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FOREIGN INSTITUTIONAL INVESTORS,
INFORMATION ADVANTAGE,
AND EQUITY RETURNS:
EVIDENCE FROM CHINA

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M.Phil

The Hong Kong Polytechnic University

2015

The Hong Kong Polytechnic University

School of Accounting and Finance

**Foreign Institutional Investors, Information Advantage, and
Equity Returns: Evidence from China**

ZHANG BO

**A thesis submitted in partial fulfillment of the requirements for
the degree of Master of Philosophy**

August 2014

Certificate of Originality

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To my parents

Abstract

Using foreign and domestic institutional ownership data in Chinese A-share markets, we document a significantly positive relation between the level of foreign institutional ownership and future stock returns after controlling for several explanatory variables of the cross-sectional stock returns, including firm size, book-to-market ratio and past returns. More importantly, change in foreign institutional ownership forecasts future stock returns. This return predictability is stronger for small and young firms with greater information asymmetries and does not reverse in the long run. By contrast, neither the level of nor change in domestic institutional ownership predicts future stock returns. Overall, our results are consistent with the perspective that foreign institutional investors in China are better informed because of their superior information-processing capability.

Key words: foreign investors; information advantage; return predictability; stock preferences; China

Acknowledgements

I would like to take this opportunity to express my sincere gratitude to my Chief Supervisor, Prof. Wilson Tong, for his continuous supervision, insightful comments and generous financial support during my MPhil study. I also would like to thank my two Co-Supervisors, Dr Steven Wei and Dr Byoung Uk Kang for their kind help. Finally, I would like to thank my parents for their unconditional love.

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Chapter 1

Introduction

Whether foreign or domestic investors have an information advantage in stock investments remains an open question. The existing literature presents mixed findings. Some document that foreign investors outperform domestic investors, suggesting that they are better informed. For example, Grinblatt and Keloharju (2000) argue that as a result of better access to expertise and talent, foreign investors should perform better than domestic investors. They find that foreign investors buy more stocks that have superior performance in the next 120 days than do domestic investors in Finland stock market. Froot and Ramadorai (2008) find that cross-border equity flows from US to a cross-section of 25 countries forecast both the NAV (net asset value) and price returns of closed-end funds, suggesting that foreign investors are more informed, who can perceive relevant fundamentals better than domestic investors, affect purchases or sales when they anticipate movements in these fundamentals. Huang and Shiu (2009) find that stocks with high foreign ownership outperform stocks with low foreign ownership in Taiwan market, consistent with that foreign investors possess an information advantage over domestic investors.

However, others discover that foreign investors underperform domestic investors, which implies they have an information disadvantage. For example, Shukla and van Inwegen (1995) find that UK mutual funds investing in the US perform worse than US domestic funds and conclude that information and relationship disadvantages contribute to the poor performance

of UK managers. Hau (2001) applies German trading data for professional traders and shows that domestic traders perform better than foreign traders. Choe et al. (2005) show that foreign investors pay more than domestic investors when they buy and receive less when they sell in the South Korean market. Dvořák (2005) find that domestic investors have higher profits than foreign investors in Indonesian market and they attribute it to the information advantage possessed by domestic investors. Baik et al. (2013) find that foreign institutional trading is significantly negatively related to future stock returns in U.S. markets, indicating that foreign institutional investors are at an information disadvantage. In addition, both Kang and Stulz (1997) using Japanese data and Dahlquist and Robertsson (2004) using Swedish data find very little evidence that foreign investors either possess an information advantage or disadvantage. Such contradictory findings show that the results are far from conclusive, which might vary with different market environments.

In this study, we contribute to this controversy by offering new evidence on China. As an emerging market, China has several characteristics which are useful to examine the information advantage of foreign institutional investors. First, Bailey et al. (2007) find that foreign investors have superior information-processing ability, which constitutes a barrier that serves to segment local and foreign investors quite significantly. Moreover, prior literature often argues that such capability greatly helps foreign institutional investors gain an information advantage in stock investments. As the sophistication of foreign institutional investors is more pronounced in emerging markets (Huang and Shiu, 2009), we expect that foreign institutional

investors can better process firm-specific and broad (market- or industry-wide) information into more value-relevant private information than domestic institutional investors in emerging markets, which results in their information advantage.

Second, as with other emerging markets, stock markets in China feature low quality of accounting disclosure, low transparency of firm operation and poor quality of information on the market (Chen et al., 2013). This lack of transparency increases the level of information asymmetry about a firm's prospect for external investors. As the value of private information increases with the degree of informational asymmetry (Chung et al., 1995) and informed traders exploit and eliminate mispricing more aggressively when their private information becomes more valuable (Bloomfield et al., 2005), we expect foreign institutional investors would more actively capitalize on their information advantage to earn higher profits before their private information is impounded into stock prices in emerging markets. In fact, Chen et al. (2009) suggest that investor sophistication in interpreting the same information is potentially an important determinant of investment performance differences across foreign and domestic investors. Therefore, we hypothesize that *change in foreign institutional ownership is positively related to future stock returns in China.*

Third, the launch of Qualified Foreign Institutional Investors (QFIIs) scheme in 2002 provides us with an ideal opportunity to examine this issue in China. After the introduction of QFIIs scheme, foreign institutional investors are permitted to directly invest in domestic A-share markets. Furthermore, the accurate and comprehensive institutional ownership data available from

standard database also facilitate our research. Finally, considering that China is among the fastest growing economies worldwide and Chinese stock markets have developed rapidly since their establishment in the early 1990s, evidence from China on this issue should be interesting and timely.

The aim of this paper is to examine whether information advantage of foreign institutional investors helps explain their superior performance in stock investments in China. Using foreign and domestic institutional ownership data in Chinese A-share markets, we first examine whether foreign and domestic institutional investors have different stock preferences. We then examine the relation between foreign institutional ownership and future stock returns. More importantly, we examine whether foreign institutional trading, i.e., change in foreign institutional ownership, contains more information about future stock returns.

We find that both foreign and domestic institutional investors prefer large firms, consistent with prior literature mainly focusing on developed markets.¹ Furthermore, both of them show a preference for stocks with high price and low return volatility. While domestic institutional investors prefer young firms, firms with low turnover and high past returns, foreign institutional investors are indifferent in these characteristics. In addition, both foreign and domestic institutional investors are momentum traders in China.

We document a foreign institutional ownership effect in Chinese A-share markets using portfolio approach. Specifically, we construct a hedge portfolio that is long (short) in the portfolio of stocks with the highest (lowest) levels of foreign institutional ownership to generate significantly positive

¹ See Falkenstein (1996); Kang and Stulz (1997); Dahlquist and Robertsson (2001); Gompers and Metrick (2001); Ferreira and Matos (2008); Yan and Zhang (2009); Baik et al. (2013).

returns both before and after risk-adjustment.² By contrast, the return differences are insignificant for portfolios sorted by level of domestic institutional ownership. The multivariate regression analyses further show that the level of foreign institutional ownership remains significantly and positively related to future returns after controlling for various stock characteristics including size, book-to-market, and past returns which are known to explain the cross-sectional stock returns, while such relation is insignificant for domestic institutional ownership.

To test whether the forecasting ability of foreign institutional ownership results from temporal demand shocks or informational advantage, we decompose the current institutional ownership into lagged institutional ownership and change in institutional ownership, i.e., institutional trading, based on the methodology of Gompers and Metrick (2001).³ Our results show that the lagged foreign institutional ownership is significantly positively related to future returns, which suggests that demand shocks by foreign institutions have an impact on future returns. More importantly, foreign institutional trading positively and significantly relates to future returns, which thus lends support to the perspective that foreign institutional investors are more informed. By contrast, neither domestic institutional trading nor lagged domestic institutional ownership is significantly related to future returns. Moreover, the foreign institutional trading has stronger predictive

² We calculate both equal-weighted and value-weighted portfolio returns and the significance holds for both methods.

³ Gompers and Metrick (2001) argue that since the institutional ownership is fairly stable over time, the lagged institutional ownership should be almost as good a proxy for temporal demand shocks as current institutional ownership, where demand shocks refer to the time-series fluctuations in institutional flows. And institutional trading is a proxy for information advantage. See Gompers and Metrick (2001) for details.

power for small and young firms with greater information asymmetries.

An alternative explanation for our results is that foreign institutional investors are short-term focused so that they will pressure managers to maximize short-run earnings at the expense of long-run firm value, i.e., short-term pressure hypothesis (Bushee, 1998; Bushee, 2001). Although such hypothesis may explain return forecasting ability of foreign institutional ownership and trading, it also implies the price reversal in the long run. To test this prediction, we re-examine the relation between foreign institutional ownership and trading and future stock returns up to three years, since one year may not be long enough for stock price to revert to their fundamental values. We find no evidence on the existence of long-run price reversal for stocks held or bought by foreign institutional investors, which means our results cannot be explained by short-term pressure hypothesis.

The contributions of this paper are threefold. First, our study contributes to the ongoing debate over whether or not foreign investors are more informed and its impact on equity returns. Using foreign and domestic institutional ownership data in China, we find that foreign institutional ownership and trading have strong return predictability, which lends support to that foreign institutional investors are more informed. Second, this study extends the literature on the informational role of heterogeneous institutional investors in stock markets. Yan and Zhang (2009) find that institutional investors with different investment horizon are differentially informed and short-term institutions are better informed relative to long-term institutions and they trade actively to exploit their informational advantage. Baik et al. (2010) examine the informational role of geographically proximate

institutions and find that local institutional investors are more informed than nonlocal institutions. Our study offers a new angle that institutions with different countries of origin are also informed differentially and foreign institutional investors are more informed than domestic institutions in China. Third, our study sheds light on the role of foreign investors in improving price efficiency. In the literature, Bae et al. (2012) suggest that foreign investors help incorporate global information into stock prices and thus improve the price efficiency in emerging markets. He and Shen (2014) show that foreign investors improve price efficiency in Japan. Our results imply that foreign institutional investors may help improve the price efficiency via their informed trading in China.

The rest of this article is organized as follows. Section 2 briefly introduces the Qualified Foreign Institutional Investors (QFIIs) scheme in China. Section 3 describes the data and summary statistics. Section 4 shows the determinants of foreign and domestic institutional ownership. Section 5 examines foreign institutional ownership and future stock returns. Section 6 analyzes foreign institutional trading and future stock returns. Section 7 concludes.

Chapter 2

Qualified Foreign Institutional Investors (QFIIs) scheme in China

On 5 November 2002, China Securities Regulatory Commission (CSRC) and the People's Bank of China (PBOC) jointly issued the "Provisional Measures on Administration of Domestic Securities Investment of Qualified Foreign Institutional Investors (QFIIs)" (hereinafter referred to as "Provisional Measures"), which came into effect from 1 December 2002.⁴ The Provisional Measures permit foreign financial institutions meeting certain requirements to directly invest in Chinese A-share markets, including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc.⁵ According to the Provisional Measures, QFII should mandate domestic commercial banks as custodians and domestic securities companies as brokers for their domestic securities trading. Shares held by each QFII in one listed company should not exceed 10% of total outstanding shares of the company, and total shares held by all QFIIs in one listed company should not exceed 20% of total outstanding shares of the company. The QFII scheme has developed rapidly; as of July 2013, there are 232 foreign institutional investors having acquired QFII licenses and the total investment quota has been raised to 150 billion US dollars.⁶

The Qualified Foreign Institutional Investors (QFIIs) scheme was originally implemented to attract foreign capital and to gradually open

⁴ Source: http://www.csrc.gov.cn/pub/csrc_en/newsfacts/release/200708/t20070810_69192.htm.

