
The Profitability of Day Traders

Douglas J. Jordan and J. David Diltz

We used two distinct methodologies to examine the profitability of a sample of U.S. day traders. The results show that about twice as many day traders lose money as make money. Approximately 20 percent of sample day traders were more than marginally profitable. We found evidence that day-trader profitability is related to movements in the Nasdaq Composite Index.

In spite of much academic evidence to the contrary, the trading behavior of many investors reveals a belief in the possibility of earning excess returns from short-term security price movements. This belief is generally characteristic of day traders, the majority of whom base trades on technical analysis. The inconsistency between academic evidence and day traders' unsupported beliefs contributes to the controversy surrounding day trading. One dimension of the inconsistency concerns the profitability of day traders. The empirical evidence we report based on a large sample of real-time day trades provides insight into conflicting claims about day-trading profitability.

Background Information

Two areas of research and discussion are helpful in approaching the question of day-trader profitability—the concept of investor overconfidence from the behavioral finance literature and arguments in the controversy surrounding day trading.

Investor Overconfidence. Investor overconfidence may contribute to the phenomenon of day trading. The trading volume in equity markets cannot be easily reconciled with the trading needs of purely rational investors. Rational investors may trade as market conditions change or for tax considerations, but as Barber and Odean (1999, p. 47) suggest, "trading needs are unlikely to account for a 1998 turnover rate on the NYSE of 76 percent." Barber and Odean concluded that "there is a simple and powerful explanation for high levels of trading on financial markets—overconfidence." Overconfidence may increase the likelihood that investors will trade on the basis of unjustifiable certainty about their opinions.

Douglas J. Jordan is assistant professor of finance at Sonoma State University, California. J. David Diltz is professor of finance at the University of Texas at Arlington.

As a behavioral finance construct, overconfidence has its roots in psychological studies. One branch of the literature in this area consists of research on the calibration of subjective probabilities. In calibration studies, subjects are asked to form probability judgments about future events (or to forecast the future) when the subject lacks important pieces of information.¹

An important finding of calibration research is that people tend to overestimate the precision of their knowledge. Subjects tend to be especially overconfident when faced with questions or tasks of moderate to extreme difficulty (such as predicting future stock prices). They often think that a noisy or imprecise signal is actually a perfect sign, so they overestimate the precision of the signal. Odean (1998) related that overconfidence has been observed among many professionals, including clinical psychologists, physicians, nurses, engineers, lawyers, corporate managers, and investment bankers.

By this definition of overconfidence, an overconfident day trader will attach too much precision to his or her interpretation of market information. This mistake, in turn, may lead the day trader to conclude that he or she can compete successfully against market makers and institutional investors.

Frank (1935) found that people tend to overestimate their ability to do well on tasks and that the overestimates increase with the importance of the task to the person. Kunda (1987) found that people expect good things to happen to them more often than to their peers. Taylor and Brown (1988) found that people rate their abilities and prospects higher than those of their peers. Fischhoff (1982) stated, "they even misremember their own predictions so as to exaggerate in hindsight what they knew in foresight" (p. 341). Any or all of these manifestations of overconfidence may reinforce a day trader's belief that he or she can be successful in spite of strong evidence to the contrary.

In summary, a substantial body of psychological research has established that people in general and investors in particular tend to be overconfident. This overconfidence is likely to be one reason many day traders think they can be successful.

Controversy about Day Trading. Day trading has experienced dramatic growth in popularity since the middle to late 1990s. This growth was fueled largely by the perception that day trading is a relatively easy way to earn a great deal of money with minimum initial capital. Proponents argue that sophisticated software and access to real-time stock quotes level the playing field for individual investors, allowing them to compete successfully with professional investors and market makers.

The meteoric rise in Internet stock prices—indeed, technology stock prices in general—from the beginning of 1999 until March 2000 fueled the rise in day trading. Accompanied by headlines announcing dramatic share price increases for Internet-related IPOs, the rise in prices fostered the perception that easy money is to be made in the market as long as the individual investor stays constantly abreast of the latest developments.

Interest in day trading has also been stimulated by alluring industry claims. For example, one television ad showed a truck driver who claimed that he made enough money day trading to buy an island.

Surprisingly, the decline in the Nasdaq since March 2000 does not appear to have significantly reduced interest in day trading. Schwartz (2001) reported that the number of day traders in the United States has remained stable at about 50,000 in spite of the Nasdaq drop.

