Are Professional Traders Too Slow to Realize Their Losses?

Ryan Garvey and Anthony Murphy, *(Financial Analysts Journal Volume 60 . Number 4 02004 CFA Institute)*

❖ Objectives :

Individual investors (liquidity traders) are opposed to professional traders (informed traders), despite the latter group's frequent effect on market prices.

The principal characteristic that distinguishes a trader from an investor is mind-set.

We will use the disposition effect theory *(Kahneman and Tversky's 1979) which* is a behavioral finance theory that predicts individuals will hold their losing investments too long and sell their winning investments too soon to optimize profits.

The Disposition Effect groundbreaking work on choice under uncertainty revealed that individual decision makers are concerned with changes in their financial wealth and that they are averse to losses from these changes.

Individuals maximize an S-shaped valuation function that is concave in regard to gains and convex in regard to losses. Also, it is steeper in the domain of gains than in the domain of losses, which is indicative of risk-averse behavior.

Our study sought to bridge this gap by testing a unique dataset of 15 professional stock traders for evidence of the disposition effect *(Shefrin and Statman 1985).*

❖ Data used :

Our sample is a highly skilled, proprietary stock trading team (15 traders who generated more than $1.4 million in intraday trading profits during a downward-trending market).

The group trades solely equities, and more than 94% of the trades are in NASDAQ* stocks. The data come from a U.S. direct-access broker for the period 8 March through 13 June 2000 *(68 trading days and two market holidays).*

We analyzed all 15 traders who traded the firm's capital over this period, but not all of the traders traded for the whole time period.

The data consist of a transaction database with : trader's identification, time the order *(filled on the relevant exchange),* order type *(limit order, stop limit order, etc.),* the action taken *(buy, sell, short, cover)*, the volume, the price, the location of the trade, and the contra parties on the trade.

To understand whether the holding time for each roundtrip was justified, we also obtained data from Nastraq (North American Securities Tracking and Quantifying system), which is maintained by the NASD. Nastraq contains trade data, inside quote data, and individual quote data for each market participant during a day. For our analysis, we were concerned only with the inside quote data.

*NASDAQ = *National Association of Securities Dealers Automated Quotations*

The day-trading* industry is bifurcated into two groups of traders : retail and proprietary (professional).

- Retail day traders risk their own capital, retain all their profits, and bear all their losses, don't receive any formal training, pay set commission fees, and they are governed by strict margin laws. *(they are not required to be licensed).*
- Proprietary day traders are hired and fired by a firm on the basis of their performance, they trade firm capital and receive a percentage of their profits and losses, receive formal training on various trading strategies and techniques that are recommended by the firm. These traders typically pay little or no commission, and they are not governed by the same margin requirements as retail day traders, they are required to pass the NASD Series 7 licensing exam.

We chose to study the firm's **proprietary traders** because they were highly active and consistently profitable and there were no complications arising from taxes, commissions, ...

❖ Method :

- Calculating Trading Profits and Duration :

To determine the trading profit on a roundtrip transaction, we matched the opening trade for each stock in each trader's account with the subsequent trade of the opposite sign each day.

We matched all of the 96,323 trades (more than 99.88% of trading activity) by using our matching algorithm. 115 trades unmatched, they could have been long-term investments, or the traders could have been purchasing stock to hedge against future short-sale constraints.

We calculated durations in a manner similar to the calculation of trading profits. Each trade in our database had a time stamp indicating when it occurred. We calculated the duration between the opening transaction and the subsequent roundtrip trade. If a roundtrip trade closed out more than one opening transaction, we used a weighted average of the various opening positions.

To test for evidence of the disposition effect, we examined the mean and median differences in holding times for roundtrip trades on both winning and losing roundtrips.

Null hypothesis = the difference in holding times for losing and winning roundtrips is equal to zero.

Because we analyzed a truncated distribution of the total roundtrips, longer-duration trades were lost in the estimation procedure, but because nearly all trades were closed out within a day, these trades had a minimal impact on our overall results.

*day trading = a day trader is an individual who conducts intraday trading in a focused and consistent manner, with the primary goal of earning a living through the profits derived from this trading strategy. They aim to profit by executing many intraday trades to take advantage of small price movements. Their profits per closing trade are often small, but because of frequent trading, their end-of-day prof its can be sizable.

- **Eliminating Testing Biases :**

By testing the disposition effect on professional traders rather than individual investors, our study eliminates some of the biases plaguing previous research :

- Complications resulting from taxes : taxation influences selling decisions. Therefore, a decision by an individual investor to sell might be motivated by a tax effect, but it was shown that investors sell more losing investments at the end of the year. Professional traders are usually looking for short-term trading profits rather than long-term capital gains and repeatedly buy and sell securities throughout the day, so taxes are clearly not an issue with the traders we observed.

- Professional traders are not motivated to trade by diversification needs or capital constraint. The traders we observed are generally specialized in one or two stocks during the day, so for them, diversification was not an issue. In addition, professional traders trade the capital of a firm, so they are not motivated to trade by capital constraints or consumption needs.

- Trades of professional traders are usually exempt from transaction costs (or the traders pay little in transaction costs), whereas Harris suggested that individual investors are averse to realizing a loss because of the higher trading costs on losing transactions.

- For investors with long holding periods, the true reference point is difficult to establish. Professional traders seek to earn pennies off of roundtrip transactions. They have such a short horizon that the previous intraday purchase price is almost certainly the true reference point. *(Usually the purchase price is taken as the reference point when researchers attempt to measure the speed of realizing losses and gains.)*

❖ Results :

A reasonable assumption is that the traders are exempt from any costly behavioral tendency, such as the disposition effect.

Our results show that despite their financial sophistication, they hold losers much longer than winners, indicating that they are reluctant to realize a loss.