⁵ Now only residents in Mainland China and QFIIs are allowed to trade A shares.

⁶ Source: http://www.csrc.gov.cn/pub/csrc_en/OpeningUp/RelatedLists/QFIIs/.

domestic stock market in China. Other emerging markets, e.g., South Korea, Taiwan, India and Brazil have also introduced their own QFII scheme, respectively. QFIIs are all large and prestigious international financial institutions from developed markets, such as Goldman Sachs, Morgan Stanley, JPMorgan Chase, Citigroup, HSBC, etc. We presumably believe that the majority of them upholds long-term value investment and can improve market efficiency in China.

Chapter 3

Data, Variables and Descriptive Statistics

Our sample includes all A-share stocks listed on either Shanghai Stock Exchange or Shenzhen Stock Exchange from 2003 to 2012. The sample starts from 2003 since the first QFII license was issued to UBS on 23 May 2003.⁷ Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn) and the stock characteristics data are from China Stock Market Accounting Research Database (CSMAR). Our data frequency is quarterly. We require that the data must be available for all variables. We exclude those observations with total institutional ownership greater than 100%. Following Gompers and Metrick (2001), we set institutional ownership to zero if a stock is not held by any institutional investors. Our final sample contains 47,938 firm-quarters after screening.

Following Gompers and Metrick (2001), we include nine stock characteristics in our analyses. We divide the ending total assets by market value to calculate the book-to-market ratio (BM); we set the variable INDEX equal to 1 if stock is included in SSE 180 index or SZSE 100 index; we use the number of months since stock returns first appear in CSMAR database to represent the stock age (AGE); we estimate stock volatility (VOL) as standard deviation of monthly returns over the previous two years; we also include variables of closing share price (PRC), cumulative stock returns over the past three months ($RET_{t-3,t}$), cumulative stock returns over the nine months preceding the beginning of current quarter ($RET_{t-12,t-3}$), total assets (SIZE),

⁷ Source:

http://www.csrc.gov.cn/pub/csrc_en/OpeningUp/RelatedLists/QFIIs/201303/t20130304_221832.htm.

and average monthly turnover over the past three months (TURNOVER).⁸ The detailed definitions can be found in the Appendix A. We winsorize the corresponding variables at the 1st percentile and 99th percentile and then take natural logarithms of those variables. We expect that these control variables remain valid in Chinese stock market and the sign and significance should be similar to those of U.S. markets.

We next introduce how to measure the key variables of interest in our study. We calculate the foreign institutional ownership (IO_FOREIGN) as the number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares at the end of each quarter. We obtain the domestic institutional ownership (IO_DOMESTIC) and total institutional ownership (IO_TOTAL) in a similar way.

We then compute the cross-sectional average of foreign and domestic institutional ownership and take the time-series mean of cross-sectional averages. The results are reported in Panel A of Table I. We find that foreign institutional ownership exhibits a hump-shaped pattern across years with peak at the year of 2006, while domestic institutional ownership grows gradually. The average foreign (domestic) institutional ownership is 2.59% (13.16%) in our sample, respectively. The relatively low foreign institutional ownership may mislead the potential investors into thinking that foreign investment is

⁸ We do not include dividend yield (DP) as a control variable in the following multivariate regression analyses as Gompers and Metrick (2001) since including DP would reduce our sample size approximately by half as a result of missing values. More importantly, when we repeat the empirical analyses based on the remaining subsample including DP, we find that DP is an insignificant control variable and the main results are not affected.

unimportant in China's A-share market, which, as you will see, is incorrect.⁹ In Panel B of Table I, we calculate the sum of negotiable market value of all foreign and domestic institutional holdings at the end of each quarter and take the time-series mean of cross-sectional sum. We find that the total negotiable market value of both foreign and domestic institutional holdings increases over the sample period.

We compute the cross-sectional averages of stock characteristics and then calculate the time-series statistics of those cross-sectional averages. The results are reported in Table II. On average, firms have a book-to-market ratio of 0.74, share price of 10.49 RMB, past three-month returns of 5%, past nine-month returns of 20%. The average stock age is 8.7 years and the average total assets are 8141 million RMB. The monthly turnover and volatility is 0.5 and 0.14, respectively. The average number of stocks in each cross section is 1370.

In Panel A of Table III, we report the time-series mean of cross-sectional correlations between institutional ownership and stock characteristics. Total institutional ownership (IO_TOTAL), foreign institutional ownership (IO_FOREIGN) and domestic institutional ownership (IO_DOMESTIC) are all significantly positively related to index membership, share price, past three-month returns, past nine-month returns and firm size, while significantly negatively related to stock age, turnover and volatility. This result suggests that both foreign and domestic institutional investors

⁹ Kang and Stulz (1997) report average equal-weighted foreign ownership of 3.76% from 1975 to 1991 in Japan. Huang and Shiu (2009) report average foreign ownership of 2.2% from 1994 to 2001 in Taiwan. Baik et al. (2013) report average foreign ownership of 2.62% from 1990 to 2007 in US. Note that all of these values are small and comparable to our mean foreign institutional ownership in China, i.e., 2.59%.

prefer constituent stocks of major index, high past returns, large firms and young stocks; they shun low-priced stocks, stocks with high turnover and high return volatility. Furthermore, domestic institutions prefer growth stocks, whereas foreign institutions show no particular preferences. These bivariate correlations should be interpreted with caution due to the correlations between stock characteristics as shown in Panel B of Table III, where the strongest correlation coefficient exists between firm size and index membership, i.e., 0.3660. In next section, we use a multivariate regression method to re-examine the determinants of domestic and foreign institutional ownership, respectively.

Chapter 4

Determinants of Foreign and Domestic Institutional Ownership

Prior studies (e.g., Falkenstein, 1996; Kang and Stulz, 1997; Dahlquist and Robertsson, 2001) find that institutional investors prefer certain stock characteristics, such as share price, past stock returns, stock volatility, etc. To examine whether the determinants of foreign and domestic institutional ownership differ, we estimate the following cross-sectional regression of foreign and domestic institutional ownership on various stock characteristics for each quarter from 2003:Q4 to 2012:Q3 (35 quarters), and report the average time-series coefficients using the Fama-MacBeth (1973) method and the associated p -values based on Newey-West (1987) standard errors.¹⁰ Following Gompers and Metrick (2001), we include nine stock characteristics as determinants of institutional ownership in our analyses: book-to-market ratio, index membership, closing share price, cumulative stock returns over the past three months, cumulative stock returns over the nine months preceding the beginning of current quarter, stock age, total assets, average monthly turnover over the past three months and return volatility. These variables can be generally classified into three sets of firm characteristics which may lead to cross-sectional variation in institutional ownership. Firm size, stock age, index membership, and stock volatility are used to proxy for prudence (Del Guercio, 1996). Firm size, share price and share turnover are

¹⁰ Unlike developed markets, institutional investors in Chinese A-share markets are prohibited from taking short positions so that the institutional ownership is left censored at zero. One may argue a censored model would be more appropriate. Following Falkenstein (1996), we also run a Tobit model and find that the results are qualitatively similar.

used to proxy for liquidity and transaction costs. Firm size, book-to-market ratios and past returns have been shown to forecast future stock returns (e.g., Fama and French, 1992; Jegadeesh and Titman, 1993).

$$IO_TOTAL_{i,t} \text{ (or } IO_FOREIGN_{i,t}\text{)(or } IO_DOMESTIC_{i,t}\text{)} = \beta_0 + \beta_1 BM_{i,t} + \beta_2 INDEX_{i,t} + \beta_3 PRC_{i,t} + \beta_4 RET_{i,t-3,t} + \beta_5 RET_{i,t-12,t-3} + \beta_6 AGE_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 TURNOVER_{i,t} + \beta_9 VOL_{i,t} + e_{i,t} \quad [1]$$

Table IV presents the results. In column (1) of Panel A of Table IV, we find that institutional investors as a whole prefer large and young stocks with high price, high past returns, low turnover and volatility. In particular, we find that the coefficients on past returns are significantly positive, suggesting that institutional investors are momentum traders in Chinese stock markets.

In columns (2) and (3) of Panel A of Table IV, we find both similarities and differences on stock preferences between foreign and domestic institutional investors. Specifically, both of them prefer large firms, high-priced stocks and low volatility. However, domestic institutional investors prefer young firms, low turnover ratio, while foreign institutional investors are indifferent. In addition, the coefficients on past returns are significantly positive for domestic institutional investors, and insignificantly negative for foreign institutional investors, which means only domestic institutions engage in momentum trading.

Bennett, Sias and Starks (2003) show that even though institutional ownership is negatively related to past returns, institutional trading, i.e., change in institutional ownership, positively relates to past returns, based on which they argue that institutional investors are momentum traders moving toward (away from) securities that have recently increased (decreased) in value. Therefore, to further examine whether foreign and domestic

institutional investors are momentum traders, we re-estimate the Equation [1] by replacing institutional ownership with institutional trading as dependent variable. The results are reported in Panel B of Table IV. We find that total institutional trading, foreign institutional trading and domestic institutional trading are all significantly positively related to past three-month returns, and are insignificantly related to past nine-month returns proceeding the beginning of current quarter, which provides evidence that all of them are momentum traders focusing more on recent returns.

Chapter 5

Foreign Institutional Ownership and Future Stock Returns

We find that there is a significantly positive relation between foreign institutional ownership and future stock returns in Chinese A-share markets. We first document such foreign institutional ownership effect at portfolio level. Then we use multivariate regression analyses to control for other factors which may influence future stock returns. The regression results confirm that foreign institutional ownership has return forecasting ability in China stock markets.

5.1 Portfolio Analyses

The foreign institutional ownership portfolios are constructed as follows. At the end of each quarter from 2004:Q3 to 2012:Q3 (33 quarters), we sort all sample stocks held by foreign institutional investors into quintiles based on their levels of foreign institutional ownership. Portfolio P5 (P1) consists of stocks that have the highest (lowest) levels of foreign institutional ownership. For each portfolio, we calculate both equal-weighted and value-weighted buy-and-hold returns up to one year after the portfolio formation. We also form a hedge portfolio that is long in P5 and short in P1 and compute the cumulative returns on this hedge portfolio (P5-P1). The portfolios are rebalanced quarterly.

Panel A of Table V presents the time-series statistics of foreign institutional ownership. We find that the average foreign institutional ownership of each portfolio also exhibits a hump-shaped pattern with maximum appearing at the year of 2006, consistent with the figures in Panel A

of Table I.

We calculate one-quarter-ahead, two-quarter-ahead, three-quarter-ahead and one-year-ahead buy-and-hold returns for each portfolio using both equal-weighting and value-weighting methods. We report the time-series means of portfolio returns in Panel B of Table V. Generally, portfolio consisting of stocks with the highest foreign institutional ownership (P5) earns higher returns relative to portfolio consisting of stocks with the lowest (P1). The return spreads between P5 and P1 are statistically and economically significant using both equal-weighting and value-weighting methods.¹¹ For instance, the return spread of one-quarter-ahead portfolio return is 2.44% (p -value = 0.0007) for equal-weighting, and 3.51% (p -value = 0.0178) for value-weighting. When the portfolio returns are measured one-year-ahead, the return spread increases to 6.34% (p -value = 0.0282) for equal-weighting and 8.31% (p -value = 0.0828) for value-weighting, respectively. Overall, the results demonstrate a significant foreign institutional ownership effect in Chinese A-share markets, i.e., high foreign institutional ownership relates to high future stock returns, whereas domestic institutional ownership does not.