The growth in the popularity of day trading has attracted the attention of government regulatory agencies. Day trading has become a topic of interest because of the perception that day trading is gambling (as opposed to investing) and the belief that most day traders lose money. Alleged fraud and margin violations at day-trading firms are also prompting government attention. Two major reports on day trading and Congressional testimony by regulatory personnel have resulted.

The first major report was completed in August 1999 by the North American Securities Administrators Association (NASAA 1999). The NASAA report focused on such abuses by day-trading firms as deceptive marketing and inadequate risk disclosure, violations of suitability requirements, questionable loan arrangements, and misuse of discretionary accounts. The report cited the results of an analysis by Ronald Johnson (an investment consultant) of 26 individual day-trading accounts at a retail firm. Johnson concluded the following: (1)

The average public investor should refrain from short-term trading; (2) most traders will lose their entire initial investment; (3) successful accounts limit short-term trades. Based on Johnson's study and anecdotal evidence, the NASAA Project Group recommended special suitability and disclosure rules for day-trading firms. Given the small sample analyzed by Johnson, however, it is not clear that the results can be used to attack industry claims of high success rates for day traders.

The second major study was produced by the U.S. SEC (2000) and released on 25 February 2000. This study presents the results of an examination of 47 day-trading firms from October 1998 through September 1999. It discusses the structure of the firms, advertising, suitability, risk disclosure, and lending practices. The study does not contain any profitability analysis. Although the SEC discovered no evidence of fraud, the commission did report a lack of adequate risk disclosure to prospective customers. One of the recommendations of the report is that specific day-trading disclosure rules be promulgated. Proposed suitability requirements included a \$25,000 minimum in account equity.

Despite a lack of evidence justifying greater regulation, the \$25,000 minimum equity for day traders was implemented in August 2001 for NYSE stocks and September 2001 for Nasdaq stocks (Elstein and Forster 2001). According to the SEC, the minimum requirements apply to all day traders, who are defined as investors who buy and sell a stock in the same trading session at least four times a week.

On balance, the governmental view of day trading appears to be negative. The Electronic Traders Association (ETA) argues, however, that day trading is not well understood and should not be viewed negatively. ETA arguments in favor of day trading and the ETA's response to the 1999 NASAA report are given in Cohen (1999). Cohen specifically addressed the issues of inadequate risk disclosure and the accusation that high percentages of day traders lose money. The ETA argues that day-trading firms do require new customers to sign risk disclosure statements.

The ETA also disputes the NASAA and SEC contention that a large percentage of day traders lose money and that most of them eventually lose all their trading capital. The association argues that the NASAA report is not a valid assessment of day-trading profitability. They claim that the report suffers from an inadequate sample, in terms of both number of accounts and length of time, and that the analysis methodology is flawed. The ETA estimates that 60 percent of day traders lose money in a three-month to five-month learning period. Following

the learning period, 60 percent of traders make an average of \$25,000 monthly, with the other 40 percent losing approximately \$7,000 monthly.

Harris and Schultz (1998) supported the ETA's profitability claims. They found that Small Order Execution System (SOES) traders at two separate brokerage firms were able to trade profitably, although the average profit per trade was small. (SOES traders are day traders with access to Nasdaq's SOES system.)

The ETA also argues that the investing public benefits from the increased liquidity created by day traders. Enhanced liquidity has promoted growth in the number of electronic communications networks (ECNs). Thus, quotes are more transparent than in the past because of increased competition among market makers. The ETA also argues that the increase in liquidity and competition has reduced bid-ask spreads. Finally, the industry argues that day trading has fostered new hardware and communications technology for the transmission of price quotes and the acceleration of trade execution.

Public controversy centers on the percentage of day traders that lose money and how much they lose. Government policymakers, behaving as if day trading is analogous to gambling, claim that a large percentage of day traders lose money and that novice traders often lose trading capital that they cannot afford to lose. The policymakers propose increased regulation to protect individual investors. The industry, arguing that reports of day-trader losses are exaggerated and that most traders make money after an initial learning period, opposes additional regulation. The problem is that neither side has sufficient evidence to support its claims.

Data and Methodology

We used data from seven branch offices of a national securities firm specializing in day trading. The data consist of information the firm receives when a client places an order. Not every order constitutes an actual trade because order status can fall into several categories. These categories include "order send," "order pending," "cancel send," "canceled," "reject order," and "confirmed." Only confirmed orders represent an actual trade. **Table 1** presents an excerpt (for 4 January 1999) from the data on confirmed orders.

