken from Worldscope. The key firm-level controls that I use in the multivariate analysis are the percentage return on equity, the annual sales growth rate, the natural logarithm of total assets to proxy for firm size, total debt to

total assets (leverage ratio), firm's Tobin's Q ratio computed as the ratio of ((Total Assets – Book Equity) + Market Value of Equity)/Total Assets and the firm's investment rate computed as the sum of capital expenditures and expenditures on research and development as a ratio of total assets.

3.5.6 Country Level Data

Recent work suggests that a country's legal tradition affects both the explicit laws protecting minority shareholder rights and the net effect of these laws on a firm's ability to receive finance from investors (La Porta et al., 1997, 1998, 2000). This literature finds that better legal protections are associated with easier firm-level access to capital and with a higher volume of external financing. The two country level variables that I use to proxy for the quality of the protection of the interest of minority shareholders are: (i) The Anti Self-Dealing Index of the `firms' country of incorporation as constructed by Djankov et al (2008) and (ii) the Average Governance Index for the firms' country of incorporation which is created as the average of the Worldwide Governance Indicators (WGI) developed by Kauffman, Kray and Mastruzzi (2010). The WGI rank 213 countries – including all countries represented in my sample of deregistering and benchmark firms – on a scale of 0 to 100 over the period 1996-2009 for six dimensions of governance: (i) Voice and Accountability (ii) Political Stability and Absence of Violence (iii) Government Effectiveness (iv) Regulatory Quality (v) Rule of Law and (vi) Control of Corruption. Higher ranks indicate a higher quality of governance.

3.6 RESULTS

3.6.1 Results for the Entire Sample

Table 2 contains the results of cross-sectional regressions of operating performance outcomes on firm characteristics for the entire sample. All firm characteristics are lagged by one year. All panels contain two years of data pre and post the year of deregistration for the treatment firms and two years of data pre and post the matched year for the benchmark firms. For both the treatment and benchmark firms the year of deregistration and the year of matching itself is coded as missing.

Table 2 shows that after controlling for country, year and industry fixed-effects the average deregistering firm is significantly more profitable after deregistration relative to benchmark peers that did not deregister over the entire period of analysis (models 1 and 2 – panel A). This evidence supports two scenarios: either firms gain no bonding benefit from the cross-listing and deregister to avoid the monetary costs of listing (hypothesis 2a) or firms gain a bonding benefit from the U.S. cross-listing but deregister when they suffer a greater increase in the direct costs of maintaining the listing compared to the increase in the bonding benefit from maintain the cross-listing (hypothesis 2b). In either case deregistration is expected to be associated with an improvement in operating performance.

In order to empirically distinguish between hypotheses 2a and 2b we need to control for the extent of protection afforded to the interests of a firm's minority investors in the absence of a U.S. cross-listing. According to hypothesis 2a all firms irrespective

of the extent of investor protections afforded in the absence of a U.S. cross-listing should experience a gain in profitability after deregistration.

But hypothesis 2b states that since the primary benefit of the U.S. cross-listing is the governance gain from bonding, only those firms should experience a rise in profitability that derive low incremental governance benefits relative to costs from bonding to U.S. capital market institutions. Such firms are expected to be domiciled in countries with strong protections for minority investors and to have a strong internal corporate governance system.

Alternatively these could also be firms that, at the time of deregistration, had already derived maximal bonding benefits by complying over an extended period with U.S. capital market norms related to investor protection. I proxy for a firm's initial date of registration with the U.S. SEC by the earliest date on which the firm listed on a U.S. exchange. I am able to successfully proxy for the initial date of registration for 55 of the 141 treatment firms. Table 3 shows that at the time of deregistration 56% of these firms had maintained a U.S. cross-listing for more than 10 years while 82% had been listed for more than 5 years. Such firms may self-select to deregister because, given their extended tenure in U.S. capital markets, they do not stand to lose much of the bonding benefit upon deregistration while at the same time saving upon the monetary costs of cross-listing.

