Do Domestic Investors Have an Information Advantage? Evidence from Indonesia

Tomáš Dvořák*

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ABSTRACT

Using transaction data from Indonesia, this paper shows that domestic investors have higher profits than foreign investors. In addition, clients of global brokerages have higher long-term and smaller medium (intramonth) and short (intraday) term profits than clients of local brokerages. This suggests that clients of local brokerages have a short-lived information advantage, but that clients of global brokerages are better at picking long-term winners. Finally, domestic clients of global brokerages have higher profits than foreign clients of global brokerages, suggesting that the combination of local information and global expertise leads to higher profits.

The question of whether domestic investors have better information than foreign investors is increasingly controversial. There are arguments that support both sides of the issue. One argument is that domestic investors have an advantage because information does not have to travel over physical, linguistic, or cultural distances. Conversely, foreign investors may have an information advantage because they have a significant amount of investment experience and expertise. Formal empirical evidence on this issue is also mixed. While Choe, Kho, and Stulz (2001) using Korean data, and Hau (2001a) using German data find that foreigners are at a disadvantage, Seasholes (2000) using Taiwanese data, Grinblatt and Keloharju (2000) using Finnish data, and Froot and Ramadorai (2001) using a cross-section of 25 countries make a convincing case that foreigners do better than local investors. Furthermore, Kang and Stulz (1997) using Japanese data find no difference in the performance of domestic and foreign investors.

This paper investigates information asymmetries in Indonesia using transaction data from the Jakarta Stock Exchange (JSX). The most critical aspects of the data are that every transaction record contains information on whether the buyer or seller was a domestic or foreign investor, and the names of the brokerage firms on both sides of the transaction.[1] The identification of both the investor type and the brokerage lets me examine information asymmetries at both the investor and the brokerage levels. At the first level I compare the performance of foreign and domestic investors regardless of which brokerage they use. At the second level I compare the performance of clients of different types of brokerages. On the JSX there are local brokerages as well as brokerages associated with foreign firms, such as Merrill Lynch or J. P. Morgan. While brokerages may simply execute orders from investors, they also provide advice to their clients. I test the hypothesis that clients of foreign brokerages have an information advantage because of the superior advice that they receive. Finally, at the third level, I test whether there are systematic differences in performance of domestic and foreign clients of each brokerage. While local brokerages cater almost exclusively to domestic investors, foreign brokerages serve both foreign and domestic clients. It is possible that domestic investors who use a foreign brokerage have the best of both worlds - they have access to local information as well as to the expertise and experience of a foreign brokerage. This is similar to the finding of Chang (2002) that foreign analysts based in an emerging economy outperform both foreign analysts based outside of the economy as well as domestic analysts.

How can one find out who has the information advantage? A surprising variety of approaches is used in the literature. The specific method employed is usually driven by the availability and format of the data. A detailed discussion of previously used approaches and their advantages and

disadvantages is in Section I. This paper closely follows the method used by Hau (2001a) and developed by Hasbrouck and Sofianos (1993). The reason for choosing this method is that it conforms very well to the data at hand and that it possesses a number of advantages over alternatives. The method consists of calculating per-transaction profits of a group of investors where profits are calculated as the product of stock holdings and the price increase. If a group of investors has better information, their profits should be higher than those of other investors.

In addition to providing a straightforward measure of performance, the method allows decomposition of profits into those coming from short-, medium- and long-run trading. This is because the profit measure is a product of two stationary variables: holdings and price changes. Profits are high when the two move together. Spectral techniques can be used to decompose the comovement into different frequency bands. For example, high frequency comovement of holdings and price changes can be attributed to short-run profits, while low frequency comovement of holdings and price changes can be attributed to long run profits. This decomposition may help in understanding the nature of the information asymmetries that may exist. For example, when domestic investors have short-lived inside information, they should have greater short-term profits, while superior stock picking ability should lead to long-term profits.

There are at least three reasons why the question of information asymmetries in international equity markets is important. First, when domestic investors have better information, foreign investors may be reluctant to invest in local securities. This generates home bias, which implies insufficient risk-sharing and excessive volatility in consumption, resulting in welfare losses.[2] Second, Griffin, Nardari, and Stulz (2002) point out that a model with perfect information cannot explain one of the stylized facts in international finance - the positive contemporaneous relationship between net equity flows and returns. They argue that a model in which foreign investors are less informed than domestic investors can explain this stylized fact. Finally, the fear that local equity investors are better informed leads foreigners to invest in debt rather than in equity. This makes international equity flows far smaller then debt flows. Debt does not provide as much risk-sharing as equity does. Furthermore, the Asian financial crisis and now the crisis in Argentina underline the disadvantages of debt. Efforts to replace debt finance with equity are underway (see, for example, Rogoff (1999)). In order to facilitate the shift from debt to equity, it is important to understand the nature of the asymmetries that exist in these markets.

The remainder of the paper is organized as follows: I discuss existing work on information asymmetries between foreign and domestic investors in Section I. I follow with a description of the

data in Section II and methodology in Section III. The evidence on information asymmetries is presented in Section IV.

I. Existing Work on Information Asymmetries between Foreign and Domestic Investors

This section reviews methods used in the existing work on information asymmetries between foreign and domestic investors. In an early study, Brennan and Cao (1997) make inferences from the correlation between aggregate monthly equity flows and returns. More recent studies use substantially more detailed data. Grinblatt and Keloharju (2000) measure the performance of foreign versus domestic investors by comparing a group's tendency to buy future winning stocks and sell future losing stocks. Future winning (losing) stocks are those with 6-month returns that fall in the top (bottom) quartile. The tendency to buy winners and sell losers is computed as the difference between the foreign share in buy volume of winning stocks minus the foreign share in buy volume of losing stocks. The measure of performance is intuitive but requires judgment as to the horizon at which returns are measured and the thresholds for classifying winners and losers.

Kang and Stulz (1997) calculate average monthly excess returns earned by foreign investors in Japan. These are calculated as the difference between value-weighted returns on foreign portfolio and the Japanese market portfolio. The return on the foreign portfolio is calculated as the foreign ownership weighted average of returns on Japanese stocks.[3] The advantage of this approach is that it provides a measure of relative performance in terms of returns the magnitude of which can be easily interpreted. The disadvantage is that the returns are measured monthly, but in reality positions change daily or even hourly. For example, if a foreign investor sold a winning stock at the beginning of the month, excess returns of foreign investors for that month would be overstated.

Choe, Kho, and Stulz (2001) compare intraday prices at which domestic and foreign investors trade. They find that foreign investors buy at higher and sell at lower intraday prices than foreigners. The advantage of this approach is that it is independent of any asset pricing model, i.e., there is no need to take risk into account. However, it compares foreign and domestic investors only at the intraday frequency. This precludes the possibility that information asymmetry between foreign and domestic investors may exist in the long run. In addition, their approach cannot distinguish between information asymmetry and positive feedback trading on the part of foreign investors. For example, if foreigners buy after price increases, they pay higher prices, but it is unclear whether this should

be interpreted as a difference in information or investment style.

