

**Do the Rich Have an Informational Advantage?  
Evidence Based on Account Classifications of Individual Investors**

July 5, 2014

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# **Do the Rich Have an Informational Advantage? Evidence Based on Account Classifications of Individual Investors**

## **Abstract**

While trading appears to be hazardous to individual investors' wealth, it may not be so for wealthy investors with access to informational networks. Indeed, we find that in the Chinese stock market, individual investors with portfolio values over CNY 5 million benefit from trading. Our results show that these "super" investors trade far more extensively than the market average, yet they manage to beat the performance of the market portfolio by a large margin. Further investigation attributes their persistent excess returns to informational advantages. We find evidence that these "super" investors profitably trade against behavioral investors around good news announcements of companies, particularly those registered in these super investors' localities.

***Keywords:*** *Individual Investors; Trading; Information*

An important line of the literature on behavioral finance finds that individual investors lose from trading. Using data from a discount brokerage firm, Barber and Odean (2000) show that individual investors trade excessively (overtrading), and they underperform the index by an average of 3.7% annually. Further, Barber et al. (2009) directly measure how much individual investors lose from trading by using data from the Taiwan market and find that individual investors suffer an annual performance penalty of 3.8%. Similarly, Han and Kumar (2011) find that stocks actively traded by individual investors have a negative alpha.

However, the literature also shows that some individual investors can profit from trading because of informational advantages or skill. For example, Ivkovic and Weisbenner (2005) find that individual investors who hold local stocks do better. Further, Ivkovic et al. (2008) find that individuals who hold one or two stocks do better than those who hold at least three stocks. These authors attribute individual investors' performance to an informational advantage. Coval et al. (2005) find that those investors who hold winning stocks do better. They believe these investors have extraordinary stock picking ability, that is, skill.

Thus, existing literature does not provide a clear consensus on the link between individual investors' trading activity and performance, though it is reasonable to presume that all individual investors expect to profit from trading. We use a new data set on individual investors' trading and holding records from a national brokerage firm in China to study whether trading is hazardous to individual investors' wealth. This unique data set contains daily position statements and trading records for 1.8 million individual investors from 2007 to 2009.

While previous studies shed light on stock choices of individual investors (Ivkovic and Weisbenner (2005), Ivkovic et al. (2008), and Coval et al. (2005)), and the roles of gender, income, age, and education in individual investors' performance,<sup>1</sup> we are interested in the role of investors' wealth in their investment performance. Specifically, do less wealthy investors become richer through trading? Does trading hurt rich investors' wealth? Does wealth accord privileged access to informational networks and lead to supernormal profits?

In this paper, we attempt to answer these questions by partitioning individual investors by the value of their portfolio, which is a proxy for wealth levels of individual investors. When reporting individual investors' statistics, the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) label accounts with less than 100,000 RMB in equity at any point in time as small accounts, those with less than 1,000,000 RMB as middle-level accounts, those with less than 5,000,000 RMB as big accounts, and those with more than 5,000,000 RMB as "super" accounts. We follow this practice in our paper as well. Therefore, we classify individuals as small, middle, big, and super investors based on their portfolio size.

For small, middle, and big investors, we find that trading is hazardous to their wealth, confirming Barber and Odean (2000). All of these investors earn significantly negative returns after factoring in trading costs. Also, the net returns earned by those three groups of investors decrease monotonically. with an increase in trading frequency, as measured by a portfolio's turnover,

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<sup>1</sup> Barber and Odean (2001) find that women outperform men by 0.93 percentage points a year by comparing the net returns they earn. Kumar (2009) considers the characteristics of individual investors, including income, age, and education, to explain individual investors' preference for lottery-like stocks, which earn significantly lower average returns than non-lottery-like stocks.

But for super investors, we find, in contrast to Barber and Odean (2000), that trading through a brokerage firm increases their wealth. During our sample period, “super” investors achieve monthly average excess gross (net) returns of 10% (8%) at the 5% significance level.

Barber and Odean (2000) also partition their investors into quintiles on the basis of portfolio size. They find that investors holding small portfolios earn higher average returns than those who hold large portfolios. They attribute the difference to the outperformance of small value stocks during their sample period. Since we do not find that small value stocks or big value stocks do particular well during our sample period, our result that super investors outperform small investors is not inconsistent with Barber and Odean (2000). Moreover, the mean price difference of stocks traded by small investors and that by super investors is merely 4 RMB, which is approximately 57 cents in US dollars. This difference is not sufficient to explain why the super investors beat small investors by such a large margin.

Furthermore, we find that the more super investors trade, the higher the returns (both gross and net) that they obtain (see Figure I). This empirical evidence is intriguing and at odds with the notion that trading hurts individual investors’ performance.

[Insert Figure I here]

In further analysis, we show that informational advantage is a possible source of super investors’ superior performance. Via an event study, we find that the trading of local stocks with announcements of high stock dividends (that are followed by high returns) is dominant among super investors. And they profit from buying these stocks before the announcement and selling them afterwards.

Adding to Ivkovic and Weisbenner's (2005) finding that investors who hold local stocks do better, we find that super investors that hold local stocks earn positive and significant returns, while the other three groups of investors do not benefit from holding local stocks. Moreover, Ivkovic et al. (2008) find that investors who hold local stocks and small portfolios have lower turnover. In this sense, they support Barber and Odean (2000) by finding that turnover is negatively related to returns. We find that higher turnover brings higher returns for super investors, which can partially be attributed to informational advantages.

Overall, our contributions are as follows. First, we find that the association between trading and performance is not homogenous in the cross-section of investors. Specifically, we find that trading benefits super investors but hurts the small, medium, and big investors. Second, we complement the literature on information advantage with data at the investor account level. There are many papers which explore informational leakage using data on abnormal return, abnormal aggregate turnover, and short interest (e.g., see the early studies of Senchack and Starks, 1993, and Ederington and Lee, 1995). However, these papers lack a direct measure of how people who have an informational advantage trade on that information, and our paper fills this void. Finally, we extend our understanding of the Chinese stock market, which had 120 million investment accounts at year-end 2009 (China Securities Regulatory Commission (2009)). The Chinese market also had the second-largest market capitalization among all national stock markets at year-end 2010. Chen et al. (2007) and Feng and Seasholes (2008) both find that Chinese investors exhibit excessive trading because of the disposition effect, local bias, and under-diversification; just as retail investors in the US do. Our paper finds that investors

with large-sized accounts in the Chinese stock market profit from trading and beat the market, a piece of evidence that does not hold for US investors. Further analysis of this differential evidence would be a valuable opportunity for future research.

The remainder of the paper is organized as follows: Section I provides a description of the main data set we use for this research. Section II analyses the trading performance of all groups of investors. Section III presents an event study to explore the source superior performance of super investors. Section IV concludes.

