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**Experts Online:
An Analysis of Trading Activity in a Public Internet Chat Room**

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Abstract:

We analyze the trading activity in an Internet chat room with approximately 1,300 participants. Traders make posts in real time about their activities. We find these traders are more skilled than retail investors analyzed in other studies. 55% make profits after transaction costs, and they earn \$153 per trade. Traders hold their winners 25% longer than their losers. They have statistically significant α 's of 0.41% per day after controlling for the Fama-French factors and momentum. 38% of profits persist in the next year. Traders improve their skill over time, earning an extra \$189 per month for each year of trading experience. They also gain expertise in trading particular stocks. Traders who raise their Herfindahl index by 0.1 raise their profitability by \$46 per trade. 42% trade both long and short, with equal success rates, and almost double the profit per trade when short.

Keywords: behavioral finance; day trading; familiarity bias; disposition effect; experts.

JEL Classification: G14; G20.

* Address for editorial correspondence: Department of Economics, Rutgers University, 303b New Jersey Hall, New Brunswick, NJ 08901. e-mail: mizrach@econ.rutgers.edu, (732) 932-8261 (voice) and (732) 932-7416 (fax). Any future revisions to this manuscript may be found at <http://snde.rutgers.edu/>. We would like to thank "WallStreetArb" for permission to post a survey in the Activetrader forum and "Suzanne" for providing portions of the 2001 trading logs.

1. Introduction

The individual investor has been carefully scrutinized in the growing literature on behavioral finance. A number of studies have documented the underperformance of the do-it-yourself trader. Odean (1999) and Barber and Odean (2000) traced the poor performance to excessive trading. Profits are eroded, Barber and Odean (2001) observe, by overconfidence. A tendency to sell winners quickly and hold onto losers, the *disposition effect* of Shefrin and Statman (1985), also hurts profits. Other studies have attributed underperformance to poor stock selection. Goetzmann and Kumar (2004) found retail traders are underdiversified. Barber and Odean (2003) observed a tendency to buy attention grabbing stocks. Investors in Debondt and Thaler (1987) rely excessively on past returns which they attribute to Kahneman and Tversky's (1974) *representativeness heuristic*. Other studies, including Huberman (2001), Massa and Simonov (2003), and Amadi (2004), have noted that traders tended to pick the same stocks again and again, a habit they called *familiarity bias*. An excellent survey of this growing literature is by Barberis and Thaler (2002).

This paper studies a group of active traders, the majority of whom trade profitably. The study of skilled traders has been comparatively limited. Coval, Hirshleifer and Shumway (2002) find that the top 10% of investors earn persistent abnormal profits. Nicolosi, Peng, and Zhu (2003) observe that individual investors learn about their trading skill and increase their trades and profits in subsequent periods

A more specialized literature has focused on day traders. Linnainmaa (2003) has a comprehensive data set of day traders in Finland, but finds they perform no better than other investors. Barber, Lee, Liu and Odean (2004) have a similar data set for Taiwan. They document that over 80% of day traders lose money, but that traders with strong performance continue to outperform. Daytrading brokers in the U.S. have generally been reluctant to provide information on their customers. Nonetheless, Jordan and Diltz (2003) found 36% of the 324 traders they studied in 1998 and 1999 at a national security firm were profitable, with profits strongly correlated with the Nasdaq market. Another exception is Garvey and Murphy (2003) who study a proprietary daytrading team of 15 people over a period of three months. These traders emulate market makers with very short term holding periods. Traders in this group average 115 trades per day and are consistently profitable.

Our paper relies on a unique data set compiled by the first author from a public Internet chat room. Traders voluntarily post their entries and exists from positions in real time. The room is

monitored and members must register their nicknames. We find a skillful group of traders in a four one month snapshots of this trading room from 2000 to 2003.

We find that our traders resemble, in some aspects, the more unsophisticated retail investors. They exhibit familiarity bias, concentrating their trading in a small number of high volume Nasdaq stocks. They also trade frequently. The ten most active traders average 142 trades per month.

For our skilled traders, these biases work to their advantage. The majority of them trade profitably, after transactions costs, in each month. They hold their winners 25% longer than their losers. They stick with their favorite stocks throughout the trading month, independent of past returns and volatility. Highly concentrated portfolios have the highest profitability. Raising the trader's Herfindahl index by 0.1 raises their profit per trade by \$46. Contrary to the overtrading results, the traders who trade more frequently make more money, earning \$153 per trade. Adjusting for the Fama-French factors and momentum, the traders have statistically significant α 's of 0.41% per day.

We also find persistence in performance. Trading profits from the previous year for an individual trader strongly predict trading profits in the next year. 38% of profits persist in the next year. Traders benefit from experience. Each year in the trading room adds \$189 to their monthly trading profits.

42% of traders take short positions. Traders are equally likely to make profits trading long or short, and their profit per trade on the short side is nearly double that on the long. Traders who trade both short and long have a 10% higher chance of trading profitably.

The paper is organized as follows. The second section describes the chat room and illustrates the kind of information that we have logged. The third section describes the results of a survey of chat room participants. We study stock selection in the fourth section. The fifth section focuses on profitability. A final section concludes.

2. Description of the Chat Room

2.1 Activetrader

Activetrader is a public Internet chat room accessible without any user fees. It is the largest of several discussion forums managed through the Financialchat.com network. With a simple piece of software known as a chat client, traders can view and post information about their trading

activities that is visible to everyone else in the room. Traders register their nicknames. Over short time periods, we can be sure these are unique to a specific individual. The room is monitored by about a dozen operators whose nicknames appear with an @ prefix. During the four years of our analysis, the chat room averaged approximately 1,300 traders. Only a small portion of these traders, around 13%, post their trades in the room. In total, we analyze almost 9,000 trades.

[INSERT Table 1 Here]

Public access rooms like Activetrader need to be differentiated from the numerous fee based trading rooms on the Internet. In fee based rooms, novice traders pay to have access to the expertise of skilled traders. While there are many legitimate operations of this type, there were several well publicized cases of abuse. A notorious example of this was a room run by a Korean-American Yun Soo Oh Park who operated under the name of “Tokyo Joe.” Park was fined¹ by the SEC in March 2001 for front running the picks he made in the room.

Activetrader is a decentralized organization with no master stock pickers. The role of the operators in Activetrader is primarily to filter out hyping and non-market relevant posts. Repeated violations result in traders being banned from the room. Traders are also discouraged from posting information about stocks with trading prices of less than \$1.00.

The room is a cooperative venture. Traders perceive themselves to be in competition with market makers and institutional traders. While often working in isolation, they participate in a “virtual trading floor” that “simulates the ebb and flow and signals of investor sentiment.” This “support group” helps traders keep track of fundamental and technical information about their stock positions².