Table 4 shows cross-sectional regressions of operating performance variables on firm characteristics after controlling for the extent of protection for minority investors in the firm's country of incorporation. The indicator variable WellGoverned takes on the value of 0 if the ASDL of the firm's country of incorporation is less than 0.3 and 1 otherwise. The variable Ownership captures the firm's percentage of closely held shares i.e. shares held by insiders according to the Worldscope Database (Worldscope item WS08021).

Deregistering firms do not exhibit a significantly different sales growth and investment rate subsequent to deregistration relative to their benchmark peers that don't deregister. But they continue to be significantly more profitable. Further, the quality of governance and minority investor protection does not make a statistically significant difference to profitability i.e. all deregistering firms irrespective of their quality of investor protection experience a rise in profitability. This result supports two scenarios:

i. Firms do not derive governance benefits from the U.S. cross-listing and therefore don't lose any governance benefits at the time of deregistration. They deregister to save the monetary costs of listing as predicted by the LOC hypothesis.

ii. Firms have derived maximal bonding benefits from the U.S. cross-listing. These firms do not stand to lose much of the bonding benefit by deregistering. But they do save upon the monetary costs of maintaining the cross-listing.

Given the limited data on each firm's tenure in U.S. capital markets, it is not possible to empirically distinguish between the above two cases.

Table 5 contains the results of cross-sectional regressions of capital raising outcomes on firm characteristics for the entire sample. I do not find any significant difference post deregistration in total capital proceeds, proceeds raised domestically or proceeds raised in non- domestic markets between firms that deregistered and benchmark peers that did not deregister over the same period. I re-conduct the analysis after controlling for governance and do not find any difference in capital raising outcomes associated with deregistration (Table 6). Thus deregistration itself is not associated with any change in the firms' capital raising behavior. This points towards the fact that firms in the sample have deregistered irrespective of the changing benefits and costs of deregistration e.g. when they have no foreseeable demand for external capital and no reason to stay in U.S. capital markets.

3.6.2 Results for Firms that Deregistered After Exchange Act Rule 12h6

I proceed to separately analyze the outcomes of interest for the 75 firms that deregistered after Rule 12h6 became effective to make the deregistration process easier and quicker. This subsample of firms differs from the subsample of the 66 firms that deregistered prior to the Rule change importantly in terms of the U.S. capital market regulations that the firms were required to comply with.

The compliance requirements of SOX's Section 404 which aims to reduce the market impact of accounting errors from fraud, inadvertent misstatements, or omissions, by assuring effective management controls over reporting are considered to be particularly onerous (Doidge, Karolyi & Stulz, 2009). Registered foreign companies with the U.S. SEC were offered an extended timeline to comply with Section 404 and were required to be in full compliance for fiscal years ending on or after July 15 2007. Thus the 18 firms that deregistered in 2008 were compliant with Section 404. At the same time Rule 12h-6 had rendered it easier for a firm's managers to opt out of U.S. capital market regulations.

I expect the outcomes for these 75 firms to constitute stronger evidence in favor or against the alternative hypotheses being considered. In relation to the LOC hypothesis the strengthening of SOX increased the regulatory burden of maintaining the U.S. cross-listing. Thus the equity issuance and operating performance outcomes of firms that voluntarily deregistered should be more strongly reflective of the gains from deregistration compared with the entire sample. In relation to the bonding hypothesis the strengthening of SOX should increase the value of a cross-listing for firms that are already cross-listed and need to raise external capital. Thus firms that voluntarily deregister should be the ones that do not value the incremental bonding as much as they suffer due to it. This category includes three kinds of firms: (a) firms that don't need external capital; (b) firms that have bonded 'long enough' with U.S. capital market institutions or firms whose home country regime affords relatively strong protections for minority investors and (c) firms whose controlling shareholders seek

to extract greater private benefits of control. But the changed environment wherein the bonding benefit of a U.S. cross-listing is higher at the same time as the ability to opt out of voluntary bonding is easier (due to Rule 12h6) means that the outcomes of deregistering firms should more strongly reflect the effects of un-bonding from U.S. capital market regulations among firms that fall in category (c).