- Duration

Table 2 highlights the mean and median duration times for winners and losers among the 58,835 roundtrips *(difference between the means of 102 seconds with a t-statistic greater than 13 is highly significant).*

Table 2. Durations of Roundtrips

Roundtrip	Mean Duration (seconds)	Median Duration (seconds)	Number of Roundtrips
Losing roundtrip	268	102	16,610
Winning roundtrip	166	64	36,290
Difference	102	38	
t-Statistic/Wilcoxon	13.28	42.87	

Notes: A losing roundtrip had a trading profit below zero, and a winning roundtrip had a trading profit above zero. The 5,935 roundtrips that resulted in neither a gain nor a loss were omitted. The *t*-statistic tests the null hypothesis that the difference in means is zero. The Wilcoxon rank-sum test tests the equality of the medians.

- Robustness check :

To test the robustness of our results, we segregated roundtrip trades by when they occurred during the day. The trading day was divided into three equal time periods :

- **opening/morning period : 9:30 am to 11:40 am**
  (more volume and price volatility → trader is often forced to close out a trade quickly to limit risk exposure)
- **midday period : 11:40 am to 1:50 pm**
  (less volume and price volatility → trader can hold a trade longer without risking substantial price fluctuation)
- **closing/afternoon period : 1:50 pm to 4:00 pm**

Table 3. Duration by Time of Day

Time Period	Mean Duration (seconds)	Median Duration (seconds)	Number of Roundtrips
9:30 a.m.–11:40 a.m.			
Losing roundtrips	182	92	7,002
Winning roundtrips	126	59	15,751
Difference	56	33	
t-Statistic/Wilcoxon	11.89	28.04	
11:40 a.m.–1:50 p.m.			
Losing roundtrips	361	124	3,726
Winning roundtrips	218	75	8,303
Difference	143	49	
t-Statistic/Wilcoxon	7.97	20.41	
1:50 p.m.–4:00 p.m.			
Losing roundtrips	309	102	5,854
Winning roundtrips	179	64	12,173
Difference	130	38	
t-Statistic/Wilcoxon	7.38	25.33	

In Shefrin and Statman's analysis of the human tendency to seek pride and avoid regret, the trader is more apt to post pone regret by riding losers. Conversely, a strong emotional tendency to realize the feeling of pride leads a trader to sell winners too soon. Moreover, professionals' traders often trade together which can promote a sense of competition and could enhance a trader's tendency to seek pride and avoid regret at the expense of the group's overall profitability.

A second reason a professional trader might be reluctant to realize a loss could stem from a self-control measure. Traders often use stop-loss orders or have in their minds a predetermined loss they are not willing to go beyond. But testing for the disposition effect can be difficult because intraday price data subsequent to each transaction must be analyzed.

We segregated roundtrip duration times on the basis of position size. We then segregated roundtrip holding times for winning and losing trades by position size below 1,000 shares, position size of 1,000-1,999 shares, and position size of 2,000 shares or more.

Table 4 indicates that, consistent with previous results, the differences between losing and winning trades in all three size categories are statistically significant. Apparently, when these professional traders were trading with the smaller share sizes, they were more willing to take risks than when trading a larger volume because any large price movement has less of an impact on trading profitability when a small volume is involved. Therefore, the traders were more susceptible to holding losers for prolonged periods while waiting for them to turn around.

Table 4. Duration by Trade Size

Trade Size	Mean Duration (seconds)	Median Duration (seconds)	Number of Roundtrips
Trade size < 1,000			
Losing roundtrips	364	108	6,374
Winning roundtrips	186	61	16,640
Difference	178	47	
t-Statistic/Wilcoxon	10.62	32.33	
1,000 ≤ Trade size < 2,000			
Losing roundtrips	216	99	7,499
Winning roundtrips	148	64	15,197
Difference	68	35	
t-Statistic/Wilcoxon	8.45	27.54	
Trade size ≥ 2,000			
Losing roundtrips	188	98	2,737
Winning roundtrips	153	77	4,453
Difference	35	21	
t-Statistic/Wilcoxon	3.12	8.84	

- Impact on Trading Profits

An obvious indication that the disposition effect is affecting a professional trader is the trader's overall profitability.

To examine this issue, we calculated the average absolute price change and average absolute trading profit for all winning and losing roundtrips. If a roundtrip closed out more than one opening transaction, we used a weighted average of the various opening positions (which is similar to our duration calculation).

Table 5. Performance

Measure	Mean	Median	Number of Roundtrips
Absolute price change			
Losing roundtrips	$ 0.10	$ 0.06	16,610
Winning roundtrips	0.09	0.06	36,290
Difference	$ 0.01	$ 0.00	
t-Statistic/Wilcoxon	6.14	–1.76	
Absolute trading profit			
Losing roundtrips	$100.46	$62.50	16,610
Winning roundtrips	85.43	54.68	36,290
Difference	$ 15.03	$ 7.82	
t-Statistic/Wilcoxon	11.67	10.71	

❖ **Remarks**

Although past research demonstrated this tendency for individual investors, we used a unique dataset to test whether professional traders are susceptible to the same behavioral tendency.

These professional traders held their losing trades much longer than their winning trades. Nevertheless, because they carried out more winning than losing trades overall, the traders were still profitable-earning more than $1.4 million in intraday trading profits over a 68-day trading period in a downward-trending market.

Yet, they exhibited risky behavior by holding their losing trades too long even under these conditions. Our analysis suggests that the traders sold winners too soon and held losers too long: When traders realized a profitable roundtrip, the price continued to increase for a long position and decrease for a short position. When traders realized an unprofitable roundtrip, they could have lessened the loss if they had sold their long positions and covered their short positions sooner.