Mark Seasholes (2000), in looking at Taiwan, combines three approaches. First, he looks at net foreign buying prior to positive and negative earnings surprises. He finds that foreigners tend to buy prior to positive and sell prior to negative earnings surprises. The advantage of the event study is its simplicity and ease of interpretation. The disadvantage is that it uses only a subset of the data. Second, he calculates daily returns on a representative foreign portfolio. The return is a weighted average return across securities where the weights are portfolio shares. Portfolio shares are in turn calculated based on initial holding levels and daily net purchases of securities by foreigners. Thus, unlike Kang and Stulz (1997), returns are calculated daily (rather than monthly). More importantly, the weights are adjusted daily. The daily returns on the foreign portfolio are regressed on a constant and on the market returns. The estimated constant is positive and statistically significant, indicating that foreigners earn above market-risk adjusted returns. This of course assumes that the relevant market portfolio for foreigners is the Taiwanese market. Finally, he uses a bivariate VAR of market returns and aggregate flows to find out whether foreign net inflows predict returns. He interprets the predictive power of flows as an information advantage on the part of foreign investors. However, foreign flows could also predict returns due to the price pressure of foreign purchases.

Froot and Ramadorai (2001) attempt to distinguish between the information advantage and price pressure hypotheses. Using data on institutional equity flows from the U.S. to a cross-section of 25 countries, they look at the impact of foreign purchases on the prices of associated closed-end country funds. They find that foreign purchases predict not only prices in foreign markets, but also prices of closed-end country funds, even after controlling for closed-end fund purchases. This is consistent with foreigners having better information than local investors.

II. Data Description

The data used in this paper come from the Jakarta Stock Exchange main trading board.[4] The main trading board operates as a continuous auction. All orders are entered by member brokers as limit orders and are then matched by the computer according to price and time priorities. The data consists of records for every transaction from January 1998 until the end of 2001. Each record contains the date, stock code, transaction price, and volume of shares. Most importantly, each transaction record indicates whether the investor represented by the broker is a domestic or foreign

investor, and shows the identities of the brokerage firms involved in the transaction. In addition, each transaction record contains the buy and sell order numbers. Since order numbers are assigned sequentially, it is possible to identify whether the trade was buy or sell initiated.[5]

While there are nearly 300 issues listed on the JSX, I restrict my sample to the 30 most liquid stocks. These are the top 30 stocks based on the number of trades during the sample period.[6] Table I lists the firms together with a number of descriptive statistics. The 30 firms account for about half of the total market capitalization, trading volume, and the number of trades. They account for over 70% of the total value traded. Foreign share in the trading volume of the 30 stocks is 20.6%. This is two percentage points higher than foreign share in the volume of all stocks, indicating that foreigners trade liquid stocks more than less liquid stocks. Restricting the sample to only the most liquid stocks serves two purposes. First, it allows me to investigate information advantage at high as well as low frequencies. Investigating intraday trading for infrequently traded stocks is impossible. Second, it puts foreign and domestic investors on a somewhat equal footing. Given the reluctance of foreign investors to trade small and illiquid stocks, their information disadvantage is likely to be smaller for the large and liquid issues in my sample. Table I shows that the 30 stocks come from a wide range of industries, with no apparent overrepresentation by any one industry. There were total of 7.4 million transactions over the 4-year period.

Table I about here

The number of brokerage firms that traded on the JSX during the sample period is 221. I restrict my sample to the 200 of these that satisfy three criteria: traded at least one stock at least 100 times; was active for at least 50 days; and information on brokerage origin was available.[7] The Indonesian securities and exchange commission, KEBPI, which issues brokerage licenses, classifies brokerages as being local or joint ventures. Joint venture brokerages have links to foreign firms. Most brokerage firms, 179 of the 200, are local, while the rest are joint ventures. Eleven of the joint ventures are associated with firms based in Singapore, Thailand, and Malaysia. I call this group of brokerage firms Asian. Seven brokerage firms are classified as global. These include ABN Amro, Credit Lyonnais, HSBC, ING Baring, J. P. Morgan, Merrill Lynch, and UBS Warburg. Three brokerages, Nomura, Daiwa, and Nikko, are associated with Japanese institutions.[8]

Table II shows a number of characteristics for each type of brokerage. Local brokerages account for 72% of the trading volume and 62% of value traded. Global brokers come in second, with a 21 and 26% share in volume and value traded, respectively. Asian brokerages handle only 7% of the volume and 11% of the value traded. The three Japanese brokerages account for less than 1/2% in

volume and 2% of value. The last column in Table II shows the share of volume traded on behalf of foreign clients. Joint venture brokerages trade heavily for foreign investors. The share of volume traded on behalf of foreign clients is on average 44% for Asian, 76% for global, and 52% for Japanese brokerage firms. Within the group of global brokerages, ABN Amro is an outlier, with only 22% of volume from foreigners. The other global brokerages have a foreign volume share over 69%. In contrast, only 5% of trading volume handled by local brokerages is on behalf of foreign clients. Thus, foreign brokerages cater mostly to foreign clients, and foreigners trade through foreign brokers much more often than through local ones. It is reasonable that foreign investors use foreign brokers to trade because they may share the same language, business practices, or have other connections.

Table II about here

How does this data compare to those used in previous studies? There are two other papers that use transaction level data. Choe, Kho, and Stulz (2001) use data from Korea. One difference is that they are able to distinguish whether the investor is an individual or an institution. I have no information on how much of the domestic trading in Indonesia is by institutions versus individuals. The fact that mutual funds are not widespread in Indonesia suggests that a large portion of the domestic trading is done by individuals. A comparison along another dimension may be important. Choe, Kho, and Stulz use the time period from December 1996 to November 1998. For most of this two-year period, Korea was in a severe financial crisis during which the Korean stock market plunged 75% in dollar terms. It is possible that their results are affected by the special circumstances surrounding this crisis. The data that I use are from the post-crisis period. Hau (2001a) also uses transaction data that include information on the proprietary trading of participants in the German Xetra market. The main differences from Hau are that first, he uses individual accounts of professional traders, while this paper uses aggregate trading accounts. Second, not only can Hau distinguish between home and foreign traders, but also he can determine their proximity to the corporate headquarters of the stock under consideration. Finally, Hau considers only proprietary trades, while I consider only client trades. This is because nearly all the trades by brokerages on the JSX are done for clients. Only 0.027% of the trades are designated as proprietary.[9]

III. Methodology

A. Defining Profit Accounts

I assign transactions to profit accounts in three different ways: by investor type, by brokerage, and by the combination of the two. The JSX data does not include identification numbers of the investors who placed the orders. It only has information on whether the investor was foreign or domestic, and which of the 200 brokerage firms handled each side of the transaction. Thus, I have three identifying variables: investor type, brokerage, and stock. I aggregate trades in each stock in turn by investor type, by brokerage, and simultaneously by investor type and brokerage. In the classification by investor type, each profit account is for a hypothetical investor who invest in only one stock and is either foreign or domestic. In the classification by brokerage, each profit account is for a hypothetical investor who invests in one stock using one brokerage. Finally, in the simultaneous breakdown by investor type and brokerage, each profit account is for a hypothetical investor who invests in one stock using one brokerage and are either foreign or domestic. Table III shows the number of accounts created using the three classifications along with other measurable characteristics. In order to have a sufficient number of transactions to calculate average profits and conduct their spectral decomposition, I eliminate accounts with fewer than 100 trades.[10]