Table 7 contains the results of cross-sectional regressions of operating performance outcomes on firm characteristics for the subsample of firms that deregistered after Rule 12h6. I do not find any significant difference in post deregistration operating performance between firms that deregistered and their benchmark peers that did not deregister for any of the three matching scenarios. I re-conduct the analysis after controlling for governance and find that treatment firms are significantly more profitable after deregistration compared to their benchmark matches (table 8). But the result of the entire sample continues to hold in that the quality of governance and minority investor protection does not make a statistically significant difference to profitability i.e. all deregistering firms – irrespective of the quality of investor protection in their home country – experience a post deregistration rise in profitability relative to benchmark firms. This upholds the hypothesis that firms deregister to avoid the monetary and regulatory costs of cross-listing.

Table 9 contains the results of cross-sectional regressions of capital raising outcomes on firm characteristics for firms that deregistered after Rule 12h6. I find that after controlling for country, year and industry fixed-effects the average deregistering firm

raises significantly lower levels of domestic capital as a share of total assets after deregistration relative to benchmark firms (models 1 and 2 – panel B). But there is no significant change in overall proceeds raised or proceeds raised in non-domestic markets.

This evidence supports the hypothesis that deregistration and un-bonding from U.S. capital markets may be viewed as a signal of inferior investor protections. Deregistration is expected to hurt the interests of the firm's minority investors, lower their expectations of future cash flows and increase the cost of equity capital globally. Thus deregistration is expected to be associated with a reduction in equity issuance activity with the decrease being higher for firms that have higher agency costs in the absence of the cross-listing i.e. firms domiciled in countries with weak legal protections for minority investors and firms that, at the time of deregistration, had not bonded long enough with the superior investor protection norms imposed by U.S. capital market institutions.

When I control for governance I continue to find a significant post deregistration decline in overall capital proceeds and proceeds raised in domestic markets (Table 9). But this change in capital raising behavior is not significantly affected by the quality of governance in the firm's country of incorporation i.e. firms from weakly governed countries do not suffer a greater post deregistration decline in equity issues as bonding predicts. I do find however that only 38% of the firms that deregistered after Rule 12h6 had maintained a U.S. cross-listing for 10 years or more at the time of

deregistration (table 3). This is consistent with the picture that the majority of the firms that deregistered after the Rule change may have suffered a loss in bonding benefits after deregistration due to their short tenure in U.S. capital markets. But this negative effect on the ability to raise capital does not result in a decline in the firm's growth and rate of investment. In fact it is accompanied by a rise in profitability which signals that after deregistration firms have a low dependence on external capital to fund their operations and growth.

3.7 CONCLUSION

This paper empirically examines the extent to which loss-of-competitiveness versus voluntary un-bonding explains a firm's decision to deregister from U.S. equity markets by testing the specific predictions that the two theories make regarding the effect of deregistration on a firm's equity issuance activity and operating performance. I use data on 141 firms that voluntarily deregistered over the period 2002-2008 and a history of their equity issues and operating performance fundamentals to test the specific predictions that the two hypotheses make regarding the effect of deregistration on a firm's equity issuance activity and operating performance.

I find evidence that deregistered firms are significantly more profitable compared with peers that did not deregister. This result is robust to controlling for firm level determinants of profitability as well as the quality of governance in the firm's country of incorporation. This finding supports the hypothesis that firms deregister to save the monetary and regulatory costs of maintaining a cross-listing in the U.S. But it is not

clear whether they do so after reaping maximum bonding benefits or given no bonding benefits to begin with. In support of the theory that at the time of deregistration firms may have reaped the maximum effects of bonding, I find that 56% of the deregistering firms had maintained a U.S. cross-listing for more than 10 years at the time of deregistration. For such firms the incremental benefit from continuing to bond is likely to be less than the direct costs of maintaining the listing.

For the subsample for firms that deregistered after Rule 12h6 I find that treatment firms are significantly more profitable after deregistration relative to benchmark peers that don't deregister. This result is robust to controlling for firm level determinants of profitability as well as the quality of governance in the firm's country of incorporation. The firm's home country's quality of governance remains an unimportant determinant of changes in profitability. I further find that post deregistration the treatment firms raise significantly lower overall equity capital as well as lower equity capital in domestic markets relative to benchmark peers with the quality of governance in the home market not being a significant determinant of the change in capital raising behavior. These findings support the hypothesis that deregistration signals lower protections for minority investors thereby raising the firm's cost of equity capital. But this negative effect on the ability to raise capital does not result in a decline in the firm's growth (as proxied by its sales growth rate) and rate of investment. In fact it is accompanied by a rise in profitability which signals that after deregistration firms have a lower dependence on external capital to fund their operations and growth. The data also supports the theory that firms that

deregistered after Rule 12h6 likely suffered from a decline in bonding benefits because of their short tenure in U.S. capital markets; only 38% of these firms are found to have maintained a U.S. cross-listing for 10 years or more at the time of deregistration.