To rule out the possibility that the hedge portfolio may simply capture the risk premium, we also estimate the risk-adjusted returns on the hedge portfolio. We have the monthly data on Fama-French three factors in Chinese stock markets from Xu and Zhang (2014).¹² Panel A of Table VI presents the time-series statistics of monthly factor-mimicking portfolio returns, where

¹¹ When portfolios are formed based on the level of domestic institutional ownership, the return spreads are statistically insignificant using either equal-weighting or value-weighting methods.

¹² We really appreciate their kindness for sharing with us their data.

RMRF, SMB and HML are Fama and French's (1993) monthly excess returns on the market and monthly returns on factor-mimicking portfolios for size and book-to-market ratio in Chinese stock market, respectively. We calculate both equal-weighted and value-weighted monthly raw returns for each portfolio in each month over the next quarter after the portfolio formation, which generates a time-series of data from October of 2004 to March of 2013 (102 months). For each portfolio, we regress a time series of monthly portfolio excess returns (102 months) on RMRF, SMB and HML to yield Jensen's alpha, i.e., risk-adjusted return which is the intercept of the three-factor model. The monthly portfolio excess return is the monthly portfolio raw return minus the risk-free rate.¹³ The results are reported in Panel B of Table VI. Using both equal-weighting and value-weighting methods, the portfolio of highest foreign institutional ownership (P5) generates higher Jensen's alpha than does the portfolio of lowest foreign institutional ownership (P1), and the differences are economically and statistically significant. For example, the hedge portfolio (P5-P1) earns a significantly positive Jensen's alpha of 89 basis points per month (p -value = 0.0002) when equal-weighted, and of 102 basis points per month (p -value = 0.0202) when value-weighted. Generally, the magnitudes of the Jensen's alpha increase from P1 to P5. Besides, consistent with Panel B of Table V, the raw returns on hedge portfolio (P5-P1) are also significantly positive on a monthly basis: 80 basis points for equal-weighting (p -value = 0.0008) and 115 basis points for value-weighting (p -value = 0.0269). The results in Table VI further support the existence of foreign institutional ownership effect.

¹³ Following Xu and Zhang (2014), we use three-month RMB deposit rates to proxy for the risk-free rate, which is provided by Industrial and Commercial Bank of China.

5.2 Multivariate regression analyses

Since we cannot easily control for other factors in portfolio analyses, we then use multivariate regression approach to see whether foreign institutional ownership can still predict future stock returns after controlling for other explanatory variables of the cross-sectional stock returns. Specifically, for each quarter from 2003:Q4 to 2012:Q3 (35 quarters), we run the following cross-sectional Regression [2] of future stock returns on institutional ownership and a variety of stock characteristics. We use the same set of stock characteristics as used in [1] to make sure the return predictability of institutional ownership is not driven by its relation with other stock characteristics.¹⁴ Models (1) to (4), (5) to (8), (9) to (12), and (13) to (16) use one-quarter-ahead stock returns ($RET_{i,t+3}$), two-quarter-ahead stock returns ($RET_{i,t+6}$), three-quarter-ahead stock returns ($RET_{i,t+9}$) and one-year-ahead stock returns ($RET_{i,t+12}$) as dependent variables, respectively.

$$\begin{aligned} RET_{i,t,t+3} \text{ (or } RET_{i,t,t+6} \text{) (or } RET_{i,t,t+9} \text{) (or } RET_{i,t,t+12} \text{)} = & \beta_0 + \\ & \beta_1 IO_FOREIGN_{i,t} + \beta_2 IO_DOMESTIC_{i,t} + \beta_3 BM_{i,t} + \beta_4 INDEX_{i,t} + \\ & \beta_5 PRC_{i,t} + \beta_6 RET_{i,t-3,t} + \beta_7 RET_{i,t-12,t-3} + \beta_8 AGE_{i,t} + \beta_9 SIZE_{i,t} + \\ & \beta_{10} TURNOVER_{i,t} + \beta_{11} VOL_{i,t} + e_{i,t} \end{aligned} \quad [2]$$

We use the Fama-MacBeth (1973) methodology and report the time-series average of regression coefficients. In the regressions of two-quarter-ahead, three-quarter-ahead and one-year-ahead stock returns as dependent variables, the residuals will be serially correlated because the dependent variables are overlapped. Thus we report the associated p -values based on Newey-West (1987) standard errors to correct the autocorrelation. The results are presented in Table VII.

¹⁴ Gompers and Metrick (2001) also include the same set of control variables as those used in explaining institutional preference.

In columns (1), (5), (9) and (13), we all find that the relation between total institutional ownership and future stock returns is positive but insignificant. As opposed to Gompers and Metrick (2001) in U.S. markets, institutional investors as a whole cannot predict future stock returns in China. However, we find strong evidence that foreign institutional ownership alone forecasts future stock returns as shown in columns (2), (6), (10) and (14). For instance, when dependent variable is one-quarter-ahead stock returns, the average coefficient on foreign institutional ownership is 0.3462 and is highly significant at 1% level (p -value = 0.0041). The coefficient is also economically significant: a 10% increase in foreign institutional ownership, all else being equal, results in about 3.5% increase in one-quarter-ahead stock returns. The results for two-quarter-ahead, three-quarter-ahead and one-year-ahead stocks returns are similar: all coefficients are positive and are economically and statistically significant at 1% level.

In contrast, the results in columns (3), (7), (11) and (15) all indicate that domestic institutional ownership has no return predictability. Finally, in columns (4), (8), (12) and (16) including both foreign and domestic institutional ownership together, the coefficients on foreign institutional ownership remain positive and highly significant at 1% level, while the coefficients on domestic institutional ownership are insignificant. Moreover, the differences in coefficients between foreign and domestic institutional ownership are all statistically significant at least at 5% level (e.g., p -value = 0.0071 for one-quarter-ahead stock returns). Besides, the sign and significance of coefficients on control variables are broadly consistent with those of Gompers and Metrick (2001).

Since the results in Table VII are obtained after controlling for several explanatory variables of the cross-sectional stock returns, including firm size, book-to-market ratio and past returns, we confirm that foreign institutional ownership indeed has return predictability in Chinese A-share markets, whereas domestic institutional ownership does not, which is consistent with the results of Table V and Table VI using portfolio approach.

Chapter 6

Foreign Institutional Trading and Future Stock Returns

6.1 Demand Shock versus Informational Advantage

Gompers and Metrick (2001) argue that two forces may drive the positive relation between institutional ownership and future stock returns: demand shocks versus information advantage. To disentangle these two effects, they decompose the current quarter institutional ownership into one-quarter-lagged institutional ownership and the change in institutional ownership, i.e., institutional trading. They argue that since the institutional ownership is fairly stable over time, the lagged institutional ownership should be almost as good a proxy for temporal demand shocks as current institutional ownership. If the return predictability is due to demand shocks, we would expect lagged institutional ownership has a stronger predictive power. If institutional investors have an information advantage to forecast future stock returns, we would expect institutional trading predicts stock returns better.

To explain the return forecasting power of foreign institutional ownership, we decompose the current institutional ownership into lagged institutional ownership and institutional trading for both foreign and domestic institutional investors, respectively. For each quarter, we run the following cross-sectional Regression [3]:

$$\begin{aligned} RET_{i,t,t+3} \text{ (or } RET_{i,t,t+6} \text{) (or } RET_{i,t,t+9} \text{) (or } RET_{i,t,t+12} \text{)} = & \beta_0 + \\ & \beta_1 \Delta IO_FOREIGN_{i,t} + \beta_2 \Delta IO_DOMESTIC_{i,t} + \beta_3 IO_FOREIGN_{i,t-1} + \\ & \beta_4 IO_DOMESTIC_{i,t-1} + \beta_5 BM_{i,t} + \beta_6 INDEX_{i,t} + \beta_7 PRC_{i,t} + \\ & \beta_8 RET_{i,t-3,t} + \beta_9 RET_{i,t-12,t-3} + \beta_{10} AGE_{i,t} + \beta_{11} SIZE_{i,t} + \\ & \beta_{12} TURNOVER_{i,t} + \beta_{13} VOL_{i,t} + e_{i,t} \end{aligned} \quad [3]$$

The dependent variables are one-quarter-ahead, two-quarter-ahead,

three-quarter-ahead and one-year-ahead stock returns in columns (1) to (4), respectively. We use the Fama-MacBeth (1973) methodology and report the time-series average of regression coefficients and associated p -values based on Newey-West (1987) standard errors. The results are presented in Table VIII. We find that the coefficients on lagged foreign institutional ownership are positive and significant in columns (1) to (4), which suggests that demand shocks impact future stock returns. More importantly, the average coefficients on foreign institutional trading are positive and significant at 1% level in columns (1) to (4), which implies that foreign institutions are better informed. Furthermore, the coefficients are also economically significant. For instance, in column (4), the average coefficient on foreign institutional trading is 1.0126 (p -value = 0.0021), indicating that a 10% increase in foreign institutional trading leads to about 10.1% increase in one-year-ahead stock returns, all else being equal. We also see that the magnitudes of coefficients on the foreign institutional trading are larger than those of coefficients on lagged foreign institutional ownership, suggesting the larger impact of foreign institutional trading on future stock returns. By contrast, neither domestic institutional trading nor lagged domestic institutional ownership is significantly related to future stock returns in columns (1) to (4).¹⁵ Moreover, the differences in coefficients between foreign and domestic institutional trading are significant at 1% level in columns (1) to (4) (e.g., p -value = 0.0089 for one-year-ahead stock returns in column (4)), consistent with the view that foreign institutional investors are more informed than domestic institutional investors.

Since we control for several explanatory variables of the

¹⁵ The only exception happens to domestic institutional trading in column (1); however, the significance is relatively weak (p -value = 0.0758).

cross-sectional stock returns, our results on foreign institutional trading cannot be attributable to certain investment strategy followed by foreign institutions to influence the cross-section of stock returns. In particular, our results are not driven by momentum trading effect. Overall, the results in Table VIII suggest that foreign institutional investors are better informed than domestic institutional investors.

6.2 Informational Advantage by the Extent of Information Asymmetry

To further examine information advantage of foreign institutional investors, we divide stocks into those with high information asymmetry (small and young stocks) and those with low information asymmetry (large and mature stocks) in each cross section according to the sample median of each information asymmetry variable, i.e., negotiable market value and stock age, respectively. The information advantage of foreign institutional investors should be more pronounced for firms with greater information asymmetry because less firm-specific information would have been incorporated into share price for those firms.

For each quarter, we re-estimate Equation [3] for small/large and young/mature firms separately. We use Fama-MacBeth (1973) methodology and report the time-series average of regression coefficients and associated p -values based on Newey-West (1987) standard errors. We expect that foreign institutional trading has more significant predictive power for small and young stocks than for large and mature stocks. The results are reported in Table IX.

Panel A of Table IX reports the results on small/large stocks. We find

that the coefficients on foreign institutional trading in columns (1), (3), (5) and (7) are generally larger and more significant. For example, when the dependant variable is three-quarter-ahead stock returns in columns (5) and (6), the average coefficient on foreign institutional trading for small stocks is 1.4004, about three times as large as that for large stocks, i.e., 0.4233. More importantly, the coefficient for small stocks are significant at 1% level (p -value = 0.0021), while insignificant for large stocks (p -value = 0.2117). Similar results can be found for one-quarter-ahead stock returns, two-quarter-ahead stock returns, and one-year-ahead stock returns. The results suggest that the information advantage of foreign institutional investors is more pronounced for small stocks. By contrast, we find neither domestic institutional trading nor lagged domestic institutional ownership predicts future stock returns regardless of the size of the firm, consistent with the results in Table VIII.

