Why do investors trade too much?

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Have you met Stuart? He's a redheaded punk with long sideburns who loves to trade. "I don't want to beat the Market," says Stuart. "I wanna grab it, sock it in the gut a couple of times, turn it upside down, hold it by the pants and shake it 'til all those pockets empty out all the spare change."

Or perhaps you've seen the tow truck driver who rescues drivers in broken-down cars because he just likes helping people. He owns his own island. ("Well, technically, it's a country.")

Finally, you may have seen the suburban mom who, returning home from jogging with a friend, punches a few keys on her computer, sells a little biotech stock, and announces, "I think I just made about $1,700." Her deflated friend confesses, "I have mutual funds."

These people are investors in a fictional world created by ad agencies. A world in which trading is an excellent form of cheap entertainment and going it on your own is the only way to go.

Does frequent trading bring the same sudden riches to real investors that it showers upon their fictional counterparts? To answer this, and related questions, we have analyzed the account records of thousands of investors. Our analyses have used data from discount and retail brokerage firms in the U.S. We have also analyzed the trading records of *all* investors in Taiwan.

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Perhaps one of the most compelling and consistent lessons from these studies is the observation that individual investors trade too often and to their detriment. Though frequent trading may be profitable for brokerage firms and the fictional characters who populate their advertisements, it is not profitable for most individual investors. Why do individual investors trade so frequently, if it hurts their performance? We believe one of the main reasons that they do so is overconfidence.

Overconfidence

Psychologists observe that most people are overconfident; they overestimate the precision of their knowledge and the level of their abilities. If, for example, you ask a group of people to rate their own driving abilities, you will find that most people consider themselves to be above average drivers. Overconfidence afflicts experts—including psychologists—as well as laymen. The overconfident investor is so sure that she is right, that she is more likely to act on her beliefs. The result: she trades too much.

Active Trading: The Real Evidence

Consider an investor making a speculative trade. She isn't selling to realize a deliberate tax loss or to raise money to pay a debt. She sells one stock and buys another because she thinks the stock she is buying will outperform the one she's selling. To break even on this trade, the new stock doesn't need to merely beat the old one. It needs to do so by enough to cover trading costs. Unfortunately for most individual investors, the stocks they buy subsequently underperform the stocks they sell. In our studies of investors at a large discount brokerage in the U.S., the average shortfall over a one-year horizon is more than two percentage points. If you add in the costs of trading—bid-ask spreads, commissions, and taxes—the shortfall more than doubles.

The more actively investors trade, the less they earn. We divided 66,465 households into five groups on the basis of the level of turnover in their common stock portfolios. The 20 percent of investors who traded most actively earned an average net annual return 5.5 percent lower than that of the least active investors.

Overconfidence and Gender

Men tend to be more overconfident than women. The difference emerges most strongly in areas such as finance that are perceived by our society to lie in the male domain. If overconfidence leads to excessive trading, one might then expect men to trade more than women. They do. We find that men trade 45 percent more actively than women. Single men trade 67 percent more actively than single women. While both men and women reduce their returns by trading, men reduce theirs by an additional 1 percentage point annually, and single men by an

additional 1.4 percentage points. If 1 percentage point—compounded year after year—strikes you as an inconsiderable amount, consider the effort you would expend to save 1 percentage point on a home mortgage. In short, trading is a mistake made by both men and women; men simply make *more* mistakes than women.

Overconfidence and Diversification

Overconfident investors underdiversify. If you know you are right, what's the point of hedging your bets? In a typical month, the median investor in our sample held three common stocks. Of course, some achieved diversification by also owning mutual funds, and others may have owned stocks at other brokerages. While overconfidence accounts for some underdiversification, it is likely that many investors simply don't understand the advantages of holding a diversified portfolio. In 1999, the S&P 500 index returned 21 percent. Eight stocks accounted for half of that gain. At the end of 1999, 230 of the S&P 500 stocks were below their level of two years earlier. An investor who held only three S&P 500 stocks during this period had a 4.1 percent chance of holding at least one of the big eight winners and a 9.6 percent chance of holding only losers. Thus, in the midst of a bull market, an undiversified investor was more than twice as likely to be left at the starting gate as to win the sweepstakes.

We have all heard stories of investors – even friends or family – who have made small (or large) fortunes by buying a hot stock. These stories tempt us to join the stock picking game. After all, we cannot win unless we play. However, there is a dark side to this temptation. Sadly, many investors are lured into poor decisions by the promise of instant riches. Thousands of investors were day trading during the late 1990s; many lost a small fortune. Equally tragically, many employees at Enron and Worldcom invested too heavily in their company's stock and stood by helplessly as these companies declared bankruptcy. The retirement savings of many were lost.

Some investors beat the market, some fail to do so. This is not at all surprising. By mere chance, some will win, and some will lose. It is tempting to judge the winners as success stories and the losers as victims of poor judgment. The truth is that both groups exhibited equally poor judgment by failing to diversify. Serendipity is the only distinction that separates the winners and losers.

Internet Investing

When Stuart turns his boss, Mr. P., onto online trading, he exclaims, "Feel the excitement? You are about to buy a stock online!" The internet has led to an explosion of information about stocks and made trading stock easy. Certainly, the diligent investor can use this information to construct a stock portfolio that will beat the market.

