CHAPTER 2
OVERCONFIDENCE

People can be overconfident. Psychologists have determined that overconfidence causes people to overestimate their knowledge, underestimate risks, and exaggerate their ability to control events. Does overconfidence occur in investment decision making? Security selection is a difficult task. It is precisely this type of task in which people exhibit the greatest degree of overconfidence. Are you overconfident?

Question: Are you a good driver? Compared with the drivers you encounter on the road, are you above average, average, or below average?

How did you answer this question? If overconfidence were not involved, approximately one-third of you would answer above average, one-third would say average, and one-third would say below average. However, people are overconfident in their abilities. In one published study, 82 percent of the sampled college students rated themselves above average in driving ability.1 Clearly, many of them are mistaken.

Many of those students were mistaken because they were overconfident about their driving skills. Being overconfident about driving might not be a problem that affects your life, but people are overconfident about their skills in many things. This overconfidence can even affect your financial future.

Consider this financially oriented example. Starting a business is a risky venture; in fact, most new businesses fail. When 2,994 new business owners were asked about their chances of success, they thought they had a 70 percent chance of success, but only 39 percent thought that any business like theirs would be as likely to succeed.2 Why do new business owners think they have nearly twice the chance of success as others? They are overconfident.

Interestingly, people are more overconfident when they feel like they have control of the outcome—even when this is clearly not the case. For example, it is documented that if people are asked to bet on whether a coin toss is heads or tails, most bet larger amounts if the coin has yet to be tossed. That is, if the coin is tossed and the outcome is concealed, people will offer lower amounts when asked for bets. On the other hand, if asked
for the bet before the toss, people tend to bet higher amounts. People act as if their involvement will somehow affect the outcome of the toss. In this case, control of the outcome is clearly an illusion. This perception occurs in investing, as well. Even without information, people believe the stocks they own will perform better than stocks they do not own. However, ownership of a stock only gives the illusion of having control of the performance of the stock.

A Gallup/Paine Webber survey of individual investors conducted in early 2001 demonstrates this overconfidence. Of particular note is that many of those surveyed had recently experienced some negative outcomes after the technology stock bubble collapsed. When asked what they thought the stock market return would be during the next 12 months, the average answer was 10.3 percent. When asked what return they expected to earn on their portfolios, the average response was 11.7 percent. Typically, investors expect to earn an above-average return.

OVERCONFIDENCE AFFECTS INVESTOR DECISIONS

Investing is a difficult process. It entails gathering information, analyzing the information, and making a decision based on that information. However, overconfidence causes us to misinterpret the accuracy of our information and overestimate our skill in analyzing it. It occurs after we experience some success. The self-attribution bias leads people to believe that successes are attributed to skill while failure is caused by bad luck. After some success in the market, investors may exhibit overconfident behavior.

Consider the behavior of financial analysts. Analysts publicize their predictions about the future earnings of the firms they follow. Gilles Hilary and Lior Menzly study the predictions of analysts after they have shown a series of good earnings estimates. If this success causes the analysts to put excessive weight on their private information and skill, then their next predictions are likely to be less accurate than average and deviate from the other analysts. After examining over 40,000 quarterly earnings predictions, they find that success leads to overconfidence. Analysts who perform well for a few quarters follow with predictions that are different than other analysts and ultimately have greater errors.

Overconfidence can lead investors to poor trading decisions, which often manifest themselves as excessive trading, risk taking, and ultimately portfolio losses. Their overconfidence increases the amount they trade because it causes them to be too certain about their opinions. Investors’ opinions derive from their beliefs regarding the accuracy of the information they have obtained and their ability to interpret it. Overconfident investors believe more strongly in their own valuation of a stock and concern themselves less about the beliefs of others.
OVERCONFIDENT TRADING

Psychologists have found that men are more overconfident than women in tasks perceived to fall into the masculine domain, such as managing finances.\(^6\) Men generally are more overconfident about their ability to make investment decisions than women are; therefore, male investors trade more frequently than female investors do.

Two financial economists, Brad Barber and Terrance Odean, examined the trading behavior of nearly 38,000 households through a large discount brokerage firm between 1991 and 1997.\(^7\) They examined the level of trading in brokerage accounts owned by single and married men and women. A common measure for the level of trading is called turnover. Turnover is the percentage of stocks in the portfolio that changed during the year. For example, a 50 percent turnover during a year is the equivalent of an investor selling half the stocks in a portfolio during that year and purchasing new stocks. Similarly, a 200 percent turnover is equivalent to an investor selling all the stocks in the portfolio to purchase others, then selling those stocks to purchase a third set during one year’s time.

