Learning Chinese? The changing investment behavior of foreign institutions in the Chinese stock market

Timo Korkeamäki
Hanken School of Economics, Helsinki, Finland
timo.korkeamaki@hanken.fi

Nader Virk
Hanken School of Economics, Helsinki, Finland
nader.virk@hanken.fi

Haizhi Wang
Illinois Institute of Technology, Chicago, IL, USA
hwang23@iit.edu

Peng Wang
University of Southampton, Southampton, UK
peng.wang@soton.ac.uk

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Abstract

We analyze preferences of foreign investors in the Chinese A-share market, accessible under the qualified foreign institutional investor (QFII) scheme. We document determinants of QFII holdings, and observe changes in them over time. While early on, the determinants of foreign institutional investments are similar to evidence from other countries, they have altered their investment patterns to more China-specific ones in the more recent time period.

JEL classification: G11, G15

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1. Introduction

Numerous studies report on preferences of foreign investors in various stock markets. Foreign institutional investors (FIIs) are typically viewed in those studies as skilled investors who are equipped with technologies to identify efficient firms and find superior investments. Results in Grinblatt and Keloharju (2000), Seasholes (2000) and Barber, Lee, Liu and Odean (2009) are consistent with this argument. Another strand of literature compares the holdings of FIIs to the weight of that country in the world market index (Kang and Stulz, 1997 and Dalquist and Robertsson, 2001). They refer to the lower asset allocation by FIIs, with respect to foreign country weight in the international equity index, as home equity bias.[1]

Information asymmetry between local and foreign investor groups is one potential explanation for home equity bias. Domestic investors may have superior information on local stocks. Kang and Stulz (1997) argue that if foreign investors are less informed than domestic investors then they will opt for stocks that are better known abroad. The argument is consistent with Merton's (1987) investor recognition hypothesis, given the incomplete information set. It also supports the conjecture that FIIs dislike information asymmetry. Kang and Stulz (1997) report that FIIs operating in the Japanese stock market tend to under-weight smaller and levered firms, and over-weight large firms, and firms that follow better accounting standards.

In this study, we examine the holdings of foreign institutional investors under the Qualified Foreign Institutional Investor (QFII) scheme. The fast growth of the Chinese capital market and the heightened interest of international investors in it make the Chinese

[1] Substantial empirical evidence suggests that international stock market diversification is potentially more rewarding than domestic diversification (see Baele and Inghelbrecht 2009, Chiou 2009, Driessen and Laeven 2007). Nonetheless, investors tend to under-weight foreign assets relative to what is implied by the international version of the capital asset pricing model (ICAPM). Financial economists often term this phenomenon as "home bias" (see Lewis (1999) and Karolyi and Stulz (2003) for a survey of the home bias puzzle).

market interesting.[2] The Chinese institutional setting differs from most other markets, which further increases the research interest in the market.[3] We use the mandatory quarterly declarations of QFIIs holdings in the A-share market, for the period from 2005 till 2011, to analyze the stock preferences of the FIIs operating in China. The aggregate QFII quota is on average 22.4 billion USD during the sample period from 2005 to 2011.

Another special aspect of the Chinese market is related to the ownership structure of Chinese firms, with typically concentrated ownership and sizeable state presence. For example, Jiang et al. (2007) document that state and legal person shares account for 60 percent of total shares in an average company. Both state ownership and ownership concentration have their well-documented problems. Shleifer and Vishny (1997) and La Porta et al. (1999) report that state-owned enterprises (SOEs) suffer from ineffective governance mechanisms and lower transparency. Bushman et al. (2004) highlight the lower financial transparency in SOEs. Morck, Shleifer and Vishny (1988) show that the concentrated ownership boasts "*the entrenchment effect*". Ownership concentration appears to be a concern for international institutional investors, as Dahlquist and Robertsson (2001) find that the FIIs in Sweden invest less in firms with a dominant owner.

We consider the effects of the Chinese institutional setting on information asymmetries for FIIs. Specifically, we pursue the following questions: 1) What are the preferences of foreign institutions under the prevailing restrictions, 2) Does ownership concentration or state ownership affect QFIIs' investment decisions, 3) How are QFII

[2] According to World Federation of Exchanges, Shanghai stock exchange (SSE) and Shenzhen stock exchange (SZSE) are the sixth and 10th largest stock markets (in terms of market capitalization) by the end of December 2013. No other emerging market shows up in the top 10 international stock exchanges list.

[3] The qualified foreign institutional investor (QFII) scheme was launched in December 2002. FIIs can invest in the A-share stock markets. The QFIIs have to seek license for equity trading from China Security Regulatory Commission (CSRC) and are allotted a quota limit within which they have to manage their trades. Shares in Chinese firms are classified into state shares, legal person shares and tradable shares. State shares are those owned by the central governments or local governments, while legal person shares are those held by domestic legal entities and institutions such as other firms, state-private mixed enterprises, and nonbank financial institutions (Qi et al. 2000). The tradable shares are further classified into A-shares and B-shares.

preferences related to evidence available from other markets, 4) Do QFIIs from different institutional categories and regions behave differently, and 5) Do QFIIs' preferences vary over time.

In line with previous studies (Kang and Stulz 1997, Gompers and Metrick 2001, Dahlquist and Robertsson 2001), we find that QFIIs prefer prudent firms with liquid stocks. They tend to be drawn to stocks belonging to the S180 index, and stocks that are cross listed abroad. All these findings are consistent with evidence from other markets. However, when studying time-specific sub-samples, we find that most of the findings above are driven by the early years of the QFII scheme. In contrast, we find that in more recent time periods, QFIIs exhibit preference for firms with large state or legal person ownership. Our results thus suggest that foreign institutions have adjusted their investment behavior from general preferences in any foreign market to more China-specific preferences.

The paper proceeds as follows. Section 2 takes a glance at the China's Qualified Foreign Institutional Investor (QFII) scheme. Section 3 presents the data, while the empirical results are reported in section 4. Section 5 concludes.