Many trades result in a "split fill"—that is, for example, a 1,000-share buy order may not be filled in a single transaction. The trader may buy, say, 500 shares right away, 100 shares a few minutes later, and the final 400 shares some time later. Each transaction is a distinct confirmed trade, even though the

Table 1. Examples of Confirmed Trade Data from 4 January 1999

Order No.	Trader	Stock	Order Type	No. of Shares	Price	Time
509	Y	SPLN	Buy	500	\$17.75	1:11:34
489	X	DBCC	Short	300	19	1:12:01
512	Y	XLNX	Buy	1,000	66	1:12:58
511	Z	SPYG	Buy	412	15.9375	1:13:04
515	Y	GMGC	Buy	1,000	5.96875	1:14:49
513	Z	HD	Buy	100	59.125	12:14:58
513	Z	HD	Buy	100	59.125	12:15:04
513	Z	HD	Buy	100	59.125	12:15:18
518	Z	LRCX	Short	500	18.9375	1:18:10
519	Y	XLNX	Sell	1,000	65.90625	1:18:18
520	Y	XLNX	Short	1,000	65.875	1:18:58
521	Z	OXHP	Sell	100	16.125	1:19:00
521	Z	OXHP	Sell	400	16.125	1:19:00
522	W	LCOS	Short	500	55.25	1:19:38
525	Y	GMGC	Sell	300	6.046875	1:22:31
527	Y	BVSN	Sell	300	34.3125	1:22:33
525	Y	GMGC	Sell	700	6.046875	1:23:21

Notes: The firm assigns order numbers sequentially as traders place orders through the trading day. "Order Type" refers to a buy, sell, or short sell.

original order was for 1,000 shares. Fortunately, order number is the same regardless of how many transactions are required to complete the order. For example, order 513 in Table 1 is for 300 shares of HD. To fill it, three separate buys were made, with the first occurring at close to 12:15 p.m. and the final one slightly after 12:15 p.m.

The sample consists of all orders sent by clients to various branches of the firm for each trading day during the months reported in **Table 2**. We then extracted the confirmed trades from the raw transaction data.

Table 2. Calendar Months with Available Trading Data

Branch	Calendar Months
A	February 1998–October 1999
B	October 1998–October 1999
C	September 1998–October 1999
D	September 1998–October 1999
E	August 1998–May 1999
F	January 1999–June 1999
G	July 1998–October 1999

Notes: The data from each branch do not start with the same month because new branches commenced trading at different times. The data from most of the branches end in October 1999 because we acquired the data in early November 1999.

We used two techniques for translating the raw transactions into completed trades. One technique matched buy and sell trades (also short-sell and buy trades) by the number of shares of a given order number. We did this matching on a daily basis. Consequently, trades not closed on the initiation day are not included. We call this technique "trade matching." In the second technique, we sorted data for a given trader by stock, then by date, and by time. A "trade" was defined any time the trader had a "flat" position (zero net position) in the stock. Multiday trades were included. We call this technique "flat stock." The premise underlying both techniques is that price times shares bought is a cash outflow and price times shares sold is a cash inflow.

The trade-matching technique began with the data grouped by order number; buy and sell trades for a particular stock were paired with all other trades of exactly the same number of shares for a particular stock during a given day. Short-sell transactions were handled in a similar manner. These pairings constitute the matching portion of the technique because pairings were made only when the stock and the number of shares in the order were the same. The remaining steps merely removed improper trades. A sample of trade-matching output is shown in **Table 3**. Base commission charge per trade at the firm is \$14; to it is added a charge that varies with the ECN used to place the trade.² Therefore, we calculated net profit by adding to the cost an assumed \$15 commission for each buy or sell trade, so net profit is gross profit minus \$30 round-trip commissions.

Because the trade-matching technique pairs trades by same number of shares and order number, split offsets are not included. Thus, this methodology may result in some traders having fewer trades than would result from a close by-hand analysis of the trader's data. We chose to accept that limitation in order to keep the data set large yet tractable.

The flat-stock technique began with all trades for a given trader, and trades were then sorted by stock, date, and time. Reading the transactions

sequentially, we kept track of the net position for each stock as well as a running tally of profit or loss. Output from this procedure for a sample trader is shown in **Table 4**.