In addition, we see that coefficients on lagged foreign institutional ownership are significant for large stocks in columns (2), (4), (6) and (8), and are insignificant for small stocks in columns (1), (3), (5) and (7). For example, for two-quarter-ahead stock returns, the coefficient for large stocks is significant at 1% level (p -value = 0.0039), while insignificant for small stocks (p -value = 0.2405). The results suggest that the impact of demand shocks on future stock returns is driven by large firms, consistent with the institutional preferences as shown in Panel A of Table IV.

Panel B of Table IX reports the results for young/mature stocks. The results are qualitatively similar to those in Panel A of Table IX. For one-year-ahead stock returns in columns (7) and (8), the coefficient on foreign

institutional trading for young stocks is 1.0595, about one and a half times larger than that for mature stocks, i.e., 0.6998. More importantly, the coefficient for young stocks is significant at 1% level (p -value = 0.0017), while insignificant for mature stocks (p -value = 0.2291). Similar results exist for one-quarter-ahead, two-quarter-ahead and three-quarter-ahead stock returns. The results imply that foreign institutional investors are better informed for young stocks. We also find that in general neither domestic institutional trading nor lagged domestic institutional ownership has return predictability regardless of the stock age.

Similarly, we find that coefficients on lagged foreign institutional ownership are significant for young stocks in columns (1), (3), (5) and (7), and are insignificant for mature stocks in columns (2), (4), (6) and (8), suggesting that the impact of demand shocks on future stock returns is driven by young stocks, also consistent with the institutional preferences as shown in Panel A of Table IV.

In short, Table IX provides evidence that foreign institutional trading has stronger return predictability for small and young stocks with greater information asymmetry, which lends further support to the view that foreign institutional investors are better informed.

6.3 Robustness Check: Long-run Price Reversal

So far we have shown that foreign institutional trading forecasts future stock returns and this return predictability is more pronounced for small and young firms with greater information asymmetry, which suggests that foreign institutional investors are better informed. However, an alternative

explanation for our results is that foreign institutional investors are short-term focused, e.g., planning horizon less than one year in our study, so that they have incentive to pressure managers to maximize short-run earnings at the expense of long-run firm value. Bushee (1998) finds that transient institutional investors encourage myopic investment behavior when they have high levels of firm ownership. Bushee (2001) finds that transient institutional investors prefer near-term earnings over long-run value, which could pressure managers into a short-term focus.

Although the short-term pressure hypothesis may explain the return predictability of foreign institutional ownership and trading, it also implies the price reversal in the long run. While our results hold for one-year-ahead stock returns, it is still possible that a period of one year is not long enough for stock price to revert to their fundamental values. Therefore, we re-estimate Equations [2] and [3] by replacing dependent variable with one-year buy-and-hold stock returns starting from one year from the current quarter ($RET_{t+12,t+24}$), and two-year buy-and-hold stock returns starting from one year from the current quarter ($RET_{t+12,t+36}$), respectively. The results are reported in Table X.

We expect that the coefficients on foreign institutional ownership and foreign institutional trading are both significantly negative if there is a long-run price reversal. However, the results show that for one-year buy-and-hold stock returns in columns (1) and (2), the coefficients are positive and insignificant, i.e., 0.0955 (p -value = 0.7770) and 0.4126 (p -value = 0.1616), respectively, which provides no evidence on the existence of long-run price reversal. Similar results are observed for two-year

buy-and-hold stock returns in columns (3) and (4). Therefore, we confirm that the return predictability of foreign institutional trading is not due to short-term pressure for corporate managers, but rather due to the information advantage possessed by foreign institutional investors. As a robustness check, our main results remain valid and cannot be explained by short-term pressure hypothesis. More importantly, although we might overlook other possible explanations, the non-existence of long-run price reversal rules out all non-information-based arguments because the share price will eventually revert to fundamental values if the price movement is not driven by information.

In addition, we find that the coefficients on domestic institutional ownership and domestic institutional trading are generally negative but insignificant. For instance, in columns (1) and (2), the coefficients are -0.0283 (p -value = 0.5759) and -0.0614 (p -value = 0.3782), respectively, which seems to suggest that the stock held or bought by domestic institutional investors tend to underperform in the long run. If this would be true, domestic institutional investors are at an information disadvantage in the long run.

Chapter 7

Conclusions

In this study, we document and analyze the foreign institutional ownership effect in Chinese A-share markets. Specifically, we find a positive and significant relation between foreign institutional ownership and future stock returns and this relation is robust with controlling for several explanatory variables of the cross-sectional stock returns. Following the methodology of Gompers and Metrick (2001), we further show that change in foreign institutional ownership forecasts future stock returns, which lends support to the explanation of information advantage possessed by foreign institutional investors. By contrast, neither the level of nor change in domestic institutional ownership predicts future stock returns. Our results are consistent with the view that foreign institutional investors are better informed in China because of their superior information-processing ability.

The informational advantage of foreign institutional investors should be more pronounced for smaller and younger firms since these firms face more uncertainty in value and thus have more information asymmetry. Consistent with this prediction, we find that the return predictability of foreign institutional trading is stronger for small and young firms relative to large and mature firms.

An alternative explanation of our results is that foreign institutional investors may pressure managers to maximize short-run profits at the expense of long-run firm value because of their short-term focus in equity investment. In this case, we expect to observe the long-run price reversal since the

temporary price deviation will eventually revert to fundamental value. However, our results show no evidence of long-run price reversal for up to three years, which rules out the short-term pressure hypothesis as well as other non-information-based arguments.

Last but not least, we list several caveats in interpreting our main results in this study. First, one may concern that QFIIs are not really ‘foreign’ investors since they hire local people. In fact, according to *Financial Times*, QFII investors do not have a strong need to hire local managers and many QFII managers are not in need of mainland-based investment advisors since each QFII quota is just a small proportion of the total portfolio of an international company and moreover Chinese brokerage firms typically charge higher commission fees compared with international standards.¹⁶ Therefore, QFIIs keep their foreign identity in China. Second, it is possible that domestic institutional investors need to follow some investment mandate, which may limit their ability to fully exploit their private information. Finally, due to data limitations, we fail to consider their intra-quarter trading by foreign institutional investors, which might have a larger impact on certain stocks with high turnover of foreign institutional trading. Future studies may use higher frequency data to re-examine this issue.

¹⁶ Source: <http://www.ft.com/cms/s/0/95601a3e-bf38-11e0-898c-00144feabdc0.html#axzz2yOYdeZoi>.

Appendix A: Variable Definitions

This appendix provides a detailed definition of all variables used in this study.

Variable	Definition
Ownership-specific variables	
IO_TOTAL_t	Current quarter total institutional ownership calculated as number of negotiable shares held by all institutional investors divided by total number of negotiable shares in current quarter t .
$IO_FOREIGN_t$	Current quarter foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in current quarter t .
$IO_DOMESTIC_t$	Current quarter domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in current quarter t .
$IO_FOREIGN_{t-1}$	One-quarter-lagged foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in quarter $t-1$.
$IO_DOMESTIC_{t-1}$	One-quarter-lagged domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in quarter $t-1$.
ΔIO_TOTAL_t	Total institutional trading calculated as change in total institutional ownership from quarter $t-1$ to t .
$\Delta IO_FOREIGN_t$	Foreign institutional trading calculated as change in foreign institutional ownership from quarter $t-1$ to t .
$\Delta IO_DOMESTIC_t$	Domestic institutional trading calculated as change in domestic institutional ownership from quarter $t-1$ to t .
Firm-specific variables	
$RET_{t,t+3}$	One-quarter-ahead buy-and-hold stock returns.
$RET_{t,t+6}$	Two-quarter-ahead buy-and-hold stock returns.
$RET_{t,t+9}$	Three-quarter-ahead buy-and-hold stock returns.
$RET_{t,t+12}$	One-year-ahead buy-and-hold stock returns.
$RET_{t+12,t+24}$	One-year buy-and-hold stock returns starting from one year from the current quarter.
$RET_{t+12,t+36}$	Two-year buy-and-hold stock returns starting from one year from the current quarter.
BM	Book-to-market ratio from CSMAR database, calculated as ending total assets divided by market value.

INDEX	Dummy variable for the membership of the union of SSE 180 index and SZSE 100 index.
PRC	Closing share price from CSMAR database.
RET _{<i>t-3,t</i>}	Cumulative stock returns over the past three months.
RET _{<i>t-12,t-3</i>}	Cumulative stock returns over the nine months preceding the beginning of current quarter.
AGE	Stock age calculated as number of months since stock returns first appear in CSMAR database.
SIZE	Total assets from CSMAR database.
TURNOVER	Average monthly turnover over the past three months.
VOL	Volatility estimated as standard deviation of monthly returns over the previous two years.
DP	Dividend yield from CSMAR database, calculated as dividend per share divided by market value per share.
NMKTCAP	Negotiable market value from CSMAR database, calculated as number of negotiable shares multiplied by closing share price.

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Table I
Foreign and Domestic Institutional Ownership and Total Negotiable Market Value by Year

This table reports the average foreign and domestic institutional ownership at the firm level by year, the average total negotiable market value of foreign and domestic institutional holdings by year, and the time-series means of the aforementioned values over the whole sample period. The sample period is from 2004:Q1 to 2012:Q4 (36 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Negotiable market value (NMKTCAP) is from China Stock Market Accounting Research Database (CSMAR), calculated as number of negotiable shares multiplied by closing price. Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc.

Panel A: Foreign and Domestic Institutional Ownership at the Firm Level by Year		
Year	Foreign Institutional Ownership (%)	Domestic Institutional Ownership (%)
2004	2.61	9.16
2005	3.36	10.03
2006	3.95	11.32
2007	3.22	13.95
2008	2.73	16.15
2009	2.07	13.35
2010	1.69	14.25
2011	1.91	14.68
2012	1.80	15.52
2004-2012	2.59	13.16

Panel B: Total Negotiable Market Value of Foreign and Domestic Institutional Holdings by Year		
Year	Total Negotiable Market Value (Million RMB) of Foreign Institutional Holdings	Total Negotiable Market Value (Million RMB) of Domestic Institutional Holdings
2004	1,809.36	85,583.00
2005	6,351.18	110,419.98
2006	22,847.51	214,532.16
2007	34,764.61	989,990.89
2008	30,940.85	910,236.24
2009	41,078.86	1,608,078.52
2010	57,041.41	3,312,970.82
2011	61,042.79	3,442,590.91
2012	50,257.55	3,305,910.03
2004-2012	34,014.90	1,553,368.06

Table II**Time-series Statistics of Cross-sectional Averages**

This table reports the time-series mean, median, standard deviation, maximum and minimum of the quarterly cross-sectional averages of stock characteristics. The sample period is from 2003:Q4 to 2012:Q3 (35 quarters). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). BM is book-to-market ratio calculated as ending total assets divided by market value. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets in million RMB. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The above variables are winsorized at the 1st percentile and 99th percentile except for AGE.