2. *Literature review and hypotheses development*

2.1. Determinants of foreign institutional investment

Mertons' (1987) investor recognition hypothesis suggests that foreign investors opt for stocks about which they are better informed. Firm size is a likely determinant of investor recognition (Merton, 1987; Falkenstein, 1996). In an international setting, cross-listings can also reduce informational barriers. Dahlquist and Robertsson (2001) report a positive link between foreign ownership and firms that are internationally listed. Consistent with investor recognition hypothesis, Ferreira and Matos (2008) report, in a cross-country analysis, that institutional investors prefer large firms, with strong disclosure standards and diffused

ownership, with US cross-listings and membership in the Morgan Stanley Capital International (MSCI) World Index also attracting foreign institutions. Del Guercio (1996) reports that prudency requirements have a varying effect among US institutions, depending upon the type of institutional investor.

2.2. The Chinese QFII Scheme

The QFII scheme has grown from the original 10 billion USD of combined quota allocated to 10 foreign institutions, to 150 billion USD of combined quota to more than 200 institutions in 2013. Liberalization of the mainland Chinese A-share market is advancing rapidly. Given the regulatory momentum during the period 2012-2013, there is also a consideration from MSCI to include mainland China A-share markets in its emerging market index.

In addition to the investment constraints imposed by the quotas under the QFII scheme, the institutional setting of Chinese firms further limits the possibilities of QFIIs to achieve their investment and diversification objectives. Traditionally, Chinese firms have concentrated ownership and a strong state presence. These characteristics are often linked to lack of transparency, low disclosure quality, and entrenchment effect. In the Chinese setting, the evidence in Xu and Wang (1999) suggests that ownership concentration improves the performance of Chinese firms, but that state ownership has an inverse effect on it. For eight East Asian countries, Classens, Djankov, Fan, and Lang (2002) find that deviation between control rights and cash flow rights of the largest shareholder diminishes firm value, which is consistent with the entrenchment effect.

Political linkages are also an important predictor of accounting quality as quality of earnings by politically connected firms tends to be poorer, than that of comparable firms with no political linkages (Chaney et al., 2011). Legal person shares also serve to increase state

presence in China. Delios and Wu (200) report that government-related institutions own more than 80 percent of the total legal person shares. Legal person identity, as a policy measure, was created to channel the transformation of SOEs to private corporations. Nonetheless, the concentration of government-related institutions in the legal person shares displays perceptibility of indirect state presence in the firm[4].

However, in a close market like China, investing in firms with higher ownership concentration and state presence may function as a mechanism to safeguard investments. Politically linked firms in China may have access to more favorable treatment by the government and state banks than the non-politically linked firms. Ding, Nilsson and Suardi (2012) report that these benefits may come in the form of lower cost for debt, and financial support and bail outs during a financial crisis.

Consistent with Shleifer and Vishny (1986), concentrated ownership by legal persons has monitoring benefits, which enhances firm performance (Xu and Wang, 1999 and Sun and Tong, 2003). The QFIIs may also establish (close) links with (fewer) concentrated owners or state bureaucracy. Under this explanation, QFIIs may view firms with state presence as safe havens. Concentration among few owners and bureaus may help the QFIIs in accumulating reliable information and it may also function as an insurance during volatile times.

Given the confounding effects ownership concentration and state ownership on information asymmetry, the Chinese setting is particularly challenging for foreign investors. The documented evidence on international institutional investors' stock preferences, together with the key characteristics of the Chinese firms lead to an expectation that QFIIs may demonstrate an aversion towards firms with concentrated ownership and political linkages.

[4] Among Chinese firms, state presence can lead to politically motivated election of the CEO (Fan, Wong and Zhang, 2007), and other types of government interferences, leading to reduced operating performance (Sun and Tong, 2003). These practices, along with reduced information transparency, are likely to send negative signals to potential foreign investors.

Our first hypothesis is based on the assumption that foreign institutional investors' behavior in China follows evidence from other markets.

Hypothesis I: We expect a positive relation between QFII holdings and firm market capitalization, dividend yield, return on assets, dummy for stocks in Shanghai Stock Exchange 180 Index (SSE180) and Shenzhen Stock Exchange Component Index (SICOM), and a dummy for cross-listed stocks. We also expect a negative relation between QFII holdings and firm idiosyncratic volatility and leverage.[5]

Our second hypothesis addresses the effects of ownership concentration and state presence, discussed above:

Hypothesis II: QFII holdings will be inversely linked to concentrated ownership, state presence and legal person ownership.

3. Data

3.1 QFII Holding Data description

Our sample includes all QFII holdings in the Chinese A-share markets from 2005 to 2011. The holdings for each foreign institutional investor are available on a quarterly basis, so in total, our sample consists of 28 quarters. Each record includes the total volume, market valuation, and the percentage of the tradable shares held by the QFII by the end of that quarter. For instance, in 2008Q2, the QFII Citi Bank held 71,850,806 shares in Vanke A (000002.SZ), and the market valuation of these shares was 647,370,000 RMB, which equaled 0.76 percent of total tradable shares of Vanke A. Our QFII holdings data is retrieved from the Wind database.

[5] SSE180 consists of 180 most representative A-share stocks listed on the Shanghai Stock Exchange; the index was developed on June, 2002. SICOM consists of 40 top companies that issue A-shares on Shenzhen Stock Exchange. This index was developed on July, 1994.

3.2 Distribution of QFIIs among countries and categories

CSRC requires each QFII to classify itself under one of the following categories: 1) asset management company, 2) insurance company, 3) security company, 4) commercial bank and 5) others. The category "others" includes pension funds, sovereign funds, university endowments, trust funds, etc. In our sample, we have only one QFII listed as an insurance company (The Dai-ichi Mutual Life Insurance Company). Therefore, we include the company in the "others" category, which leaves us with four groups of QFIIs. We also group QFIIs by their nationalities. Some QFIIs are obvious branches or subsidiaries of a parent company, such as Credit Suisse (Hong Kong) Limited or UBS Global Asset Management (Singapore) Ltd. For these QFIIs, we use Capital IQ to trace each parent company's country location to identify the QFII's original nationality.[6]

[Insert Table 1 about here]

Table 1 shows the distribution of QFIIs across categories and countries. Our sample includes 72 QFIIs. Among them, 31 are asset management companies, 5 are security companies, 25 are commercial banks and 11 are in group "others".[7] These QFIIs are from 15 different countries. Among them, the US has the largest number of QFIIs (19), followed by the UK (9), Japan (9) and Singapore (6). We further group countries into three regions, namely Anglo-Saxon, Europe and Asia. 32 QFIIs are from Anglo-Saxon countries while 16 and 24 QFIIs are from Europe and Asia, respectively.[8]

3.3 Variable description

[6] Both Credit Suisse (Hong Kong) Limited and UBS Global Asset Management (Singapore) Ltd are regarded as QFIIs from Switzerland.
[7] Our sample only includes those QFIIs that invested in the A-share market. A number of foreign institutions hold the QFII license but have no holdings in the A-share market during our sample period.
[8] Anglo-Saxon countries include US, UK, Canada and Australia.