The first trade in **Table 4** is a short sale of 500 AAPL shares, so this trader's net position was then -500 shares. The trader then bought 500 shares back, thus attaining a flat (zero net share) position in AAPL. In the flat-stock technique, this series of moves constitutes one trade, and the trader made a profit of \$95. The trader's next two trades were to short 200 shares and 300 shares of AAPL, bringing the net position to -500 again. Upon purchase of 500 shares, the trader was again to a net zero position in AAPL. This time, the trader lost \$530 on the trade (not shown in **Table 4**), bringing the running profit total to -\$435. We continued this process through all trades for a given trader, with a trade being defined by each return to a net zero share position. Running profits were recorded separately for each stock. Results were aggregated for each trader. This procedure yielded a single trader's overall profitability figure as calculated in the flat-stock technique.

We also required the profit and time held for each individual trade. The profit is the running sum of price times shares from all transactions between one net zero position and the next one. We defined time held as the elapsed time between net zero positions. For example, the second AAPL trade on 4 October in **Table 4** was defined as initiated at 10:30:49 and offset the next day at 10:08:43. One advantage of the flat-stock technique is the inclusion of multiday trades. Individual profitability and time-held measures for the trades shown in **Table 4** are presented in **Table 5**.³

Empirical Results

In this section, we describe the results of our profitability analysis in the trade-matching and the flat-stock methodologies, and we compare the findings from the different approaches.

Table 3. Final Results of Trade-Matching Methodology, as of 13 January 1999

Trader	Buy Order No.	Sell Order No.	Time Held (minutes)	Gross Profit	Net Profit
X	1,072	1,130	10	-\$93.75	-\$123.75
X	1,034	1,130	19	-125	-155
X	937	998	23	-156.25	-186.25
X	850	868	7	-15.625	-45.625
X	752	827	27	0	-30
X	448	493	13	93.75	63.75
X	333	353	7	281.25	251.25
X	108	367	93	46.875	16.875

Table 4. Example for a Single Trader of Net Position Calculation in Flat-Stock Methodology

Time	Stock	Action	No. of Shares	Price	Price × No. of Shares	Day No.	Net Position	Rolling Profit
<i>21 September 1999</i>								
15:19:57	AAPL	Short	500	\$69.81	\$34,905	262	-500	\$34,905
15:32:57	AAPL	Buy	500	69.62	34,810	262	0	95
<i>22 September 1999</i>								
9:39:45	AAPL	Short	200	\$69.12	\$13,824	263	-200	\$13,919
9:39:54	AAPL	Short	300	69.12	20,736	263	-500	34,655
9:50:22	AAPL	Buy	500	70.18	35,090	263	0	-435
<i>4 October 1999</i>								
10:05:35	AAPL	Short	300	\$64.18	\$19,254	271	-300	\$18,819
10:05:57	AAPL	Short	200	64.18	12,836	271	-500	31,655
10:11:33	AAPL	Buy	200	63.81	12,762	271	-300	18,893
10:11:34	AAPL	Buy	300	63.81	19,143	271	0	-250
10:30:49	AAPL	Short	500	63.56	31,780	271	-500	31,530
11:05:41	AAPL	Short	200	63.93	12,786	271	-700	44,316
11:22:10	AAPL	Short	300	64.06	19,218	271	-1,000	63,534
<i>5 October 1999</i>								
10:08:43	AAPL	Buy	1,000	\$66.93	\$66,930	272	0	-\$3,396
<i>6 November 1998</i>								
9:36:08	ABTX	Buy	1,000	\$12.25	\$12,250	45	1,000	-\$12,250
9:36:46	ABTX	Sell	1,000	12.50	12,500	45	0	250
<i>15 September 1998</i>								
10:15:44	ADBE	Short	1,000	\$29.87	\$29,870	8	-1,000	\$29,870
14:28:48	ADBE	Buy	1,000	30.56	30,560	8	0	-690
<i>17 September 1999</i>								
10:38:06	ADBE	Short	500	\$106.20	\$53,125	260	-500	\$52,435
10:45:49	ADBE	Buy	300	105.80	31,743	260	-200	20,692
10:45:50	ADBE	Buy	200	105.80	21,162	260	0	-470

Notes: Each time the net position goes to zero constitutes a trade under the flat-stock methodology. "Rolling Profit" refers to the running profit or loss as trades were completed.

Table 5. Profit and Length of Time Held for the Trades in Table 4

Profit on Trade	Time Held (minutes)
\$95	13.00
-530	10.62
185	5.98
-3,146	367.90
250	0.63
-690	253.07
220	7.73

Profitability Analysis: Trade-Matching Methodology. Combining results for the individual branches provided a total of 371 traders in the trade-matching data set for profitability analysis. Because the focus of this study was day traders,

however, we excluded traders with fewer than 10 total trades from the data set. This exclusion eliminated 47 traders, leaving 324 traders in the final data set.