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3.9 FIGURES

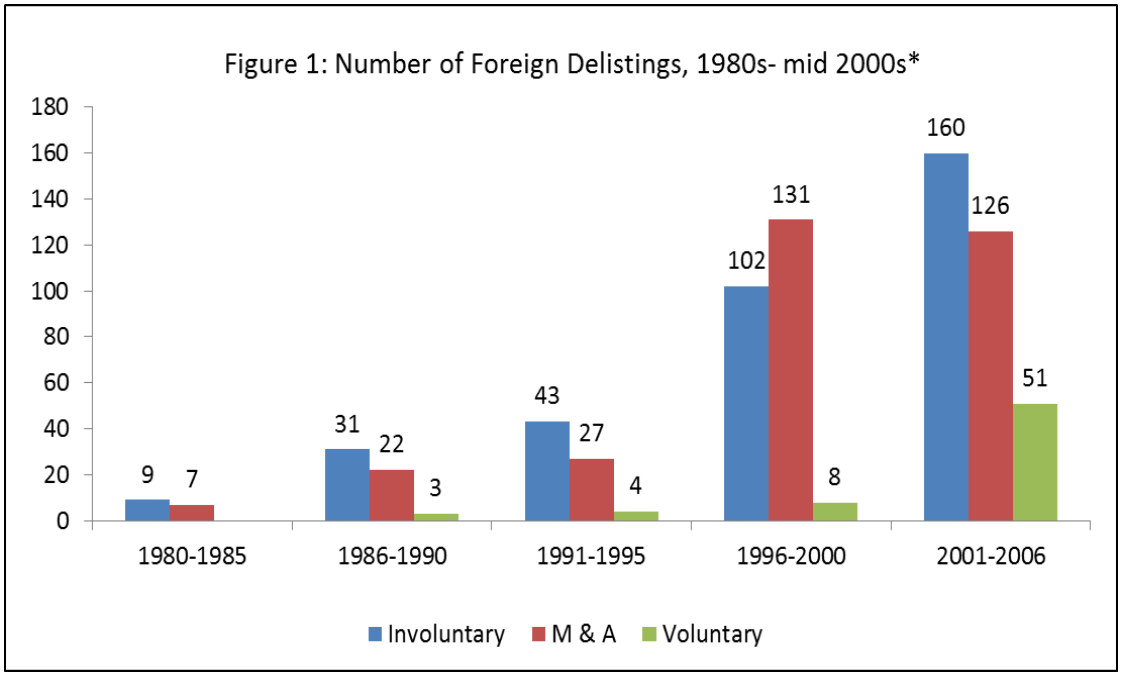

Figure 3-1: Number of Foreign Delistings, 1980s - mid 2000s

(This data is borrowed from Chaplinsky & Ramchand, 2012)