	Mean	Median	Std.dev	Max	Min
BM	0.74	0.71	0.16	0.99	0.53
PRC	10.49	10.95	4.17	18.52	4.71
$RET_{t-3,t}$	0.05	0.00	0.23	0.69	-0.30
$RET_{t-12,t-3}$	0.20	0.06	0.52	1.74	-0.56
AGE	106	109	57	261	12
SIZE (Million RMB)	8141.47	8497.25	3331.66	12713.68	3722.59
TURNOVER	0.50	0.43	0.25	1.29	0.20
VOL	0.14	0.13	0.04	0.21	0.08
Number of stocks	1370	1250	290	1985	1012

Table III
Time-series Mean of Cross-sectional Correlations

This table presents the time-series mean of cross-sectional correlations between institutional ownership and stock characteristics and between all pairs of these characteristics. The sample period is from 2003:Q4 to 2012:Q3 (36 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. IO_TOTAL is total institutional ownership in current quarter calculated as number of negotiable shares held by all institutional investors divided by total number of negotiable shares. IO_FOREIGN is foreign institutional ownership in current quarter calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares. IO_DOMESTIC is domestic institutional ownership in current quarter calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares. BM is book-to-market ratio calculated as ending total assets divided by market value. INDEX is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The above variables are winsorized at the 1st percentile and 99th percentile except for INDEX and AGE. We report the time-series average of the cross-sectional correlations and associated p -values in parentheses based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Panel A: Time-series Mean of Cross-sectional Correlations between Institutional Ownership and Stock Characteristics									
	BM	INDEX	PRC	$RET_{t-3,t}$	$RET_{t-12,t-3}$	AGE	SIZE	TURNOVER	VOL
IO_TOTAL	-0.1296*** (0.0003)	0.1666*** (<.0001)	0.3791*** (<.0001)	0.1144*** (0.0025)	0.1902*** (0.0029)	-0.1272*** (<.0001)	0.0612*** (<.0001)	-0.1915*** (0.0003)	-0.1141*** (<.0001)
IO_FOREIGN	0.0036 (0.8142)	0.1183*** (<.0001)	0.1313*** (<.0001)	0.0361** (0.0147)	0.0435** (0.0347)	-0.0415*** (<.0001)	0.1279*** (0.0003)	-0.0588*** (0.0003)	-0.0503*** (0.0002)
IO_DOMESTIC	-0.1318*** (0.0002)	0.1590*** (<.0001)	0.3725*** (<.0001)	0.1138*** (0.0024)	0.1891*** (0.0028)	-0.1255*** (<.0001)	0.0520*** (<.0001)	-0.1885*** (0.0003)	-0.1099*** (<.0001)

Table III—Continued

Panel B: Time-series Mean of Cross-sectional Correlations between Stock Characteristics									
	BM	INDEX	PRC	RET _{t-3,t}	RET _{t-12,t-3}	AGE	SIZE	TURNOVER	VOL
BM	1.0000 (-)								
INDEX	0.0355 (0.1442)	1.0000 (-)							
PRC	-0.3329*** (<.0001)	0.2800*** (<.0001)	1.0000 (-)						
RET _{t-3,t}	-0.1795*** (<.0001)	0.0522*** (0.0065)	0.2288*** (<.0001)	1.0000 (-)					
RET _{t-12,t-3}	-0.2276*** (<.0001)	0.1079*** (0.0001)	0.3474*** (<.0001)	-0.0194 (0.5742)	1.0000 (-)				
AGE	-0.0191** (0.0249)	-0.0028 (0.8716)	-0.2364*** (<.0001)	-0.0190 (0.2049)	-0.0202 (0.3648)	1.0000 (-)			
SIZE	0.2372*** (<.0001)	0.3660*** (<.0001)	0.0213 (0.4187)	-0.0118 (0.5557)	0.0016 (0.9569)	-0.0687*** (0.0003)	1.0000 (-)		
TURNOVER	-0.0530* (0.0570)	-0.1501*** (<.0001)	-0.0791 (0.1568)	0.1796*** (<.0001)	0.0450 (0.1330)	-0.1104*** (0.0006)	-0.1417*** (<.0001)	1.0000 (-)	
VOL	-0.1641*** (<.0001)	-0.0213 (0.1091)	0.0085 (0.7940)	0.0542 (0.1329)	0.0861 (0.1595)	0.1072*** (<.0001)	-0.0968*** (0.0001)	0.3026*** (<.0001)	1.0000 (-)

Table IV

Determinants of Institutional Ownership and Trading

This table summarizes the results of quarterly cross-sectional regressions of institutional ownership and institutional trading on various stock characteristics. The sample period is from 2003:Q4 to 2012:Q3 (35 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. IO_TOTAL_t is current quarter total institutional ownership calculated as number of negotiable shares held by all institutional investors divided by total number of negotiable shares in current quarter t . $IO_FOREIGN_t$ is current quarter foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in current quarter t . $IO_DOMESTIC_t$ is current quarter domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in current quarter t . ΔIO_TOTAL_t is total institutional trading calculated as change in total institutional ownership from quarter $t-1$ to t . $\Delta IO_FOREIGN_t$ is foreign institutional trading calculated as change in foreign institutional ownership from quarter $t-1$ to t . $\Delta IO_DOMESTIC_t$ is domestic institutional trading calculated as change in domestic institutional ownership from quarter $t-1$ to t . ΔIO_TOTAL_t , $\Delta IO_FOREIGN_t$ and $\Delta IO_DOMESTIC_t$ are multiplied by 100 as dependent variables, respectively. BM is book-to-market ratio calculated as ending total assets divided by market value. INDEX is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The variables of BM, PRC, $RET_{t-3,t}$, $RET_{t-12,t-3}$, SIZE, TURNOVER and VOL are winsorized at the 1st percentile and 99th percentile, respectively. The variables of BM, PRC, AGE, SIZE, TURNOVER, VOL are expressed in natural logarithms, respectively. We use the Fama and MacBeth (1973) methodology and report the time-series average of regression coefficients. Numbers in parentheses are p -values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table IV—Continued

Panel A: Determinants of Institutional Ownership			
Dependent Variable	IO_TOTAL _{<i>t</i>}	IO_FOREIGN _{<i>t</i>}	IO_DOMESTIC _{<i>t</i>}
	(1)	(2)	(3)
BM	-0.0583 (0.1101)	-0.0025 (0.1450)	-0.0557 (0.1188)
INDEX	-0.0060 (0.2059)	0.0004 (0.3516)	-0.0064 (0.1463)
PRC	0.0790*** (<.0001)	0.0035*** (0.0002)	0.0755*** (<.0001)
RET _{<i>t-3,t</i>}	0.0427*** (<.0001)	-0.0001 (0.8070)	0.0428*** (<.0001)
RET _{<i>t-12,t-3</i>}	0.0278** (0.0173)	-0.0000 (0.8971)	0.0278** (0.0144)
AGE	-0.0143*** (<.0001)	-0.0001 (0.4352)	-0.0142*** (<.0001)
SIZE	0.0102** (0.0171)	0.0012*** (0.0007)	0.0090** (0.0270)
TURNOVER	-0.1439*** (<.0001)	-0.0009 (0.2235)	-0.1429*** (<.0001)
VOL	-0.1408*** (0.0003)	-0.0157** (0.0146)	-0.1251*** (0.0015)
Intercept	-0.0876 (0.3214)	-0.0254*** (0.0001)	-0.0622 (0.4650)
Avg. adj. <i>R</i> ²	0.2698	0.0479	0.2595
<i>N</i>	47,938	47,938	47,938

Table IV—Continued

Panel B: Determinants of Institutional Trading			
Dependent Variable	$\Delta IO_TOTAL_t \times 100$	$\Delta IO_FOREIGN_t \times 100$	$\Delta IO_DOMESTIC_t \times 100$
	(1)	(2)	(3)
BM	0.5773 (0.3745)	0.0188 (0.7617)	0.5584 (0.3861)
INDEX	0.0464 (0.5441)	0.0079 (0.5468)	0.0384 (0.5867)
PRC	0.1720 (0.5510)	-0.0005 (0.9837)	0.1725 (0.5375)
RET _{t-3,t}	6.3241*** (<.0001)	0.1056*** (0.0004)	6.2186*** (<.0001)
RET _{t-12,t-3}	0.4721 (0.2145)	0.0215 (0.3489)	0.4506 (0.2263)
AGE	0.0059 (0.9599)	-0.0092 (0.4220)	0.0152 (0.8966)
SIZE	-0.1752** (0.0322)	-0.0026 (0.8279)	-0.1727** (0.0284)
TURNOVER	-2.9555*** (<.0001)	-0.0316 (0.3874)	-2.9238*** (<.0001)
VOL	6.1482** (0.0410)	0.0487 (0.8205)	6.0996** (0.0484)
Intercept	3.4028 (0.1372)	0.1235 (0.6338)	3.2793 (0.1346)
Avg. adj. R^2	0.0421	0.0077	0.0416
N	47,938	47,938	47,938

Table V

Foreign Institutional Ownership Portfolio Raw Returns

This table reports the time-series statistics of foreign institutional ownership for each portfolio and returns on portfolios sorted by the level of foreign institutional ownership on a quarterly basis. The sample period is from 2004:Q3 to 2012:Q3 (33 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock returns are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. At the end of each quarter, we sort all sample stocks with positive foreign institutional ownership into quintiles based on their levels of foreign institutional ownership. Portfolio P5 (P1) consists of stocks that have the highest (lowest) levels of foreign institutional ownership. For each portfolio, we calculate both equal-weighted and value-weighted cumulative quarterly raw returns up to 4 quarters ahead after the portfolio formation. We also form a hedge portfolio that is long in P5 and short in P1 and compute the cumulative quarterly returns on the hedge portfolio (P5-P1). We rebalance the portfolios quarterly. We report the time-series means of raw returns for each portfolio. Numbers in parentheses are p -values based on Newey-West standard errors. Return differences that are statistically significant at 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

Table V—Continued

		Portfolio				
		P1 (Low)	P2	P3	P4	P5 (High)
2004	Mean	0.0053	0.0119	0.0182	0.0334	0.0868
	Median	0.0059	0.0117	0.0183	0.0317	0.0742
	Max	0.0078	0.0147	0.0219	0.0507	0.1464
	Min	0.0013	0.0079	0.0154	0.0232	0.0535
2005	Mean	0.0045	0.0127	0.0234	0.0397	0.0902
	Median	0.0044	0.0127	0.0230	0.0397	0.0760
	Max	0.0080	0.0183	0.0293	0.0515	0.2122
	Min	0.0013	0.0089	0.0186	0.0303	0.0541
2006	Mean	0.0069	0.0162	0.0272	0.0465	0.1002
	Median	0.0071	0.0164	0.0265	0.0452	0.0865
	Max	0.0110	0.0206	0.0357	0.0601	0.2254
	Min	0.0016	0.0112	0.0209	0.0362	0.0621
2007	Mean	0.0054	0.0123	0.0213	0.0368	0.0860
	Median	0.0055	0.0124	0.0211	0.0359	0.0748
	Max	0.0085	0.0163	0.0265	0.0488	0.1990
	Min	0.0018	0.0085	0.0168	0.0270	0.0492
2008	Mean	0.0049	0.0105	0.0181	0.0311	0.0721
	Median	0.0050	0.0103	0.0186	0.0303	0.0589
	Max	0.0074	0.0140	0.0225	0.0418	0.1615
	Min	0.0020	0.0077	0.0143	0.0230	0.0437
2009	Mean	0.0042	0.0087	0.0141	0.0231	0.0535
	Median	0.0043	0.0088	0.0139	0.0234	0.0449
	Max	0.0061	0.0111	0.0173	0.0285	0.1606
	Min	0.0015	0.0062	0.0112	0.0176	0.0294
2010	Mean	0.0033	0.0071	0.0119	0.0191	0.0433
	Median	0.0033	0.0070	0.0119	0.0189	0.0354
	Max	0.0053	0.0089	0.0147	0.0243	0.1443
	Min	0.0007	0.0054	0.0090	0.0149	0.0244
2011	Mean	0.0032	0.0071	0.0117	0.0189	0.0551
	Median	0.0032	0.0070	0.0116	0.0187	0.0401
	Max	0.0051	0.0093	0.0146	0.0237	0.1607
	Min	0.0012	0.0053	0.0093	0.0149	0.0238
2012	Mean	0.0031	0.0065	0.0111	0.0185	0.0573
	Median	0.0029	0.0063	0.0109	0.0184	0.0390
	Max	0.0047	0.0086	0.0141	0.0236	0.1607
	Min	0.0009	0.0048	0.0087	0.0143	0.0242