## **I. Data description**

Our data on trading and daily portfolio holdings come from a top brokerage firm in China. The trading data contains 1.8 million investors' trading records from January 2007 to October 2009.<sup>2</sup> Our data set contains investors that trade common stocks, funds, treasury notes, and warrants. In this paper, we focus only on their trading of common stocks, which is about 80% of all trading records.

There are two stock exchanges in Mainland China, the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE). By the end of 2009, the 2,000 stocks traded on the SHSE and the SZSE had a combined total market capitalization of US\$ 3.5 trillion, making the Chinese stock market one of the largest in the world. To trade on the SHSE and the SZSE, investors can open one and only one permanent stock account with each exchange. Even if an investor decides to close his or her account with an exchange, the stock account's number is not recycled for future investors. This institutional setup

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<sup>2</sup> Many papers studying the trading patterns of individual investors in the US market that are based on the data set examined in Barber and Odean (2000). Their data set contains information from a large discount brokerage firm on the investments of 78,000 households from January 1991 through December 1994. Therefore, our data is newer and bigger compared to the data used in Barber and Odean (2000). More importantly, the daily position data, instead of the month-end position data, allow us to calculate returns more accurately.

allows us to track investors' performance consistently over our sample period. Therefore, our results are free of survivorship bias. Also, as mentioned, we use the same cutoffs as the exchanges for the values of portfolios used to classify the investors.

To eliminate effects arising from extremely inactive investors from our sample, we exclude investors who bought or sold shares less than 20 times during our sample period. Panel A in Table I shows the distribution of the number of investors in each category. We find that inactive accounts are limited to the small and middle groups of investors.

Panel A in Table I also presents a comparison of the investors' distribution by their holdings between our data set and the entire market. In the overall market, over 80% of the investors are small accounts, middle accounts are 15%, and only a tiny fraction of investors holds more than 1 million RMB in stock portfolios. Our data set has a more balanced distribution between small and middle accounts, 52% versus 42%. The fractions of big and super accounts are close to the market average.

Our sample period covers a turn from a bull to a bear market in 2007-2008. The values of the investors' portfolios also change with this market fluctuation. Panel B in Table I shows the mean portfolio size for different types of investors at each year-end for 2007, 2008, and 2009. The small and middle investors took the biggest hits with an average 42% loss in the values of their holdings during 2008. The super investors did a better job in managing their portfolios in the bear market with an average loss of 25%.

[Insert Table I here]

Panels A and B in Table II report the means and medians of the trade size, average price, monthly turnover, and commission costs for buy and sell transactions separately. For each group of investors, there are slightly more purchases than sales during the



sample period, although the average value of the stocks sold is slightly higher than the value of the stocks bought. The average purchase costs of small, middle, and big accounts are higher than the average sale prices of the corresponding accounts. However, for super accounts, the average sell price is slightly higher than the average purchase cost.

We also calculate the monthly portfolio turnover for each investor. The monthly purchase turnover is calculated as the total value of shares bought during month  $t$  divided by the total beginning-of-the-month market value of the portfolio, which is the end-of-the-month value at month  $t-1$ . To calculate the monthly sales turnover, we divide the total value of shares sold during month  $t$  by the total end-of-the-month market value of the portfolio for month  $t$ . In Panel C of Table II.A and Table II.B, we report that small investors buy 5.17% and sell 5.20% of their stock portfolio each month, although super investors purchase 7.74% and sell 11.84% of their stock portfolio each month.

In sum, the trade size, average trade price, and monthly turnover increase with the investors' wealth level. Investors with higher budgets probably can afford more expensive stocks and trade more frequently.

Following Barber and Odean (2000), we calculate the commission component of the transaction costs as the RMB value of the commission paid scaled by the total principal value of the transaction. We observe a decrease in commission costs with the account value level, which can be attributed to the lower commission fee charged by the brokerage firm for the super accounts.<sup>3</sup>

[Insert Table II Here]

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<sup>3</sup> To keep wealthy investors from moving to other brokerages, it is common to discount the commission for investors who trade frequently. For each sell trade, investors pay a handling fee, commission, and a stamp tax. If buying stocks, investors need to pay the handling fee and commission only. The handling fee is collected by exchanges, the commission is collected by brokers, and the stamp tax is collected by Treasury Department.

During the sample period, on average, investors hold no more than five stocks monthly. The stock holdings of small investors are even more concentrated with about three stocks each month. Under-diversification of individual portfolios, of course, is not a new finding in the finance literature. The reason for such low diversification could be budget constraints, limited attention, local bias, and or skewness preference (Mitton and Vorkink (2007) and Kumar (2006)).

If we further adjust the average holdings by the values of the investors' portfolios, then we find that small investors hold three times more stocks than super investors. Investors with over 5 million RMB in equity have enough funds to diversify their portfolios. Yet their portfolios are extremely under-diversified when conditioned on their portfolio sizes. Considering the high turnover of super accounts, the possibility exists that these investors are truly informed about valuable news that is related to the stocks they trade in.

[Insert Table III Here]

We obtain stock returns, market capitalizations, Fama and French's three factors, and accounting data from the China Stock Market & Accounting Research Database (CSMAR).

## **II. Return Performance**

### *A. Methods and Variable Definition*

We analyze the return performance of investments in common stocks according to their position value. Following Barber and Odean (2000), we calculate both the gross and net

returns for each group of investors. Leveraging on the daily portfolio data, we are able to calculate the daily returns then compound those into monthly returns.<sup>4</sup> To mitigate the impact of the market fluctuation in the sample period, we also calculate the risk-adjusted excess returns for comparison.

To consider the common stock portfolio of a particular investor, we calculate the gross daily return on his or her portfolio ( $R_{ht}^{gr}$ ) as

$$R_{ht}^{gr} = \sum_{i=1}^{S_{ht}} p_{it} R_{it}^{gr},$$

where  $p_{it}$  is the previous day's market value for the holding of stock  $i$  by investor  $h$  on day  $t$  divided by the previous day's market value of all stocks held by investor  $h$ ,  $R_{it}^{gr}$  is the gross daily return for stock  $i$ , and  $S_{ht}$  is the number of stocks held by investor  $h$  on day  $t$ . Then we calculate the gross monthly return ( $CR_{ht}^{gr}$ ) by compounding the daily return.