A sample of the results for 10 of the 324 traders is given in **Table 6**. The results from the entire data set indicate that 116 traders (35.8 percent) had a net profit greater than zero after commissions. A total of 208 traders (64.2 percent) had net profits less than zero after commissions. Therefore, the sample contains almost twice as many losing traders as winning traders. The most profitable trader made more than \$197,000, and the least profitable trader lost more than \$748,000. The average net profit for all the traders in the data set is -\$750. **Table 7** shows the distribution of the number of traders in a range of profits.

Table 6. Sample of Profitability Results: Trade-Matching Methodology

Trader	No. of Months Traded	Total No. of Trades	Gross Profit	Net Profit
1	13	136	-\$2,068.600	-\$6,148.60
2	14	416	-6,017.300	-18,497.00
3	4	13	-114.060	-504.06
4	2	89	-2,620.500	-5,290.50
5	2	128	21,655.000	17,815.00
6	4	100	1,060.910	-1,939.10
7	5	312	2,040.310	-7,319.70
8	2	29	11,357.000	10,487.00
9	2	91	-27.188	-2,757.20
10	10	1,351	137,822.000	97,292.40

Notes: "No. of Months Traded" is the number of different months in the data set that the trader had trades. "Net Profit" is gross profit minus \$30 round-trip commission.

Table 7. Distribution of Day-Trader Net Profits: Trade-Matching Methodology

Net Profit (\$ thousands)	No. of Traders
< -100	1
-50 to -100	5
-20 to -50	13
-10 to -20	23
-5 to -10	42
-1 to -5	91
0 to -1	33
0 to 1	18
1 to 5	35
5 to 10	17
10 to 20	23
20 to 50	9
50 to 100	10
> 100	4

From Table 7, the distribution of trader profits appears skewed to the left; indeed, statistical tests rejected normality at conventional significance levels. Table 7 also shows that 14.2 percent of sample traders (46) made at least \$10,000 and 1.2 percent (4) made more than \$100,000.

To gain further insight into the distinctions between profitable and unprofitable traders, we disaggregated these trade-matching results for the total number of traders into two subcategories—positive-net-profit and negative-net-profit traders. The results, presented in Table 8, invite several interesting observations and comparisons. Substantial dollar differences are evident between the average gross profit and average net profit figures

for all three categories. The "No. of Trades" column shows that these traders as a group traded frequently. Surprisingly, the average gross profit for all traders is more than \$8,000; because day traders have to bear the cost of the bid-ask spread while trading, however, the average net profit is, as noted, about -\$750. Thus, transaction costs apparently preclude earning an excess profit from day trading.

Table 8. Results by All, Positive-Net, and Negative-Net Traders: Trade-Matching Methodology

Category/Statistic	No. of Months Traded	No. of Trades	Gross Profit	Net Profit
<i>All traders (324 total)</i>				
Average	4.57	306.10	\$8,434.81	-\$748.15
Standard deviation	3.31	564.04	48,542.19	48,453.13
<i>All positive-net-profit traders (116)</i>				
Average	4.92	330.42	\$28,226.67	\$18,313.99
Standard deviation	3.01	551.55	43,449.63	31,779.27
<i>All negative-net-profit traders (208)</i>				
Average	4.38	292.53	-\$2,602.95	-\$11,378.96
Standard deviation	3.46	571.74	47,812.73	52,773.82

Because we calculated the overall profitability results by adding together the monthly profitability totals for each trader, we could also examine the traders' profitability on a monthly basis. Results are shown in Table 9 by branch office. For Table 9, we combined the branch results to give a series of 21 continuous monthly profitability estimates from February 1998 through October 1999. Table 9 shows that the traders, as a group, were profitable in 11 months and unprofitable in 10 months. They lost more than \$236,000 during the period based on the combined monthly results.

Conventional Wall Street wisdom holds that day traders, in general, are profitable when the overall market is up (or, more specifically, because the vast majority of the trades in the study involved technology stocks, when the Nasdaq Composite is up) and lose money when the market (the Nasdaq) is down. This bit of wisdom does not make sense in an efficient market. Because an investor may sell short, the direction of the market should have no bearing on day-trading profitability. In practice, however, most investors (day traders included) are biased toward long transactions. Therefore, day traders will probably lose money when the market declines.