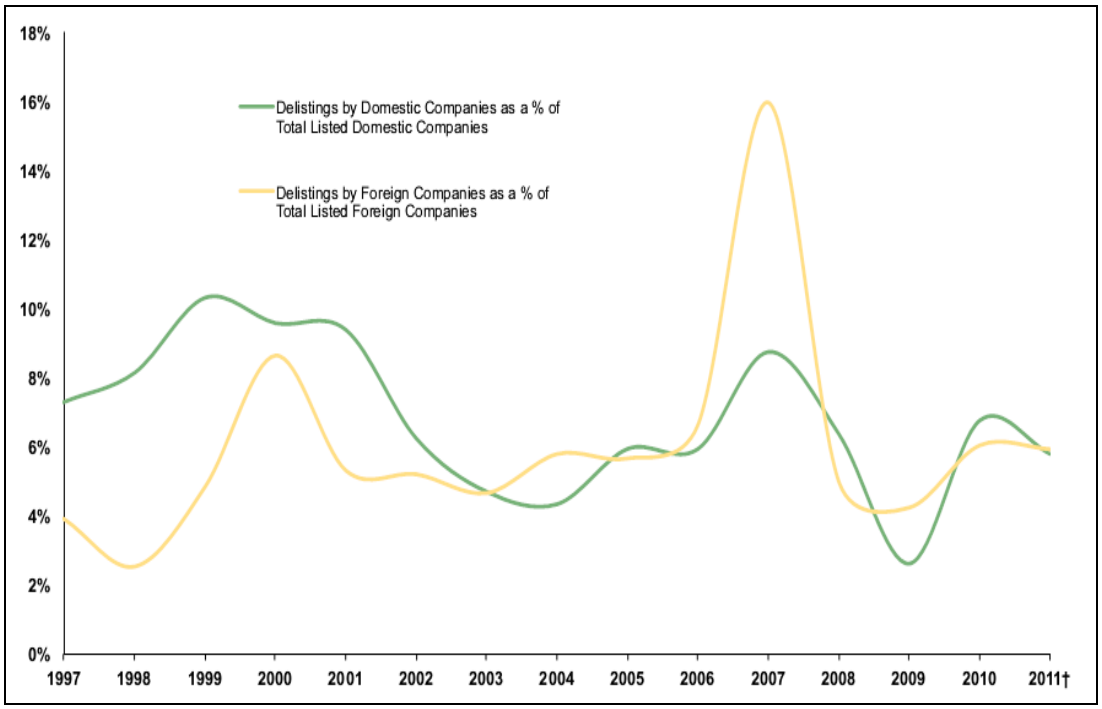

Figure 3-2: Foreign Vs. Domestic Rate of Delistings from the NYSE

3.10 TABLES

Table 3-1: Timeline of Deregistration within the Sample

Year	No. of Deregistering Firms	Earliest Deregistration Date	Latest Deregistration Date
2002	7	May 30th 2002	December 19th 2002
2003	12	January 29th 2003	December 23rd 2003
2004	9	January 9th 2004	December 29th 2005
2005	14	January 6th 2005	December 15th 2005
2006	18	January 30th 2006	December 18th 2006
2007	63	January 8th 2007	December 20th 2007
2008	18	January 2nd 2008	October 21st 2008

Table 3-2: Cross-Sectional Regressions of Operating Performance on Firm Characteristics

	Panel A			Panel B			Panel C		
VARIABLES	(1) ROA	(2) ROA	(3) ROA	(1) Sales Growth	(2) Sales Growth	(3) Sales Growth	(1) Investment Rate	(2) Investment Rate	(3) Investment Rate
Treatment	-1.97	-3.80***	-1.92	0.04	-0.14	0.02	1.12***	-0.04	1.26***
	(1.33)	(1.37)	(1.68)	(0.04)	(0.19)	(0.06)	(0.24)	(0.17)	(0.29)
After	-0.81	-1.06	0.66	0.12**	0.24	0.06	0.08	0.04	0.13
	(1.66)	(1.68)	(1.53)	(0.06)	(0.24)	(0.06)	(0.31)	(0.20)	(0.26)
Treatment*After	4.68***	3.72**	2.81	-0.01	0.02	0.03	0.22	0.13	0.17
	(1.76)	(1.86)	(1.98)	(0.06)	(0.26)	(0.07)	(0.33)	(0.23)	(0.34)
Size	3.34***	3.15***	2.93***	-0.00	0.02	0.00	0.19***	0.01	0.10**
	(0.27)	(0.25)	(0.28)	(0.01)	(0.04)	(0.01)	(0.05)	(0.03)	(0.05)
Leverage	-0.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
TobinsQ	0.04***	0.04***	0.03**	0.00	0.00	0.00*	0.01***	-0.00	0.00
	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SalesGrowth	-1.86**	0.10	-2.02**						
	(0.94)	(0.23)	(0.86)						
InvestmentRate	-0.41**	-0.16	-0.08	-0.01	-0.00	-0.00			
	(0.17)	(0.26)	(0.19)	(0.01)	(0.04)	(0.01)			
Roa				-0.00**	0.00	-0.00**	-0.01**	-0.00	-0.00
				(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
Constant	-31.39***	-27.06**	-27.17***	0.30	-0.46	0.05	-2.32**	0.07	-0.81
	(6.10)	(10.51)	(6.88)	(0.21)	(1.48)	(0.26)	(1.15)	(1.28)	(1.19)
Observations	1,035	1,022	1,011	1,035	1,022	1,011	1,035	1,022	1,011
R-squared	0.272	0.245	0.241	0.108	0.127	0.105	0.414	0.732	0.496
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3-3: Duration of Maintaining a U.S. Exchange Listing for Sample Firms