Similar to Barber and Odean (2000), we calculate a daily return net of transaction costs ( $R_{it}^{net}$ ) as

$$(1 + R_{it}^{net}) = (1 + R_{it}^{gr}) \frac{(1 - c_{it}^s)}{(1 + c_{i,t-1}^b)},$$

where  $c_{it}^s$  is the cost of sales divided by the sales price on day  $t$ , and  $c_{i,t-1}^b$  is the cost of purchases divided by the purchase cost on day  $t - 1$ . The costs of purchases and sales are calculated for each trade, including the commissions. The net daily portfolio return for each investor is

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<sup>4</sup> Due to the availability of only monthly portfolio statements, Barber and Odean (2000) calculate the monthly return with two assumptions, one is that all transactions occur on the last day of the month. The other is that there is no intra-month trading. We do not have to make these two assumptions, because our data set provides daily portfolio statements for each individual investor.

$$R_{ht}^{net} = \sum_{i=1}^{S_{ht}} p_{it} R_{it}^{net}.$$

The net monthly return ( $CR_{ht}^{net}$ ) is calculated by compounding the net daily return.

We estimate the gross and net monthly returns obtained by individual investors as

$$RI_t^{gr} = \frac{1}{n_{ht}} \sum_{h=1}^{n_{ht}} CR_{ht}^{gr} \text{ and } RI_t^{net} = \frac{1}{n_{ht}} \sum_{h=1}^{n_{ht}} CR_{ht}^{net},$$

where  $n_{ht}$  is the number of individual investors holding stocks in month  $t$ .

Furthermore, we calculate three measures of risk-adjusted performance: the market-adjusted abnormal return, the abnormal return estimated from the CAPM, and the abnormal return estimated from Fama and French's (1993) three-factor model.

First, the mean monthly market-adjusted abnormal return of the individual investors is calculated as the difference between the returns earned by individual investors and the returns on a value-weighted index of stocks traded on the SHSE and the SZSE.

Second, we calculate an alpha using the CAPM. We perform a regression of monthly excess returns obtained by individual investors on the market excess return. For instance, to evaluate the gross monthly return obtained by individual investors on average, we estimate the following monthly time-series regression:

$$(RI_t^{gr} - R_{ft}) = \alpha_i + \beta_i (R_{mt} - R_{ft}) + \epsilon_{it},$$

where  $R_{ft}$  is the monthly risk-free rate,  $R_{mt}$  is the monthly return on a value-weighted market index,  $\alpha_i$  is the CAPM intercept,  $\beta_i$  is the market beta, and  $\epsilon_i$  is the

error term. We estimate eight regressions: one each for the gross and net performances of the average individual investors for four types of accounts.

Third, we consider the Fama and French (1993)-based alpha. Thus, we estimate the following monthly time-series regression:

$$(RI_t^{gr} - R_{ft}) = \alpha_j + \beta_j(R_{mt} - R_{ft}) + s_jSMB_t + h_jHML_t + \epsilon_{it},$$

where  $SMB_t$  is the return on a value-weighted portfolio of small stocks minus the return on a value-weighted portfolio of large stocks, and  $HML_t$  is the return on a value-weighted portfolio of high book-to-market stocks minus the return on a value-weighted portfolio of low book-to-market stocks. Again, we estimate eight regressions based on the gross and net performances for four types of accounts.

## *B. Results*

The results of the risk-adjusted return analysis are presented in Table IV. Panels A, B, C, and D present the results for the gross and net performances for the accounts of the small, middle, big, and super investors. Each panel is divided into two sides, the left side is for the gross return analysis, and the right side is for the net return analysis.

For small investors, neither the market-adjusted return, nor the intercept test from the CAPM model, nor the intercept test from Fama and French's (1993) three-factor model are reliably different from zero. After considering transaction costs, the net excess return from all three performance measures for the small investors are all significantly below zero. The middle investors earn positive gross excess returns, but negative net

excess returns. The big investors also earn positive gross excess returns, and their net excess returns are not reliably different from zero.

Table IV shows that the average monthly excess gross (net) return for super investors is about 10% (8%) according to both the CAPM model and Fama and French's (1993) three-factor model. Cross-sectionally, the super investors outperform the other three groups of investors by more than 5% in both gross and net excess returns.

Also noteworthy in these results are the coefficient estimates on the market, size, and the book-to-market factors. The market betas for stocks held by all four groups of individual investors are greater than one. We do not find significant loadings on the *HML* factor for most of the accounts. Individual investors in the Chinese stock market might have difficulties in ascertaining the distinction between value and growth stocks. They might naïvely assume that stocks with lower prices are value stocks, without considering the underlying book value of the companies. We also observe that small, middle, and big investors are attracted to small stocks, as indicated by the significant loadings on the *SMB* factor.

For small, middle, and big investors, both the CAPM and Fama and French's (1993) three-factor model report a high adjusted R-square value around 90%. But these models do not fare well in explaining the returns of super investors, with adjusted R-squares around 40%. This difference is suggestive that the super investors select stocks differently from other investors. These differential stock-picking seems to translate to superior returns as indicated by the alphas and the raw average returns

[Insert Table IV Here]

### *C. Turnover and Return*

Barber and Odean (2000) find a negative relation between the performance and the trading frequency of individual investors. We now turn our focus to the trading frequency of super investors. To do so, we form quintile portfolios based on monthly turnover for each group of individual investors. We define the monthly turnover as the sum of turnovers for buy and sell transactions. We then calculate the average gross and net returns for each quintile portfolio.

Panels A, B, C, and D in Table V present the gross and net returns for each quintile for the small, middle, big, and super investors respectively. Focusing first on the gross performance (the top line of each panel), we find that high turnover portfolios earn higher average returns than low turnover portfolios for all four groups of investors, and the difference is significantly different from zero. Moreover, the relation between the turnover and the gross returns is monotonic: the more individual investors trade, the higher the gross returns are.

After considering transaction costs, we find that the small, middle, and big investors all earn negative net returns. The only exception is the super investors. These investors manage to earn positive net returns. Moreover, small and middle investors suffer from excessive trading. Their net returns decrease with the increase in their trading frequency. On the other hand, we find that big and super investors continue to exhibit a positive relation between net returns and turnover.

In sum, more trading increases the gross returns of small, middle, big and super investors, but the increases are not sufficient to compensate for the increases in the trading costs for small and middle investors. We also present the full sample results in

Panel E of Table V. The pattern is very similar to Barber and Odean (2000) in that turnover benefits gross returns but hurts net returns. In the far left column of Table V, we present the gross and net returns for all four groups of investors without partitioning them into turnover quintiles. We find that the gross and net returns increase with the value of the individual investors' portfolios.

[Insert Table V Here]

### **III. Information and Performance**

#### *A. Hypothesis Development*

Barber and Odean (2000) propose that overconfidence is the reason why individual investors trade excessively, and that transaction costs substantially affect net returns earned by individual investors. In the previous section, we show that super investors earn positive excess returns by trading intensively. So, what is the source of their superior performance? Could it be skill, an informational advantage, or both?