We calculate the total foreign institutional holdings in a particular stock by aggregating the percentage ownership of QFIIs in that firm, each quarter. For example, foreign institutional ownership for a specific stock *i*, $FOWN_i$, is defined as

$$FOWN_i = \sum_{m=1}^{M} percentage\ of\ share\ holding\ by\ QFIIs\ in\ firm\ i\ in\ quarter\ t,$$

where the summation is operated across *m* number of QFII holdings in stock *i* for each quarter in the sample. Subsequently, we assign the quarterly *FOWN* estimate to each stock as calculated from above and firms with null *FOWN* in the quarter are assigned zero. We collect firm characteristics and stock prices for all firms listed on the Shanghai and Shenzen Stock Exchanges. We exclude all financial firms (CSRC industry code=I) since they have different accounting standards (Yuan et al., 2008). We collect stock data from Wind Database, and accounting data from RESSET.

Our choice of independent variables is based on prior literature. Essentially, the selected variables belong to one of three categories: 1) firm characteristics, 2) visibility and 3) variables on ownership concentration and political linkages. Following Kang and Stulz (1999), Dahlquist and Robertsson (2001) and Gompers and Metrick (2001), the first group of variables includes:

(i) AGE: firm age calculated as the number of months since first day return appears in Wind database.

(ii) DIV: dividend yield calculated as cash dividend (after-tax) divided by closing share price.

(iii) BM: book to market ratio, book value of total asset for the calendar year divided by market capitalization during the same year.

(iv) PRC: share closing price.

(v) TURN: average monthly turnover over the last 3 months.

(vi) VOL: volatility estimated as the standard deviation of monthly returns over the previous one year. [9]

(vii) $RET_{t-3,t}$: cumulative gross return over the past three months.

(viii) $RET_{t-12,t-3:}$ cumulative gross return over the nine months preceding the beginning of filing quarter.

(ix) Leverage: calculated as total debt divided by total assets.

(x) Current ratio: calculated as current assets divided by current liabilities.

(xi) ROA: return on asset, calculated as net income divided by book value of total assets.

The second category includes variables that have been linked with investor familiarization in the international home equity bias literature. The variables are:

(i) MKTCAP: We calculate market capitalization as share price times total shares outstanding, available from Wind database.

(ii) Crosslisting_dum: In order to test for relationship between QFII holdings and greater internationalization of a firm, we include a cross listing dummy variable which equals 1 if the stock is cross listed on an exchange outside mainland China. The cross-listed shares in our sample have their foreign listings in either the Hong Kong Stock Exchange (HKSE) or the New York Stock Exchange (NYSE).

(iii) S180_dum: The dummy variable equals 1 if the stock is included either in the Shanghai Stock Exchange 180 (SSE180) Index or the Shenzhen Stock Exchange Component (SICOM) Index. Both stock indices choose firms based on market capitalization, profitability, liquidity, and the market position of the firm in its industry. This variable, alongside testing for greater visibility preference of QFIIs, can also serve as proxy for a prudent investment.

[9] Gompers and Metrick (2001) and Yan and Zhang (2007) use previous two years standard deviation of stock returns to proxy volatility. Since many of Chinese firms are newly listed young firms, we use only one year's standard deviation to retain a larger sample.

(iv) Dome_lag: This variable denotes one lag of the domestic institutional ownership, we add it to observe potential herding behavior between foreign and domestic institutions.

The third category includes variables that are set to capture ownership concentration and political linkages.

(i) H5: Herfindal 5 index, an indicator for ownership concentration, calculated as the sum of squared percentage of shares held by each of the top five shareholders.
(ii) State own: captures the proportion of state-held shares at the end of each quarter.
(iii) Legal person own: is the proportion of legal person held shares at the end of each quarter.

State own and legal person own are the variables that proxy for level of political linkages of the Chinese firms in our sample.

We provide the summary statistics for all the stocks listed in the A shares market across SSE and SZSE in Table 2. On average, foreign institutions hold only 0.252% of firm's tradable A shares. The maximum ownership of QFIIs in a firm is more than 27 percent. The average (median) listing history of the firm is approximately 8.5 years (9 years) which highlights the short history of the capital market development in China.

The average dividend yield (0.6 percent) for the Chinese firms is substantially lower than the corresponding dividend yield in the U.S. (2.21%). This may suggest expropriation of outside/minority shareholders from controlling shareholders in Chinese listed firms. (see, e.g., Faccio et al. 2001). Of the total, 10.7% of the firms are part of the SS180 and SICOM index and only 3% of firms are cross listed on Hong Kong Stock Exchange and/or New York Stock Exchange. On average state own, legal person own make 17.9%, 16.3% of the shares in issue, respectively. The average leverage for a Chinese firm is 50 percent. This number is about twice the reported average leverage in Ferreira and Matos (2008) for the sample of firms

across 27 counties. Furthermore, the firms with political linkages have a greater leverage of 52 percent than the non-politically linked which have 48 percent (unreported results).[10]

[Insert Table 2 about here]

3.4 Difference in mean test

In Table 3, we report a comparison of summary statistics between firms with foreign investors (FOWN>0) and those with only domestic investors (FOWN=0), along with the t-statistic for the difference in means. We find that QFIIs on average use only 28 percent of the aggregate quota under QFII scheme, using yearly averages.