Duration of Maintaining U.S. Listing	Pre Rule 12h6 Firms	Post Rule 12h6 Firms
Less than 5 years	3	7
5 to 10 years	2	12
More than 10 years	19	12
Total Firms	24	31

Table 3-4: Cross-Sectional Regressions of Operating Performance on Firm Characteristics (All Firms)

VARIABLES	(1) ROA	(2) ROA	(3) Sales Growth	(4) Sales Growth	(5) Investment Rate	(6) Investment Rate
Treatment	-6.57***	-1.58	-3.09	0.06	0.95***	1.25***
	(1.46)	(1.39)	(2.78)	(0.05)	(0.22)	(0.27)
After	-3.14	-0.76	0.18	0.11*	-0.06	0.21
	(1.92)	(1.70)	(3.65)	(0.06)	(0.29)	(0.34)
Treatment*After	4.18**	3.93**	1.62	-0.01	0.14	0.19
	(2.06)	(1.81)	(3.90)	(0.06)	(0.32)	(0.36)
Well-Governed	-10.52	-10.87	-3.07	0.05	-0.21	0.18
	(6.53)	(13.74)	(12.33)	(0.49)	(1.06)	(2.73)
Size		3.25***		0.01		0.20***
		(0.29)		(0.01)		(0.06)
Leverage		-0.00		0.00		0.00
		(0.00)		(0.00)		(0.00)
TobinsQ		0.03**		0.00		0.01***
		(0.02)		(0.00)		(0.00)
Ownership		-0.02		0.00**		-0.01
		(0.02)		(0.00)		(0.00)
Sales Growth		-1.95**				-0.28
		(0.97)				(0.19)
InvestmentRate		-0.38**		-0.01		
		(0.17)		(0.01)		
ROA				-0.00**		-0.02**
				(0.00)		(0.01)
Constant	13.74*	-18.57	1.83	0.09	-0.22	-2.17
	(8.10)	(15.51)	(15.27)	(0.55)	(1.27)	(3.08)
Observations	1,071	898	1,060	898	1,073	898
R-squared	0.141	0.274	0.115	0.117	0.401	0.424
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

These results are for firms matched exactly on country of incorporation and year of deregistration with nearest neighbor matching on excess-q

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Table 3-5: Cross-Sectional Regressions of Capital Raising Variables on Firm Characteristics

	Panel A			Panel B			Panel C		
VARIABLES+	(1) Proceeds	(2) Proceeds	(3) Proceeds	(1) Domestic Proceeds	(2) Domestic Proceeds	(3) Domestic Proceeds	(1) Non-Domestic Proceeds	(2) Non-Domestic Proceeds	(3) Non-Domestic Proceeds
Treatment	0.02	0.03**	0.00	0.01	0.01*	0.00	0.01	0.02*	-0.00
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
After	-0.00	-0.00	-0.01	0.00	0.00	0.00	-0.00	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Treatment*After	0.01	0.02	0.02	-0.00	-0.00	0.00	0.01	0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Size	-0.01***	-0.01***	-0.02***	-0.00**	-0.00*	-0.00***	-0.01***	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Leverage	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Tobins-Q	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ROA	-0.00	-0.00	-0.00*	-0.00***	-0.00***	-0.00***	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SalesGrowth	-0.01	-0.00	-0.01	-0.00	0.00	-0.00	-0.01	-0.00	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
InvestmentRate	0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.15**	0.13	0.18**	0.05*	0.03	0.05	0.10	0.10	0.13*
	(0.07)	(0.12)	(0.08)	(0.03)	(0.05)	(0.03)	(0.06)	(0.10)	(0.07)
Observations	1,035	1,022	1,011	1,035	1,022	1,011	1,035	1,022	1,011
R-squared	0.088	0.078	0.094	0.063	0.055	0.071	0.092	0.079	0.093
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