The study shows that single men trade the most. As illustrated in Figure 2.1, single men trade at a rate equivalent to an 85 percent annual turnover. This compares with an annual turnover of 73 percent for married men and 62 percent for married women. Single women traded at a level equivalent to a 41 percent annual turnover.

![Figure 2.1: Annual Portfolio Turnover by Gender and Marital Status](image-url)
men. Married and single women trade only the equivalent of 53 percent and 51 percent in annual turnover, respectively. Note that this is consistent with overconfidence; that is, male investors are more overconfident than female investors, leading to higher levels of trading.

On the other hand, it is possible that men are not overconfident but rather that they might be better informed. If you truly have better information, trading on that information should lead to achieving higher returns.

In general, overconfident investors trade more, but is higher turnover and increased trading bad? Barber and Odean also explore this issue. In a sample of 78,000 household accounts over the period 1991–1996, they examined the relationship between turnover and portfolio returns. Consider an investor who receives accurate information and is highly capable of interpreting it. The investor’s high frequency of trading should result in high returns due to the individual’s skill and the quality of the information. In fact, these returns should be high enough to beat a simple buy-and-hold strategy while covering the costs of trading. On the other hand, if the investor does not have superior ability but rather is suffering from a dose of overconfidence, then the high frequency of turnover will not result in portfolio returns large enough to beat the buy-and-hold strategy and cover costs.

First, Barber and Odean determined the level of trading for the investors in their sample and categorized them into five groups. The first 20 percent of investors having the lowest turnover rate were placed in the first group. On average, this group turned over their portfolio at a rate of 2.4 percent per year. The 20 percent of investors with the next-lowest turnover rate were placed in the second group. This process continued until the investors with the highest turnover rate were placed in the fifth (and last) group. This high-turnover rate group experienced an average annual turnover rate of more than 250 percent per year.

Figure 2.2 reports the average annual return for each of the five groups. Note that all five groups earned the same 18.7 percent annually in gross returns. Therefore, high-turnover investors did not realize higher returns for their additional efforts. However, commissions must be paid for buying and selling stocks. This has a greater effect on the investors who trade more frequently, as illustrated in the figure. Net returns (returns after commission costs) to the investor are much lower for the high-turnover group. The net returns for the lowest-turnover group average 18.5 percent per year versus 11.4 percent for the highest-turnover group.

The net difference of 7 percent per year between the highest- and lowest-turnover groups is dramatic. For example, if the investors in the lowest-turnover group invest $10,000 over five years, earning 18.5 percent per year, they will have $23,366. If the investors in the highest-turnover group invest the same amount and receive 11.4 percent per year, they can expect only $17,156—a difference of more than $5,000. Overconfidence-based trading is hazardous when it comes to accumulating wealth.
High commission costs are not the only problem caused by excessive trading. It has been observed that overconfidence leads to trading too frequently as well as to purchasing the wrong stocks. Barber and Odean limited their analysis to a sample of brokerage accounts that had complete liquidations of a stock followed by the purchase of a different stock within three weeks. Then they followed the performance of the stocks sold and purchased over the subsequent four months and one year.

They wanted to determine whether selling stock A and purchasing stock B typically was a good decision. Apparently not. The stocks that investors sold earned 2.6 percent during the following four months, whereas the replacement stocks earned only 0.11 percent. In the year following the trades, stocks that had been sold outperformed stocks purchased by 5.8 percent. Not only does overconfidence cause you to trade too much and burn money on commissions, it can also cause you to sell a good-performing stock in order to purchase a poor one.

OVERCONFIDENCE AND THE MARKET

If many investors suffer from overconfidence at the same time, then signs might be found within the stock market. While the excessive trading of overconfident investors have been identified through brokerage accounts, does this behavior show up in the aggregate market? Several researchers believe that it does. Specifically, after the overall stock
market increases, many investors may attribute their success to their own skill and become overconfident. This will lead to greater trading by a large group of investors and may impact overall trading volume on the stock exchanges.

Examining monthly stock market returns and trading volume over 40 years shows that higher volume does follow months with high returns. For example, a relatively high return of 7.0 percent one month is associated with higher trading during the following six months. The extra trading represents seven months of normal trading squeezed into six months. Alternatively, overall trading is lower after market declines. Investors appear to attribute the success of a good month to their own skill and begin trading more. Poor performance makes them less overconfident and is followed by lower trading activity. This may be why the old Wall Street adage warns investors not to confuse brains with a bull market!

