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The Psychology of Investing

投资心理学

[美] 约翰·R·诺夫辛格 (John R. Nofsinger) / 著

CFA系列



中信出版社
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The background of the cover is a textured grey with various abstract elements. There are several thin, light-grey concentric circles. Scattered throughout are numerous black circles of different sizes, some of which contain smaller white dots, resembling a molecular or atomic structure. The title 'The Psychology of Investing' is prominently displayed in the center-left area.

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投资心理学

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序

世界金融市场的蓬勃发展需要大量合格的金融从业人员，需要有全球通行的金融语言和行为标准。无论投资者、企业还是金融管理层都需要用统一、规范的标准来衡量金融分析人员的知识水平、道德规范和专业化程度，从而建立起对他们所提供的金融服务和所管理的金融资产的信赖。由此，特许金融分析师（Chartered Financial Analyst，简称CFA）应运而生。

作为全球通行的、最权威的金融市场专业人员的资格认证，CFA创办于20世纪60年代初。主办CFA考试和授予CFA特许状的权威机构是美国投资管理研究协会。目前，CFA资格授予各个投资领域内的专业人士，包括基金经理、证券分析师、财务总监、投资顾问、投资银行家、交易员等等。CFA要求它的持有人建立严格而广泛的金融知识体系，掌握金融投资行业各核心领域的理论与实践知识，包括从投资组合管理到金融资产估价，从衍生证券到固定收益证券以及定量分析。与此相适应，CFA的课程设置和考试内容深深根植于投资管理的实践，涉及广泛的金融投资方面的基础知识，并且考试标准和阅读书目每年都在变化，以反映投资领域的最新变化。

为适应经济日益全球化、信息化、金融化的发展趋势，促进我国资本市场的发展，并配合CFA资格考试在国内的展开，以方便广大考生应试，以及满足相关财经领域从业人员和广大师生的学习需求，中信出版社推出了CFA系列丛书。该系列包含两个子系列：影印系列和翻译系列，我们衷心地希望这套丛书的推出能够对广大的读者有所帮助。

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*For Anna,
my wife and best friend.*

*To Luke and Brennan,
thank you for your support and patience
when daddy was busy writing.*

Preface

An old Wall Street adage states that two factors move the market: fear and greed. Although true, this characterization is far too simplistic. The human mind is very sophisticated, and human emotions are very complex. The emotions of fear and greed just don't adequately describe the psychology that affects people. This book is one of the first texts to delve into this fascinating and important subject.

Few other texts provide this information because traditional finance has focused on developing the tools that investors use to optimize expected return and risk. This endeavor has been fruitful, yielding tools such as asset pricing models, portfolio theories, and option pricing. Although investors should use these tools in their investment decision making, they typically do not. We tend not to use these tools because psychology affects our decisions more than financial theory does.

Unfortunately, your psychological biases inhibit your ability to make good investment decisions. By learning about your psychological biases, you can overcome them and increase your wealth. You will notice that most of the chapters are structured in a similar way. I first describe the psychological bias and illustrate it with everyday behavior (such as driving a car). The effect of the bias on investment decisions is then described. Lastly, I use academic studies to show that investors really do have the problem.

This material does not replace the investment texts of traditional finance. Understanding psychological biases complements the traditional finance tools. Indeed, after reading this book you should be convinced that traditional tools are valuable.

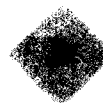
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CHAPTER 1 Psychology and Finance

"Why must I read this book?"

—LAMENT OF STUDENTS EVERYWHERE

Traditionally, a formal education in finance has dismissed the idea that peoples' own psychology can work against them in making good investment decisions. For the past three decades, the field of finance has evolved on these two basic assumptions:

- People make rational decisions.
- People are unbiased in their predictions about the future.

By assuming that people act in their own best interests, the finance field has been able to create some powerful tools for investors. For example, investors should use modern portfolio theory to obtain the highest expected return possible for any given level of risk they can bear. Pricing models (such as the Capital Asset Pricing Model, the Arbitrage Pricing Theory, and option pricing) can help value securities and provide insights into expected risks and returns. Investment texts are full of these useful theories.

However, psychologists have known for a long time that these are bad assumptions—people often act in a seemingly irrational manner and make predictable errors in their forecasts.

Financial economists are now realizing that investors can be irrational. Indeed, predictable decision errors by investors can affect the function of the markets. Most importantly, your reasoning errors affect your investing, and ultimately your wealth.

So why are "students of investing" reading this book? Because modern textbooks are completely silent on this subject. An investor who understands all the information in a modern investment text can still fail as an investor if he or she lets psychological

biases control his or her decisions. By reading this book, you should:

- Learn many psychological biases that affect decision making.
- Understand how these biases affect investment decisions.
- See how these decisions reduce your wealth.
- Learn to recognize and avoid them in your own life.

During the rest of this chapter, I hope to illustrate that these psychological problems are real. The arguments will be far more convincing if you participate in the following two demonstrations.

A SIMPLE ILLUSTRATION

One example of the reasoning mistakes caused by the brain is the visual illusion. Consider the optical illusion in Figure 1.1.¹ Of the two horizontal lines, which looks longer?

In fact, both lines are the same length. Look again. Although you know that the horizontal lines have equal length, the top line still *looks* longer. Just knowing about the illusion does not eliminate it. However, if you had to make some decision based on these lines, knowing that it is an illusion would help you avoid a mistake.

FIGURE 1.1 Optical Illusion



The brain does not work like a computer. Instead, it frequently processes information through shortcuts and emotional filters to shorten the analysis time. The decision arrived upon through this process is often not the same decision you would make without these filters. I refer to these filters and shortcuts as psychological biases. Knowing about these psychological biases is the first step toward avoiding them. One common problem is overestimating the precision and importance of information. The following demonstration illustrates this problem.