+All proceeds are scaled by total assets

Table 3-6: Cross-Sectional Regressions of Capital Raising Variables on Firm

VARIABLES[+]	(1) Proceeds	(2) Proceeds	(3) Domestic Proceeds	(4) Domestic Proceeds	(5) Non-Domestic Proceeds	(6) Non-Domestic Proceeds
Treatment	0.05**	0.02*	0.01	0.01	0.03**	0.02*
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
After	0.04	0.01	0.03*	0.00	0.01	0.00
	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)
Treatment*After	0.01	-0.00	0.01	-0.00	-0.00	-0.00
	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)
WellGoverned	0.12	0.02	0.09	0.01	0.03	0.01
	(0.09)	(0.13)	(0.06)	(0.07)	(0.06)	(0.08)
Size		-0.01***		-0.00*		-0.01***
		(0.00)		(0.00)		(0.00)
Leverage		0.00		-0.00		0.00
		(0.00)		(0.00)		(0.00)
TobinsQ		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)
Ownership		0.00		0.00**		0.00
		(0.00)		(0.00)		(0.00)
ROA		-0.00**		-0.00***		-0.00
		(0.00)		(0.00)		(0.00)
SalesGrowth		0.01		-0.01		0.01*
		(0.01)		(0.00)		(0.01)
InvestmentRate		0.00		0.00		-0.00
		(0.00)		(0.00)		(0.00)
Constant	0.01	0.03	0.01	0.01	0.01	0.02
	(0.11)	(0.14)	(0.07)	(0.08)	(0.08)	(0.09)
Observations	1,104	898	1,104	898	1,104	898
R-squared	0.081	0.081	0.039	0.077	0.118	0.079
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

All proceeds are scaled by total assets

These results are for firms matched exactly on country of incorporation and year of deregistration with nearest neighbor matching on excess-q

Table 3-7: Cross-Sectional Regressions of Operating Performance on Firm

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(1) Sales Growth	(2) Sales Growth	(3) Sales Growth	(1) Investment Rate	(2) Investment Rate	(3) Investment Rate
Treatment	0.54	-2.14	3.48	-0.07*	-0.02	-0.10*	0.99***	-0.02	0.13
	(1.49)	(1.61)	(2.28)	(0.04)	(0.04)	(0.06)	(0.24)	(0.13)	(0.20)
After	-2.68	-1.00	2.80	-0.18**	-0.02	-0.02	-0.34	-0.01	-0.06
	(2.68)	(2.15)	(1.86)	(0.07)	(0.05)	(0.05)	(0.44)	(0.18)	(0.17)
Treatment*After	2.58	3.42	-2.45	0.05	0.01	0.06	0.05	-0.00	-0.02
	(1.97)	(2.23)	(2.86)	(0.05)	(0.06)	(0.07)	(0.33)	(0.18)	(0.26)
Size Leverage	3.47***	2.82***	3.03***	0.00	-0.01	0.01	0.11**	-0.02	-0.03
	(0.31)	(0.30)	(0.35)	(0.01)	(0.01)	(0.01)	(0.06)	(0.03)	(0.03)
TobinsQ	-0.00**	-0.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SalesGrowth	0.03**	0.05***	0.02	0.00	0.00	0.00**	0.00	0.00	0.00
	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
InvestmentRate	0.04	1.23	0.75						
	(1.60)	(1.72)	(1.75)						
ROA	-0.73***	0.48	0.26	-0.01	0.00	0.00			
	(0.26)	(0.53)	(0.50)	(0.01)	(0.01)	(0.01)			
Constant				0.00	0.00	0.00	-0.02***	0.00	0.00
				(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
	-	-16.02	-	0.41***	-0.04	0.00	-1.95**	0.30	0.37
	45.36***		26.86***						
	(4.87)	(10.19)	(7.43)	(0.14)	(0.26)	(0.19)	(0.87)	(0.84)	(0.67)
Observations	563	571	561	563	571	561	563	571	561
R-squared	0.328	0.327	0.308	0.131	0.174	0.196	0.556	0.883	0.871
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3-8: Cross-Sectional Regressions of Operating Performance on Firm