2.2 Logs and filters

The first author collected the posts from this chat room at sporadic intervals over a four year period from 2000 to 2003. There were four essentially complete trading months during this interval that form the data set for this analysis, October 2000, April 2001, April 2002, and mid-June to mid-July 2003. The logs contain several interruptions when the chat client froze or when the author neglected to capture the feed. In October 2000, we have only 14 trading days of information, April 2001, a complete 22 days, April 2002, 18 days, and June-July 2003, 10 days. Posts are time stamped to the minute.

¹ See the SEC’s press release <http://www.sec.gov/news/press/2001-26.txt>

² All three quotes are from the Financial Chat.com website: http://www.financialchat.com/about/about_us.asp

We can illustrate the kind of information captured with an example from October 24, 2000 at 10:15 AM EST.

[10:15] <Udaman> RCOM too heavy on the offer to bounce yet
[10:15] <HITTHEBID> scmr and cmrc
[10:15] <i4trade> will accumulate RCOM if it drops further
[10:15] <WHP> XLNX green
[10:15] <Matrix> YHOO broke yesterday's highs
[10:16] <gladiator> scmr nice
[10:16] <ferrari> MRCH thru 5 here
[10:16] <HCG> CMRC oh my this thing runs hard
[10:16] Matrix buys some PCLN on YHOO's heat
[10:16] Guest05067 is now known as RB
[10:16] <PACKER> aol booming
[10:16] <BigCheez> RCOM downgraded this am at \$7 (they loved it at \$100 though lol)
[10:16] <whatgoesup> ADSX up up
[10:16] <Unforgiven> DCLK is back!
[10:16] <REact> Whew! sure glad I dumped my DCLK this am @ 13.5 + 1/8 *\$#\$*
[10:16] <ferrari> MRCH nailed it
[10:16] <thewoman> MRCH gonna go a bit here
[10:16] HCG sells 1/2 CMRC +3/4

The posts primarily contain information about technical analysis. Notice the observations by Udaman about Register.Com (RCOM) and Matrix on Yahoo (YHOO) clearing a particular resistance level. There are also posts about fundamentals. BigCheez is reporting on an analyst report on RCOM. In general, these fundamental posts are restricted to news events like upgrades and earnings announcements. There is very little debate about the merits of a company's products or earnings, as in the bulletin board information studies by Antweiler and Frank (2004).

We filter out this information to isolate the trade posts. There are two in this group, the purchase of Priceline.com by Matrix and the sale of Commerce One Inc. (CMRC) by HCG, both at 10:16. Neither trader posts an entry or exit price or a trade size. In our analysis of profitability in Section 4, we study the number of price posts which do not match the time series of bids and

asks. Since we cannot verify the trade size, we do not use it in any of the return analysis.

Traders use a wide variety of slang for their trades. We used various forms of the keywords, including their abbreviations and misspelled variants, to indicate buying activity: Accumulate; Add; Back; Buy; Cover; Enter; Get; Grab; In; Into; Load; Long; Nibble; Nip; Pick; Poke; Reload; Take; and Try. Keywords for selling were: Dump; Out; Scalp; Sell; Short; Stop; and Purge.

We cannot match open and closing trades for about 70% of the posts. We assume that all open positions whether long or short are closed at the end of the day. We do not consider after hours trades.

3. Survey Data

We asked traders in the months of February and March 2004 to fill out a survey about their trading activities. We asked them questions about portfolio size, trading frequency, entry and exit strategies. A tabulation of the survey results is in Table 2.

[INSERT Table 2 Here]

67 people from the Activetraders Chat Room participated in our survey. The picture that emerges of the day trader is consistent with prior surveys. The average trader is a middle aged male, with about \$100,000 exposed in the market. The age and sex distribution of our survey is similar to the SEC day trading³ study.

The survey results, as well as comments received, seem to indicate that these are confident individuals, who are suspicious of analysts and other insiders as demonstrated by their willingness to prefer “Internet Messages Boards” as an entry strategy, over “Investment Opinion Services”. Barber and Odean (2001) have found that overconfident males tend to be poor traders.

Most of day traders in the survey are experienced, having been trading for more than 5 years. Given the time period of our study, this would mean that these day traders mostly started trading right before, and during, the Internet bubble. These day traders also endured the subsequent bear market. 74.64% of them trade 8 or fewer stocks a day, with a median of 4. Half of them hold their trades less than 6.5 hours (a whole trading day).

A distinctive feature of day traders is that 60.29% used both long and short positions. The more seasoned traders (more than 5 years) also engaged in option and futures trading, while a

³ See “Special Study: Report of Examinations of Day-Trading Broker-Dealers” available at <http://www.sec.gov/news/studies/daytrading.htm>

small minority trade commodities and bonds. Although the survey didn't address whether the trader used these issues as hedging vehicles, our observations of day-to-day trading would tend to indicate the opposite is true. Instead of hedging a uncertain position, day traders will usually close the position and move on to the next opportunity. It is interesting to note, that the more experienced traders were the ones most likely (73%) to trade in high risk issues such as options, futures and commodities. This would seem to indicate that as the trader gets more experience, they demonstrate a risk seeking behavior, in order to maximize their returns.

One of the main points of our survey was to determine how traders choose their entry point in a trade. As expected, day traders are momentum players. The survey showed that 75% pick a stock, and its entry point based on momentum measures. Technical analysis, in its many forms, is the second most preferred method. The third most popular entry strategy (59.7%) was based on "News". Although "Past Experience" was the fourth most popular method with 46.27%, our analysis of trading activity showed that day traders tended to trade the same issues repeatedly. Very interestingly, 39% of respondents used "Gut instinct" to enter a trade. Of those who use instinct, 95% had traded less than five years. Although it is generally assumed that day traders have a herd mentality, these measures did not rate highly in our survey. "Other Trader Picks", was only the fifth most popular pick at 44.78%, with the other herding measures "Message Boards", and, "Investment Opinion Services", getting only 10.45% and 7.46% support respectively.

"Stop losses" and "Target percentage" were the dominant exit strategies, used by 65.67% of traders. "Technical analysis" (46.27%) and "Past Experience" (44.78%) appear to help them choose the exit points. "Gut instinct" (37.31%) is third. Again, the less experienced traders are most likely citing instinct as a trading method. Day traders appear to seek short term gains rather than hedging (4.48%) long term positions.