Table III about here

Panel A in Table III shows the profit accounts by investor type. There are 30 domestic profit accounts and 30 foreign ones. Both foreign and domestic investors traded each of the 30 stocks at least 100 times. The fourth column shows the number of transactions made by each type of account. Domestic investors made 12.8 million transactions out of the total of 14.8 million (double counted) transactions. The last column shows the average initiation rate. Domestic investors initiate trades less frequently than foreign investors. This is consistent with foreign investors being less patient in executing a trade and domestic investors providing liquidity.[11] Panel B shows profit accounts by brokerage. The vast majority of accounts, 4,859 of them, are associated with local brokerages. Since there are 179 local brokerages, each brokerage traded 27 different stocks on average. The number of accounts associated with other brokerages is much smaller: 319, 196, and 64 with Asian, global, and Japanese brokerages, respectively. Local brokerages dominate, with over 75% of all transactions. Japanese brokerages stand out with *both* a low number of accounts and a low number of transactions per account. The combination of low number of accounts and low number of transactions may lack the statistical power to identify any differences in profits. There are systematic differences

in initiation rates. Local brokerages have the lowest, while global brokerages have the highest average initiation rates. All global brokerages have initiation rates above 50%. Panel C shows the simultaneous breakdown by brokerage and investor type. As expected, local brokerages have over 10 times more accounts associated with domestic than with foreign investors. The reverse is true for global brokerages, although the difference in the number of accounts for foreign and domestic investors is not as striking. With the exception of Japanese brokerages, the number of accounts and transactions in each category appears large enough to provide statistical power to identify any systematic differences in profits.

B. Calculating Trading Profits

Hasbrouck and Sofianos (1993) define trading profits as appreciation in the value of holdings:

$$\Pi_{t+1} = Q_t \Delta P_{t+1}, \tag{1}$$

where Q_t is the number of shares held at time t and $\Delta P_{t+1} = P_{t+1} - P_t$ is the share price increase. Subscript t refers to a market transaction. Profits are marked to market whenever a stock trades, whether or not a particular investor traded that stock. The major obstacle in calculating actual trading profits for this paper is that actual share holdings, Q_t, are not observed. I only observe changes in holdings, i.e., shares bought or sold. The number of shares held at time t is the cumulative sum of shares bought or sold up to time t, i.e., $Q_t = Q_0 + \sum_{s=1}^{t} q_s$, where Q_0 is the initial position and q_s is the number of shares bought (positive q_s) or sold (negative q_s). The problem is, of course, that I do not observe the initial position. I consider dealing with this problem in two ways. First, I set initial positions to zero and calculate holdings as cumulative net purchases, $\widehat{Q}_t = \sum_{s=1}^{t} q_s$. Profits are defined as:

$$\widehat{\Pi}_{t+1} = \widehat{Q}_t \Delta P_{t+1}. \tag{2}$$

The difference between the sum of profits calculated according to equation (2) and the sum of actual profits defined by equation (1) is capital gains or losses on the initial position Q_0:

$$\sum_{t=1}^{T} \widehat{\Pi}_t = \sum_{t=1}^{T} \widehat{Q}_t \Delta P_{t+1} = \sum_{t=1}^{T} \Pi_t - Q_0(P_{T+1} - P_1). \tag{3}$$

The second way of dealing with the unavailability of the initial position is that followed by Hau (2001a) and by Hansch, Naik, and Viswanathan (1998). Instead of using holdings less the initial position, they use deviations from average holdings, $\widetilde{Q}_t = Q_t - \overline{Q}$, where $\overline{Q} = \sum_{t=0}^{T} Q_t$. The initial holdings Q_0 drop out of the calculation of $\widetilde{Q}_t$, which is thus computable with the data at hand.

Profits are defined as:

$$\widetilde{\Pi}_{t+1} = \widetilde{Q}_t \Delta P_{t+1}. \tag{4}$$

The difference between the sum of profits calculated according to equation (4) and the sum of actual trading profits as defined by equation (1) is the capital gain or loss on the average position.

$$\sum_{t=1}^{T} \widetilde{\Pi}_t = \sum_{t=1}^{T} \tilde{Q}_t \Delta P_{t+1} = \sum_{t=1}^{T} \Pi_t - \overline{Q}(P_{T+1} - P_1) \tag{5}$$

In summary, the difference between actual profits and $\widehat{\Pi}$ depends on the initial position, while the difference between actual profits and $\widetilde{\Pi}$ depends on the average position during the sample period. This means that the measurement error in $\widetilde{\Pi}$ depends on trading during the sample period, while the error in $\widehat{\Pi}$ is given. If the purpose is to compare performances during the sample period, it would seem that $\widehat{\Pi}$ is a better measure of profits than $\widetilde{\Pi}$. Therefore, in what follows, I present results using $\widehat{\Pi}$.

At any point in time, the sum of $\widehat{\Pi}$ profits across different types of investors equals zero. One investor's profit is another investor's loss. This is because initial holdings are set to zero. Formally,

$$\sum_{i=1}^{N} \widehat{\Pi}_{i,t} = \sum_{i=1}^{N} \widehat{Q}_{i,t} \Delta P_{t+1} = \Delta P_{t+1} \sum_{i=1}^{N} \widehat{Q}_{i,t} = \Delta P_{t+1} \sum_{i=1}^{N} \sum_{s=1}^{t} q_{i,s} = \Delta P_{t+1} \sum_{s=1}^{t} \sum_{i=1}^{N} q_{i,s} = 0 \tag{6}$$

where the subscript i denotes different investors and N is the number of investors. The last equality in the equation follows from the fact that someone's buy is someone else's sell. The sum of shares bought, q_s, across investors equals zero. Note that profits sum to zero across *all* investors. If some investors are left out of the analysis, profits do not necessarily sum to zero. In the classification by brokerage and by brokerage and investor type, some brokerages or combinations of brokerages and investor types were eliminated because they performed less than 100 trades. Thus, in those two classifications profits do not sum to zero.

C. Spectral Decomposition of Trading Profits

This subsection explains the decomposition of average trading profits into profits arising from long-, medium-, and short-run trading. Such a decomposition may help us to understand the nature of information asymmetries that lead to differing performance by foreign and domestic investors. For example, it could be that domestic investors have inside information. They may learn about important news announcements shortly before foreigners do. In this case, the trading profit would come from domestic investors buying (selling) stocks just prior to a price increase (decrease). This would result in a comovement of holdings and price increases at very short horizons. On the other

hand, if domestic investors are simply superior stock pickers, i.e., if they buy stocks that outperform in the long-run, the profit would come from long-run comovement of holdings and price changes.