Table 9. Combined Trader Monthly Profitability by Branch: Trade-Matching Methodology

Month	Feb 98	Mar 98	Apr 98	May 98	Jun 98	Jul 98	Aug 98	Sep 98	Oct 98	Nov 98	Dec 98
Nasdaq % change	9.3	3.7	1.8	-4.8	6.5	-1.2	-19.9	12.9	4.6	10.1	12.5
Nasdaq level	1,770	1,835	1,868	1,778	1,894	1,872	1,499	1,693	1,771	1,949	2,192
Branch A	-\$37,278	-\$79,247.2	-144,261	-\$126,980	-\$185,557	-\$245,449	-\$183,992	-\$46,870	-\$122,143	\$43,662	\$34,165
Branch B									-6,134	1,868	-2,960
Branch C								-6,323	-16,703	-15,736	-7,423
Branch D								17,164	-18,329	34,537	-13,224
Branch E							-34,925.	-18,060	-4,536	29,411	95,065
Branch F											
Branch G											
Total	-\$37,278	-\$79,247	-\$144,261	-\$126,980	-\$185,557	-\$248,295	-\$223,107	-\$58,349	-\$174,947	\$90,575	\$94,675
Nasdaq % change	14.3	-8.7	7.6	3.3	-2.8	8.7	-1.8	3.8	0.3	8.0	
Nasdaq level	2,505	2,288	2,461	2,542	2,470	2,686	2,638	2,739	2,746	2,966	
Branch A	\$70,477	\$3,232	\$4,172	\$14,032	\$27,524	\$18,424	\$14,818	\$13,685	\$28,509	\$17,532	-\$881,548
Branch B	135,140	-814	-7,714	35,416	-10,964	12,886	25,291	6,645	-2,561	-4,197	181,902
Branch C	-1,215	-29,617	-16,784	-42,416	3,240	30,509	17,842	1,675	30,005	42,403	-10,544
Branch D	26,078	-28,506	-21,290	30,960	1,388	4,544	-31,301	-2,349	73,468	28,266	101,405
Branch E	138,032	8,750	39,085	25,401	2,204						280,425
Branch F	26,670	3,533	7,290	57,271	8,582	24,861					128,207
Branch G	-31,676	-30,813	22,422	18,042	46,983	-24,573	-11,871	17,285	-13,388	3,998	-36,099
Total	\$363,505	-\$74,234	\$27,182	\$138,706	\$78,957	\$66,652	\$14,779	\$36,942	\$116,032	\$88,002	-\$236,252

Note: Totals may not sum because of rounding.

We used the data reported in Table 9 to estimate a regression relationship between overall trader profitability and movements in the Nasdaq:

$$\begin{aligned} \text{Combined monthly trader profitability} = \\ -531,706 + 236.76 \text{ (i.e., the point level} \\ \text{of the Nasdaq)} \\ t = -4.29 \quad t = 4.28 \\ p = 0.0004 \quad p = 0.0004 \\ R^2 = 0.49 \end{aligned}$$

The Durbin-Watson and White tests failed to show evidence of autocorrelation or heteroscedasticity. The 0.49 R^2 for the regression is unusually high compared with most regressions in financial analysis, and it indicates that almost half of the variance in sample trader profitability is explained by changes in the Nasdaq. The results are consistent with conventional wisdom—namely, that there is a significant positive relationship between movements in the Nasdaq and trader profitability.

Profitability Analysis: Flat-Stock Methodology. The initial flat-stock methodology data set contained 377 traders.⁴ When we removed traders with fewer than 10 trades, 334 traders remained for profitability analysis by the flat-stock methodology.

Of the entire flat-stock data set, 89 traders (26.6 percent) had a net profit greater than zero after commissions and 245 traders (73.4 percent) had a net profit less than zero. The average net profit for all the traders in the data set was $-\$7,904$, with a maximum profit of $\$372,622$ and a maximum loss of $-\$279,776$. It may seem surprising that day traders who held positions overnight did so poorly during a strong bull market (the Nasdaq was up approximately 83 percent over the sample period). A possible explanation for this paradox is that most day traders who hold positions overnight are still *day* traders who simply happen to hold some positions overnight. They do not necessarily hold positions long enough to benefit from the overall bull market.

Table 10 shows the distribution of net profit for day traders measured by the flat-stock approach for the same profit ranges used in Table 7. Similar to the results for the trade-matching methodology, the flat-stock methodology results in a distribution skewed to the left, and as with the trade-matching methodology, formal statistical tests rejected normality. Table 10 indicates that 41 traders (12.3 percent) made at least $\$10,000$ and seven traders (2.1 percent) made more than $\$100,000$.