Most of the differences between the two groups are statistically different from zero at the 1 percent level of significance. The short history of the Chinese A-share market causes Chinese firms to be relatively uniform in age, which is a likely cause for AGE not to differ between the two groups.

Firms with foreign ownership have significantly higher market capitalization, dividend yield, price, ROA, and lagged domestic institutional ownership, and lower volatility and leverage. These findings suggest a preference for more prudent stocks among QFIIs, consistent with earlier findings from other markets. On average, QFIIs invest in 23 percent of the mega-cap stocks of the S180 and SICOM indices. Their holdings heavily tilted towards stocks that have greater visibility through presence in S180 dummy and cross listings in HKSE and NYSE, when compared non-QFII holdings. Firms with QFII presence also have higher lagged domestic institutional ownership, which suggests that foreign institutions herd domestic institutions.

[10] We assume the firms with more than 20 percent of state shares or legal person share are better politically linked than the remaining. The leverage between the groups does not change if we lower the threshold to be 10 percent to be regarded politically linked.

Firms with QFII holdings outperform those without foreign institutional investment by 3.4 percent in the preceding three quarters, and by 1.5 percent in the contemporaneous quarter. If the quarterly holdings are assumed to be rebalanced after one year, then on average, QFII is a feedback trader, investing in stocks that have performed well in 9 month period proceeding to the rebalancing quarter.

QFII-owned firms have a mean state ownership of 22% versus 17.4% for non-QFII owned firms. The Herfindahl index for top-5 owners is also significantly higher for the QFII-held sub-sample, at 20.5%, in comparison to 17.6% for the non-QFII sample.

[Insert Table 3 about here]

3.5 Decile descriptive statistics for firms with positive FOWN

To highlight the differences within the QFII-held sample for the firm-specific preferences, we divide the sample of firms with positive foreign ownership into 10 equal percentiles. The deciles are increasing in foreign ownership such that D1 is the decile with least QFII ownership, and D10 is the decile with the largest foreign ownership. These numbers also correspond to economical increases aligned with the increasing QFII holdings across deciles 1 to 10. The preference of mega capitalization stocks decreases as percentage ownership of QFIIs increases in the invested firms. Nonetheless, this average for none of the decile QFII drops less than the aggregate market average. The other strong patterns across deciles include are increases in dividend yield, closing stock prices and ROA, and decreases in liquidity and volatility. The firms that attract highest QFII holdings (D10) are significantly less levered than the firms with least QFII holding (D1) decile. Lagged domestic institutional holdings do not have a monotonically increasing effect on QFII hodlings across deciles, but they are systematically higher for high holdings deciles.

Once again, the most surprising monotonic increases are in state ownership and legal person ownership with the increasing foreign ownership across the 10 sample firm partitions. All the difference in mean t-values are significant between 1 to 10 percent confidence values except for the differences in previous three quarter cumulative return, S180 dummy, H5 concentration and current ratio. This suggests that the aggregate group has common preferences for firms that have performed well in last 3 quarters running to the current quarter, are indexed in S180 dummy and on average have average H5 concentration around 20 percent of the shares in issue.

[Insert Table 4 about here]

4. Empirical results

4.1 Methodology

In selecting an appropriate modeling approach, we must recognize that foreign institutional investors do not invest in all stocks in the A-share market. In fact, they seem quite picky when selecting stocks. Between 2005 and 2011, QFIIs only invested in between 100 and 200 different stocks each year (Wang, 2014).[11] Given the large proportion of firms with zero foreign institutional investor holdings, Wooldridge (2002) suggests a corner solution outcome, and a Tobit model can be appropriately used to analyze such a data set.

Given the panel feature of our data, one ideal regression method would be the fixed-effect Tobit model, as a fixed-effect model alleviates the bias caused by potential omitted variables and captures the firm individual effect. However, there is no conditional estimator for fixed-effect Tobit model, because no sufficient statistic exist, allowing the fixed effects to

[11] As we mentioned in the introduction, there are more than 2000 stocks listed in Shanghai and Shenzhen Stock Exchange.

be conditioned out of the likelihood.[12] Moreover, the unconditional estimator of the model is not efficient, as Greene (2004) shows that the maximum likelihood estimator of the disturbance variance in the linear regression model is biased downward, which leads to a biased (although consistent) estimator of the fixed-effect Tobit model. Therefore, due to the infeasibility of the fixed-effect Tobit model, and in order to account for both time-series and cross-sectional variation in our data, we estimate random-effect Tobit model instead[13]. Specifically, for stock i, for each quarter from the first quarter of 2005 to the fourth quarter of 2011, we propose a random-effect Tobit model[14] of foreign institutional ownership on the above mentioned firm characteristics:

$$\begin{aligned} FOWN_{i,t}^{*} = {} & \alpha_0 + \alpha_1 BM_{i,t} + \alpha_2 MKTCAP_{i,t} + \alpha_3 VOL_{i,t} + \alpha_4 TURN_{i,t} + \alpha_5 PRC_{i,t} + \alpha_6 AGE_{i,t} + \\ & \alpha_7 DIV_{i,t} + \alpha_8 RET_{i,t-3,t} + \alpha_9 RET_{i,t-12,t-3} + \alpha_{10} S180\_DUM_{i,t} + \alpha_{11} Leverage_{i,t} + \\ & \alpha_{12} Currt_{i,t} + \alpha_{13} H5 + \alpha_{14} ROA_{i,t} + \alpha_{15} Crosslisting\_dum_{i,t} + \alpha_{16} Stateown_{i,t} + \\ & \alpha_{17} Legalperson\_own_{i,t} + \alpha_{18} Dome\_lag_{i,t} + \varepsilon_{i,t} \end{aligned}$$

where $FOWN_i = \max(0, FOWN_i^{*})$. (1)

4.2 Stock preferences of QFIIs for the full period and sub periods

We first examine the stock preferences of QFIIs for the full period. Then, we divide our sample into two sub-periods to examine whether QFIIs' preferences shift over time in light of Bennett et al. (2003).