The details of the spectral decomposition of trading profits are in Hasbrouck and Sofianos (1993), Hau (2001a), or Hamilton (1994, p. 272). The intuition can be described as follows: Any time series can be expressed as a sum of sine and cosine waves of different amplitudes and frequencies (wavelengths). Average profit as defined by equations (2) or (4) is a product of two time series. When each time series is expressed as a sum of sine and cosine waves, the product of the series is also a sum of sine and cosine waves with different amplitudes and frequencies. The amplitude of each frequency can be interpreted as the contribution of the frequency to the comovement of the two series. The sum over all frequencies gives the average profit. Summing over high frequencies (short wavelengths) yields short-term profits, while summing over low frequencies (long wavelengths) yields long-term profits. Following Hau and Hasbrouck and Sofianos, I group frequencies into three bands. The highest frequency is chosen so that it corresponds to intraday profits, the medium frequency to intramonth profits, and low frequency corresponds to wavelengths longer than one month.

The spectral decomposition is performed in market transaction time, i.e., the three frequency bands are defined in terms of the number of market transactions. However, one would like the short-, medium-, and long-term profits to have an interpretation in terms of calendar time. Each stock trades with different intensity; therefore the translation of transaction time to calendar time is different for each stock. For example, 751 transactions in Indonesian Telecom correspond to a day of trading, while a day of trading in the cement company Semen Gresik corresponds to only 141 transactions. Therefore, I define the spectral horizons for each stock, depending on the number of transactions per day.[12] The short-term horizon includes wavelengths shorter than the number of transactions per day, thus capturing intraday profits. The medium-term horizon includes wavelengths between the number of transactions per day and the number of transactions per day times 20. As there are typically 20 trading days in a month, this frequency band captures intramonth profits. The long horizon includes wavelengths longer than 20 times the number of transactions per day.

IV. Evidence on Information Asymmetries

A. Profits by Investor Type

When initial positions are set to zero, domestic profits are exactly equal to foreign losses and vice versa. This is because both foreign and domestic investors traded all 30 stocks much more than 100 times and no accounts had to be eliminated. As discussed in Section III.B., when all transactions are included, profits of all investors sum to zero. I calculate the difference in domestic and foreign profits for each of the 30 stocks, which is simply two times domestic profits in thousands of rupees. Table IV analyzes this difference. In the first column of panel A, I regress the difference on a constant. The estimated coefficient is 542. Its interpretation is the unweighted average difference between domestic and foreign profits in thousands of rupees per market transaction. There were a total of 7.4 million transactions during the four years, which means that over this period, domestic investors had profits of over four trillion rupees (about $400 million in U.S. dollars) more than foreign investors. The coefficient is statistically different from zero. The magnitude of the difference is about 4% of the market capitalization of the 30 stocks. If foreign ownership is 25%, as the JSX estimates, the difference in profits relative to the level of foreign investment in Indonesia is 16% - about 4% per year. Thus, the magnitude of the difference in profits between domestic and foreign investors is economically significant. If foreigners had losses in stocks that were infrequently traded but profits in frequently traded stocks, the unweighted average difference would overstate the domestic advantage. Therefore, in the second panel of Table IV, I weigh each stock by the number of transactions in that stock. The weighted average difference between domestic and foreign investors is even higher than the unweighted one: 594 thousand rupees per market transaction. The differences for each stock are shown in Figure 1. The height of a bar is the difference in profits per market transaction in each stock. The width of a bar is proportional to the number of market transactions. Thus, the area of a bar is proportional to the difference in profits earned over the four year period. Domestic investors did better than foreigners in 25 out of 30 stocks.

Table IV about here

Figure 1 about here

The spectral decomposition shows that the domestic advantage is most pronounced at the intramonth horizon. The difference in medium-term profits, which captures the intramonth horizon, is significant using both unweighted and weighted averages. Looking at the medium-term profits in Figure 1, we see that domestic investors did better than foreigners in 26 out of 30 stocks. Moreover,

losses in the four stocks were small compared to profits in the rest of the 26 stocks. The difference in long-term profits is statistically significant only when stocks are weighted by the number of transactions, although Figure 1 shows that domestic investors did better in 23 out of 30 stocks. Although the difference in short-term profits is statistically insignificant, domestic investors did better in 22 stocks.

Is it possible that the differences in domestic and foreign profits could be explained by other factors? One persistent difference between domestic and foreign investors is their tendency to initiate trades. In Table III we saw that domestic investors have a lower average initiation rate than foreigners. In fact, in all of the 30 stocks, domestic investors have a lower initiation rate. Investors who initiate trades have to pay the bid and ask spread, which lowers their profits. Although the bid and ask spread should affect mostly short-term profits, it could be correlated with impatience or overconfidence and could affect profits at longer horizons as well. In order to investigate the effect of the initiation rate on profits, I include the difference between domestic and foreign initiation as an explanatory variable in the regression. The even-numbered columns of Table IV show the results. The estimated coefficient on $INITIATION$ is insignificant. Differences in the initiation rate have no explanatory power for the differences in profits. Domestic investors do not earn higher profits from stocks that they initiated less. When initiation is included, the intercept becomes marginally insignificant in all specifications except for weighted medium-term profits. Thus, conditional on the difference between the initiation rate being zero, expected profits of domestic investors are significantly higher only in the medium term. In summary, there is some evidence that domestic investors earn higher profits. This evidence is strongest at the intramonth horizon.[13]

B. Profits by Brokerage

Table V analyzes profit accounts classified by brokerage. The table presents four sets of regressions in which the dependent variables are total, long-, medium-, and short-term profits. The unit of observation is an account identified by brokerage and stock. For each horizon I estimate three specifications. In the first specification, profits are regressed on a constant and on dummies that indicate whether the brokerage is Asian, global, or Japanese. Local brokerage is the omitted dummy category. Thus, the interpretation of the coefficients on the brokerage dummies is the difference between per-market transaction profits of clients of the particular brokerage and clients of local brokerages. In the second specification, I control for the initiation rate, which is included as the difference between the initiation rate and the average initiation rate of each stock. De-meaning the initiation rate gives the intercept the interpretation of the average profit of clients of local brokerages

with the average initiation rate. In the third specification, I replace the global brokerage dummy with dummies for individual global brokerages. A breakdown into individual brokerages checks the sensitivity of the coefficient on the global group dummy. It allows me to investigate whether coefficients on the global dummy are driven by certain individual brokerages.

Table V about here

Unlike in the classification by investor type, not all brokerages trade all 30 stocks more than 100 times. This means that some accounts were eliminated and that profits summed across all brokerages do not add up to exactly zero. In order to control for the uneven filtering of stocks, I estimate each specification with stock fixed effects. The estimated stock effects are not reported and are always close to zero and insignificant. Stock fixed effects and the intercept are identified by the restriction that the fixed effects sum to zero.

The first three columns of Table V show that total profits of clients of different brokerages are statistically indistinguishable from each other. This is true unconditionally and also when the differences in initiation rates are taken into account. Lumping individual brokerages into the four types masks differences within types. This is shown in the breakdown into individual global brokerages. For example, while the clients of ABN Amro and Merrill Lynch had profits higher than clients of an average local brokerage, clients of HSBC and USB Warburg had lower profits. However, when individual brokerages are averaged by type, no single type of brokerage delivered higher profits for their clients than other types of brokerages. There is no robust pattern of difference in total profits across brokerage types. Japanese brokerages have profits that are no different from those of local brokerages at all horizons. This should be interpreted with caution, as the number of accounts and transactions of Japanese brokerages is low.