As in the trade-matching approach, we also broke the data down into traders who made positive or negative net profits. The results are presented in Table 11. These profitability results are

Table 10. Distribution of Day-Trader Net Profits: Flat-Stock Methodology

Net Profit (\$ thousands)	No. of Traders
< -100	10
-50 to -100	16
-20 to -50	38
-10 to -20	42
-5 to -10	47
-1 to -5	74
0 to -1	18
0 to 1	13
1 to 5	23
5 to 10	12
10 to 20	13
20 to 50	14
50 to 100	7
> 100	7

consistent with the analogous trade-matching results (see Table 8). Again, somewhat surprisingly, the average gross profit for all traders is positive whereas the average net profit for all traders is negative. But the negative net profit is consistent with the previous results showing that commission costs represent the difference between profitable and unprofitable day trading.

A comparison of Tables 8 and 11 indicates that the magnitude of the net loss for the all-trader category when the flat-stock methodology was used is about 10 times the magnitude of the loss when the trade-matching methodology was used ($-\$7,904$ versus $-\$748$) and the magnitude of the average net loss for all net-negative traders is almost twice the corresponding figure ($-\$20,569$ versus $-\$11,379$). The difference in magnitudes is probably a result of the fact that trades are assumed held overnight or longer under the flat-stock methodology whereas trades can be held for no more than one day under the trade-matching methodology.

Table 11. Flat-Stock Methodology Results for Various Categories

Category / Statistic	Total No. of Trades	Gross Profit	Net Profit
<i>All traders (334 total)</i>			
Average	327.01	\$1,906.39	$-\$7,903.88$
Standard deviation	566.60	50,316.96	44,976.03
<i>All positive-net-profit traders (89)</i>			
Average	443.40	\$40,262.99	\$26,960.86
Standard deviation	814.91	69,408.61	51,462.70
<i>All negative-net-profit traders (245)</i>			
Average	278.73	$-\$12,027.23$	$-\$20,569.03$
Standard deviation	438.05	31,404.18	34,656.60

Comparison of Profitability Results. In general, the aggregate results from the two methodologies are similar, in spite of the fact that the two analyses compute profits differently. For example, 64.2 percent of the traders lost money as measured by the trade-matching methodology and 73.4 percent lost money as measured by the flat-stock methodology. On average, traders lost money as measured by either methodology (-\$748 in the trade-matching methodology versus -\$7,903 in the flat-stock methodology).

Test statistics confirm that the distribution of profits from both methodologies is skewed left and cannot be considered normal. Note, however, that Tables 7 and 10 show a total of 17 traders who made or lost more than \$100,000 in the flat-stock methodology and only 5 traders who made or lost more than \$100,000 in the trade-matching methodology.

Trade-offs necessary in the data compilation and analyses preclude calculation of an exact accounting profit from the methodologies. Nevertheless, the trade-matching results may be viewed as a rough indicator of the profitability of day traders who follow the advice not to hold positions overnight, and the flat-stock results may be used to validate the trade-matching results.

Conclusion

The main results of this analysis can be summarized as follows:

- About twice as many day traders lose money as make money.
- About one trader in five is more than marginally profitable.
- Statistical evidence supports the notion that day-trader profitability is related to movements in the Nasdaq Composite Index. In one sense, this finding is empirical support for the broadly held notion that in the market, a "rising tide lifts all boats." But the finding also has a more practical consideration: It supports anecdotal evidence that many day traders lost much of their gain as the Nasdaq declined from its peak in March 2000.⁵

In the simplest sense, our results are important because of the large number of people interested in day trading. The day-trading industry and numerous books and advertisements about day trading actively promote the idea that day trading is an

easy route to wealth and early retirement. This idea has led to widespread interest in day trading and the entry of many novice day traders.

The fact that at least 64 percent of the day traders in this study lost money suggests that being a profitable day trader is more difficult than the industry maintains. Aspiring and novice day traders should give careful consideration to why they think they will be among the 20 percent who make at least \$5,000 a day trading. At a minimum, novice day traders should make sure they have enough initial capital to survive the three- to five-month learning period that the industry suggests is necessary to become successful. They can do so by having substantial initial capital or by taking small positions and keeping losses small. The prospect that a losing trade will turn around and become profitable must not override the danger of a single losing trade wiping out a large percentage of the day trader's investment capital.