To answer this question, we perform an event study.<sup>5</sup> Because shorting in the Chinese stock market is not allowed, we limit our event to specific good news reaching the market: specifically, a high stock dividend announcement.

Listed companies in the Chinese stock market are reluctant to pay cash dividends. Instead, they prefer to distribute stock dividends. We define a high stock dividend as when a company declares at least a 50% dividend. There are about 59 high stock

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<sup>5</sup> Geng and Lu (2012) study stocks selections of super individual investors when they do not have inside information. They find super individual investors prefer stocks with low institutional holdings and with recent losses, because these stocks are more vulnerable to manipulations.



dividend events during our sample period. On average, stock prices rise about 5.8% ( $t\text{-stat} = 6.4$ ) in the 15 days after the dividends are paid.

Of course, paying stock dividends does not change companies' fundamentals. However, stock prices rise on average after managements make such decisions. So, why does the market react positively towards such a policy? A behavioral rationale is that the distribution of stock dividends makes stocks appear "cheaper."<sup>6</sup> As documented in the case of a stock split by Baker and Wurgler (2004), the nominal-price illusion could stimulate a positive reaction from investors and cause a price bubble.

As such, we conjecture that the average individual investor is lured by lower prices and buys stocks after the announcement. Meanwhile, the super investors with private information of the forthcoming high dividend announcement can potentially take advantage of the less wealthy individual investors' reactions by purchasing stocks before announcements and selling them afterwards. If we use buy-sell imbalances to indicate the trading direction of individual investors, then we can expect that super investors would be net buyers (sellers) of stocks that pay high dividends before (after) the announcement. Meanwhile, less wealthy individual investors are net sellers of stocks that pay high dividends before (after) the announcements.

The assumption that all super investors are informed about all of the high dividend announcements ahead of time is unreasonable. A natural hypothesis is that super investors are locally informed about companies located in the region in which they reside. Thus, we conjecture that super investors buy local stocks with stock-dividend

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<sup>6</sup> Signaling and liquidity considerations (Grinblatt, Msulis, and Titman, 1984, Lin, Singh, and Yu, 2009) may also play a role on the reaction of stock prices to stock dividend announcements. For our purposes, however, it is not necessary to ascertain the exact source of the stock price reaction to stock dividend announcements.

announcements before the announcements and sell them afterwards and that non-local super investors do not react in this way.

Based on the above analysis, we propose the following hypotheses:

*Hypothesis 1: Local super investors are net buyers before high stock dividend announcements; they are net sellers after the announcements.*

*Hypothesis 2: Local super investors gain by trading on the information about forthcoming high dividend announcements.*

### *B. Methods and Variable Definition*

Following Barber and Odean (2007), we use buy-sell imbalances to indicate the trading directions of the individual investors. The buy-sell imbalance is calculated as:

$$BSI_{i,t} = \frac{\sum_{h=1}^n Buy_{i,t} - \sum_{h=1}^n Sell_{i,t}}{\sum_{h=1}^n Buy_{i,t} + \sum_{h=1}^n Sell_{i,t}}$$

where  $n$  is the number of investors in each group that trades high dividend stock  $i$  in day  $t$ , and the *Buy* (*Sell*) is the volume of each transaction. As a robustness check, we also repeat the buy-sell imbalance analysis with dollar values, instead of quantities. To capture the impact of the high dividend announcement, we calculate the abnormal buy-sell imbalance by subtracting the benchmark level of the buy-sell imbalance from the actual buy-sell imbalance. The benchmark is estimated as the average buy-sell imbalance 360 days prior to the dividend-announcement event windows.<sup>7</sup>

To identify local and non-local investors, we obtain the registered cities of the listed companies and the branch address of the anonymous broker. If the distance

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<sup>7</sup> We perform a robustness check with a 180-day window, and find that the results are similar.

between the registered city and the broker branch is less than 300 kilometers, we label investors as local investors. Otherwise, they are non-local investors. For each incidence of events, local and non-local investors vary.

We also calculate the realized gain/loss and the unrealized gain/loss in the event periods. If investors did not sell the stock at the end of event window, we assume they sell it at the next day's closing price and regard this portion of the gain/loss as unrealized.

### *C. Empirical Results*

The buy-sell imbalances for each group of individual investors before and after the announcements are presented in Table VI. Panels A and B present the buy-sell imbalance as the number of shares traded for local and non-local individual investors, respectively.

The results in Table VI confirm Hypothesis 1 on the trading direction of individual investors. On average, local super investors buy before the announcements and sell afterwards. The buy-sell imbalances of non-local small, middle, and big investors are not significantly different from zero. The difference in imbalance between small investors and super investors is significantly different from zero. This significance is consistent with the notion that local super investors are better informed than their counterparts about the forthcoming high dividend announcements. Super investors take advantage of such information by buying ahead of the news.

As for non-local super investors, they are neutral about high dividend stocks. This is consistent with the notion that since they are likely not aware of the impending non-local news, they do not buy before the announcement.

The non-local small and middle investors are net sellers (buyers) of high dividends stocks before (after) the announcements. And it seems they react to such news more

strongly after it becomes public. For big investors, their trading before the announcements is even, but they also buy high dividend stocks after the announcements.

We repeat the exercise with the value of shares traded for local and non-local individual investors and present the results in Panels C and D. The results are similar.

[Insert Table VI Here]

Panels A and B in Table VII present the realized and unrealized returns from the trading of high dividend stocks by local individual investors. The realized gains are calculated as the difference between selling prices and average costs divided by average costs. The unrealized gains are calculated as the difference between closing prices and average costs divided by average costs.

Because of the disposition effect, individual investors tend to sell winning stocks but hold on to losing stocks. Not surprisingly, we find that those local individual investors who sell high dividend stocks realize positive returns, while super investors earn the highest returns of all of the groups of investors. Indeed, their realized returns are 3.6% before the announcements and 5.8% after the announcements. For local, small, and middle investors, positive realized returns are offset by the negative unrealized returns. Considering that less wealthy individual investors are net buyers after the announcements, we believe less wealthy individual investors buy overpriced stocks and hold them at losses.

Panels C and D in Table VII present the realized returns and unrealized returns as a result of the trading of high dividend stocks by non-local individual investors. We find that non-local super investors do not earn significant returns during the events. It is reasonable that if they do not buy high dividend stocks before the announcements, then

they were not aware of the news. This is consistent with our findings from the analysis of the buy-sell imbalance that non-local super investors are neither net buyers nor net sellers of high dividend stocks. For less wealthy individual investors, their realized and unrealized returns offset each other as well.

[Insert Table VII Here]

#### *D. A Robustness Check*

We observe that not all companies that do well in the previous fiscal year distribute stock dividends or pay any kind of dividends. Also companies with good operational results do not always attract investors' attention. We propose that super investors trade on their private information about forthcoming stock dividend announcements. Thus, we expect that they do not prefer companies with good fundamentals but companies that issue stock dividends.