While total profits are the same across different types of brokerages, there are statistically significant differences in profits at different horizons. It appears that clients of global brokerages have higher long-term profits, but lower medium- and short-term profits. This difference is robust even after controlling for the initiation rate. Higher long-term profits of global brokerages are driven by ABN Amro and Merrill Lynch, the only two global brokerages with higher long-term profits. Lower medium-term profits of global brokerages is a more robust result. All seven global brokerages have significantly lower medium-term profits. Asian brokerages also have lower medium- and short-term profits. Thus, it seems that clients of local brokerages do better in the short and particularly the medium terms. The difference in profits across horizons points to inside information on the part of

local investors, which is likely to influence short- and medium-term profits. It appears that clients of global brokerages are somewhat better at picking long-term winners, but local brokers and their clients make profits in the medium and short runs.

C. Profits by Investor Type and Brokerage

Table VI analyzes profits of accounts classified by both investor type and brokerage. The unit of observation is an account identified by investor type, brokerage, and stock. The regressions in this table are analogous to those in the previous two subsections. The set of dummies is now expanded to include the combinations of investor and brokerage types rather than just one or the other. The excluded dummy category is domestic clients of local brokerages. Therefore, the coefficients on dummies are differences between profits of a particular investor/brokerage type and of domestic clients of local brokerages.

Table VI about here

The first three columns look at total profits. It appears that domestic clients of global brokerages have significantly higher profits than domestic clients of local brokerages. The profits of foreign clients of global brokerages are lower. Both of these differences are statistically significant even when controlling for the initiation rate. The higher profits of domestic clients of global brokerages are driven by the four global brokerages that actively trade for domestic investors. The average difference of about 28 thousand rupees per market transaction would translate to a difference of roughly $20 million over the 7.4 million transactions that took place in the four-year period. The profits for foreign clients of individual global brokerages are not uniformly lower. While foreigners trading with Credit Lyonnais, ING Baring, and USB Warburg did poorly, foreigners trading with Merrill Lynch outperformed domestic clients of local brokerages. The profits of all clients of Japanese brokerages are no different from the reference group at all horizons. Similarly, foreign clients of local brokerages have profits indistinguishable from those of domestic clients of local brokerages. The low number of transactions demands caution in interpreting results for these three categories.

The spectral decomposition shows that the superior performance of domestic clients of global brokerages is driven by long-term profits. Their long-term profits as a group are significantly higher. When broken down into individual brokerages, four out of six had higher long-term profits. As a group, long-term profits of foreign clients of global brokerages are not significantly different from the reference group. While Credit Lyonnais and USB did poorly, Merrill Lynch again did well. Medium-term profits are lower for both domestic and foreign clients of global brokerages, as well as for foreign

clients of Asian brokerages. Lower medium-term profits of foreign clients of global brokerages is a particularly robust result. Five of the seven brokerages earned significantly lower medium-term profits. Short-term profits are lower for foreign clients of Asian and global brokerages. In summary, foreign investors working with either Asian or global brokerages lose out to domestic clients of local brokerages in the medium and short terms. This suggests that these domestic investors possess a short-lived information advantage. In the long run, domestic investors who work with global brokerages outperform everyone else, suggesting that the combination of domestic origin and global expertise delivers superior performance.

V. Conclusion

This paper investigates whether foreign or domestic investors have an information advantage in the Indonesian stock market. While the results show that domestic investors do have an information advantage, they also support the argument that some foreign institutions have better information because of their experience and expertise. Clients of global brokerages have higher long-run profits than clients of either local or Asian brokerages. This is consistent with global brokerages providing superior advice to their clients. Global brokerages such as Merrill Lynch or J.P. Morgan can draw on years of experience and accumulated human capital. They are older and more experienced than brokerages from Indonesia, Singapore, Thailand, or Malaysia. Global brokerages are also based in developed countries and can utilize technological and human resources that may surpass those of other brokerages. In the long term, clients of Asian brokerages perform no better than clients of local brokerages. Thus, not all foreign brokerages perform well, only those that are global. The fact that the advantage of global brokerages exists only in the long run also supports the idea that it is related to their experience and expertise rather than to inside information, which tends to be short-lived. Clients of local brokerages (but not of Asian ones) seem to be the ones with inside information because their medium- and short-run profits are higher than those of other investors.

The results also show that domestic investors do better than foreign investors. This is true when I consider the two groups in aggregate, and in particular, when I compare domestic and foreign clients of global brokerages. Domestic clients of global brokerages perform better than their foreign clients. Foreign clients of both global and Asian brokerages perform worse than domestic clients of local brokerages, particularly in the medium and short terms. It appears that domestic investors who use a global brokerage are able to combine their local origin and the expertise of the brokerage to produce

superior performance. An alternative interpretation of the result is that global brokerages attract domestic clients who have superior investment skills, and that less skilled domestic investors use local brokerages. Casual observation suggests that global brokerages charge more for their services than local brokerages. It is therefore not clear why a skilled domestic investor would choose to work with a global brokerage. The combination of domestic information and foreign expertise leading to successful performance is a more plausible explanation of superior performance. In summary, it appears that there may be some truth to both of the arguments about information asymmetries that are mentioned in the introduction: Domestic investors have better information, but need the expertise of foreign firms to leverage that information into higher profits.

The most important question that remains to be answered is about the nature of information flows between a brokerage and an investor. It would be helpful to understand to what extent brokerages provide advice as opposed to simply executing orders, and whether this varies by brokerage. It may help us to understand why domestic and foreign clients of global brokerages perform differently. Another question to be addressed in future research is whether skilled domestic investors select global brokerages, while less skilled investors use local brokerages.

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Notes:

1. To my knowledge, this data has never been explored in the context of information asymmetries. I found only two academic studies that used data from the JSX. Bonser-Neal, Linnan, and Neal (1999) use pre-1995 data to estimate transaction costs. Comerton-Forde (1999) looks at the impact of opening procedures on market efficiency on the Australian and Jakarta Stock Exchanges.

2. Despite the tremendous increase in international capital flows during the 1990s, home bias is still a prevailing feature of equity portfolios (Ahearne, Griever, and Warnock (2001)). See Lewis (1999) and Griffin, Nardari, and Stulz (2002) for a formal model that captures the relationship between information asymmetry and home bias.

3. The ownership weights for each month are approximate, because ownership data are available only at the end of the fiscal year. They use the end of the previous fiscal year ownership to construct a portfolio that mimics holdings of foreign investors if they held their positions constant throughout the year.

4. The Jakarta Stock Exchange consists of three trading boards: main (regular), which accounts for 98% of all trades; negotiated, where prices are agreed upon by two brokers; and a crossing board where a trade is done by one broker who has two orders to buy and sell at the same price and quantity. Before September 1997 there was also a foreign board where stocks that reached the foreign ownership limit were traded among foreigners.

5. A trade is a buy if the buy order arrived after the sell order. A sell is defined analogously.

6. Two firms, Bank Indonesia International and United Tractors, were excluded due to a missing corporate actions file but would otherwise have made the top 30 list.