Technical analysis is widely used for both entries and exits. The two most popular technical analyses tools "Chart Patterns" (56.72%), and "Moving Averages" (52.24%) are among the easiest to understand and utilize. The more complicated, and mathematically demanding methods, "Stochastics", "Fibonacci Analysis", and "Bollinger Bands", are more rarely used.

4. Stock Selection

This section examines stock selection by the chat room as a whole. We first examine the cross sectional characteristics of the stocks that traders choose. Then we try to examine whether traders

focus on a relatively small number of stocks. Finally, we explain daily stock selection as a function of volume and returns.

4.1 Cross section

Let $n_{k,t}$ denote the number of trades in stock k on day t . Define $n_{k,t}^b$ and $n_{k,t}^a$ analogously for the long and short trades. $N_t = \sum_K n_{k,t}^b + n_{k,t}^a$ is the total number of trades, where K denotes the universe of securities. The totals for long and short trades are $N_t^b = \sum_K n_{k,t}^b$ and $N_t^a = \sum_K n_{k,t}^a$.

Denote the trading frequency in stock k ,

$$p_{k,t} = \frac{n_{k,t}}{N_t}. \quad (1)$$

Define $p_{k,t}^b$ and $p_{k,t}^a$ similarly for long and short trades. We want to understand the cross section characteristics of the stocks selected each month,

$$p_{k,T} = \frac{\sum_T n_{k,t}}{\sum_T N_t} \quad (2)$$

where T is the number of trading days. We examine whether traders choose stocks with large market capitalizations, high β 's, and high trading volume

$$p_{k,T} = a_0 + a_1 MktCap_{k,T-1} + a_2 V_{k,T-1} + a_3 Beta_{k,T-1}. \quad (3)$$

The market cap is based on the market value on the day before the trading month begins, the β is computed based on the previous 50 days covariance with the S&P 500, the trading volume V_k is the average from the previous month. Results for (3) for each trading month and all four years are in Table 3. We estimate the model for all trades, and long and short trades separately

[INSERT Table 3 Here]

Volume is the primary causal factor in the cross section. It is significant in the combined sample, and for long and short trades in every sub-period but October 2000 short trades. Market capitalization is significant about half the time. Beta is only significant during the Internet bubble of 2000 and for long trades in 2001.

4.2 Trade concentration

The chat room provides a unique laboratory for testing hypotheses about trade concentration. We observe a reasonably large group of people sharing a common information set. We first measure concentration by looking at the proportion of trades in the most active securities. We then report Herfindahl indexes for the room and the most active individual traders.

4.2.1 Frequently traded stocks in the chat room

We report trade frequency results separately for NASDAQ and NYSE issues in Table 4. Traders trade NASDAQ stocks more six time more often than NYSE stocks (1,142 versus 182). This ratio is higher in 2000 and 2001 (8.59 and 9.68) than in 2002 or 2003 (3.83 and 3.66). This appears to be due either to the collapse of the Internet bubble or to a declining appetite for risk. In the previous section, we found that β did not enter the stock selection cross section after 2001.

[INSERT Table 4 Here]

Trade concentration in NYSE stocks is much higher than in NASDAQ issues. The 5-stock concentration ratio averages 63.58% for the NYSE stocks and only 18.22% for NASDAQ. The 25-stock concentration ratio is over 90% for the NYSE and 47% for NASDAQ.

The pattern of long trades is similar to the pattern of overall trades. For NASDAQ issues, the 5-stock concentration ratios never differ by more than 2% from the overall figure. The 25-stock concentration is always within 4%. The NYSE concentration ratios are within 5% of the all trade averages at 5 and 25-stock levels, except for 2001.

Short trades are substantially more concentrated than longs. The average 5-stock NASDAQ concentration ratio is nearly 30%, more than 12% higher than for longs. At 25-stocks, the average concentration ratio is 71.22% versus 44.91% for the longs. The NYSE differences are similar. The average 5-stock concentration ratio is almost 77% versus 60.83% for longs. The gap at 25 stocks is smaller, 8.85%, only because the ratio is 100% for the shorts.

The most frequent stocks selected in 2000 and 2001 are in Table 5.1 and 2002 and 2003 are in Table 5.2. In 2000 and 2001, we see Internet related companies among the top ten in both years. JDS Uniphase (JDSU) is the most active in 2000 with 157 trades and the second most active in 2001 with 127. The rest of the top 10 changes between 2000 and 2001. In 2001, an exchange traded fund that tracks the Nasdaq 100 index, QQQ, is among the ten most active. It becomes the most actively traded stock in 2002 and 2003.

In 2002, Internet and technology names continue to dominate, but the only carryover from 2001 is Verisign, Inc. (VRSN). The same is true comparing 2003 and 2002. Only the QQQ is in the top ten in both years. In 2003, there is more activity in non-NASDAQ issues. Loral Corporation, LOR, and AMR Corporation, AMR, are the only NYSE issues in the top ten in any of the four months. They are third and fifth in 2003.

A rank correlation analysis reveals little persistence in the top 25 stocks from year to year. The

correlation between 2001 and 2000 is 0.1082, between 2002 and 2001, -0.0507 , and between 2003 and 2002, -0.2242 ;

[INSERT Table 5.1 and 5.2 Here]

While the individual securities traded show considerable variation between sample months, trading activity does remain confined in a small number of issues. We measure this formally using the Herfindahl index

$$H_t = \sum_K p_{k,t}^2. \quad (4)$$

We define a similar index H_t^b for long and H_t^a for short trades.

If trades were distributed uniformly, the Herfindahl index would equal $1/K$. If all trading was in a single stock, then the Herfindahl would equal 1.0. We will take as the null hypothesis that trading activity in the room is proportional to trading volume $V_{k,t}$ in the market as a whole,

$$H_{\omega,t} = \sum_K \omega_{k,t}^2, \quad (5)$$

where

$$\omega_{k,t} = V_{k,t} / \sum_K V_{k,t}. \quad (6)$$

We compare the two Herfindahl indexes in Table 6

[INSERT Table 6 Here]

using an F -test for the variance ratio,

$$\frac{KH_t - 1}{KH_{\omega,t} - 1}. \quad (7)$$

In Table 6, we find that none of the Herfindahl numbers exceed the market's measure. The room as a whole is significantly *less* concentrated than the market.