Table V—Continued

Panel B: Foreign Institutional Ownership Portfolio Raw Returns				
Portfolio	Quarters			
	$q+1$	$q+1$ through $q+2$	$q+1$ through $q+3$	$q+1$ through $q+4$
Equal-weighted				
P1 (Low)	0.0532	0.1460	0.2261	0.3327
P2	0.0634	0.1492	0.2275	0.3428
P3	0.0650	0.1471	0.2368	0.3547
P4	0.0669	0.1437	0.2303	0.3245
P5 (High)	0.0776	0.1684	0.2693	0.3962
P5-P1	0.0244***	0.0224*	0.0432**	0.0634**
(p -value)	(0.0007)	(0.0821)	(0.0429)	(0.0282)
Value-weighted				
P1 (Low)	0.0419	0.1219	0.1973	0.3086
P2	0.0739	0.1592	0.2343	0.3292
P3	0.0534	0.1288	0.2266	0.3277
P4	0.0661	0.1472	0.2378	0.3332
P5 (High)	0.0770	0.1709	0.2761	0.3917
P5-P1	0.0351**	0.0490*	0.0789**	0.0831*
(p -value)	(0.0178)	(0.0537)	(0.0402)	(0.0828)

Table VI

Monthly Foreign Institutional Ownership Portfolio Risk-adjusted Returns

This table reports the time-series statistics of monthly factor-mimicking portfolio returns, and monthly foreign institutional ownership portfolio raw returns and risk-adjusted returns based on Fama-French three-factor model (Fama and French, 1993). RMRF, SMB and HML are Fama and French's (1993) monthly excess returns on the market and monthly returns on factor-mimicking portfolios for size and book-to-market ratio in Chinese stock market, respectively (Xu and Zhang, 2014). The sample period is from 2004:Q3 to 2012:Q4 (34 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Monthly stock returns are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. At the end of each quarter, we sort all sample stocks with positive foreign institutional ownership into quintiles based on their levels of foreign institutional ownership. Portfolio P5 (P1) consists of stocks that have the highest (lowest) levels of foreign institutional ownership. We calculate both equal-weighted and value-weighted monthly raw returns for each portfolio in each month over the next quarter after the portfolio formation, which spans from October of 2004 to March of 2013 (102 months). We also form a hedge portfolio that is long in P5 and short in P1 and calculate the monthly returns on the hedge portfolio (P5-P1). We rebalance the portfolios quarterly. We report the time-series means of raw returns for each portfolio. For each portfolio, we regress a time series of monthly portfolio excess returns (102 months) on RMRF, SMB and HML to yield the Jensen's alpha, which is the intercept of the model. The monthly portfolio excess return is the monthly portfolio raw return minus the three-month RMB deposit rate as a proxy for the risk-free rate, which is provided by the Industrial and Commercial Bank of China. Numbers in parentheses are *p*-values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table VI—Continued

Panel A: Time-series Statistics of Monthly Factor-mimicking Portfolio Returns					
Factor-mimicking Portfolio	Mean	Median	Std.dev	Max	Min
RMRF	0.0089	0.0036	0.1202	1.0768	-0.2668
SMB	0.0102	0.0083	0.0616	0.3582	-0.1736
HML	0.0041	0.0041	0.0593	0.2829	-0.5146

Panel B: Monthly Foreign Institutional Ownership Portfolio Raw Returns and Risk-adjusted Returns						
Portfolio	Raw Returns (<i>p</i> -value)	Fama-French Three-factor Model in Chinese Stock Market				Adj. <i>R</i> ²
		Jensen's Alpha (<i>p</i> -value)	RMRF (<i>p</i> -value)	SMB (<i>p</i> -value)	HML (<i>p</i> -value)	
Equal-weighted						
P1 (Low)	0.0166 (0.1814)	-0.0003 (0.8825)	0.9678*** ($<.0001$)	0.3393*** ($<.0001$)	0.2315** (0.0172)	0.9352
P2	0.0203 (0.1199)	0.0035 (0.2489)	1.0076*** ($<.0001$)	0.3124*** (0.0007)	-0.1139 (0.3113)	0.9226
P3	0.0222* (0.0721)	0.0065** (0.0126)	0.9632*** ($<.0001$)	0.2339*** (0.0077)	-0.2004 (0.1080)	0.9185
P4	0.0225* (0.0711)	0.0072** (0.0358)	0.9149*** ($<.0001$)	0.2684*** (0.0001)	-0.2075** (0.0208)	0.8954
P5 (High)	0.0245* (0.0547)	0.0086*** (0.0074)	0.9663*** ($<.0001$)	0.2532*** (0.0044)	-0.0232 (0.8294)	0.9076
P5-P1	0.0080*** (0.0008)	0.0089*** (0.0002)	-0.0014 (0.9638)	-0.0861 (0.1147)	-0.2548*** ($<.0001$)	0.0628
Value-weighted						
P1 (Low)	0.0131 (0.2337)	0.0013 (0.5476)	0.8943*** ($<.0001$)	-0.2076*** (0.0065)	0.3111*** (0.0097)	0.8848
P2	0.0212 (0.1044)	0.0091** (0.0147)	0.9422*** ($<.0001$)	-0.1755* (0.0813)	-0.2252 (0.1173)	0.8259
P3	0.0167 (0.1777)	0.0040 (0.1831)	0.9765*** ($<.0001$)	-0.1530 (0.1504)	-0.2872* (0.0565)	0.8741
P4	0.0192 (0.1211)	0.0072** (0.0481)	0.9069*** ($<.0001$)	-0.1388* (0.0973)	-0.2772** (0.0360)	0.8320
P5 (High)	0.0246* (0.0809)	0.0115*** (0.0021)	1.0444*** ($<.0001$)	-0.2530*** ($<.0001$)	0.0308 (0.7791)	0.8991
P5-P1	0.0115** (0.0269)	0.0102** (0.0202)	0.1501** (0.0155)	-0.0454 (0.5500)	-0.2803* (0.0535)	0.0644

Table VII
Institutional Ownership and Future Stock Returns

This table summarizes the results of quarterly cross-sectional regressions of one-quarter-ahead, two-quarter-ahead, three-quarter-ahead, and one-year-ahead stock returns on institutional ownership and other stock characteristics, respectively. The sample period is from 2003:Q4 to 2012:Q3 (35 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. $RET_{t,t+3}$ is one-quarter-ahead stock returns. $RET_{t,t+6}$ is two-quarter-ahead stock returns. $RET_{t,t+9}$ is three-quarter-ahead stock returns. $RET_{t,t+12}$ is one-year-ahead stock returns. IO_TOTAL is total institutional ownership in current quarter calculated as number of negotiable shares held by all institutional investors divided by total number of negotiable shares. IO_FOREIGN is foreign institutional ownership in current quarter calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares. IO_DOMESTIC is domestic institutional ownership in current quarter calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares. BM is book-to-market ratio calculated as ending total assets divided by market value. INDEX is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The variables of BM, PRC, $RET_{t-3,t}$, $RET_{t-12,t-3}$, SIZE, TURNOVER and VOL are winsorized at the 1st percentile and 99th percentile, respectively. The variables of BM, PRC, AGE, SIZE, TURNOVER, VOL are expressed in natural logarithms, respectively. We use the Fama and MacBeth (1973) methodology and report the time-series average of regression coefficients. Numbers in parentheses are p -values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table VII—Continued

	Dependent Variable—RET _{t,t+3}				Dependent Variable—RET _{t,t+6}			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IO_TOTAL	0.0410 (0.1112)				0.0604 (0.1708)			
IO_FOREIGN		0.3462*** (0.0041)		0.3333*** (0.0043)		0.5461*** (0.0012)		0.5215*** (0.0015)
IO_DOMESTIC			0.0382 (0.1433)	0.0389 (0.1337)			0.0582 (0.2031)	0.0591 (0.1947)
BM	0.1808*** (<.0001)	0.1722*** (<.0001)	0.1804*** (<.0001)	0.1814*** (<.0001)	0.3050*** (<.0001)	0.2902*** (<.0001)	0.3049*** (<.0001)	0.3059*** (<.0001)
INDEX	0.0551*** (<.0001)	0.0555*** (<.0001)	0.0551*** (<.0001)	0.0550*** (<.0001)	0.1114*** (<.0001)	0.1123*** (<.0001)	0.1115*** (<.0001)	0.1113*** (<.0001)
PRC	-0.0084 (0.3332)	-0.0059 (0.5284)	-0.0079 (0.3544)	-0.0090 (0.3083)	-0.0174 (0.3763)	-0.0133 (0.4891)	-0.0169 (0.3861)	-0.0183 (0.3559)
RET _{t-3,t}	-0.0101 (0.6334)	-0.0082 (0.7052)	-0.0100 (0.6381)	-0.0099 (0.6403)	0.0256 (0.5081)	0.0297 (0.4584)	0.0256 (0.5081)	0.0261 (0.5000)
RET _{t-12,t-3}	0.0057 (0.7362)	0.0085 (0.6272)	0.0057 (0.7350)	0.0057 (0.7343)	-0.0082 (0.7957)	-0.0039 (0.9047)	-0.0082 (0.7955)	-0.0082 (0.7961)
AGE	-0.0044** (0.0187)	-0.0053*** (0.0051)	-0.0045** (0.0165)	-0.0044** (0.0184)	-0.0075* (0.0680)	-0.0087** (0.0214)	-0.0076* (0.0652)	-0.0075* (0.0683)
SIZE	-0.0214*** (0.0018)	-0.0205*** (0.0040)	-0.0213*** (0.0020)	-0.0217*** (0.0015)	-0.0403*** (0.0032)	-0.0387*** (0.0065)	-0.0402*** (0.0034)	-0.0406*** (0.0030)
TURNOVER	-0.0882*** (0.0001)	-0.0893*** (0.0001)	-0.0889*** (0.0001)	-0.0883*** (0.0001)	-0.1352*** (<.0001)	-0.1357*** (<.0001)	-0.1358*** (<.0001)	-0.1349*** (<.0001)

VOL	0.0983 (0.1006)	0.1049* (0.0876)	0.0974 (0.1017)	0.1043* (0.0841)	0.0205 (0.8216)	0.0310 (0.7356)	0.0188 (0.8353)	0.0274 (0.7620)
Intercept	0.4685*** (0.0011)	0.4551*** (0.0021)	0.4668*** (0.0011)	0.4739*** (0.0009)	0.9119*** (0.0012)	0.8861*** (0.0023)	0.9103*** (0.0012)	0.9191*** (0.0011)
Test-of-difference in coefficients between foreign and domestic institutional ownership: (<i>p</i> -value)	—	—	—	(0.0071)	—	—	—	(0.0050)
Avg. adj. R^2	0.1310	0.1295	0.1309	0.1320	0.1051	0.1033	0.1050	0.1057
<i>N</i>	47,938	47,938	47,938	47,938	47,938	47,938	47,938	47,938