Under this conjecture, we look for a group of companies that have similar fundamentals, compared to those paying high stock dividends, but that do not issue stock dividends at all. Following the literature, we consider earnings per share, total asset (log), asset growth, profitability, and the book-to market ratio in selecting the control companies. Using the propensity score matching technique we are able to find one-to-one matches between each high stock dividend company and a matched counterpart. We repeat the buy-sell imbalance analysis on the matched companies around the dates of the dividend announcements.

Panels A and B in Table VIII present the results of the buy-sell imbalance analysis. In general, neither the local nor the non-local individual investors in the medium, big, and

super groups exhibit significant demands for the stocks of control companies during the event windows. This finding is consistent with our conjecture that local super investors trade on their information about forthcoming good news.

We repeat the exercise with the value of shares traded for local and non-local individual investors and present the results in Panels C and D in Table VIII. The results are similar.

[Insert Table VIII Here]

#### **IV. Conclusion**

We analyze the returns earned on common stock investments by 1.8 million individual investors in a leading brokerage firm in the Chinese stock market for three years ending in October 2009. While overall, individual investors underperform the market net of trading costs, a group of “super” investors with very high portfolio values earn materially positive net returns. Moreover, the more they trade, the higher the net return that they earn. This finding is at odds with the notion that excessive trading hurts individual investors’ wealth.

After studying buy-sell imbalances and realized/unrealized gains of individual investors around stock dividend announcements, we find that super investors buy high dividend stocks before the announcements and sell them when the information becomes public. They earn about a 10% return on average from trading these stocks. We also find that super investors’ profits from such events are restricted to those concerning local companies. We thus conclude that it is an informational advantage helps super individual investors to achieve their positive alpha.

Our paper has important implications for understanding trading behavior. Recent research links proxies for cognitive ability to trading performance (Grinblatt, Keloharju, and Linnainmaa, 2012). A possible explanation for our results might be that investors with high-value portfolios are rich, and got rich because of their higher cognitive ability. However, the notion that their profitable trades emanate mostly from local stocks seems to point to profitable information networks, rather than cognitive ability. Nonetheless, further disentanglement of network effects and cognitive ability would seem to be a very interesting arena for future research.

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### Super Accounts Gross/Net Annualized Return by Turnover

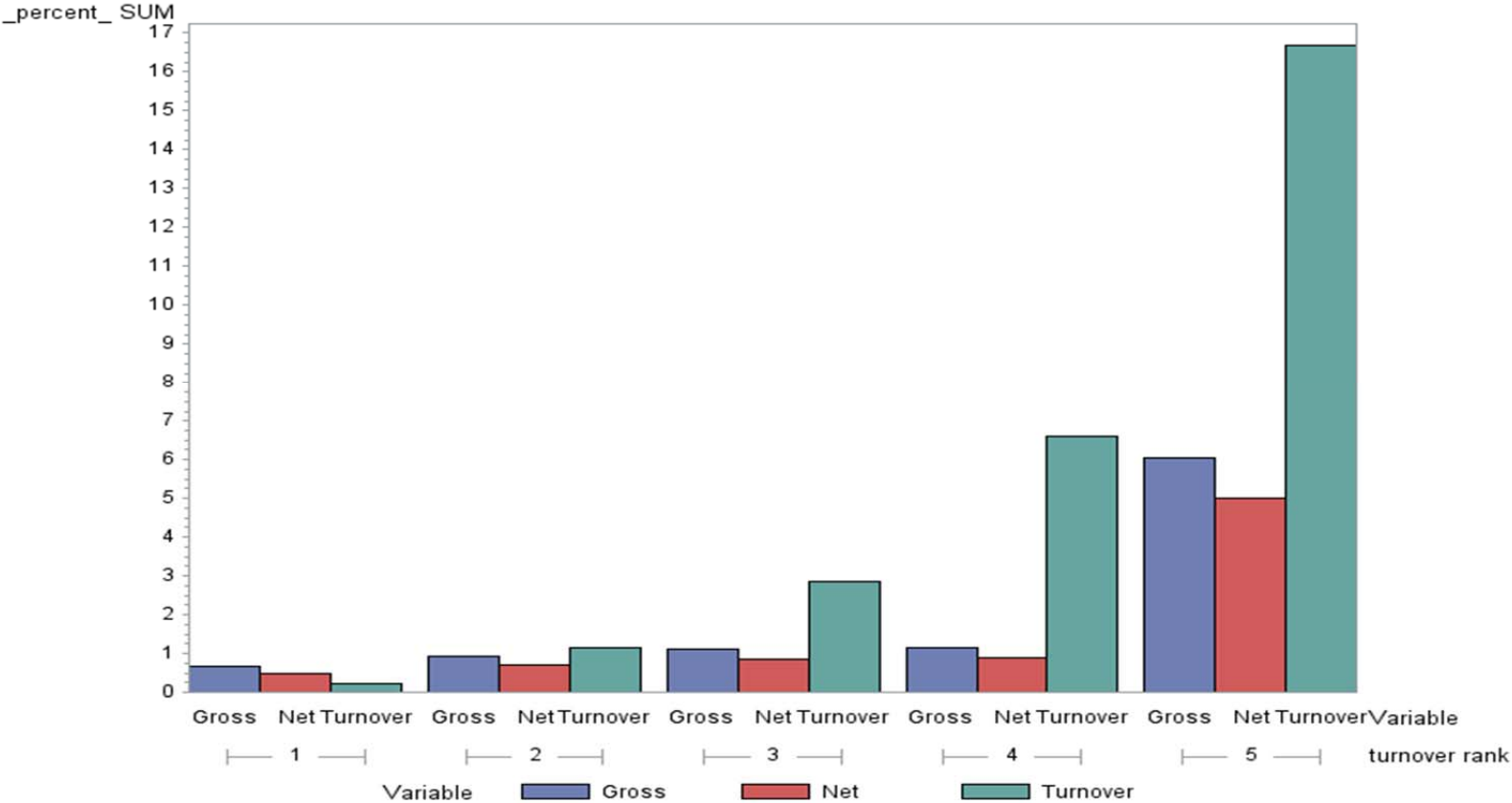


FIGURE I RELATION BETWEEN TURNOVER AND RETURNS FOR SUPER ACCOUNTS

We divide super accounts investors into quintiles by turnover. Turnovers are measured monthly by summing the sale turnover and buy turnover. Gross returns are measured monthly and net returns are calculated by subtracting trading costs. It turns out that high turnover brings high returns for wealthy investors.