4.2.2 Herfindahl indexes for traders

The fact that the room is not concentrated does not imply that individual traders do not focus on specific issues. Define the trading frequency of trader j in the k^{th} security on day t ,

$$p_{j,k,t} = \frac{n_{j,k,t}}{N_{j,t}}. \quad (8)$$

where $n_{j,k,t}$ is the number of trades and $N_{j,t} = \sum_K n_{j,k,t}^b + n_{j,k,t}^a$. Define a Herfindahl index for trader j

$$H_{j,t} = \sum_K p_{j,k,t}^2. \quad (9)$$

We compare this to the market weights again using the variance ratio

$$\frac{KH_t - 1}{KH_{\omega,t} - 1} \quad (10)$$

For 2000, in Table 6, we find that 21 of the 25 most active traders have Herfindahl indexes for the 25 most active stocks that are more concentrated than the market at the 5% significance level. For 2001, there are 22 traders, in 2002, 23, and in 2003, only 17. The last number seems to reflect the room’s declining focus on technology stocks. Our next step is to see if this trading concentration persists on a day-to-day basis.

4.3 Daily trading frequency

Barber and Odean (2003) have examined the question of stock selection among individual investors. They find in a large sample of retail traders and investors that traders tend to buy attention grabbing stocks. They measure this in three ways: abnormal trading volume, previous day’s returns, and the square of the previous day’s returns. Using daily data from CRSP, we measured abnormal volume $AV_{k,t-1}$ as the percentage difference from the 50-day moving average. The return series is constructed from daily closing prices. A positive effect from past returns is a prediction of the representativeness heuristic. The squared return is a proxy⁴ for volatility.

$$p_{k,t} = b_0 + b_1 p_{k,t-1} + b_2 AV_{k,t-1} + b_3 R_{k,t-1} + b_4 R_{k,t-1}^2 \quad (11)$$

This regression adds the lagged trading frequency modeled by Barber, Odean, and Zhu (2003). We estimate this equation, pooled and by month, for all trades, buys and short sells separately. Results are in Table 7.

[INSERT Table 7 Here]

For the sample as a whole, for all trades, two regressors are significant, the lagged trading frequency and the abnormal volume. It is the lagged frequency, however, that predominates. It has a much stronger t -ratio, and it enters significantly in all the sub-samples. Abnormal volume only enters significantly in the grouped four year sample for all trades. A ten million share increase in abnormal volume would raise the overall trading frequency by only 0.03%. The four variables explain about 11.5% of the trade frequency. In the 2002 sub-sample, the R^2 is the highest at 22.4%.

Long and short trades are driven by the previous day’s trading frequency. For long trades, the lagged trading frequency is significant in each sub-sample. Abnormal volume is significant in

⁴ We also looked at the intra-daily range $|p_t^{High} - p_t^{Low}|$ and found no significant influence.

the overall sample, and lagged returns matter in 2000 and 2002. Short trade frequencies have less persistence than long ones. b_1 is significant on the short trades only in 2003, and in the grouped four year sample. The model also fits the long trades slightly better than the short ones.

Our interpretation of the lagged frequency variable is different than Barber, Odean and Zhu. Traders do have a familiarity bias, but we attribute this to stock specific trading skills. We find below, in our examination of profits, that traders who stick with a few familiar stocks make more money.

4.4 Short selling

Traders in the Activetrader chat room short more often than do normal retail traders. Angel, Christophe and Ferri (2003) found that only 1 in 42 trades on Nasdaq is a short sale. In Barber and Odean (2003) only 0.29 percent of the more than 66,000 traders in the room take short positions.

In Table 1, we see that our activetraders short very often, more than 27% of the time over the four months. In the peak month, April 2001, 33.88% of the trades are shorts. 41.58% of traders make at least one short sale in the four year sample. In the next section, we see that they trade profitably on the short and long side.

4.5 Holding period

Activetrader is primarily populated by daytraders. Table 1 shows that they have very short holding times on average. The average trade duration is 55.11 minutes for trades where we see both entries and exits. We call these trades *round trips*. These represent only about 30% of trades. For the trades we close out, the average duration is 186.77 minutes. We will restrict our analysis of the disposition effect to the round trip⁵ trades.

We now assess the effects of these trading decisions on profits and returns.

5. Profit and Return Analysis

There are two major concerns which must be addressed in computing the profitability of trading in the chat room. First, we do not observe position sizes. These are rarely reported, and are probably unreliable. We will make two assumptions: (A) 1,000 share lot size; (B) \$25,000 per trade; We

⁵ Traders more often report their profits on good trades. Round trips are profitable 67.35% of the time. The trades we open or close are profitable 50.48% of the time.

also do not observe actual trading prices. Fortunately, these can be matched against quote data. We compare the price posted by the trader to the high and low bid price during the minute the trade is posted. If the price posted falls in this range, we use the traders posted price. If it does not, we use the opening bid price for that minute. We find that 5.32% of trade reports use false prices that deviate more than 1% from the one minute quote range.

5.1 Profits

To compute dollar profit and losses for each trader, we make transaction cost assumptions for position size assumptions A and B. For position A, we assume a \$20 commission. This is a \$0.01 per share commission on the 1,000 share round trip. Numerous brokers offer commissions in this range. For position size B, we assume a \$0.005 per share commission and a 50 basis point slippage. These reflect the lower commissions typically paid on larger lot sizes, and some market impact on the larger trades. We find that none of the position or transaction costs assumptions has a qualitative impact on our profit estimates.

We examine profits for all trades for the four months in Table 8. The first profit measure is the aggregate difference between selling and buying prices so the reader can gauge the effect of the transactions costs. The second measure A uses the low cost estimate with flat commissions. The second measure B has higher transactions costs, but sometimes benefits from the larger lot sizes.

[INSERT Table 8 Here]

Before transactions costs, the traders are profitable in the aggregate in all four years. 2001 is the most profitable year with \$550.74 of imputed profits. Under A, the traders earn an aggregate profit of \$1,013,572.99. Nearly half of the money is earned in the April 2001 trading month. That was a good period for the market. The Nasdaq 100 index was up more than 15%. The traders earn money in bad months too though. The second most profitable month is 2000 with \$349,578.10 when the Nasdaq 100 index was down almost 10%.

Under assumptions B, trading profits are negative in the month of April 2002, $-\$54,975.49$. The larger lot sizes though provide greater profits in 2001 and 2003. Aggregate profits are actually \$57,670.54 larger under B than under A at \$1,071,243.53.

More than 50% of traders are profitable in every month under A, with 71% profitable in the market of June-July 2003. At least 40% of the traders are profitable under B, with a low of 41.38% in April 2002 and a high of 57.01% in 2003. These are much higher ratios of profitable traders

found in other studies of retail investors or daytraders. This is why we feel comfortable regarding these semi-professional and professional traders as experts.

We can directly address the effects of trading on profits with our imputed transaction data base. We regress the profits of each trader under assumption A on the number of trades they make during the month. We find a strong positive incremental profit of \$152.66 per trade in the pooled sample. In the month of June-July 2003, with a smaller number of surviving traders as the bear market ends, each trade earns an incremental profit of \$245.67. These experts are not losing from trading too much. They are “Activetraders” for a good reason; trading makes them money.