Table VII—Continued

	Dependent Variable—RET _{t,t+9}				Dependent Variable—RET _{t,t+12}			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
IO_TOTAL	0.0976 (0.1199)				0.1240 (0.1138)			
IO_FOREIGN		0.6675*** (0.0067)		0.6271*** (0.0072)		0.7310*** (0.0062)		0.6780*** (0.0079)
IO_DOMESTIC			0.0961 (0.1397)	0.0973 (0.1351)			0.1237 (0.1302)	0.1247 (0.1271)
BM	0.4272*** (<.0001)	0.4072*** (<.0001)	0.4271*** (<.0001)	0.4289*** (<.0001)	0.5547*** (<.0001)	0.5304*** (<.0001)	0.5548*** (<.0001)	0.5572*** (<.0001)
INDEX	0.1766*** (<.0001)	0.1781*** (<.0001)	0.1767*** (<.0001)	0.1765*** (<.0001)	0.2393*** (<.0001)	0.2410*** (<.0001)	0.2395*** (<.0001)	0.2392*** (<.0001)
PRC	-0.0372 (0.2693)	-0.0306 (0.3406)	-0.0366 (0.2731)	-0.0381 (0.2589)	-0.0619 (0.2299)	-0.0527 (0.2768)	-0.0613 (0.2320)	-0.0627 (0.2245)
RET _{t-3,t}	0.0525 (0.4246)	0.0588 (0.3898)	0.0525 (0.4242)	0.0532 (0.4191)	0.0424 (0.5516)	0.0500 (0.5029)	0.0426 (0.5499)	0.0429 (0.5470)
RET _{t-12,t-3}	-0.0063 (0.8875)	-0.0002 (0.9959)	-0.0062 (0.8889)	-0.0065 (0.8846)	0.0031 (0.9550)	0.0107 (0.8510)	0.0031 (0.9549)	0.0028 (0.9591)
AGE	-0.0152*** (0.0041)	-0.0170*** (0.0008)	-0.0153*** (0.0041)	-0.0152*** (0.0044)	-0.0242*** (0.0022)	-0.0263*** (0.0007)	-0.0243*** (0.0022)	-0.0242*** (0.0024)
SIZE	-0.0589*** (0.0040)	-0.0566*** (0.0076)	-0.0588*** (0.0042)	-0.0593*** (0.0037)	-0.0809*** (0.0035)	-0.0780*** (0.0065)	-0.0808*** (0.0037)	-0.0814*** (0.0033)
TURNOVER	-0.1699*** (<.0001)	-0.1730*** (<.0001)	-0.1705*** (<.0001)	-0.1696*** (<.0001)	-0.1919*** (<.0001)	-0.1967*** (<.0001)	-0.1923*** (<.0001)	-0.1918*** (<.0001)

VOL	-0.0387 (0.7964)	-0.0251 (0.8679)	-0.0401 (0.7893)	-0.0294 (0.8433)	-0.1162 (0.5375)	-0.1016 (0.5891)	-0.1167 (0.5350)	-0.1056 (0.5707)
Intercept	1.4008*** (0.0006)	1.3627*** (0.0010)	1.3980*** (0.0006)	1.4090*** (0.0005)	2.0054*** (0.0002)	1.9574*** (0.0004)	2.0020*** (0.0002)	2.0145*** (0.0002)
Test-of-difference in coefficients between foreign and domestic institutional ownership: (<i>p</i> -value)	—	—	—	(0.0207)	—	—	—	(0.0341)
Avg. adj. R^2	0.1094	0.1067	0.1093	0.1096	0.1093	0.1069	0.1093	0.1092
<i>N</i>	47,938	47,938	47,938	47,938	47,938	47,938	47,938	47,938

Table VIII

Institutional Trading and Future Stock Returns

This table summarizes the results of quarterly cross-sectional regressions of one-quarter-ahead, two-quarter-ahead, three-quarter-ahead, and one-year-ahead stock returns on institutional ownership, institutional trading, and other stock characteristics, respectively. The sample period is from 2003:Q4 to 2012:Q3 (35 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. $RET_{t,t+3}$ is one-quarter-ahead stock returns. $RET_{t,t+6}$ is two-quarter-ahead stock returns. $RET_{t,t+9}$ is three-quarter-ahead stock returns. $RET_{t,t+12}$ is one-year-ahead stock returns. $\Delta IO_FOREIGN_t$ is foreign institutional trading calculated as change in foreign institutional ownership from quarter $t-1$ to t . $\Delta IO_DOMESTIC_t$ is domestic institutional trading calculated as change in domestic institutional ownership from quarter $t-1$ to t . $IO_FOREIGN_{t-1}$ is one-quarter-lagged foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in quarter $t-1$. $IO_DOMESTIC_{t-1}$ is one-quarter-lagged domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in quarter $t-1$. BM is book-to-market ratio calculated as ending total assets divided by market value. $INDEX$ is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. $SIZE$ is total assets. $TURNOVER$ is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The variables of BM , PRC , $RET_{t-3,t}$, $RET_{t-12,t-3}$, $SIZE$, $TURNOVER$ and VOL are winsorized at the 1st percentile and 99th percentile, respectively. The variables of BM , PRC , AGE , $SIZE$, $TURNOVER$, VOL are expressed in natural logarithms, respectively. We use the Fama and MacBeth (1973) methodology and report the time-series average of regression coefficients. Numbers in parentheses are p -values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table VIII—Continued

Dependent Variable	RET _{t,t+3}	RET _{t,t+6}	RET _{t,t+9}	RET _{t,t+12}
	(1)	(2)	(3)	(4)
$\Delta IO_FOREIGN_t$	0.4763** (0.0106)	0.7022*** (0.0001)	0.8143*** (0.0003)	1.0126*** (0.0021)
$\Delta IO_DOMESTIC_t$	0.0894* (0.0758)	0.1114 (0.1539)	0.1605 (0.1182)	0.2083 (0.1325)
$IO_FOREIGN_{t-1}$	0.2834** (0.0129)	0.4396*** (0.0048)	0.6140** (0.0170)	0.6519** (0.0429)
$IO_DOMESTIC_{t-1}$	0.0243 (0.3195)	0.0427 (0.3137)	0.0785 (0.1952)	0.0989 (0.1806)
BM	0.1784*** ($<.0001$)	0.3021*** ($<.0001$)	0.4238*** ($<.0001$)	0.5511*** ($<.0001$)
INDEX	0.0550*** ($<.0001$)	0.1110*** ($<.0001$)	0.1763*** ($<.0001$)	0.2389*** ($<.0001$)
PRC	-0.0076 (0.3799)	-0.0166 (0.3852)	-0.0366 (0.2653)	-0.0607 (0.2294)
RET _{t-3,t}	-0.0148 (0.4534)	0.0209 (0.5697)	0.0468 (0.4565)	0.0338 (0.6126)
RET _{t-12,t-3}	0.0061 (0.7217)	-0.0075 (0.8159)	-0.0055 (0.9026)	0.0034 (0.9506)
AGE	-0.0049*** (0.0095)	-0.0079** (0.0491)	-0.0157*** (0.0036)	-0.0252*** (0.0019)
SIZE	-0.0212*** (0.0023)	-0.0401*** (0.0038)	-0.0587*** (0.0044)	-0.0807*** (0.0038)
TURNOVER	-0.0887*** (0.0001)	-0.1353*** ($<.0001$)	-0.1691*** ($<.0001$)	-0.1920*** ($<.0001$)
VOL	0.1003* (0.0863)	0.0243 (0.7820)	-0.0341 (0.8156)	-0.1115 (0.5398)
Intercept	0.4684*** (0.0012)	0.9125*** (0.0013)	1.4013*** (0.0006)	2.0072*** (0.0002)
Test-of-difference in coefficients between foreign and domestic institutional trading: (<i>p</i> -value)	(0.0163)	(0.0005)	(0.0035)	(0.0089)
Avg. adj. R^2	0.1333	0.1060	0.1094	0.1094
<i>N</i>	47,938	47,938	47,938	47,938

Table IX

Institutional Trading and Future Stock Returns by the Extent of Information Asymmetry

This table summarizes the results of quarterly cross-sectional regressions of one-quarter-ahead, two-quarter-ahead, three-quarter-ahead, and one-year-ahead stock returns on institutional ownership, institutional trading, and other stock characteristics for each subgroup of stocks with different extent of information asymmetry. Stocks are divided into those with high information asymmetry (small and young stocks) and those with low information asymmetry (large and mature stocks) in each cross section according to the sample median of each information asymmetry variable, i.e., negotiable market value (NMKTCAP) and firm age (AGE), respectively. The sample period is from 2004:Q3 to 2012:Q3 (32 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. $RET_{t,t+3}$ is one-quarter-ahead stock returns. $RET_{t,t+6}$ is two-quarter-ahead stock returns. $RET_{t,t+9}$ is three-quarter-ahead stock returns. $RET_{t,t+12}$ is one-year-ahead stock returns. $\Delta IO_FOREIGN_t$ is foreign institutional trading calculated as change in foreign institutional ownership from quarter $t-1$ to t . $\Delta IO_DOMESTIC_t$ is domestic institutional trading calculated as change in domestic institutional ownership from quarter $t-1$ to t . $IO_FOREIGN_{t-1}$ is one-quarter-lagged foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in quarter $t-1$. $IO_DOMESTIC_{t-1}$ is one-quarter-lagged domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in quarter $t-1$. BM is book-to-market ratio calculated as ending total assets divided by market value. INDEX is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The variables of BM, PRC, $RET_{t-3,t}$, $RET_{t-12,t-3}$, SIZE, TURNOVER and VOL are winsorized at the 1st percentile and 99th percentile, respectively. The variables of BM, PRC, AGE, SIZE, TURNOVER, VOL are expressed in natural logarithms, respectively. We use the Fama and MacBeth (1973) methodology and report the time-series average of regression coefficients. Numbers in parentheses are p -values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table IX—Continued

Panel A: Small/Large Stocks								
Dependent Variable	RET _{t,t+3}		RET _{t,t+6}		RET _{t,t+9}		RET _{t,t+12}	
	Small	Large	Small	Large	Small	Large	Small	Large
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta IO_FOREIGN_t$	0.9616** (0.0214)	0.1925 (0.3575)	1.0120** (0.0249)	0.5518** (0.0118)	1.4004*** (0.0021)	0.4233 (0.2117)	1.3582* (0.0740)	0.6380 (0.1038)
$\Delta IO_DOMESTIC_t$	0.0588 (0.1184)	0.0803 (0.1747)	0.0781 (0.2083)	0.1081 (0.2106)	0.1075 (0.1416)	0.1362 (0.2201)	0.1470 (0.1099)	0.1720 (0.2941)
$IO_FOREIGN_{t-1}$	0.3201 (0.1055)	0.2231** (0.0193)	0.3516 (0.2405)	0.3992*** (0.0039)	0.2842 (0.4487)	0.4162** (0.0269)	0.2262 (0.6372)	0.4948* (0.0746)
$IO_DOMESTIC_{t-1}$	0.0027 (0.9058)	0.0212 (0.2429)	0.0238 (0.6165)	0.0325 (0.4190)	0.0439 (0.4576)	0.0432 (0.4549)	0.0709 (0.2957)	0.0402 (0.5980)
BM	0.1601*** (<.0001)	0.1770*** (<.0001)	0.2287*** (0.0013)	0.3524*** (<.0001)	0.2691*** (0.0049)	0.5497*** (<.0001)	0.3482** (0.0114)	0.7547*** (<.0001)
INDEX	0.0877*** (0.0001)	0.0553*** (<.0001)	0.1971*** (0.0003)	0.1139*** (<.0001)	0.3252*** (<.0001)	0.1808*** (<.0001)	0.4193*** (<.0001)	0.2490*** (<.0001)
PRC	-0.0112 (0.4176)	0.0012 (0.8806)	-0.0376 (0.1668)	-0.0046 (0.7473)	-0.0651 (0.1650)	-0.0179 (0.4473)	-0.1025 (0.1333)	-0.0389 (0.2945)
RET _{t-3,t}	-0.0348 (0.2500)	0.0098 (0.5594)	-0.0197 (0.6744)	0.0507 (0.2110)	-0.0298 (0.6590)	0.1016 (0.1713)	-0.0423 (0.5222)	0.0983 (0.2513)
RET _{t-12,t-3}	0.0002 (0.9886)	0.0016 (0.9403)	-0.0283 (0.3715)	0.0017 (0.9647)	-0.0297 (0.4499)	0.0061 (0.9144)	-0.0370 (0.4487)	0.0244 (0.7223)