TABLE I ACCOUNTS DISTRIBUTION

Active accounts are investors who bought or sold shares at least 20 times during our sample period, January 2007-October 2009. Small accounts are investors with portfolios worth less than 100,000 RMB at any point, Middle accounts are investors with portfolios worth less than 1,000,000 RMB at any point, Big accounts are investors with portfolios worth less than 5,000,000 RMB at any point, and Super accounts are investors with portfolios worth more than 5,000,000 RMB at any point. Market statistics are from Shanghai Stock Exchange (SHSE) fact book for year 2008 and 2009.

Panel A: Number of Accounts Distribution

Accounts	Active	Active (%)	Total	Total (%)	2008 SHSE (%)	2009 SHSE (%)
Small	529970	52.98	1104325	65.96	91.97	82.78
Middle	419975	41.98	519476	31.03	7.62	15.99
Big	44353	4.43	44353	2.65	0.36	1.1
Super	6028	0.60	6028	0.36	0.05	0.12

Panel B: Size of Accounts Distribution

Account	Mean (2007)	Mean (2008)	Change (%)	Mean (2009)	Change (%)
Small	9,641.92	5,635.51	41.5	10,013.78	77.7
Middle	45,962.31	25,293.34	44.9	45,038.07	78.1
Big	297,679.96	154,783.97	48.0	273,367.32	77.1
Super	4,087,718.26	3,046,965.60	25.4	5,641,246.56	85.1

TABLE II.A SUMMARY STATISTICS FOR BUY TRANSACTIONS

The sample is account records for 1.8 million individual investors at a national brokerage firm from January 2007 to October 2009. Small accounts are investors with portfolios worth less than 100,000 RMB at any point, Middle accounts are investors with portfolios worth less than 1,000,000 RMB at any point, Big accounts are investors with portfolios worth less than 5,000,000 RMB at any point, and Super accounts are investors with portfolios worth more than 5,000,000 RMB at any point. Monthly turnover is the total trade value divided by average portfolio size. Commission is calculated as the commission paid divided by the value of the trade.

	Small	Middle	Big	Super
<b>Panel A: Trade Size (RMB)</b>				
Mean	6,158	18,733	67,321	237,815
25 <sup>th</sup> Percentile	1,995	4,340	11,075	33,550
Median	3,860	8,950	28,590	92,200
75 <sup>th</sup> Percentile	7,350	19,560	72,120	234,800
Std. Dev.	7,427	32,694	126,337	683,328
# of Obs.	44,930,409	72,432,032	11,700,368	2,644,357
<b>Panel B: Price/share</b>				
Mean	12.48	14.45	15.64	16.25
25 <sup>th</sup> Percentile	6.62	7.24	7.61	7.80
Median	9.68	10.90	11.64	11.97
75 <sup>th</sup> Percentile	15	17.16	18.50	19.06
Std. Dev.	9.77	12.22	13.82	14.62
# of Obs.	44,930,409	72,432,032	11,700,368	2,644,357
<b>Panel C: Monthly Turnover(%)</b>				
Mean	5.17	6.46	6.58	7.74
25 <sup>th</sup> Percentile	2.50	2.45	2.03	1.95
Median	3.73	3.96	3.76	3.89
75 <sup>th</sup> Percentile	5.95	6.82	7.10	7.89
Std. Dev.	6.04	12.17	11.75	18.56
# of Obs.	529,868	419,679	43,684	5,713
<b>Panel D: Commission (%)</b>				
Mean	0.45	0.36	0.27	0.22
25 <sup>th</sup> Percentile	0.28	0.21	0.12	0.08
Median	0.40	0.32	0.23	0.18
75 <sup>th</sup> Percentile	0.58	0.49	0.40	0.36
Std. Dev.	0.33	0.29	0.29	0.23
# of Obs.	44,930,409	72,432,032	11,700,368	2,644,357

TABLE II.B SUMMARY STATISTICS FOR SALE TRANSACTIONS

The sample is account records for 1.8 million individual investors at a national brokerage firm from January 2007 to October 2009. Small accounts are investors with portfolios worth less than 100,000 RMB at any point, Middle accounts are investors with portfolios worth less than 1,000,000 RMB at any point, Big accounts are investors with portfolios worth less than 5,000,000 RMB at any point, and Super accounts are investors with portfolios worth more than 5,000,000 RMB at any point. Monthly turnover is the total trade value divided by average portfolio size. Commission is calculated as the commission paid divided by the value of the trade.

	Small	Middle	Big	Super
<b>Panel A: Trade Size (RMB)</b>				
Mean	6,919	22,184	80,471	272,136
25 <sup>th</sup> Percentile	2,915	4,970	12,890	40,122
Median	4,293	10,365	34,000	109,800
75 <sup>th</sup> Percentile	8,305	23,560	86,700	278,772
Std. Dev.	8,267	37,963	146,513	615,292
# of Obs.	38,797,064	60,222,095	9,723,899	2,395,542
<b>Panel B: Price/share</b>				
Mean	12.33	14.21	15.47	16.36
25 <sup>th</sup> Percentile	6.53	7.15	7.57	7.92
Median	9.53	10.75	11.56	12.17
75 <sup>th</sup> Percentile	14.80	16.90	18.31	19.34
Std. Dev.	9.71	12.02	13.54	14.38
# of Obs.	38,797,064	60,222,095	9,723,899	2,395,542
<b>Panel C: Monthly Turnover (%)</b>				
Mean	5.20	6.75	8.36	11.84
25 <sup>th</sup> Percentile	2.49	2.48	2.06	1.88
Median	3.70	3.96	3.77	3.81
75 <sup>th</sup> Percentile	5.88	6.82	7.20	7.98
Std. Dev.	7.54	13.03	12.54	24.03
# of Obs.	529,913	419,891	44,018	5,963
<b>Panel D: Commission (%)</b>				
Mean	0.55	0.44	0.36	0.29
25 <sup>th</sup> Percentile	0.35	0.28	0.20	0.16
Median	0.42	0.37	0.28	0.21
75 <sup>th</sup> Percentile	0.57	0.48	0.40	0.36
Std. Dev.	1.85	1.65	1.63	1.29
# of Obs.	38,797,064	60,222,095	9,723,899	2,395,542

TABLE III AVERAGE MONTHLY HOLDINGS OF INDIVIDUAL INVESTORS

This table presents number of stocks held by investors on average. Small accounts are investors with portfolios worth less than 100,000 RMB at any point, Middle accounts are investors with portfolios worth less than 1,000,000 RMB at any point, Big accounts are investors with portfolios worth less than 5,000,000 RMB at any point, and Super accounts are investors with portfolios worth more than 5,000,000 RMB at any point. To control for the wealth level of different accounts, number of stocks are divided by average portfolio size.