Our traders make money trading both long and short. When we break apart profits short versus long, we find that 74.7% of profits are made trading long and 25.3% short. Trades are equally likely to be profitable long versus short, 53.97% long compared to 56.07% short. The marginal profit per trade is substantially higher on the short side than the long, \$210.84 per trade short versus \$110.87 long in the pooled sample. Short traders are also more skillful overall. Over the four years, 51.55% of traders who never short are profitable under assumption A, compared with 62.21% for traders who trade both short and long.

For the remainder of this section, we will utilize profit assumptions A.

5.2 Effect of holding period on profits

To calculate the disposition effect, we calculate the length of the round-trip holding period for winners and losers in the entire chat room’s portfolio. We only used the round-trip trades where we have entry and exit time stamps.

We find that our traders realize their losses quickly and hold their winners longer. The average holding period for losing trades was 47.87 minutes. Winners were held on average 25% longer or 60.23 minutes. Shefrin and Statman (1985) pointed out that professional traders employ pre-commitment mechanisms, such as stop losses and target percentage, to control their resistance to realizing losses. Our survey data and trade postings from Activetrader corroborate the use of these techniques. Dhar and Zhu (2002) found that wealthier and well-educated traders could mitigate the disposition effect. Our skilled traders actually reverse it.

5.3 Adjusted returns

We measure excess returns as daily portfolio returns $R_{p,t}$ less the risk free rate, R_f . We use the 1-month Treasury bill rate compiled by Ibbotson associates and collected by Fama and French as

the risk free rate. The returns in the chat room are positive in every trading month, 5.13% in 2000, 10.92% in 2001, 2.57% in 2002, and 5.73% in 2003. For the 57 trading days studied, returns total 24.35%, or about 0.43% per day. Monthly returns exceed the market return except for 2003.

We also adjust the returns for the three Fama and French (1993) factors and a factor for momentum. The first factor is the value weighted return on all NYSE, Nasdaq, and AMEX stocks less the risk free rate. This is the standard CAPM factor. The second factor SMB adjusts for market capitalization. It places 1/3 weights on the difference between three small portfolios and three big portfolios consisting of value, neutral and growth stocks. The third factor HML adjusts for value versus growth. It is the average difference of two value and two growth portfolios.

The data for the first three factors are from the daily return series on Ken French's website⁶. We constructed the fourth factor using the methodology in Carhart (1997) and Barber, Odean and Zhu (2003). It consists of a portfolio of stocks with the highest and lowest 30% of returns in the *preceding* trading month. The momentum factor is the daily return difference between an equal weighted portfolio of the high and low return stocks.

[INSERT Table 9 Here]

These four factors explain a good deal of the excess return of the chat room traders in Table 9. In three of the four years, all except 2001, the R^2 is over 70%. The CAPM factor is significant in 2000 and 2003. SMB is significant in every year but 2001, although it changes sign to negative in 2002. The momentum factor is significant only in 2000. There is substantial return not attributable to the four factors though. α is significant in 2000, 2001 and 2002, and averages 0.703% for those 3 years. In a pooled regression for all four years, α is 0.407% and is statistically significant. This very strong portfolio α for the chat room as a whole is strong evidence of their expertise in trading. The insignificance of the momentum factor also suggests the traders are doing something more sophisticated than chasing high return stocks.

5.4 Persistence of traders and profits

336 traders posted their trades into the chat room in October 2000. We arbitrarily assign them an experience level of 1. Of these 336 traders, 181 post trades in the next year, April 2001. There are 91 new traders, making a total of 272 posters. There are 86 survivors in 2002 from 2000, 25 have experience just from the year prior and there are 33 new traders. In our last trading month,

⁶ http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_factors.html

June-July 2003, only 19 of the original 336 traders are still posting. 6 traders have three years experience, 9 traders have two years, and there are 73 new traders.

Are surviving traders likely to be successful in the next trading period? Let $\pi_{j,T}$ denote trading profits for trader j in the current trading month. Then regress current month profits on the profits from last year,

$$\pi_{j,T} = a_0 + a_1\pi_{j,T-1}. \quad (12)$$

The results for this regression for $T = 2001, 2002$ and 2003, are in Table 10.

[INSERT Table 10 Here]

The a_1 is significantly positive in two of three years, and in the pooled regression. A trader surviving into 2001 from 2000 averages \$1,746 in profits and keeps 63% of their profits above the mean. They keep 10% of their prior year above average profits in the transition from 2001 to 2002, by far the weakest, and 29% from 2002 into 2003. The R^2 is strong, above 25% in each year except 2003 where we have a very small sample. Pooling across all three years, survivors average \$1,207 in profits, and they keep 38% of their prior year above average profits. This elite group of surviving traders, just 20.1% of the entire group of traders, earn 49.6% of the profits.

We next see if experience contributes to profits. Let $A_{j,T}$ be the number of years that the trader has posted trades into Activetrader including the current year. We estimate the model

$$\pi_{j,T} = b_0 + b_1A_{j,T}. \quad (13)$$

Estimation results are in Table 10. We find a weak but positive relationship between profits and experience. b_1 is positive in 2001, 2002, 2003 and in the pooled regression even though it is only statistically significant in 2002. Each year of experience results in \$1,170 in profits in 2001, \$559 in profits in 2002, and \$194 in profits in 2003. The declining value of experience over time suggests that that learning does plateau at some point. The pooled estimate for 2000-03 is \$189 per month per year of trading experience.

An alternative measure of experience is stock specific. Perhaps traders benefit from trading a particular stock more frequently. If there is stock specific knowledge, we should find that more trades should raise the profitability of the trader $\pi_{j,T}/n_{j,T}$. We measure trade concentration as we did previously using the Herfindahl index,

$$\pi_{j,T}/n_{j,T} = c_0 + c_1H_{j,T}. \quad (14)$$

Results for this regression for profitable traders who make at least three trades⁷ during the month are in Table 10. The coefficients on the Herfindahl index are positive in all trading months and the pooled regression except for the small 2003 sample. The estimate is statistically significant in 2001 and in the pooled regression. Using the pooled estimate, a trader who make 5 trades in five different stocks, $H_{j,T} = 5 \times (1/5)^2 = 0.2$, could raise her profit per trade by \$370 if they concentrated on a single stock. Each 0.1 increase in the Herfindahl index raises profit per trade by more than \$46.

This last finding provides a fresh perspective on the familiarity bias literature. Traders appear to develop expertise trading specific stocks that *enhances* their profitability.