AGE	-0.0046*	-0.0059**	-0.0065	-0.0119	-0.0141**	-0.0243**	-0.0272***	-0.0315**
	(0.0617)	(0.0389)	(0.1496)	(0.1110)	(0.0104)	(0.0196)	(0.0082)	(0.0369)
SIZE	-0.0200***	-0.0210***	-0.0346***	-0.0426***	-0.0433**	-0.0664***	-0.0615**	-0.0953***
	(0.0031)	(0.0090)	(0.0064)	(0.0063)	(0.0227)	(0.0033)	(0.0212)	(0.0011)
TURNOVER	-0.1081***	-0.0908***	-0.1608***	-0.1082***	-0.1979***	-0.1510***	-0.2347***	-0.1819***
	(<.0001)	(<.0001)	(0.0001)	(<.0001)	(0.0003)	(0.0001)	(0.0008)	(0.0008)
VOL	0.0969	0.1201	-0.0241	0.1166	-0.1196	0.0931	-0.1877	0.0577
	(0.1143)	(0.2231)	(0.8452)	(0.4549)	(0.5199)	(0.6899)	(0.3752)	(0.8397)
Intercept	0.4722***	0.4449***	0.9202***	0.9233***	1.2788***	1.4951***	1.8915***	2.2057***
	(0.0011)	(0.0097)	(0.0007)	(0.0053)	(0.0004)	(0.0015)	(0.0001)	(0.0003)
Avg. adj. R^2	0.0982	0.1432	0.0702	0.1339	0.0707	0.1386	0.0658	0.1442
N	22,214	22,226	22,214	22,226	22,214	22,226	22,214	22,226

Table IX—Continued

Panel B: Young/Mature Stocks								
Dependent Variable	RET _{t,t+3}		RET _{t,t+6}		RET _{t,t+9}		RET _{t,t+12}	
	Young	Mature	Young	Mature	Young	Mature	Young	Mature
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta IO_FOREIGN_t$	0.3984*	0.4278*	0.5304***	0.8041*	0.6606***	0.8079*	1.0595***	0.6998
	(0.0711)	(0.0891)	(<.0001)	(0.0791)	(0.0001)	(0.0985)	(0.0017)	(0.2291)
$\Delta IO_DOMESTIC_t$	0.0672	0.0978*	0.0641	0.1519	0.1323	0.1378	0.2156	0.1409
	(0.1572)	(0.0867)	(0.3809)	(0.1063)	(0.2382)	(0.1526)	(0.1780)	(0.3143)
$IO_FOREIGN_{t-1}$	0.1486*	0.2762	0.3111***	0.4954	0.3683**	0.4600	0.4194*	0.3463
	(0.0571)	(0.1026)	(0.0031)	(0.1046)	(0.0162)	(0.3031)	(0.0885)	(0.5859)
$IO_DOMESTIC_{t-1}$	0.0029	0.0221	0.0097	0.0349	0.0286	0.0547	0.0252	0.1024
	(0.8664)	(0.3667)	(0.7761)	(0.4087)	(0.5274)	(0.3484)	(0.6312)	(0.2192)
BM	0.1804***	0.1772***	0.3099***	0.3012***	0.4098***	0.4396***	0.4966***	0.5869***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0001)	(<.0001)	(0.0004)	(<.0001)
INDEX	0.0637***	0.0547***	0.1341***	0.1075***	0.2174***	0.1642***	0.2980***	0.2191***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
PRC	0.0044	-0.0137	-0.0031	-0.0354	-0.0147	-0.0653*	-0.0319	-0.1093*
	(0.6507)	(0.2435)	(0.8696)	(0.1117)	(0.6688)	(0.0846)	(0.5274)	(0.0628)
RET _{t-3,t}	0.0054	-0.0245	0.0389	-0.0016	0.0396	0.0435	0.0104	0.0450
	(0.7941)	(0.2841)	(0.3427)	(0.9690)	(0.5377)	(0.5691)	(0.8739)	(0.6023)
RET _{t-12,t-3}	-0.0006	-0.0018	-0.0135	-0.0168	-0.0171	-0.0163	-0.0210	0.0033
	(0.9672)	(0.9320)	(0.6523)	(0.6876)	(0.7089)	(0.7673)	(0.7024)	(0.9621)

AGE	-0.0025 (0.3927)	-0.0070 (0.6357)	-0.0052 (0.3565)	-0.0171 (0.5434)	-0.0121 (0.2313)	-0.0252 (0.4768)	-0.0195 (0.2346)	-0.0442 (0.3914)
SIZE	-0.0225*** (0.0059)	-0.0218*** (0.0016)	-0.0434*** (0.0081)	-0.0412*** (0.0027)	-0.0629** (0.0110)	-0.0608*** (0.0027)	-0.0872** (0.0105)	-0.0839*** (0.0015)
TURNOVER	-0.0964*** ($<.0001$)	-0.1089*** ($<.0001$)	-0.1446*** ($<.0001$)	-0.1362*** ($<.0001$)	-0.1628*** (0.0001)	-0.1941*** ($<.0001$)	-0.1499*** (0.0041)	-0.2576*** (0.0001)
VOL	0.1528* (0.0737)	0.0827 (0.1716)	0.2176 (0.1243)	-0.0700 (0.4116)	0.2901 (0.1427)	-0.2175 (0.1924)	0.3590 (0.1062)	-0.3849 (0.1226)
Intercept	0.4573*** (0.0038)	0.5151*** (0.0025)	0.9472*** (0.0016)	1.0537*** (0.0009)	1.4401*** (0.0008)	1.5985*** (0.0004)	2.0917*** (0.0003)	2.3382*** (0.0002)
Avg. adj. R^2	0.1316	0.1267	0.1126	0.0997	0.1201	0.1034	0.1203	0.1047
N	22,157	22,283	22,157	22,283	22,157	22,283	22,157	22,283

Table X

Institutional Ownership, Institutional Trading, and Long-run Stock Returns

This table summarizes the results of quarterly cross-sectional regressions of long-run stock returns on institutional ownership, institutional trading, and other stock characteristics. The sample period is from 2003:Q4 to 2010:Q3 (25 quarters). Institutional ownership data are obtained from RESSET Financial Database (www.resset.cn). Stock characteristics are from China Stock Market Accounting Research Database (CSMAR). Foreign institutional investors are qualified foreign institutional investors (QFIIs) including overseas fund management institutions, insurance companies, securities companies and other assets management institutions, etc. Domestic institutional investors include mutual funds, national social security fund, insurance companies, corporate annuity funds, and securities firms, etc. $RET_{t+12,t+24}$ is one-year buy-and-hold stock returns starting from one year from the current quarter. $RET_{t+12,t+36}$ is two-year buy-and-hold stock returns starting from one year from the current quarter. $IO_FOREIGN_t$ is current quarter foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in current quarter t . $IO_DOMESTIC_t$ is current quarter domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in current quarter t . $\Delta IO_FOREIGN_t$ is foreign institutional trading calculated as change in foreign institutional ownership from quarter $t-1$ to t . $\Delta IO_DOMESTIC_t$ is domestic institutional trading calculated as change in domestic institutional ownership from quarter $t-1$ to t . $IO_FOREIGN_{t-1}$ is one-quarter-lagged foreign institutional ownership calculated as number of negotiable shares held by foreign institutional investors divided by total number of negotiable shares in quarter $t-1$. $IO_DOMESTIC_{t-1}$ is one-quarter-lagged domestic institutional ownership calculated as number of negotiable shares held by domestic institutional investors divided by total number of negotiable shares in quarter $t-1$. BM is book-to-market ratio calculated as ending total assets divided by market value. INDEX is a dummy variable for the membership of the union of SSE 180 index and SZSE 100 index. PRC is closing share price. $RET_{t-3,t}$ is cumulative stock returns over the past three months. $RET_{t-12,t-3}$ is cumulative stock returns over the nine months preceding the beginning of current quarter. AGE is stock age calculated as number of months since stock returns first appear in CSMAR database. SIZE is total assets. TURNOVER is average monthly turnover over the past three months. VOL is volatility estimated as standard deviation of monthly returns over the previous two years. The variables of BM, PRC, $RET_{t-3,t}$, $RET_{t-12,t-3}$, SIZE, TURNOVER and VOL are winsorized at the 1st percentile and 99th percentile, respectively. The variables of BM, PRC, AGE, SIZE, TURNOVER, VOL are expressed in natural logarithms, respectively. We use the Fama and MacBeth (1973) methodology and report the time-series average of regression coefficients. Numbers in parentheses are p -values based on Newey-West standard errors. We use *, ** and *** to denote significance at 10%, 5% and 1% levels, respectively.

Table X—Continued

Dependent Variable	RET _{t+12,t+24}		RET _{t+12,t+36}	
	(1)	(2)	(3)	(4)
IO_FOREIGN _t	0.0955 (0.7770)		0.2029 (0.6743)	
IO_DOMESTIC _t	-0.0283 (0.5759)		0.0970 (0.3329)	
ΔIO_FOREIGN _t		0.4126 (0.1616)		0.3341 (0.6033)
ΔIO_DOMESTIC _t		-0.0614 (0.3782)		-0.0905 (0.2810)
IO_FOREIGN _{t-1}		-0.1351 (0.7371)		0.2069 (0.6618)
IO_DOMESTIC _{t-1}		-0.0208 (0.7246)		0.1601 (0.1981)
BM	0.3585*** (0.0005)	0.3633*** (0.0004)	0.7892*** (0.0001)	0.7947*** (<.0001)
INDEX	0.2266*** (<.0001)	0.2260*** (<.0001)	0.5057*** (<.0001)	0.5051*** (<.0001)
PRC	-0.0738 (0.2193)	-0.0725 (0.2290)	-0.0740 (0.3692)	-0.0780 (0.3515)
RET _{t-3,t}	-0.0089 (0.8069)	-0.0055 (0.8875)	-0.0713 (0.3385)	-0.0558 (0.4815)
RET _{t-12,t-3}	0.0071 (0.7412)	0.0066 (0.7616)	0.0534 (0.4495)	0.0550 (0.4488)
AGE	-0.0410* (0.0515)	-0.0406* (0.0535)	-0.0691** (0.0269)	-0.0665** (0.0276)
SIZE	-0.0669* (0.0719)	-0.0675* (0.0675)	-0.1798*** (0.0023)	-0.1810*** (0.0021)
TURNOVER	-0.0479 (0.1920)	-0.0523 (0.1782)	0.0386 (0.5729)	0.0340 (0.5821)
VOL	0.0479 (0.8603)	0.0486 (0.8584)	0.0432 (0.9088)	0.0596 (0.8742)
Intercept	1.9585*** (0.0027)	1.9663*** (0.0025)	4.3395*** (0.0010)	4.3495*** (0.0010)
Avg. adj. R ²	0.0769	0.0771	0.1073	0.1079
N	30,379	30,379	30,379	30,379