How has this changing environment affected investors? The technological advances of the last two decades are clearly beneficial for investors; unfortunately, the information explosion and ease of trading have their downside. We've analyzed 1,600 investors who switched to online trading during its infancy. We found that after going online, these investors traded more actively, more speculatively, and less profitably.

These investors earned exceptional returns in the period preceding their online debuts. After going online, they underperformed the market. The underperformance once online appears to be the result of excessive trading. What about the superior performance before going online? When people succeed, they most often give themselves too much credit for the success. Failures, on the other hand, are blamed on others and misfortune. It is likely that these investors attributed the excellent returns they earned before going online to their own investment acumen, rather than to luck. Having discovered their talent for investing, they increased their trading activity, only to suffer the typical fate of active traders.

Some investors may trade more actively online because they misunderstand transactions costs. Commissions for online trading have dropped dramatically in recent years. Unfortunately, bid-ask spreads (the spread between the price at which a stock can be bought and the price at which it can be sold) have not narrowed to the same extent, nor have investors' tendencies to make money-losing speculative trades. In our studies, investors pay an average round-trip bid-ask spread of 1 percent. The average size of a sale is $13,700. Suppose an investor sells $13,000 of one stock and spends the proceeds on another. If she pays $30 per trade in commissions for each trade and 1% in spread, her combined costs are about $190 ($30 + $30 + $130). Were she to switch to a broker charging $8 a trade, she might think that her trading cost had dropped 73%, since the per-trade commission dropped from $30 to $8. But if she considers the spread, she'll realize they've dropped only 23%, from $190 to $146. And if she further considers that the stock she buys is likely to underperform the one she sells by two percent over the next year, then her expected cost of trading—even at the lower commission rate—is $406.

The online environment fosters cognitive biases that lead to overconfidence. One such bias is the illusion of knowledge. Studies show that, as people acquire more information, their confidence in their ability to predict outcomes rises far faster than the accuracy of their predictions. Online investors have access to vast quantities of data. This data may give them a false confidence that they can pick stocks. Unfortunately, data related to a task aren't always relevant to the task. Suppose you wished to predict the next number to come up on

a roulette wheel. You could know all the historical outcomes on that wheel, and a great deal about how, where, and to what specifications the roulette wheel had been manufactured, but you wouldn't know which number was going to turn up next. Billions of bytes of market data give most investors no more ability to pick individual stocks than to pick numbers on a roulette wheel. Of course some investors will succeed anyway, and they will be certain that they knew all along which stocks would be winners. And those who fail will be certain that they too were right, but unlucky—this time.

The illusion of control may also increase the overconfidence of online investors. People often act as if their personal involvement can favorably influence the outcomes of random events. Just as the gambler feels more in control when he rolls the dice himself, an online investor may feel in control when he executes a trade. But the gambler controls only when the dice roll but not how they land. And the investor controls only when his trade executes, but not its profitability.

Who wins and who loses?

If many investors make mistakes when trading, can't the savvy investor capitalize on the mistakes of the masses? There is a grain of truth in this intuition. In financial markets, each trade has two sides – the buyer and the seller. All investors can participate in market gains; when corporations create value by developing new products or better ways to make old products, investors in those firms are better off. So, too, are consumers. In contrast, each trade confers one winner and one loser – either the buyer or seller.

Who are the winners and losers in these trades? Our research indicates that on average, individual investors lose, while institutional investors gain. Using the complete trading records of *ALL* investors in Taiwan, we are able to estimate the gains and losses that can be traced to trading in that market. On average, individual investors underperform the market portfolio by more than three percentage points annually, while institutional investors outperform the market by roughly one percentage point.

Unfortunately, similar data are not available for the U.S. market. Thus, drawing strong conclusions about the U.S. based on the Taiwan analysis is difficult. The Taiwan market is quite different from the U.S. market. Investors trade much more actively, day trading is common, and individual investors represent roughly 90 percent of trading volume in Taiwan.

How might institutions profit from their trading? One way to do so is to provide liquidity to individual investors. If you as an individual investor *must* sell a stock (e.g., to pay for college tuition, retirement, or a home purchase), an investor who stands willing to buy that stock might be able to make a bit of money

by providing you with the liquidity that you demand. Alternatively, perhaps institutions are better informed than individuals.

We have been strong advocates of index investing for individual investors. Mutual funds that track very broad market segments are cheap, well-diversified, and tax efficient. Why do we offer this advice when the evidence described above indicates institutions can make sensible trades? One simple reason: actively managed mutual funds charge investors too much. All of the accumulated evidence – and there are now several decades of evidence from many markets – indicates that the average actively managed mutual fund is unable to *match* the market, much less beat it. Almost all of this shortfall can be traced to the high expense ratios charged by actively managed mutual funds.

Conclusion

Trading advertisements play to hopes and fears. People hope to win the investing sweepstakes; they fear being left behind. Advertisements also appeal to our cognitive biases. Ads such as the one that reads "You'll make more, because you know more" reinforce the illusion of knowledge. Others promote a false sense of control. One online broker states that online investing is "about control." And when Stuart fantasizes about grabbing the market with his hands, dangling it upside down, and shaking 'til the money comes loose, he's describing a control investors can long for, but never have.

The online brokerage industry spends hundreds of millions each year to persuade you that active trading is profitable and fun. Though our own budget is somewhat smaller, our message is simple and true. Investing is profitable, but trading is hazardous to your wealth.