7. Nine brokerages were eliminated because they did not trade any one stock more than 100 times. Nine additional brokerages were eliminated because they were active for less than 50 days. Finally, three additional brokerages were eliminated because the information on their local versus foreign origin was not available.

8. Nomura, Daiwa, and Nikko also operate on a global scale, but were separated from U.S. and European-based global brokerages because of cultural or investment style differences.

9. Hau (2001b) considers both client and proprietary trading. However, client trades by foreign traders are too few to make any strong inference.

10. This eliminates no accounts from the classification by investor type, 540 accounts from the classification by brokerage, and 2,548 from the classification by investor type and brokerage.

11. For every initiated trade, there is an uninitiated one. Therefore, the aggregate initiation rate is 0.5. The initiation rate of domestic and foreign investors does not average 0.5 because domestic and foreign investors have a different number of transactions. In panels B and C, the initiation rate does not average 0.5 for the same reason and because of the fact that accounts with fewer than 100 transactions were eliminated.

12. More precisely, it is the total number of transactions divided by the number of days the stock was listed on the exchange during the sample period.

13. Initiation rate is the only available control variable. The problem in constructing other control variables, for example, such as those in Hau (2001a), is that they must aggregate from individual to a representative investor. This is because I infer characteristics of a representative investor from aggregate data. I am grateful to the referee for pointing this out.

Table I

Stocks in the Sample

The sample includes the 30 most liquid stocks as measured by the number of trades between 1998 and 2001. Market capitalization is as of the end of 2001. Total is for the 30 stocks as a whole (not the average across stocks).

Name	Market Cap. ($ mil.)	Avg. % Annual Return	# of Trades ('000)	% of Total Value Traded	% Volume by Foreigners	Industry
AGIS (TMPI)	22	-17	155	0.6	7.3	Wholesale
Aneka Tambang (ANTM)	116	-11	275	1.7	14.7	Mining
Astra Argo Lestari (AALI)	176	-16	191	1.2	12.0	Agriculture
Astra International (ASII)	512	8	665	7.7	18.3	Automotive
Astra-Graphia (ASGR)	(48	45	139	0.4	5.4	Wholesale
Berlian Laju Tankers (BLTA)	73	2	146	0.8	8.0	Transportation
Bimantara Citra (BMTR)	126	8	220	1.5	16.9	Telecommunication
Citra Marga (CMNP)	87	-14	137	0.8	15.7	Transportation
Daya Guna Samudra (DGSA)	97	-56	137	0.9	26.6	Fishing
Gadjah Tunggal (GJTL)	70	-29	123	0.5	15.0	Automotive
Gudang Garam (GGRM)	2090	-0	370	4.4	41.3	Tobacco
HM Sampoerna (HMSP)	1236	21	404	4.9	37.5	Tobacco
Hanson Industri (MYRX)	7	-65	181	0.4	10.0	Textile
INDOSAT (ISAT)	941	-3	297	3.6	36.3	Telecommunication
Indah Kiat Pulp Paper (INKP)	177	-29	505	5.1	22.1	Pulp and Paper
Indofood (INDF)	682	13	471	6.1	21.4	Food and beverages
Kalbe Farma (KLBF)	107	4	161	0.6	10.8	Pharmaceuticals
Lippo Bank (LPBN)	157	-52	134	1.5	29.9	Banking
Lippo Life Insurance (LPLI)	37	-26	269	2.1	13.8	Insurance
Lippo Securities (LPPS)	13	-33	143	0.7	20.3	Finance
Matahari Putra Prima (MPPA)	139	1	245	1.9	22.9	Retail
Medco Corporation (MEDC)	433	29	164	0.8	11.1	Mining
Multipolar (MLPL)	57	9	326	2.0	15.5	Electronics
PP London Sumatra (LSIP)	21	-40	200	1.0	14.9	Agriculture
Semen Gresik (SMGR)	400	13	141	2.4	58.2	Cement
Siwani Trimitra (MITI)	6	-20	126	0.3	7.2	Finance
Suryainti Permata (SIIP)	8	-46	129	0.3	13.1	Property Real Estate
Tambang Timah (TINS)	59	-48	134	0.9	29.4	Mining
Telecom Indonesia (TLKM)	2948	1	751	13.6	34.4	Telecommunication
Tjiwi Kimia (TKIM)	26	-45	300	1.5	14.7	Pulp and Paper
Total	10,860	-13	7,436	70.1	20.6	

Table II
Characteristics of Brokerage Groups

Brokerages are grouped into four types according to their origin. Share in volume (value) is the sum of group volume divided by total volume (value) traded during 1998 to 2001 for the 30 most liquid stocks. Percent of volume for foreigners is a group's volume traded on behalf of foreigners divided by the group's total volume traded in the 30 most liquid stocks.

Brokerage Type	# of Brokerages	Share in Volume	Share in Value Traded	% Volume for Foreigners
Local	179	72	62	5
Asia	11	7	11	44
Global	7	21	26	76
Japan	3	0	2	52
ABN AMRO (AMRO)	1	1	2	22
Credit Lyonnais (CL)	1	4	5	78
HSBC (HSBC)	1	11	10	97
ING Baring (ING)	1	1	5	69
J.P. Morgan (JPM)	1	2	2	77
Merrill Lynch (ML)	1	3	5	91
UBS Warburg (UBS)	1	0	0	99
All	200	100	100	21

Table III
Profit Accounts

Profit accounts in each stock are created at three different levels of aggregation: by investor type, brokerage, and simultaneously by investor type and brokerage. Only accounts with at least 100 transactions are included. The number of transactions is the number of double counted transactions that each category made. Average % initiated is the ratio of initiated and total number of trades averaged across stocks.

	# of Accounts (1)	# of Arokerages (2)	Avrg. # of Stocks (3)	# of Trans. (in Thousands) (4)	# of Trans. per Account (5)	Avrg. % Initiated (6)
Panel A: By Investor Type						
Domestic	30	n.a.	30	12,765	425.5	49
Foreign	30	n.a	30	2,107	70.2	57
Panel B: By Brokerage						
Local	4,859	179	27	11,647	2.4	48
Asia	319	11	29	1,121	3.5	49
Japan	64	3	21	85	1.3	54
Global	196	7	28	1,759	9.0	54
AMRO	30	1	30	302	10.0	53
CL	28	1	28	365	13.0	55
HSBC	30	1	30	155	5.2	50
ING	29	1	29	265	9.1	58
JPM	28	1	28	292	10.4	56
ML	28	1	28	316	11.3	56
USB	23	1	23	65	2.8	50
Panel C: By Investor Type and Brokerage						
Domestic:						
Local	4,843	178	27	11,317	2.3	48
Asia	286	11	26	487	1.7	46
Japan	47	2	24	56	1.2	54
Global	165	6	28	784	4.8	53
AMRO	30	1	30	219	7.3	51
CL	28	1	28	221	7.9	56
HSBC	30	1	30	72	2.4	50
ING	27	1	27	123	4.6	52
JPM	28	1	28	103	3.7	51
ML	22	1	22	46	2.1	58
Foreign:						
Local	438	66	7	293	0.7	60
Asia	228	10	23	630	2.8	53
Japan	45	3	15	27	0.6	54
Global	185	7	23	974	5.3	56
AMRO	29	1	29	83	2.9	58
CL	26	1	26	143	5.5	54
HSBC	24	1	24	83	3.5	50
ING	27	1	27	142	5.3	63
JPM	28	1	28	188	6.7	60
ML	28	1	28	269	9.6	55
USB	23	1	23	64	2.8	50

Table IV
Determinants of Profits by Investor Type

Per market transaction profits are calculated as the average product of cumulative changes in holdings and price changes in thousands of rupees (10,000s rupee is approximately $1). Profits are decomposed into long-, medium- and short-term using spectral decomposition. The dependent variable is the difference between domestic and foreign profits. $INITIATION$ is the difference between domestic and foreign percentage of initiated trades. The number of observations in each specification is 30.