Table 5 illustrates our main results. For the full period, foreign institutional investors show strong preference for larger firms, stocks with a higher turnover rate, and a higher BM ratio. Large firms are more likely to sell goods abroad and thereby be better known

[12] Note that Falkenstein (1996) employs a semiparametric approach which is so called censored least absolute deviations (CLAD). However, Greene (2004) contends that such a semiparametric approach will "sacrifice most of the interesting content of the analysis in the interest of robustness".

[13] Kang and Stulz (1997) use a similar approach when investigating foreign ownership and firm characteristics in Japan.

[14] It is noteworthy to mention that the random-effect Tobit model is calculated by using quadrature, in which the number of integration points used will partially affect the accuracy of the approximation. Therefore, we report our regression results after checking sensitivity of the quadrature approximation.

internationally (Kang and Stulz 1997). High turnover rate reduces foreign institutions' liquidity risk, while the higher BM ratio suggests that QFIIs prefer value stocks.

Among the prudence proxies, SSE180 and SICOM index membership seem to attract foreign ownership, QFIIs shy away from stocks with high volatility. However, other prudence proxies, i.e., dividend yield and age are both significantly negatively associated to the foreign institutional ownership. The preference of foreign institutions for firms paying low cash dividends can be motivated by the tax advantage they may face with respect to the tradeoff between capital gains and dividends (Dahlquist and Robertsson, 2001). In China, cash dividends are immediately taxable to shareholders as income, but no tax on capital gains exists during our sample period.

The coefficients on both past return measures ($RET_{t-3,t}$ and $RET_{t-12,t-3}$) are positive and significant. However, a positive association with lagged returns does not necessarily suggest positive feedback trading (Bennett et al. 2003), because the association can be caused by a positive relation between foreign holdings and size, and size and lagged returns. In addition, endogeneity could also be a concern, as returns could be either causes or consequences of foreign institutional holdings.

We also find that QFIIs prefer financially healthy and profitable firms, that is, firms with less financial distress and higher profitability. Both leverage and current ratio enter with negative and significant coefficients, and the coefficient on ROA is positive and significant. Therefore, our results support most of the predictions in hypothesis 1.

We further note that foreign institutions hold fewer shares in firms with concentrated control rights (herfindal 5), which is consistent with Doidge et al. (2006) who find that US institutions invest less in firms with large block ownership. In contrasts to Ferreira and Matos (2008), foreign institutions in China do not overweight firms that are cross listed abroad. Consistent with our earlier results, QFIIs prefer firms with higher state ownership and higher

legal person ownership. Finally, the coefficient on Dome_lag is positive and significant. This suggests that foreign institutions take the domestic institutional ownership into consideration and follow their investment patterns.

Our attention turns now to the results from the sub-periods. We observe a clear shift in QFII preferences over time. It seems that the early period is more consistent with findings from other markets. For instance, we observe that in the early sub-period, foreign institutions avoid volatility and leverage, whereas they are drawn to past returns, firms with an index membership, and cross-listed firms. They also tend to herd after domestic institutions only in the early sub-period. Meanwhile, our finding of preference for firms with state and legal person ownership appears driven by the more recent sub-period. These results suggest that after the initial years investments in China, QFIIs obtain some local knowledge, they no longer herd to the domestic institutions in the second period of our sample, and in order to reduce the informational asymmetry as foreigners, they turn to invest more state-owned firms with prudent characteristics as an insurance plan. In untabulated results, we also show that our results are not driven by those newly added QFIIs for the second period. It is also notable that we find in another set of untabulated results that while the alphas of the QFII portfolios are not significantly different from zero in either sub-period, they shift from weakly negative to weakly positive, and the shift itself is statistically significant.

[Insert Table 5 about here]

4.3 Stock preferences of QFIIs from different regions

In this section, we examine investment preferences of QFIIs from different countries and regions. We report our findings in Table 6. Note that due to the large amount of zeros in the dependent variable, random-effect Tobit model is no longer feasible, so we use fixed-effect panel data regression to estimate our results, and our sample consists of only positive observations for each specified group of FOWN.

In columns 1 to 3, we focus on US, UK and Japan because QFIIs form these three countries represent 51 percent our entire sample. We find foreign institutional investors from these three countries to present some similarity to previous results in Table 4 and Table 5. As shown in Table 6, we observe negative coefficients on BM, MKTCAP and TURN, this is because, as indicated in table 4, foreign institutions do not invest the most in those stocks with the largest BM, MKTCAP or TURN, but they invest in stocks with moderately higher BM, MKTCAP or TURN ratios which can be observed in table 5.

We find that institutional investors from US, UK, and Japan prefer stocks with better financial health proxied by firm leverage, and stocks issued by younger firms. Consistent with the full sample results reported in Table 5, we find QFIIs from these three countries to hold fewer positions in firms with concentrated control rights (herfindal 5), which could be a potential source of agency problem and value appropriation of minority shareholders. The coefficient on stateown is particularly strong for US institutions.

In columns 4 to 6, we examine QFIIs according to their regions, and broadly categorize all sample QFIIs into three regions: Anglo-Saxon, Europe and Asia. We find that our findings vary significantly across different regions. For example, investors from Anglo-Saxon region prefer firms with larger state ownership and lower ownership concentration. Institutional investors from Asia invest more in stocks with better stock market performance in the past.

[Insert Table 6 about here]

4.4 Stock preferences of QFIIs from different categories

In Table 7, we look at investment preferences of QFIIs from different categories. Different types of institutional investors tend to have different preferences in terms of portfolio construction (Aggarwal et al., 2005). We find all institution types prefer stocks with

lower BM ratio. The strongest effects are among commercial banks, and for instance the finding regarding state ownership appears driven to a large extent by that group.

[Insert Table 7 about here]

5. Conclusion

It has been more than 10 years since the first transaction was made by a QFII (UBS AG) on July 9, 2003. Throughout the decade, the QFII scheme has developed rapidly, and QFIIs now play an important role in the Chinese capital markets. In this paper, we employ a comprehensive data set to thoroughly examine the determinants of their holdings. We choose three sets of variables that capture different types of features, which are 1) firm characteristics, 2) visibility and 3) ownership concentration and political linkages.