In addition, our results may contribute to the regulatory debate surrounding day trading. As noted, one regulatory report (NASAA 1999) found that only 1 out of the 26 traders analyzed (3.8 percent) was profitable and also suggested that 70 percent of day traders are likely to lose all the capital they invest in day trading. Using these statistics, NASAA argued for and was successful in getting day-trading capital requirements increased from \$2,000 to \$25,000. The day-trader profitability results from our sample, however, do not support either of the figures from that report. The reason may be that the NASAA figures came from a smaller sample (only 26 day traders) than our sample (324 traders in the trade-matching methodology). Our results may thus provide more-precise estimates than those documented in the NASAA report.

The NASAA report may have underestimated the number of profitable day traders and overestimated the number of day traders who lose all their trading capital. Our results show that, although 64 percent of sample traders lost money, only 26 percent lost more than \$5,000 and only 13 percent lost more than \$10,000. Additionally, about 34 percent of sample day traders made more than \$5,000. Thus, if the NASAA report estimates were the primary support for the increase in capital requirements, our research may form the basis for a challenge to the increased capital requirement.

Notes

1. The paper by Lichtenstein, Fischhoff, and Phillips (1982) contains a good review of the calibration literature.
2. Charges varied: \$0.50 for SOES, \$1.00 for The Island ECN, \$2.50 for SelectNet, and \$0.015 per share for all other ECNs.
3. We are analyzing the time-held figures in another study.
4. This total is different from the initial number of traders in the trade-matching methodology set because trades may be recognized in one methodology but not the other.
5. It would have been interesting if the data had provided insight into the relationship between trader experience and trader profitability. We ran regressions based on estimates from both analyses to test this idea, but the results were ambiguous and are thus not reported here.

References

- Barber, B.M., and T. Odean. 1999. "The Courage of Misguided Convictions." *Financial Analysts Journal*, vol. 55, no. 6 (November/December):41-55.
- Cohen, Saul. 1999. Statement of the Electronic Traders Association, Hearing before the Permanent Subcommittee on Investigations, Committee on Governmental Affairs, U.S. Senate. Washington, DC (16 September): www.electronic-traders.org/state030.num.
- Elstein, A., and S. Forster. 2001. "NYSE Hits Day Traders with Tighter Margin Rule." *Wall Street Journal Online* (27 August).
- Fischhoff, B. 1982. "For Those Condemned to Study the Past: Heuristics and Biases in Hindsight." In *Judgment under Uncertainty: Heuristics and Biases*. Edited by D. Kahneman, P. Slovic, and A. Tversky. Cambridge, U.K.: Cambridge University Press.
- Frank, J.D. 1935. "Some Psychological Determinates of the Level of Aspiration." *American Journal of Psychology*, vol. 47, no. 2 (April):285-293.
- Harris, Jeffrey H., and Paul H. Schultz. 1998. "The Trading Profits of SOES Bandits." *Journal of Financial Economics*, vol. 50, no. 1 (October):39-62.
- Kunda, Z. 1987. "Motivated Inference: Self-Serving Generation and Evaluation of Causal Theories." *Journal of Personality and Social Psychology*, vol. 53, no. 4 (October):636-647.
- Lichtenstein, S., B. Fischhoff, and L. Phillips. 1982. "Calibration of Probabilities: The State of the Art to 1980." In *Judgment under Uncertainty: Heuristics and Biases*. Edited by D. Kahneman, P. Slovic, and A. Tversky. Cambridge, U.K.: Cambridge University Press.
- NASAA. 1999. *Report of the Day Trading Project Group, Findings and Recommendations*. North American Securities Administrators Association, Washington, DC (9 August): www.nasaa.org/nasaa/scripts/fu_display_list.asp?ptid=16.
- Odean, Terrance. 1998. "Volume, Volatility, Price, and Profit When All Traders Are above Average." *Journal of Finance*, vol. 53, no. 6 (December):1887-1934.
- Schwartz, Nelson D. 2001. "Can't Keep a Good Day Trader Down." *Fortune*, vol. 143, no. 4 (19 February):146-152.
- SEC. 2000. *Special Study: Report of Examinations of Day-Trading Broker-Dealers*. SEC, Washington, DC (25 February): www.sec.gov/news/studies/daytrep.html.
- Taylor, S., and J.D. Brown. 1988. "Illusion and Well-Being: A Social Psychological Perspective on Mental Health." *Psychological Bulletin*, vol. 103, no. 2 (March):193-210.

Copyright of Financial Analysts Journal is the property of CFA Institute. The copyright in an individual article may be maintained by the author in certain cases. Content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.