	Total		Long Term		Medium Term		Short Term	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A: Unweighted								
Intercept	542**	771	331	401	180**	280	31	90
	(161)	(404)	(180)	(455)	(63)	(158)	(20)	(49)
$INITIATION$		2,877		887		1,247		744
		(4,659)		(5,241)		(1,824)		(568)
$Adj.R^2$		-0.02		-0.03		-0.02		0.02
Panel B: Transaction Weighted								
Intercept	593**	674	417**	271	150**	323*	26	80
	(136)	(390)	(150)	(430)	(50)	(139)	(15)	(42)
$INITIATION$		1,012		-1838		2,172		678
		(4,596)		(5,070)		(1,636)		(493)
$Adj.R^2$		-0.03		-0.03		0.03		0.03

* and ** indicate significance at the 5% and 1% levels, respectively.

Table V
Determinants of Profits by Brokerage

Per transaction profits are calculated as the average product of cumulative changes in holdings and price changes in thousands of rupees (10,000 rupees is approximately $1). Profits are decomposed into long-, medium- and short-term using spectral decomposition. Each profit measure is regressed on dummies indicating Asian, global and Japanese brokerages, and *INITIATION*, which is the deviation from the average initiation rate for each stock. The number of observations in each specification is 5,435.

	Total			Long Term			Medium Term			Short Term		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Intercept	-.03	-.18	-.19	-.7	-.85	-.86	.55**	.54**	.55**	.12	.12	.13
	(1.27)	(1.28)	(1.27)	(1.34)	(1.34)	(1.33)	(.17)	(.17)	(.17)	(.11)	(.11)	(.11)
Global	2.68	4.8		15.02*	17.14**		-11.15**	-11.03**		-1.19*	-1.32*	
	(6.18)	(6.23)		(6.5)	(6.55)		(.83)	(.83)		(.54)	(.55)	
Asian	-.26	.35	.41	3.01	3.62	3.7	-2.1**	-2.06**	-2.08**	-1.17**	-1.2**	-1.21**
	(5.16)	(5.16)	(5.14)	(5.42)	(5.42)	(5.4)	(.69)	(.69)	(.69)	(.45)	(.45)	(.45)
Japan	-4.53	-2.05	-1.84	-4.93	-2.45	-2.16	.64	.78	.72	-.23	-.39	-.4
	(11.24)	(11.27)	(11.23)	(11.81)	(11.85)	(11.79)	(1.5)	(1.51)	(1.5)	(.99)	(.99)	(.99)
INITIATION		-43.39**	-47.71**		-43.49**	-49.33**		-2.57	-1.32		-2.67	-2.95*
		(16.01)	(16.06)		(16.83)	(16.87)		(2.14)	(2.15)		(1.4)	(1.41)
AMRO			60.49**			75.12**			-14.03**			-.61
			(16.29)			(17.11)			(2.18)			(1.43)
CL			-16.46			-10.2			-7.08**			.82
			(16.88)			(17.73)			(2.26)			(1.49)
HSBC			-32.52*			-23.7			-9.33**			.5
			(16.28)			(17.1)			(2.18)			(1.43)
ING			2.33			14.37			-11.73**			-.31
			(16.63)			(17.47)			(2.23)			(1.46)
JPM			-.58			18.81			-14.52**			-4.88**
			(16.9)			(17.75)			(2.26)			(1.49)
ML			75.64**			102.37**			-21.94**			-4.79**
			(16.9)			(17.75)			(2.26)			(1.49)
USB			-59.38**			-52.6**			-5.37*			-1.41
			(18.59)			(19.53)			(2.49)			(1.64)
R^2 within	0.000	0.001	0.010	0.001	0.003	0.013	0.036	0.036	0.043	0.002	0.003	0.006
R^2 between	0.039	0.010	0.000	0.004	0.001	0.000	0.022	0.022	0.018	0.00	0.000	0.003
R^2 overall	0.000	0.001	0.10	0.001	0.003	0.013	0.036	0.036	0.043	0.002	0.003	0.006

* and ** indicate significance at the 5% and 1% levels, respectively.

Table VI
Determinants of Profits by Investor Type and Brokerage

Per transaction profits are calculated as the average product of cumulative changes in holdings and price changes in thousands of rupees (10,000 rupees is approximately $1). Profits are decomposed into long-, medium- and short-term using spectral decomposition. Each profit measure is regressed on dummies indicating the combination of brokerage and investor type, and *INITIATION* which is the deviation from the average initiation rate for each stock. The number of observations in each specification is 6,237.

	Total			Long Term			Medium Term			Short Term		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Intercept	.40	-.03	-.03	-.35	-.74	-.75	.62**	.56**	.56**	.12	.15	.16
	(1.09)	(1.10)	(1.09)	(1.15)	(1.16)	(1.15)	(.19)	(.19)	(.19)	(.11)	(.11)	(.11)
Domestic:												
Asian	8.18	7.72	7.72	9.01	8.59	8.58	-.41	-.48	-.47	-.42	-.39	-.39
	(4.59)	(4.60)	(4.57)	(4.86)	(4.86)	(4.83)	(.80)	(.80)	(.80)	(.47)	(.47)	(.47)
Global	26.98**	28.49**		31.84**	33.23**		-4.30**	-4.07**		-.56	-.66	
	(5.98)	(6.00)		(6.32)	(6.34)		(1.04)	(1.04)		(.61)	(.62)	
Japan	-9.19	-7.32	-7.33	-10.78	-9.06	-9.04	1.90	2.18	2.16	-.30	-.43	-.44
	(11.07)	(11.09)	(11.03)	(11.70)	(11.72)	(11.65)	(1.92)	(1.92)	(1.92)	(1.14)	(1.14)	(1.14)
Foreign:												
Asian	-10.89*	-9.25	-9.26	-6.55	-5.04	-5.03	-3.13**	-2.89**	-2.90**	-1.21*	-1.33*	-1.34*
	(5.12)	(5.15)	(5.12)	(5.41)	(5.44)	(5.41)	(.89)	(.89)	(.89)	(.53)	(.53)	(.53)
Global	-19.53**	-17.39**		-9.06	-7.09		-9.42**	-9.10**		-1.05	-1.20*	
	(5.39)	(5.44)		(5.70)	(5.75)		(.93)	(.94)		(.55)	(.56)	
Japan	2.21	4.17	4.14	3.92	5.72	5.71	-1.55	-1.26	-1.27	-.16	-.29	-.30
	(11.33)	(11.35)	(11.29)	(11.97)	(11.99)	(11.92)	(1.96)	(1.97)	(1.96)	(1.16)	(1.16)	(1.16)
Local	-3.03	.54	.53	-2.13	1.15	1.20	-.64	-.09	-.13	-.26	-.52	-.54
	(3.75)	(3.97)	(3.95)	(3.96)	(4.20)	(4.17)	(.65)	(.69)	(.69)	(.38)	(.41)	(.41)
INITIATION		-30.09**	-30.19**		-27.66*	-28.31*		-4.55*	-4.18*		-2.11	-2.31*
		(10.83)	(10.87)		(11.44)	(11.47)		(1.88)	(1.89)		(1.11)	(1.12)