In the descriptive analysis, we document a significant difference in stock characteristics between QFII holdings and firms with no QFII holdings. We also find a significant difference within the QFII-held sample between the most QFII held stocks (decile 10) and the least QFII held stocks (decile 1). Our findings stand in contrast to Dahlquist and Robertsson (2001), as the largest firms in China do not receive the most QFII investments, but the moderately large firms (mean=9660 mil RMB) do. Our results from the random-effect Tobit model indicate that QFII holdings exhibit some persistence over time and over increases of quota limitations, though some differences do exist. Further, we also find differences and similarities of holding features in different QFII categories and different regions.

We believe that the most interesting part of our results is that QFIIs have over time begun to follow investment patterns that deviate from institutional investor preferences in other countries. In particular, QFIIs have tilted their investments more towards firms with high state ownership.

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Table 1 Distribution of QFIIs across categories and countries

	Asset management companies	Security companies	Commercial banks	Others	Sum
Australia	1	0	0	0	1
Canada	1	0	1	1	3
France	1	0	4	0	5
Germany	1	0	1	0	2
Hong Kong	2	0	1	0	3
Japan	4	4	0	1	9
Korea	1	0	1	2	4
Netherlands	1	0	3	0	4
Norway	0	0	0	1	1
Singapore	2	0	3	1	6
Swiss	2	0	2	0	4
Taiwan	0	1	0	0	1
UAE	0	0	0	1	1
UK	6	0	3	0	9
US	9	0	6	4	19
Sum	31	5	25	11	72
Anglo Saxon	17	0	10	5	32
Europe	5	0	10	1	16
Asia	9	5	5	5	24

This table shows the distribution of QFIIs for categories and countries. Our sample period is from 2005Q1 to 2011Q4. We group the QFIIs into four categories. Anglo-Saxon countries include Australia, Canada, UK and US.

Table 2 Descriptive statistics

	mean	median	S.D.	min	max
Fown(%)	0.252	0	1.165	0	27.29
MKTCAP(mil,RMB)	8540	2900	58800	109	5670000
AGE(month)	100.84	105	59.384	0	252
BM	0.942	0.700	0.763	0.093	3.997
DIV(dividend/closing price)	0.006	0.002	0.009	0	0.044
PRC (RMB)	12.78	8.975	12.661	0.68	273.99
VOL	0.081	0.071	0.041	0.023	0.252
TURN	0.317	0.248	0.255	0.0005	2.534
$RET_{t-3,t}$	0.011	0.001	0.598	-106.53	37.37
$RET_{t-12,t-3}$	0.049	0.042	0.648	-106.496	15.542
S180_dum	0.107	0	0.309	0	1
Crosslisting_dum	0.03	0	0.171	0	1
Stateown	0.179	0	0.230	0	0.743
Leverage	0.501	0.500	0.257	0.044	1.756
Current ratio	0.021	0.013	0.029	0.002	0.198
H5	0.179	0.150	0.122	0.013	0.557
Legal person own	0.163	0.018	0.225	0	0.75
ROA	0.025	0.018	0.045	-0.155	0.178
Dome_lag	0.110	0.064	0.127	0	0.552

The table reports the descriptive statistics. Our sample period is from 2005Q1 to 2011Q4. The data are obtained from Wind Database and RESSET. FOWN is total foreign institutional ownership in tradable shares. MKTCAP is market capitalization in million RMB. AGE is firm age measured as the number of months from the first day of return appears on Wind. BM is book to market ratio and it is winsorized at the 1^{st} and 99^{th} percentile. DIV is cash dividend (after tax) divided by stock closing price; DIV is winsorized at the 1^{st} and 99^{th} percentile. PRC is stock closing price, and is denoted in RMB. VOL is the monthly volatility over the previous one year. TURN is average monthly turnover rate over the previous quarter. Quarterly RET is cumulative gross return over the current quarter. $RET_{t-12,t-3}$ is cumulative gross return over the nine months preceding the beginning of filing quarter. S180_dum is a dummy variable takes the value of one if the stock is included in Shanghai 180 Index or Shenzhen Component Index, zero otherwise. Crosslisting_dum is a dummy variable equals to 1 if the firm is cross-listed in Hong Kong Stock Exchange and/or New York Stock Exchange and zero otherwise. Stateown is state ownership fraction of the firm. Leverage is calculated as total debt divided by total asset. Current ratio is calculated as current assets divided by current liabilities, and can be proxied as firm ability to pay short term obligations. H5 denotes Herfindal 5 index. Legal person own denotes the legal person ownership fraction of the firm. ROA denotes return on asset, ROA is winsorized at the 1^{st} and 99^{th} percentile. Dome_lag denotes one lag of domestic institutional ownership.

Table 3 Difference in mean test, QFII holding vs Non QFII holding firms

	Mean (QFII holding)	Mean (non-QFII holding)	difference	t-stat
MKTCAP(mil,RMB)	14600	7880	6690	7.130***
AGE(month)	101.109	100.838	0.271	0.286
BM	0.924	0.944	-0.021	-1.696*
DIV(dividend/closing price)	0.010	0.006	0.004	27.934***
PRC (RMB)	15.480	12.489	2.991	14.824***
VOL	0.068	0.082	0.014	20.497***
TURN	0.291	0.320	-0.029	-7.019***
$RET_{t-3,t}$	0.026	0.010	0.016	1.669*
$RET_{t-12,t-3}$	0.079	0.045	0.034	3.158***
S180_dum	0.230	0.094	0.136	27.819***
Crosslisting_dum	0.052	0.028	0.024	8.729***
Stateown	0.222	0.174	0.048	13.199***
Leverage	0.479	0.504	-0.025	-6.061***
Current ratio	0.019	0.022	-0.003	-5.988***
H5	0.205	0.176	0.029	14.889***
Legal person own	0.141	0.165	-0.024	-6.652***
ROA	0.041	0.024	0.017	24.252***
Dome_lag	0.145	0.107	0.039	18.809***

This table reports difference in mean tests of stock characteristics between two groups, i.e., QFII holding stocks and non-QFII holding stocks. Please refer to table 2 about the variable descriptions. We report the two tailed t-statistics in the last column. *** denotes significance at the 1 percent level. ** denotes significance at the 5 percent level. * denotes significance at the 10 percent level.