	Average Number of Stock Holding	Wealth Adjust number of Stock Holding
Small	2.68	0.00139
Middle	4.01	0.00093
Big	5.06	0.00061
Super	5.00	0.00053

TABLE IV SUMMARY OF THE PERCENTAGE MONTHLY ABNORMAL RETURN MEASURES

Gross returns are based on daily position statements for 1.8 million individual investors at a national brokerage firm from January 2007 to October 2009. Net returns are gross returns adjusted by trading costs. Panel A-D presents results for the gross (net) return on a portfolio that mimics the average investors of different accounts. Market-adjusted return is the return on the investor portfolio less the return on index. CAPM is the results from a time-series regression of the investor excess return on the market excess return. Fama-French three-factor is the results from time-series regression of investor excess return on the market excess return, a book-to-market portfolio, and a size portfolio. *P*-values are presented in parentheses.

	Gross Percentage Monthly Returns					Net Percentage Monthly Returns				
	Excess Return	Coefficient Estimate on:			Adjusted $R^2$	Excess Return	Coefficient Estimate on:			Adjusted $R^2$
		$(R_{mt}-R_{ft})$	$HML_t$	$SMB_t$			$(R_{mt}-R_{ft})$	$HML_t$	$SMB_t$	
<b>Panel A: Small Investors (<math>\leq</math> RMB 100K)</b>										
Market-adjusted return	0.031* (0.100)					-0.037*** (0.000)				
CAPM	0.017 (0.129)	1.042*** (0.000)			83.0	-0.027*** (0.000)	0.942*** (0.000)			83.6
Fama-French three-factor	0.001 (0.781)	0.999*** (0.000)	0.240** (0.035)	0.746*** (0.000)	95.2	-0.034*** (0.000)	0.883*** (0.000)	0.350 (0.160)	0.490*** (0.000)	85.9
<b>Panel B: Middle Investors (RMB 100K ~ RMB 1M)</b>										
Market-adjusted return	0.046** (0.021)					-0.018*** (0.000)				
CAPM	0.030*** (0.005)	1.145*** (0.000)			82.4	-0.011** (0.039)	0.982*** (0.000)			88.3
Fama-French three-factor	0.018** (0.042)	1.118*** (0.000)	0.125 (0.356)	0.569*** (0.000)	87.3	-0.016*** (0.000)	0.934*** (0.000)	0.297 (0.103)	0.396*** (0.000)	82.5
<b>Panel C: Big Investors (RMB 1M ~ RMB 5M)</b>										
Market-adjusted return	0.056*** (0.005)					0.038*** (0.013)				
CAPM	0.040*** (0.001)	1.122*** (0.000)			85.4	0.009* (0.076)	1.020*** (0.000)			80.8
Fama-French three-factor	0.028*** (0.001)	1.095*** (0.000)	0.117 (0.436)	0.609*** (0.000)	91.8	0.005 (0.314)	0.983*** (0.000)	0.247** (0.029)	0.260** (0.021)	91.0
<b>Panel D: Super Investors (<math>\geq</math> RMB 5M)</b>										
Market-adjusted return	0.128*** (0.002)					0.097*** (0.006)				
CAPM	0.105*** (0.003)	1.436*** (0.000)			42.9	0.079*** (0.004)	1.213*** (0.000)			41.3
Fama-French three-factor	0.097** (0.011)	1.430*** (0.000)	-0.048 (0.919)	0.401 (0.453)	39.9	0.075** (0.021)	1.200*** (0.000)	0.089 (0.823)	0.196 (0.678)	37.6
<b>Panel E: Difference: Super-Small</b>										
Market-adjusted return	0.096*** (0.003)					0.135*** (0.000)				
CAPM	0.088***					0.104***				



Fama-French three-factor	(0.007) 0.095** (0.014)	(0.000) 0.108** (0.000)
Panel F: Difference: Super-Others		
Market-adjusted return	0.081** (0.012)	0.098*** (0.000)
CAPM	0.072*** (0.009)	0.089*** (0.000)
Fama-French three-factor	0.074*** (0.000)	0.091*** (0.000)

\*\*\* Significant at the 1% level.

\*\* Significant at the 5% level.

\* Significant at the 10% level.

TABLE V—GROSS RETURNS AND NET RETURNS FOR INVESTOR QUINTILES FORMED ON MONTHLY AVERAGE TURNOVER

Gross returns are based on daily position statements for 1.8 million individual investors at a national brokerage firm from January 2007 to October 2009. Net returns are gross returns adjusted by trading costs. For each group of investors, we divide investors into quintiles by monthly turnover. Panel A-B shows that net return decreases with an increase in turnover for less wealthy investors. Panel C-D shows that net return increases with an increase in turnover for more wealthy investors. Panel E repeats the exercise after pooling across all levels of wealth, and shows turnover hurts net returns on average. Differences between highest turnover quintile and lowest turnover quintile are included. *P*-values are presented in parentheses.

	All	Turnover Quintile					Difference: High-Low
		1 (Low)	2	3	4	5 (High)	
<b>Panel A: Small Investors (<math>\leq</math> RMB100K)</b>							
Gross Return	0.49	0.25	0.31	0.35	0.46	1.20	0.95*** (0.001)
Net Return	-7.97	-7.61	-7.72	-7.93	-8.11	-8.22	-0.61*** (0.000)
<b>Panel B: Middle Investors (RMB100K ~ RMB1M)</b>							
Gross Return	0.67	0.41	0.46	0.49	0.56	1.86	1.45* (0.085)
Net Return	-7.42	-7.16	-7.27	-7.45	-7.63	-7.48	-0.32 (0.290)
<b>Panel C: Big Investors (RMB1M ~ RMB5M)</b>							
Gross Return	0.79	0.56	0.64	0.73	0.83	1.45	0.89*** (0.000)
Net Return	-0.82	-0.90	-0.88	-0.87	-0.84	-0.45	0.46*** (0.000)
<b>Panel D: Super Investors (<math>\geq</math> RMB5M)</b>							
Gross Return	1.65	0.69	0.94	1.12	1.16	6.04	5.36** (0.037)
Net Return	1.29	0.48	0.70	0.85	0.88	4.99	4.51** (0.049)
<b>Panel E: All Investors</b>							
Gross Return	0.57	0.35	0.40	0.44	0.54	1.56	1.21** (0.021)
Net Return	-7.35	-6.96	-7.21	-7.40	-7.54	-7.31	-0.35* (0.083)
<b>Panel F: Difference: Super-Small</b>							
Gross Return	1.15*** (0.000)	0.45*** (0.000)	0.64*** (0.000)	0.78*** (0.000)	0.69*** (0.000)	4.85*** (0.000)	
Net Return	9.27*** (0.000)	8.10*** (0.000)	8.42*** (0.000)	8.79*** (0.000)	8.98*** (0.000)	13.21*** (0.000)	
<b>Panel G: Difference: Super-Others</b>							
Gross Return	1.10*** (0.000)	0.37*** (0.000)	0.56*** (0.000)	0.62*** (0.000)	0.49*** (0.000)	4.22*** (0.000)	
Net Return	9.12*** (0.000)	7.76*** (0.000)	7.82*** (0.000)	7.94*** (0.000)	7.97*** (0.000)	12.38*** (0.000)	

\*\*\* Significant at the 1% level.