OVERCONFIDENCE AND RISK

Overconfidence also affects investors’ risk-taking behavior. Rational investors try to maximize returns while minimizing the amount of risk taken. However, overconfident investors misinterpret the level of risk they take. After all, if an investor is confident that the stocks picked will have a high return, then where is the risk?

The portfolios of overconfident investors will have higher risk for two reasons. First is the tendency to purchase higher-risk stocks. Higher-risk stocks are generally from smaller, newer companies. The second reason is a tendency to underdiversify their portfolio. Prevalent risk can be measured in several ways: portfolio volatility, beta, and the size of the firms in the portfolio. Portfolio volatility measures the degree of ups and downs the portfolio experiences. High-volatility portfolios exhibit dramatic swings in price and are indicative of underdiversification. Beta is a variable commonly used in the investment industry to measure the riskiness of a security. It measures the degree a portfolio changes with the stock market. A beta of 1 indicates that the portfolio closely follows the market. A higher beta indicates that the security has higher risk and will exhibit more volatility than the stock market in general.

The series of studies by Barber and Odean show that overconfident investors take more risk. They found that single men have the highest-risk portfolios followed by married men, married women, and single women. That is, the portfolios of single men have the highest volatility and the highest beta and tend to include the stocks of smaller companies. For the five groups of investors sorted by turnover, the high-turnover group invested in stocks of smaller firms with higher betas compared with the stocks of the low-turnover group. Overall, overconfident investors perceive their actions to be less risky than generally proves to be the case.
Where does overconfidence come from? It comes partially from the illusion of knowledge. This refers to the tendency for people to believe that the accuracy of their forecasts increases with more information; that is, more information increases one’s knowledge about something and improves one’s decisions.\(^{11}\)

However, this is not always the case. For example, if I roll a fair, six-sided die, what number do you think will come up, and how sure are you that you are right? Clearly, you can pick any number between 1 and 6 and have a one-sixth chance of being right. Now let me tell you that the last three rolls of the die have each produced the number 4. I will roll the die again. What number do you think will come up, and what is your chance of being right? If the die is truly fair, then you could still pick any number between 1 and 6 and have a one-sixth chance of being correct. The added information does not increase your ability to forecast the roll of the die. However, many people believe the number 4 has a greater chance (more than one-sixth) of being rolled again. Others believe the number 4 has a lower chance of being rolled again. These people think their chance of being right is higher than reality. That is, the new information makes people more confident in their predictions even though their chances for being correct do not change.

Using the Internet, investors have access to vast quantities of information. This information includes historical data such as past prices, returns, and firm operational performance as well as current information such as real-time news, prices, and volume. However, most individual investors lack the training and experience of professional investors and therefore are less sure of how to interpret the information. That is, this information does not give them as much knowledge about the situation as they think because they do not have the training to interpret it properly.

Many individual investors realize they have a limited ability to interpret investment information, so they use the Internet for help. Investors can get analyst recommendations, subscribe to expert services, join newsgroups, and learn others’ opinions through chat rooms and Web postings. However, online investors need to take what they see in these chat rooms with a grain of salt. Not all recommendations are from experts.

In fact, few of them may be. A recent study examines the stocks recommended by messages posted on the boards of two Internet newsgroups.\(^{12}\) Most of the stocks recommended had recently performed very well or very poorly. The stocks with very good performance the previous month were recommended as a purchase (momentum strategy). These stocks subsequently underperformed the market by more than 19 percent the next month. The stocks that were recommended for purchase with extremely poor performance during the previous month (value strategy) outperformed the market by more than 25 percent over the following month. Overall, the stocks recommended for purchase did not perform significantly different than the market in general.
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Another study finds that positive message board postings at RagingBull.com are not associated with positive stock returns the following day or week. However, unusually high numbers of postings are associated with higher trading volume. These studies conclude that message board stock recommendations do not contain valuable information for investors. However, if investors perceive the messages as having increased their knowledge, they might be overconfident about their investment decisions. The higher trading volume indicates that this might be the case.

ILLUSION OF CONTROL

Another important psychological factor is the illusion of control. People often believe they have influence over the outcome of uncontrollable events. The key attributes that foster the illusion of control are choice, outcome sequence, task familiarity, information, and active involvement. Online investors can routinely experience these attributes.

CHOICE

Making an active choice induces control. For example, people who choose their own lottery numbers believe they have a better chance of winning than people who have numbers given to them at random. Because online brokers do not give investors advice, investors must make their own choices regarding what (and when) to buy and sell.