6. Conclusion

Our group of skilled traders has ignored many of the lessons from their finance classes. They have incredibly high turnover; they focus on the same stocks regardless of market conditions. They make no attempt to diversify. In spite of all these errors, nearly 55% earn profits after transactions costs. Trading earns them money, and not surprisingly, they trade often.

They are more sophisticated than simple momentum investors. The momentum factor accounts for little of their daily returns. Together with the other Fama-French factors, we estimate a statistically significant α of 0.41% per day. Further evidence of their skill can be seen in their ability to earn profits both long and short.

Their knowledge also appears to grow and adapt to market conditions. Traders realize losses quickly and hold their winners 25% longer. Traders maintain 38% of their profits from one-year to the next. Each year of experience adds to their profits. Concentrating on a small group of stocks enhances their profitability.

Market surveys indicate the influence of these professional traders. 25% of daily volume on the NYSE and Nasdaq comes from semi-professional traders⁸. We hope that this paper has helped to shed some light on this small but important group.

⁷ If we include the losing traders, the results remain positive but are not statistically significant.

⁸ Goldberg and Lupercio (2003) report a decline from 50,000 day traders in 2000 to 30,000 in 2003. Despite this, 78% of online trades come from semi-pro traders (who averaged 40.5 trades per day) out of a total 32% market wide share for online traders.

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Table 1
Summary of Trades and Traders

	2000	%	2001	%	2002	%	2003	%	2000-03	%
Number of trades	3,644		3,619		1,133		571		8,967	
Long	2,934	80.52	2,393	66.12	823	72.64	386	67.60	6,536	72.89
Short	710	19.48	1,226	33.88	310	27.36	185	32.40	2,431	27.11
Round Trips	1,039	28.51	1,210	33.43	238	21.01	113	19.79	2,600	29.00
Non Round Trips	2,605	71.49	2,409	66.57	895	78.99	458	80.21	6,367	71.00
Holding Time (minutes)	149.32		141.95		161.28		164.41		148.82	
Non Round Trips	186.56		185.90		188.45		189.25		186.77	
Round Trips	55.97		54.44		59.10		63.75		55.89	
Traders	336		274		145		107		680	
Issues Traded	470		406		256		196		919	
Nasdaq	421		368		203		154		786	
NYSE	49		38		53		42		133	

Table 2
Survey Questions

Gender	Freq.	%	Age	Freq.	%
F	7	10.45	age<=25	11	16.42
M	54	80.6	25<age<=50	39	58.21
Not Revealed	6	8.96	age>50	11	16.42
			Not Revealed	6	8.96
Portfolio Size \$	Freq.	%			
<10,000	1	1.49			
10,000<= \$<20,000	3	4.48			
20,000<= \$<50,000	7	10.45			
50,000<= \$<100,000	6	8.96			
100,000<= \$<250,000	8	11.94			
250,000<= \$<500,000	2	2.99			
500,000<= \$<1000,000	4	5.97			
\$>=1,000,000	3	4.48			
Not Revealed	33	49.25			
Experience	Mean	Median	Minimum	Maximum	
Years trading	5.69	5.00	0.50	23.00	
Year in Chat Room	2.70	2.58	0.08	6.00	
Trading Activity	Mean	Median	Minimum	Maximum	
Stocks per day	24.94	4.00	1.00	1000.00	
Avg. holding time (hours)	16.95	6.50	0.07	162.50	
Securities Traded	Freq.	%	Technical indicators	Freq.	%
Stocks, long	57	85.07%	Moving averages	35	52.24%
Stocks, short	41	61.19%	Bollinger bands	13	19.40%
Bonds	3	4.48%	Stochastics	21	31.34%
Futures	10	14.93%	Fibonacci analysis	19	28.36%
Options	18	26.87%	Chart patterns	38	56.72%
Commodities	2	2.99%			
Entry strategies			Exit strategies		
Technical analysis	44	65.67%	Technical analysis	31	46.27%
Fundamentals	19	28.36%	Stop losses	23	34.33%
News	40	59.70%	Hedges	3	4.48%
Momentum	50	74.63%	Target %	21	31.34%
Other trader picks	30	44.78%	Past experience	30	44.78%
Investment services	5	7.46%	Gut Instinct	25	37.31%
Message boards	7	10.45%			
Past experience	31	46.27%			
Gut Instinct	26	38.81%			

Table 3
Stock Selection Cross Section

All Trades				
Sample	Constant	Market Cap	Volume	Beta
2000	0.051 (1.59)	0.004 (6.54)	0.004 (2.64)	0.063 (4.15)
2001	0.057 (1.50)	-0.002 (-2.89)	0.026 (10.84)	0.062 (3.27)
2002	0.217 (2.77)	-0.006 (-3.86)	0.042 (10.24)	0.000 (0.01)
2003	0.429 (4.24)	-0.005 (-1.90)	0.022 (3.98)	0.003 (0.04)
2000-03	0.179 (6.10)	-0.001 (-1.22)	0.020 (12.74)	0.029 (1.86)
Long Trades				
Sample	Constant	Market Cap	Volume	Beta
2000	0.076 (2.33)	0.004 (6.65)	0.003 (1.93)	0.057 (3.76)
2001	0.102 (2.54)	-0.002 (-2.77)	0.022 (9.14)	0.059 (3.02)
2002	0.269 (2.91)	-0.007 (-4.02)	0.046 (9.89)	-0.018 (-0.32)
2003	0.517 (5.93)	-0.003 (-1.28)	0.009 (1.88)	0.042 (0.62)
2000-03	0.227 (7.49)	-0.001 (-1.10)	0.017 (10.99)	0.023 (1.45)
Short Trades				
Sample	Constant	Market Cap	Volume	Beta
2000	0.015 (0.09)	0.004 (3.25)	0.005 (1.21)	0.247 (3.39)
2001	0.144 (0.92)	-0.005 (-1.48)	0.033 (5.24)	0.128 (1.79)
2002	1.076 (2.70)	-0.008 (-1.84)	0.033 (3.21)	-0.075 (-0.33)
2003	1.321 (2.58)	-0.046 (-5.18)	0.199 (7.34)	-0.520 (-1.27)
2000-03	0.656 (4.39)	-0.002 (-1.41)	0.030 (6.54)	-0.009 (-0.12)