Table 4 Decile descriptive statistics,

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D10-D1	mean	median
Fown(%)	0.296	0.567	0.804	1.102	1.471	1.900	2.418	3.282	4.672	9.226	8.930***	2.570	1.675
MKTCAP(mil,rmb)	20800	23400	15900	14600	18300	12200	11400	10500	8810	9660	-11100***	14600	5540
AGE(month)	110.544	103.447	110.184	105.517	104.912	97.167	99.067	98.106	96.150	86.023	-24.522***	101.1	104
BM	1.080	1.042	1.011	0.930	0.792	0.875	0.824	0.933	0.872	0.872	-0.208***	0.942	0.696
DIV(dividend/closing price)	0.007	0.009	0.009	0.009	0.009	0.009	0.010	0.010	0.011	0.013	0.005***	0.010	0.006
PRC (RMB)	11.439	11.222	13.193	14.862	16.730	16.443	17.187	15.507	15.276	13.770	2.647***	15.480	11.515
VOL	0.076	0.075	0.070	0.067	0.061	0.066	0.064	0.067	0.066	0.068	-0.008***	0.068	0.063
TURN	0.374	0.358	0.348	0.299	0.291	0.279	0.279	0.263	0.240	0.215	-0.150***	0.291	0.225
$RET_{t-3,t}$	0.014	0.008	0.015	0.028	0.026	0.026	0.037	0.037	0.032	0.037	0.023**	0.026	0.016
$RET_{t-12,t-3}$	0.063	0.071	0.064	0.067	0.089	0.090	0.090	0.075	0.107	0.081	0.020	0.079	0.072
S180_dum	0.256	0.237	0.280	0.258	0.265	0.242	0.235	0.187	0.189	0.231	-0.026	0.230	0
Crosslisting_dum	0.088	0.065	0.034	0.035	0.029	0.064	0.065	0.022	0.044	0.057	-0.029*	0.052	0
Stateown	0.175	0.206	0.228	0.203	0.211	0.215	0.237	0.208	0.262	0.285	0.112***	0.222	0.086
Leverage	0.498	0.473	0.499	0.474	0.448	0.470	0.488	0.502	0.482	0.455	-0.043***	0.479	0.487
Current ratio	0.018	0.019	0.018	0.019	0.020	0.022	0.019	0.020	0.017	0.016	-0.003	0.019	0.013
H 5	0.235	0.205	0.212	0.206	0.196	0.177	0.196	0.185	0.206	0.233	-0.002	0.205	0.181
Legal person own	0.095	0.101	0.110	0.120	0.116	0.153	0.153	0.169	0.182	0.209	0.114***	0.141	0.002
ROA	0.027	0.031	0.036	0.040	0.047	0.047	0.048	0.044	0.045	0.045	0.018***	0.041	0.031
Dome_lag	0.087	0.088	0.117	0.144	0.160	0.184	0.177	0.171	0.170	0.155	0.068***	0.110	0.064

This table reports decile descriptive statistics. Please refer to table 2 about the variable descriptions. The sample includes only positive QFII ownership (n=4344), the numbers in D1 to D10 are the mean in each decile sorted by Fown(%).D1 is the decile with least QFII ownership, and D10 is the decile with the largest foreign ownership. *** denotes significance at the 1 percent level. ** denotes significance at the 5 percent level. * denotes significance at the 10 percent level.

Table 5 Random-effect Tobit estimation: determinants of FOWN in tradable shares, for the full period and periods with different quota limitation

	Dependent: FOWN		
	Full period 2005Q1-2011Q4	First half 2005Q1-2008Q2	Second half 2008Q3-2011Q4
BM	0.129* (0.068)	0.906*** (0.274)	0.202* (0.118)
MKTCAP	0.347*** (0.052)	1.556*** (0.212)	0.475*** (0.105)
VOL	-0.415*** (0.079)	-1.387*** (0.293)	0.030 (0.123)
TURN	0.146*** (0.044)	0.891*** (0.136)	0.184** (0.079)
PRC	-0.076 (0.087)	-0.773** (0.330)	0.318* (0.165)
AGE	-0.340*** (0.060)	-0.916*** (0.267)	0.157 (0.115)
DIV	-0.080*** (0.013)	-0.165*** (0.044)	-0.052** (0.022)
$RET_{t-3,t}$	0.707*** (0.110)	1.281*** (0.268)	0.237 (0.356_
$RET_{t-12,t-3}$	0.518*** (0.081)	-0.038 (0.296)	0.311* (0.167)
ss180 index_dum	0.903*** (0.146)	1.398*** (0.540)	0.578* (0.308)
crosslisting_dum	0.128 (0.196)	1.425** (0.681)	-0.369 (0.378)
stateown	2.149*** (0.160)	0.325 (0.689)	1.707*** (0.278)
leverage	-0.673*** (0.220)	-3.289*** (0.905)	-0.577 (0.397)
current ratio	-10.948*** (2.045)	-33.323*** (11.470)	-7.893** (3.254)
H5	-0.458 (0.368)	1.869 (1.369)	-0.327 (0.706)
legal person own	1.583*** (0.171)	0.045 (0.651)	1.387*** (0.316)
ROA	5.718*** (0.790)	13.079*** (2.748)	3.260*** (1.137)
Domestic_inst_lag	1.436*** (0.247)	4.804*** (0.906)	-0.578 (0.415)
Constant	-11.395*** (1.011)	-38.180*** (4.202)	-16.756*** (2.073)
No. of observations	36291	14679	21612

Note: The dependent variable is FOWN. The regression is specified as function (1). The regression results are checked by using "quadchk" of Stata. Please refer to table 2 about the variable descriptions. BM, MKTCAP, VOL, TURN, PRC, AGE, DIV are all in log form.