VARIABLES	(1) ROA	(2) ROA	(3) Sales Growth	(4) Sales Growth	(5) Investment Rate	(6) Investment Rate
Treatment	-2.01	1.11	-7.74*	-0.08*	0.94***	0.93***
	(1.75)	(1.41)	(4.50)	(0.04)	(0.23)	(0.24)
After	-7.52**	-4.67*	-17.12**	-0.13*	-0.25	-0.29
	(3.22)	(2.53)	(8.42)	(0.08)	(0.42)	(0.44)
Treatment*After	2.36	3.37*	7.14	0.06	-0.00	0.15
	(2.43)	(1.87)	(6.22)	(0.06)	(0.31)	(0.33)
WellGoverned	-6.82	-9.77	-1.19	0.05	-0.59	-0.59
	(5.84)	(10.86)	(14.84)	(0.33)	(0.79)	(1.89)
Size		3.40***		-0.00		0.16***
		(0.31)		(0.01)		(0.06)
Leverage		-0.00**		0.00		-0.00
		(0.00)		(0.00)		(0.00)
TobinsQ		0.03**		0.00		0.00
		(0.01)		(0.00)		(0.00)
Ownership		-0.03		-0.00		-0.00
		(0.03)		(0.00)		(0.00)
SalesGrowth		2.42				-0.38
		(1.51)				(0.26)
InvestmentRate		-0.86***		-0.01		
		(0.26)		(0.01)		
ROA				0.00		-0.03***
				(0.00)		(0.01)
Constant	8.55	-34.11***	13.95	0.45	0.06	-1.79
	(5.66)	(12.11)	(14.41)	(0.37)	(0.77)	(2.12)
Observations	582	517	575	517	583	517
R-squared	0.159	0.350	0.117	0.141	0.548	0.565
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, *p<0.1

These results are for firms matched exactly on country of incorporation and year of deregistration with nearest neighbor matching on excess-q

Table 3-9: Cross-Sectional Regressions of Capital Raising Variables on Firm Characteristics

VARIABLES[++]	Proceeds		Domestic Proceeds		Non- Domestic Proceeds	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.03	0.03***	0.01***	0.01***	0.02	0.02**
	(0.02)	(0.01)	(0.00)	(0.00)	(0.02)	(0.01)
After	0.13***	0.02	0.00	0.00	0.12***	0.01
	(0.04)	(0.01)	(0.01)	(0.01)	(0.03)	(0.01)
Treatment*After	-0.00	-0.02*	-0.01*	-0.01**	0.00	-0.01
	(0.03)	(0.01)	(0.01)	(0.01)	(0.03)	(0.01)
WellGoverned	0.05	0.04	0.02	0.03	0.04	0.01
	(0.06)	(0.06)	(0.01)	(0.03)	(0.06)	(0.05)
Size		-0.00*		-0.00*		-0.00
		(0.00)		(0.00)		(0.00)
Leverage		0.00		-0.00		0.00
		(0.00)		(0.00)		(0.00)
TobinsQ		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)
Ownership		0.00		0.00		-0.00
		(0.00)		(0.00)		(0.00)
Roa		-0.00		0.00		-0.00***
		(0.00)		(0.00)		(0.00)
SalesGrowth		0.00		-0.00		0.01
		(0.01)		(0.00)		(0.01)
InvestmentRate		0.00		0.00**		-0.00
		(0.00)		(0.00)		(0.00)
Constant	-0.06	0.01	-0.01	0.00	-0.05	0.00
	(0.06)	(0.07)	(0.01)	(0.04)	(0.06)	(0.06)
Observations	592	517	592	517	592	517
R-squared	0.125	0.114	0.069	0.100	0.130	0.108
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

These results are for firms matched exactly on country of incorporation and year of deregistration with nearest neighbor matching on excess-q
All proceeds are scaled by total assets