Table 4
Stock Trading Concentration by Market

All Trades				
	#	5-stock	10-stock	25-Stock
NASDAQ				
2000	421	17.11%	27.27%	43.80%
2001	368	16.43%	25.02%	44.13%
2002	203	15.81%	27.52%	49.53%
2003	154	23.53%	33.25%	50.64%
NYSE				
2000	49	50.44%	72.12%	89.38%
2001	38	73.87%	82.88%	94.14%
2002	53	66.67%	75.63%	88.89%
2003	42	63.33%	75.00%	90.56%
Long Trades				
	#	5-stock	10-stock	25-Stock
NASDAQ				
2000	402	16.04%	25.68%	42.19%
2001	327	14.61%	23.74%	43.34%
2002	187	16.47%	26.36%	46.62%
2003	135	23.02%	30.94%	47.48%
NYSE				
2000	42	49.71%	72.25%	90.17%
2001	34	66.89%	78.38%	93.92%
2002	43	68.37%	76.74%	91.63%
2003	37	58.33%	69.44%	88.89%
Short Trades				
	#	5-stock	10-stock	25-Stock
NASDAQ				
2000	134	24.51%	38.96%	66.21%
2001	163	25.52%	37.67%	60.33%
2002	66	29.55%	47.37%	76.92%
2003	46	39.82%	56.64%	81.42%
NYSE				
2000	19	64.15%	83.02%	100.00%
2001	10	91.38%	100.00%	100.00%
2002	19	71.88%	85.94%	100.00%
2003	17	80.56%	90.28%	100.00%

Table 5.1
Stock Trading Concentration by Issue 2000-2001

2000				2001			
Stock	Freq.	%	Cum. %	Stock	Freq.	%	Cum. %
JDSU	157	4.31	4.31	JNPR	145	4.01	4.01
INTC	121	3.32	7.63	JDSU	127	3.51	7.52
CSCO	105	2.88	10.51	VRSN	127	3.51	11.03
AMCC	101	2.77	13.28	QQQ	115	3.18	14.20
YHOO	101	2.77	16.05	ARBA	81	2.24	16.44
SCMR	90	2.47	18.52	SUNW	78	2.16	18.60
ISLD	78	2.14	20.66	CIEN	65	1.80	20.39
ICGE	65	1.78	22.45	RFMD	61	1.69	22.08
COVD	62	1.70	24.15	NUFO	57	1.58	23.65
QQQ	58	1.59	25.74	CSCO	56	1.55	25.20
PCLN	52	1.43	27.17	MUSE	53	1.46	26.66
SDLI	49	1.34	28.51	INKT	50	1.38	28.05
CMGI	47	1.29	29.80	PPRO	50	1.38	29.43
JNPR	41	1.13	30.93	AMCC	47	1.30	30.73
CIEN	40	1.10	32.03	CHKP	47	1.30	32.03
PMCS	39	1.07	33.10	BRCM	46	1.27	33.30
RMBS	39	1.07	34.17	SONS	45	1.24	34.54
TLXS	38	1.04	35.21	TERN	44	1.22	35.76
AFCI	37	1.02	36.22	BVSN	42	1.16	36.92
RCOM	35	0.96	37.18	QCOM	42	1.16	38.08
SUNW	35	0.96	38.14	RATL	41	1.13	39.21
BRCM	34	0.93	39.08	BRCM	40	1.11	40.32
DCLK	33	0.91	39.98	INTC	40	1.11	41.42
QCOM	33	0.91	40.89	IWOV	39	1.08	42.50
XLNX	33	0.91	41.79	ORCL	39	1.08	43.58

Table 5.2
Stock Trading Concentration by Issue 2002-2003

2002				2003			
Stock	Freq.	%	Cum.%	Stock	Freq.	%	Cum.%
QQQ	145	12.80	12.80	QQQ	63	11.03	11.03
VRSN	37	3.27	16.06	IIJI	36	6.30	17.34
MERQ	27	2.38	18.45	LOR	24	4.20	21.54
QLGC	25	2.21	20.65	CHINA	23	4.03	25.57
AMAT	23	2.03	22.68	AMR	13	2.28	27.85
LNOP	23	2.03	24.71	GMAI	12	2.10	29.95
INVN	21	1.85	26.57	GILD	11	1.93	31.87
WCOM	21	1.85	28.42	NETC	10	1.75	33.63
OVER	20	1.77	30.19	VNWI	9	1.58	35.20
QCOM	20	1.77	31.95	SINA	8	1.40	36.60
TYC	20	1.77	33.72	DIA	7	1.23	37.83
INTC	18	1.59	35.30	EBAY	7	1.23	39.05
BRCM	16	1.41	36.72	ELN	7	1.23	40.28
NVDA	16	1.41	38.13	NVDA	7	1.23	41.51
KLAC	15	1.32	39.45	PACT	7	1.23	42.73
MSFT	15	1.32	40.78	SOHU	7	1.23	43.96
SEBL	15	1.32	42.10	YHOO	6	1.05	45.01
DTHK	14	1.24	43.34	AMZN	5	0.88	45.88
EMLX	14	1.24	44.57	ASIA	5	0.88	46.76
EXPE	13	1.15	45.72	ATS	5	0.88	47.64
TRMS	12	1.06	46.78	GIGM	5	0.88	48.51
ADRX	11	0.97	47.75	IMCLE	5	0.88	49.39
BEAS	10	0.88	48.63	SMH	5	0.88	50.26
BRCD	10	0.88	49.51	THC	5	0.88	51.14
ATVI	9	0.79	50.31	EWEB	4	0.70	51.84

Table 6					
Herfindahl Indexes					
	Room	Market	F-stat	p-value	$p_j > \text{Mkt.}$
2000	0.0516	0.0882	0.2406	1.00	21
2001	0.0496	0.0868	0.2039	1.00	22
2002	0.0908	0.1137	0.6893	0.82	23
2003	0.0864	0.1744	0.3452	0.99	17