\*\* Significant at the 5% level.

\* Significant at the 10% level.

TABLE VI BUY/SELL IMBALANCE AROUND THE HIGH STOCK DIVIDEND ANNOUNCEMENT (30 DAYS)

Local investors are those within 300 km of the center of cities where listed firms are registered. Net Buy is the difference between buy and sell divided by the sum of buy and sell. Before and After are periods before and after high stock dividend announcements. Differences between small accounts and super accounts are reported as well. *P*-values are presented in parentheses.

	Account Size				Difference Super-Small
	Small	Middle	Big	Super	
<i>Panel A: Local Investors Net Buy Volume</i>					
Before	0.016 (0.734)	0.012 (0.804)	0.045 (0.554)	0.357*** (0.009)	0.341*** (0.005)
After	0.030 (0.367)	0.091** (0.022)	0.016 (0.826)	-0.224* (0.078)	-0.254** (0.024)
<i>Panel B: Non-local Investors Net Buy Volume</i>					
Before	-0.044** (0.016)	-0.036** (0.035)	0.001 (0.982)	-0.003 (0.953)	0.040 (0.501)
After	0.086*** (0.000)	0.090*** (0.000)	0.081*** (0.006)	-0.002 (0.977)	-0.087 (0.133)
<i>Panel C: Local Investors Net Buy Value</i>					
Before	0.011 (0.821)	0.015 (0.752)	0.048 (0.531)	0.359*** (0.008)	0.348*** (0.004)
After	0.037 (0.287)	0.090** (0.026)	0.011 (0.881)	-0.221* (0.084)	-0.257** (0.023)
<i>Panel D: Non-local Investors Net Buy Value</i>					
Before	-0.045** (0.012)	-0.038** (0.032)	-0.001 (0.979)	-0.013 (0.827)	0.033 (0.584)
After	0.083*** (0.000)	0.091*** (0.000)	0.079*** (0.008)	-0.004 (0.940)	-0.087 (0.137)

\*\*\* Significant at the 1% level.

\*\* Significant at the 5% level.

\* Significant at the 10% level.

TABLE VII REALIZED AND UNREALIZED RETURN AROUND THE HIGH STOCK DIVIDEND ANNOUNCEMENT (30 DAYS)

Local investors are those within 300 km of the center of cities where listed firms are registered. Realized return is calculated if investors sell their holdings. Unrealized return is calculated using the closing price at the end of 30 days if investors still hold their positions. Before and After are periods before and after high stock dividend announcements. Difference between small accounts and super accounts are reported as well. *P*-values are presented in parentheses.

	Account Size				Difference Super-Small
	Small	Middle	Big	Super	
<i>Panel A: Local Investors Realized Return</i>					
Before	0.017*** (0.000)	0.017*** (0.000)	0.041*** (0.000)	0.036** (0.033)	0.019 (0.310)
After	0.007*** (0.000)	0.006*** (0.000)	0.048*** (0.000)	0.058** (0.015)	0.030** (0.034)
<i>Panel B: Local Investors Unrealized Return</i>					
Before	-0.015*** (0.000)	-0.021*** (0.000)	-0.002 (0.850)	0.001 (0.981)	0.015 (0.411)
After	-0.006** (0.028)	-0.010*** (0.000)	-0.003 (0.748)	0.003 (0.953)	0.008 (0.665)
<i>Panel C: Non-local Investors Realized Return</i>					
Before	0.014*** (0.000)	0.006*** (0.000)	0.007*** (0.000)	0.004 (0.334)	-0.010*** (0.000)
After	0.003*** (0.004)	0.011*** (0.000)	0.018*** (0.000)	0.013*** (0.005)	0.010** (0.030)
<i>Panel D: Non-local Investors Unrealized Return</i>					
Before	-0.023*** (0.000)	-0.018*** (0.000)	-0.004 (0.204)	-0.009 (0.335)	0.014** (0.032)
After	-0.015*** (0.000)	-0.013*** (0.000)	-0.005** (0.037)	-0.011 (0.232)	0.004 (0.496)

\*\*\* Significant at the 1% level.

\*\* Significant at the 5% level.

\* Significant at the 10% level.

TABLE VIII BUY/SELL IMBALANCE AROUND THE HIGH STOCK DIVIDEND ANNOUNCEMENT (CONTROL FIRM, 30 DAYS)

Control firms are identified using Propensity Score Match. Local investors are those within 300 km of the center of cities where listed firms are registered. Net Buy is the difference between buy and sell divided by the sum of buy and sell. Before and After are periods before and after high stock dividend announcements. Difference between small accounts and super accounts are reported as well. *P*-values are presented in parentheses.

	Account Size				Difference Super-Small
	Small	Middle	Big	Super	
<i>Panel A: Local Investors Net Buy Volume</i>					
Before	0.010 (0.816)	0.045 (0.284)	0.052 (0.485)	0.096 (0.353)	0.086 (0.381)
After	0.072 (0.115)	-0.014 (0.727)	-0.065 (0.303)	-0.067 (0.464)	-0.139 (0.131)
<i>Panel B: Non-local Investors Net Buy Volume</i>					
Before	0.016 (0.349)	-0.007 (0.576)	-0.041 (0.102)	0.025 (0.718)	0.008 (0.900)
After	0.033** (0.019)	0.016 (0.261)	0.021 (0.429)	-0.044 (0.506)	-0.078 (0.235)
<i>Panel C: Local Investors Net Buy Value</i>					
Before	0.010 (0.810)	0.042 (0.314)	0.050 (0.504)	0.098 (0.341)	0.087 (0.370)
After	0.069 (0.130)	-0.016 (0.693)	-0.069 (0.276)	-0.064 (0.482)	-0.133 (0.148)
<i>Panel D: Non-local Investors Net Buy Value</i>					
Before	0.014 (0.413)	-0.008 (0.553)	-0.042* (0.100)	0.030 (0.654)	0.016 (0.814)
After	0.030** (0.035)	0.015 (0.267)	0.019 (0.488)	-0.047 (0.484)	-0.077 (0.239)

\*\*\* Significant at the 1% level.

\*\* Significant at the 5% level.

\* Significant at the 10% level.