continued on the next page

Table VI - *continued*

	Total			Long Term			Medium Term			Short Term		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Domestic:												
AMRO			50.49**			56.56**			-5.68*			-.39
			(13.75)			(14.52)			(2.39)			(1.42)
CL			47.44**			52.37**			-3.55			-1.38
			(14.26)			(15.06)			(2.48)			(1.47)
HSBC			-13.06			-13.22			-.12			.27
			(13.75)			(14.52)			(2.39)			(1.42)
ING			36.71*			43.48**			-6.13*			-.64
			(14.50)			(15.31)			(2.52)			(1.50)
JPM			35.49*			40.22**			-4.28			-.45
			(14.23)			(15.03)			(2.48)			(1.47)
ML			12.02			19.09			-5.30			-1.76
			(16.09)			(17)			(2.80)			(1.66)
Foreign:												
AMRO			11.36			20.70			-8.82**			-.52
			(14.03)			(14.82)			(2.44)			(1.45)
CL			-68.53**			-66.58**			-4.02			2.08
			(14.78)			(15.61)			(2.57)			(1.52)
HSBC			-24.97			-12.98			-12.08**			.09
			(15.37)			(16.23)			(2.67)			(1.59)
ING			-34.17*			-27.44			-6.59**			-.14
			(14.59)			(15.41)			(2.54)			(1.50)
JPM			-36.37*			-21.24			-10.47**			-4.67**
			(14.29)			(15.09)			(2.48)			(1.47)
ML			65.60**			91.06**			-21.09**			-4.38**
			(14.25)			(15.05)			(2.48)			(1.47)
USB			-59.38**			-52.64**			-5.34			-1.41
			(15.70)			(16.58)			(2.73)			(1.62)
R^2 within	0.007	0.008	0.020	0.006	0.007	0.020	0.002	0.002	0.005	0.002	0.002	0.005
R^2 between	0.009	0.007	0.042	0.001	0.000	0.004	0.082	0.058	0.074	0.082	0.058	0.074
R^2 overall	0.007	0.008	0.020	0.006	0.007	0.020	0.002	0.002	0.005	0.002	0.002	0.005

* and ** indicate significance at the 5% and 1% levels, respectively.

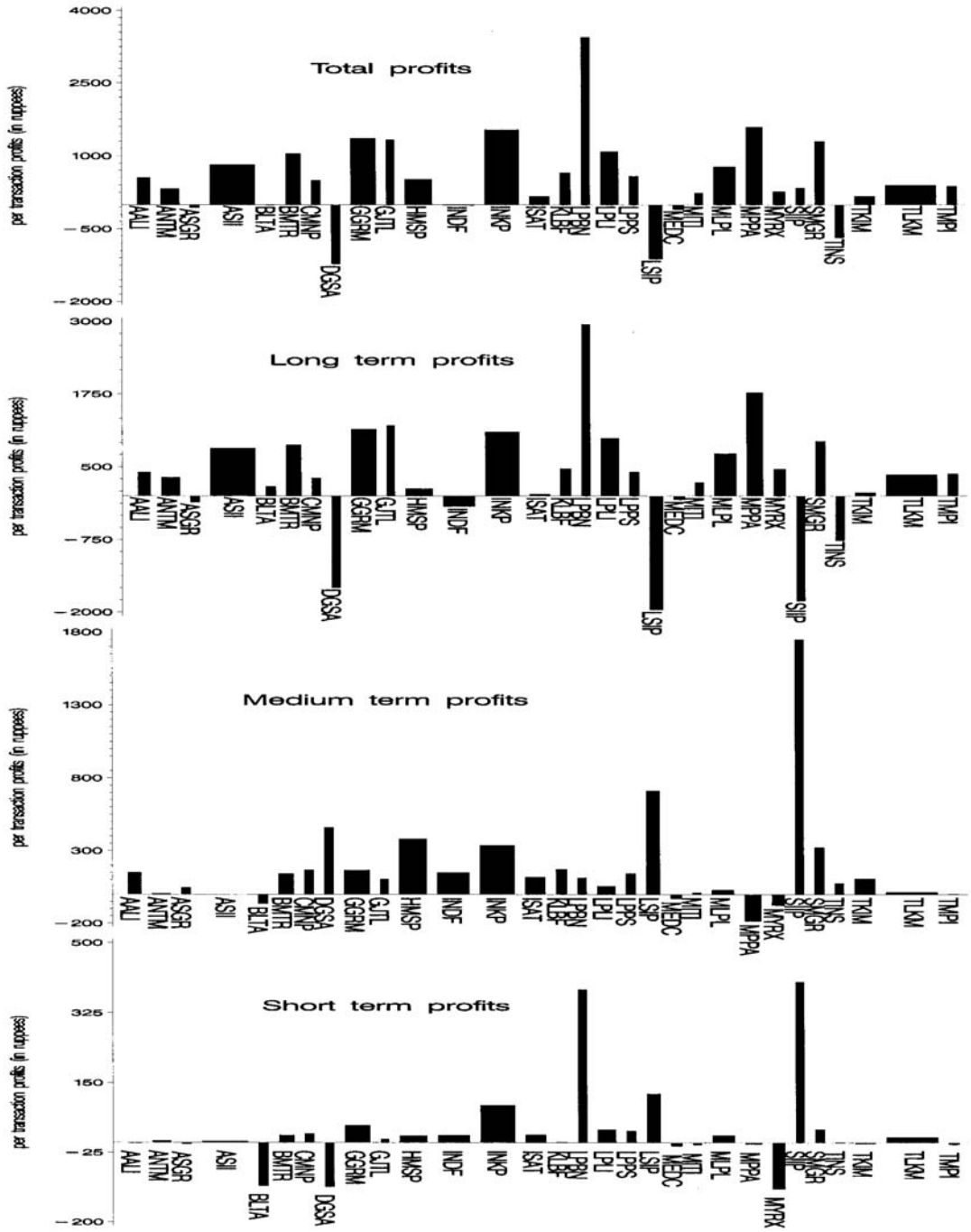

Figure 1. Difference between domestic and foreign profits by stock and horizon. The height of each bar is the difference between domestic and foreign per market transaction profits in thousands of rupees for each of the 30 stocks. The width of a bar is proportional to the number of market transactions.