Table 7
Stock Selection Regressions

All Trades							
Sample	Const.	$p_{k,t-1}$	$AV_{k,t-1}$	$R_{k,t-1}$	$R^2_{k,t-1}$	N_T	R^2
2000	2.140 (13.91)	0.149 (2.78)	0.004 (1.45)	-0.030 (-2.21)	0.000 (-1.15)	307	0.057
2001	2.104 (20.20)	0.309 (8.19)	-0.001 (-0.44)	-0.001 (-0.14)	0.000 (-0.55)	539	0.114
2002	2.267 (15.12)	0.485 (9.94)	0.001 (0.57)	-0.059 (-2.89)	0.000 (-0.36)	419	0.224
2003	3.362 (12.38)	0.506 (5.69)	0.005 (1.69)	-0.009 (-0.21)	0.000 (-0.35)	238	0.138
2000-03	2.351 (29.62)	0.353 (13.03)	0.003 (2.31)	-0.010 (-1.52)	0.000 (-1.32)	1,503	0.115
Long Trades							
Sample	Const.	$p_{k,t-1}$	$AV_{k,t-1}$	$R_{k,t-1}$	$R^2_{k,t-1}$	N_T^b	R^2
2000	2.004 (12.53)	0.151 (2.36)	0.004 (1.49)	-0.028 (-1.97)	0.000 (-1.03)	240	0.060
2001	1.979 (17.57)	0.203 (4.16)	-0.002 (-0.89)	0.001 (0.12)	0.000 (-0.11)	368	0.046
2002	1.951 (13.41)	0.497 (8.76)	0.000 (-0.03)	-0.039 (-1.97)	0.001 (0.67)	339	0.226
2003	3.178 (13.45)	0.237 (1.58)	0.004 (1.51)	-0.023 (-0.65)	0.000 (-0.14)	183	0.028
2000-03	2.196 (28.22)	0.278 (8.30)	0.002 (1.97)	-0.010 (-1.65)	0.000 (-1.28)	1,130	0.070
Short Trades							
Sample	Const.	$p_{k,t-1}$	$AV_{k,t-1}$	$R_{k,t-1}$	$R^2_{k,t-1}$	N_T^a	R^2
2000	1.834 (12.35)	-0.034 (-0.31)	0.002 (0.83)	-0.020 (-1.22)	-0.001 (-1.00)	59	0.068
2001	2.084 (12.71)	0.077 (1.06)	0.001 (0.27)	-0.012 (-0.94)	0.001 (0.80)	186	0.014
2002	2.583 (10.48)	0.055 (0.47)	0.005 (1.20)	-0.005 (-0.14)	0.000 (-0.02)	118	0.029
2003	2.877 (5.80)	0.530 (3.59)	0.004 (0.66)	0.001 (0.01)	0.000 (-0.18)	79	0.154
2000-03	2.251 (17.18)	0.266 (4.81)	0.002 (1.03)	-0.018 (-1.24)	0.000 (0.31)	442	0.057

Table 8
Trading Profits

	All Trades				
	2000	2001	2002	2003	2000-03
1 share profit	\$418.23	\$550.74	\$96.11	\$119.95	\$1,185.03
Profit (A)	\$349,578.10	\$479,332.90	\$73,532.00	\$111,130.00	\$1,013,572.99
Profit (B)	\$234,630.17	\$688,266.90	-\$54,975.49	\$203,321.95	\$1,071,243.53
Profit Per Trade	\$135.06	\$183.31	\$44.88	\$245.67	\$152.66
Profitable Traders (A)	52.82%	54.12%	51.03%	71.03%	54.79%
Profitable Traders (B)	47.48%	50.54%	41.38%	57.01%	48.67%
	Long Trades				
	2000	2001	2002	2003	2000-03
1 share profit	\$343.13	\$403.00	\$48.97	\$92.60	\$887.70
Profit (A)	\$284,289.30	\$355,254.99	\$32,332.00	\$84,760.00	\$756,636.29
Profit (B)	\$202,613.34	\$660,521.32	-\$41,043.78	\$148,039.78	\$970,130.65
Profit Per Trade	\$45.22	\$204.47	\$2.23	\$309.15	\$110.87
Profitable Traders (A)	50.80%	54.78%	48.46%	70.71%	53.97%
Profitable Traders (B)	45.66%	50.00%	40.00%	57.58%	47.59%
	Short Trades				
	2000	2001	2002	2003	2000-03
1 share profit	\$79.61	\$148.60	\$47.38	\$30.15	\$305.74
Profit (A)	\$65,288.80	\$124,077.90	\$41,200.00	\$26,370.00	\$256,936.70
Profit (B)	\$32,016.84	\$27,745.56	-\$13,931.71	\$55,282.18	\$101,112.87
Profit Per Trade	\$364.27	\$141.63	\$146.96	\$52.70	\$210.84
Profitable Traders (A)	59.48%	53.54%	54.69%	57.50%	56.07%
Profitable Traders (B)	51.72%	48.82%	45.31%	42.50%	48.27%

Table 9						
Risk Adjusted Returns ⁹						
Year	α	Mkt- R_f	SMB	HML	Momentum	R^2
2000	0.722 (2.86)	1.080 (2.25)	2.721 (2.81)	1.063 (1.47)	0.318 (2.28)	0.713
2001	0.621 (2.73)	-0.149 -(0.61)	-0.360 -(0.83)	0.014 (0.04)	-0.071 -(0.93)	0.124
2002	0.768 (3.71)	0.012 (0.08)	-1.184 -(3.20)	-1.820 -(4.09)	0.008 (0.07)	0.705
2003	-0.208 -(0.61)	0.639 (2.23)	1.192 (2.83)	-0.097 -(0.10)	-0.138 -(1.35)	0.709
2000-03	0.407 (3.33)	0.096 (0.68)	0.153 (0.63)	-0.229 -(1.01)	0.040 (0.78)	0.134

⁹ The regressions are on daily returns of the chat room's entire trading activity. The first factor is the market return less the 1-month Treasury bill rate. The second factor SMB adjusts for market capitalization. The third factor HML adjusts for value versus growth. The fourth factor is for momentum.

Table 10				
Persistence of Traders and Profits				
Trader Survival				
Experience	2000	2001	2002	2003
1	336	181	86	73
2		91	25	9
3			33	6
4				19
Total	336	272	144	107

Profit Persistence				
Year	Constant	$\pi_{j,T-1}$	R ²	J
2001	1,746.387 (1.68)	0.632 (8.09)	0.424	91
2002	795.446 (2.70)	0.102 (5.63)	0.379	54
2003	993.474 (1.50)	0.292 (1.57)	0.087	28
2000-03	1,207.831 (1.92)	0.382 (8.11)	0.278	173

Effect of Experience on Profits				
Year	Constant	Experience	R ²	J
2001	199.677 (0.11)	1,170.856 (0.90)	0.003	272
2002	-403.082 (0.96)	559.897 (2.43)	0.040	144
2003	701.601 (1.17)	194.912 (0.68)	0.004	107
2000-03	788.673 (1.38)	189.344 (0.56)	0.001	522

Trade Concentration and Profits				
Year	Constant	H _{j,T}	R ²	J
2000	546.786 (3.27)	685.892 (1.39)	0.020	94
2001	196.279 (2.01)	723.862 (2.76)	0.080	90
2002	238.098 (2.42)	93.421 (0.30)	0.003	35
2003	277.482 (4.65)	-248.551 (1.51)	0.052	42
2000-03	341.996 (4.62)	463.389 (2.19)	0.018	265