Table 6 Determinants of FOWN from different countries and regions: Fixed-effects regression

	US	UK	Japan	Anglo Saxon	Europe	Asia
BM	-1.127***	-0.582***	-0.573	-1.176***	-0.436**	-0.751**
	(0.406)	(0.188)	(1.000)	(0.333)	(0.204)	(0.328)
MKTCAP	-0.680*	-1.560***	-0.381	-1.009***	-0.865***	-0.189
	(0.359)	(0.232)	(1.004)	(0.319)	(0.278)	(0.650)
VOL	-0.144	0.227	-0.962	-0.129	0.111	-0.329
	(0.236)	(0.179)	(0.632)	(0.246)	(0.273)	(0.240)
TURN	-0.339***	-0.074	-0.056	-0.340***	-0.368***	-0.127
	(0.094)	(0.082)	(0.292)	(0.102)	(0.132)	(0.098)
PRC	-0.246	1.122***	-0.140	-0.025	0.118	-0.792
	(0.522)	(0.254)	(1.263)	(0.510)	(0.271)	(0.645)
AGE	-1.033***	0.068	-4.388**	-1.056***	-0.557	-1.547
	(0.357)	(0.300)	(1.752)	(0.379)	(0.553)	(1.492)
DIV	-0.008	0.017	0.146	-0.003	-0.065*	-0.032
	(0.033)	(0.035)	(0.093)	(0.029)	(0.037)	(0.027)
$RET_{t-3,t}$	0.650	0.244	2.460***	0.643	0.758*	0.975***
	(0.522)	(0.414)	(0.906)	(0.543)	(0.397)	(0.370)
$RET_{t-12,t-3}$	0.345	0.099	0.684	0.276	0.398	0.650**
	(0.262)	(0.182)	(0.801)	(0.278)	(0.260)	(0.306)
crosslisting_dum	-1.043***	-0.768	0.667	-1.159***	0.196	0.834
	(0.230)	(0.482)	(1.311)	(0.339)	(0.670)	(1.272)
stateown	1.897***	0.647*	2.013	1.713***	1.051*	0.683
	(0.471)	(0.339)	(1.468)	(0.462)	(0.540)	(0.528)
leverage	1.311	-0.883	2.049	1.495	0.250	0.848
	(1.338)	(0.610)	(4.311)	(1.652)	(1.092)	(1.276)
current ratio	5.466	-3.424	97.242	3.162	5.383	0.683
	(6.152)	(5.074)	(58.953)	(6.195)	(4.964)	(0.528)
H5	-3.562**	-3.358**	-9.242	-4.582***	2.615	1.352
	(1.541)	(1.628)	(6.964)	(1.753)	(2.478)	(2.067)
legal person own	0.748	0.651**	0.906	0.512	0.774	0.896
	(0.556)	(0.317)	(1.552)	(0.545)	(0.520)	(0.774)
ROA	-2.219	-1.350	6.445	-1.936	1.837	1.349
	(1.669)	(1.112)	(5.129)	(1.541)	(1.436)	(1.430)
Domestic_inst_lag	0.030	-0.256	1.183	0.036	0.047	1.206*
	(0.703)	(0.398)	(1.967)	(0.623)	(0.638)	(0.720)
Constant	21.020***	35.123***	26.171	28.314***	21.949***	12.269
	(6.871)	(4.282)	(19.678)	(6.081)	(5.032)	(8.245)
No. of observations	1543	449	254	1831	2182	872

Note: The dependent variable is FOWN. The regression is specified as function (1). The regression results are checked by using "quadchk" of Stata. Please refer to table 2 about the variable descriptions. BM, MKTCAP, VOL, TURN, PRC, AGE, DIV are all in log form.
ss180 index_dum is omitted due to collinearity

Table 7 Determinants of FOWN from different categories Random-effect Tobit model

	Asset management firms	Commercial banks	Security firms	Others
BM	-0.719**	-0.772**	-1.060**	-0.945***
	(0.284)	(0.320)	(0.515)	(0.313)
MKTCAP	-0.241	-1.181***	-0.088	-1.171***
	(0.526)	(0.324)	(1.214)	(0.336)
VOL	-0.286*	-0.016	-0.005	0.303*
	(0169)	(0.307)	(0.104)	(0.165)
TURN	-0.205**	-0.455***	-0.030	-0.079
	(0.080)	(0.126)	(0.122)	(0.066)
PRC	-0.458	0.314	-1.086*	0.655**
	(0.440)	(0.402)	(0.603)	(0.321)
AGE	-1.531	-1.525***	-1.850	1.332***
	(1.004)	(0.460)	(1.564)	(0.339)
DIV	-0.066**	-0.063*	0.007	0.014
	(0.027)	(0.036)	(0.023)	(0.030)
$RET_{t-3,t}$	0.735**	0.816	0.206	-0.487
	(0.362)	(0.551)	(0.623)	(0.346)
$RET_{t-12,t-3}$	0.515*	0.271	-0.050	-0.351
	(0.289)	(0.278)	(0.537)	(0.222)
crosslisting_dum	0.079	-0.068	Omitted	-0.484***
	(0.775)	(0.666)		(0.184)
stateown	0.374	2.175***	1.335	0.904**
	(0.561)	(0.641)	(1.009)	(0.376)
leverage	0.229	2.012	3.092***	2.958***
	(0.795)	(1.709)	(0.850)	(0.748)
current ratio	-3.426	7.617	-14.809	5.373
	(4.815)	(6.852)	(15.978)	(5.682)
H5	1.893	-2.105	-23.604*	-1.731
	(2.031)	(2.614)	(13.428)	(2.562)
legal person own	1.457*	0.665	0.470	1.295**
	(0.810)	(0.503)	(0.966)	(0.557)
ROA	0.637	1.653	-1.085	0.601
	(0.887)	(1.647)	(3.481)	(0.923)
Domestic_inst_lag	0.696	0.304	0.665	0.668
	(0.623)	(0.749)	(0.847)	(0.565)
Constant	12.932*	32.521***	17.156	19.196***
	(7.804)	(6.105)	(18.556)	(6.019)
No. of observations	1070	2868	80	515

Note: The dependent variable is FOWN. The regression is specified as function (1). The regression results are checked by using "quadchk" of Stata. Please refer to table 2 about the variable descriptions. BM, MKTCAP, VOL, TURN, PRC, AGE, DIV are all in log form.