OUTCOME SEQUENCE

The way in which an outcome occurs affects the illusion of control. Early positive outcomes give the person a greater illusion of control than early negative outcomes do. Investors were getting on the Web during the late 1990s and taking control of their investments, and because this period was an extended bull market interval, they likely experienced many positive outcomes.

TASK FAMILIARITY

The more familiar people are with a task, the more they feel in control of the task. As discussed later in this chapter, investors have been becoming familiar with the online investment environment and have been active traders and participants in Web information services.

INFORMATION

When a greater amount of information is obtained, the illusion of control is greater as well. The vast amount of information on the Internet already has been illustrated.
ACTIVE INVOLVEMENT

When a person participates a great deal in a task, the feeling of being in control is also proportionately greater. Online investors have high participation rates in the investment process. Investors using discount brokers (such as online brokers) must conduct their own investment decision-making process. These investors obtain and evaluate information, make trading decisions, and place the trades.

The Internet fosters further active involvement by providing the medium for investment chat rooms, message boards, and newsgroups. Internet investment services firms such as Yahoo!, Motley Fool, Silicon Investor, and The Raging Bull sponsor message boards on their Web sites where investors can communicate with each other. Typically, message boards are available for each stock listed on the exchange. Users post a message about the firm using an alias or simply read the message postings.

PAST SUCCESSES

Overconfidence is learned through past success. If a decision turns out to be good, it is attributed to skill and ability. If a decision turns out to be bad, then it is attributed to bad luck. The more successes people experience, the more they will attribute it to their own ability, even when much luck is involved.

During bull markets, individual investors will attribute too much of their success to their own abilities, which makes them overconfident. As a consequence, overconfident behaviors (e.g., high levels of trading and risk taking) will be more pronounced in bull markets than in bear markets.\(^{15}\)

This is borne out in the behavior of investors during the bull market of the late 1990s and the subsequent bear market. As the bull market raged on, individual investors traded more than ever. In addition, investors allocated higher proportions of their assets to stocks, invested in riskier companies, and even leveraged their positions by using more margin (borrowed money).\(^{16}\) These behaviors slowly became reversed as the overconfidence of the bull market faded and the bear market dragged on.

ONLINE TRADING

Brad Barber and Terry Odean investigated the trading behavior of 1,607 investors who switched from a phone-based trading system to an Internet-based trading system at a discount brokerage firm.\(^{17}\) In the two years prior to the time investors went online, the average portfolio turnover was about 70 percent. After going online, the trading of these investors immediately jumped to a turnover of 120 percent. Some of this increase is transitory; however, the turnover rate of these investors was still 90 percent two years after going online.
A different study investigated the effect of Web-based trading in 401(k) pension plans. A total of 100,000 plan participants from two companies were given the opportunity to trade their 401(k) assets using an Internet service. The advantage of studying these trades is that because they occurred within a qualified pension plan; liquidity needs and tax-loss selling were not factors. All trades can be considered speculative. Their conclusions were consistent with overconfident trading; specifically, they found that trading frequency doubled and portfolio turnover increased by 50 percent.

**ONLINE TRADING AND PERFORMANCE**

Barber and Odean also examined the performance of the investors before and after going online. Before switching to the online trading service, these investors were successful. As illustrated in Figure 2.3, they earned nearly 18 percent per year before going online. This represents a...
return of 2.35 percent more than the general stock market. However, after going online, these investors experienced reduced returns. They averaged annual returns of only 12 percent, underperforming the market by 3.5 percent.

The successful performance of these investors before going online might have fostered overconfidence due to the illusion of control (via the outcome sequence). This overconfidence might have caused them to choose the Internet trading service. Unfortunately, the Internet trading environment exacerbates the overconfidence problem, inducing excessive trading. Ultimately, investor returns are reduced.

To summarize this chapter, individual investors can be overconfident about their abilities, knowledge, and future prospects. Overconfidence leads to excessive trading, which lowers portfolio returns. The lower returns result from the commission costs associated with high levels of trading and the propensity to purchase stocks that underperform the stocks that were sold. Overconfidence also leads to greater risk taking due to underdiversification and a focus on investing in small companies with higher betas. Last, the trend of using online brokerage accounts is making investors more overconfident than ever before.

Questions

1. Would you expect investors to be more overconfident in the midst of a bull market or a bear market? Why?
2. How might an investor's portfolio have changed from 1995 to 2000 if the investor had become overconfident? Give examples of the numbers and types of stocks in the portfolio.
3. How does the Internet trick investors into believing they have wisdom?
4. How might using an online broker (versus a full-service broker) create an illusion of control?

Endnotes