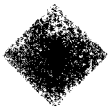
PREDICTION

Let's face it, investing is difficult. You must make decisions based on information that may be inadequate or inaccurate. Additionally, you must be able to effectively understand and analyze the information. Unfortunately, people make predictable errors in their forecasts.

Consider the ten questions in Table 1.1.² Although you probably do not know the answers to these questions, enter the most

TABLE 1.1 Enter a range (minimum and maximum)—you should be 90% certain that the answer is within this range.

	<i>Min</i>	<i>Max</i>
1. What is the average weight of the adult blue whale, in pounds?	_____	_____
2. In what year was the Mona Lisa painted by Leonardo da Vinci?	_____	_____
3. How many independent countries were there at the end of 2000?	_____	_____
4. What is the air distance, in miles, between Paris, France, and Sydney, Australia?	_____	_____
5. How many bones are in the human body?	_____	_____
6. How many total combatants were killed in World War I?	_____	_____
7. How many books were in the Library of Congress at the end of 2000?	_____	_____
8. How long, in miles, is the Amazon river?	_____	_____
9. How fast does the earth spin (miles per hour) at the equator?	_____	_____
10. How many transistors are in the Pentium III computer processor?	_____	_____



CHAPTER 1 *Psychology and Finance*

probable range based on your best estimate. Specifically, give your best low guess and your best high guess so that you are 90% sure the answer lies between. Don't make the range so wide that the answer is guaranteed to lie within, but also don't make the range too narrow. If you consistently choose a range following these instructions, you should expect to get 9 of the 10 questions correct. Go ahead, give it your best shot.

If you have no idea of the answer to a question, then your range should be large to be 90% confident. On the other hand, if you think you can give a good educated guess, then you would choose a smaller range to be 90% confident. Now let's check the answers. They are (1) 250,000 pounds, (2) 1,513, (3) 191 countries, (4) 10,543 miles, (5) 206 bones, (6) 8.3 million, (7) 18 million, (8) 4,000 miles, (9) 1,044 miles per hour, and (10) 9.5 million. Count your response correct if the answer lies between your low and high guesses. How many did you get right?

Most people miss five or more questions. However, if you are 90% sure of your range, then you should have missed only one. The fact is that you are too certain about your answers, even when you have no information or knowledge about the topic. Even being educated in probability is no help. Most finance professors miss at least five of the questions, too.

This demonstration illustrates that people have difficulty evaluating the precision of their knowledge and information. Now that you see the difficulty, I will give you a chance to redeem yourself. Because this book relates psychology to investing, consider the following question.

In 1896 the Dow Jones Industrial Average (DJIA) was at 40. At the end of 1998, the DJIA was at 9,181. The DJIA is a price-weighted average. Dividends are omitted from the index. What would the DJIA average be at the end of 1998 if the dividends were reinvested each year?

Notice that Table 1.1 has room for your DJIA minimum and maximum guesses. Again, you should be 90% sure that the correct value lies within the range you choose.

Because you are 90% sure that the correct value lies within the range that you chose, you should get this one correct. Are you ready for the answer? If dividends were reinvested in the DJIA, the average would have been 652,230 at the end of 1998.³ Does this surprise you? It surprises most people. Even after learning that most people set their range too narrowly in their prediction,



and experiencing the problem first hand, most people continue to do it.

This example also illustrates another aspect of investor psychology called anchoring. When you read the question, you focused on the DJIA price level of 9,181. That is, you anchored your thinking to 9,181. You probably made your guess by starting at this anchor and then trying to add an appropriate amount to compensate for the dividends. Investors anchor on their stock purchase price and the recent highest stock price.

LONG TERM CAPITAL MANAGEMENT

Even Nobel prize winners in economics are prone to overestimating the precision of their knowledge. Consider the plight of the hedge fund Long Term Capital Management (LTCM). The partners of the fund included John Meriwether, the famed bond trader from Salomon Brothers, David Mullins, a former vice-chairman of the Federal Reserve Board, and Nobel prize winners Myron Scholes and Robert Merton. The firm employed 24 people with Ph.D. degrees.

The hedge fund began in 1994 and enjoyed stellar returns. In the beginning of 1998, LTCM had \$4 billion in equity. It had also borrowed \$100 billion to leverage its positions for higher returns. Its main strategy was to find arbitrage opportunities in the bond market.

In August of 1998, Russia devalued its currency and defaulted on some of its debt. This action started a chain of events over the next 4 weeks that led to devaluation in many emerging countries. Bond and stock markets throughout the world declined. The prices of U.S. Treasury securities skyrocketed as investors fled to the safest investments.

The equity in the LTCM portfolio fell from \$4 billion to \$0.6 billion in 1 month. The Federal Reserve Bank feared that a margin call on LTCM would force it to liquidate its \$100 billion worth of positions. The selling of these positions during this precarious time might precipitate a crisis that could endanger the financial system. By late September, a consortium of leading investment banks and commercial banks injected \$3.5 billion into the fund in exchange for 90% of the equity.⁴

How could a hedge fund with such brainpower lose 90% of its equity in 1 month? Apparently, in designing their models, the partners did not think that so many things could go wrong at the



CHAPTER 1 *Psychology and Finance*

same time. Doesn't this sound like they set their range of possible outcomes too narrowly?

BEHAVIORAL FINANCE

All people (even smart ones) are affected by psychological biases. However, traditional finance has considered this irrelevant. Traditional finance assumes that people are "rational" and tells us how people should behave in order to maximize their wealth. These ideas have brought us arbitrage theory, portfolio theory, asset pricing theory, and option pricing theory.

Alternatively, behavioral finance studies how people actually behave in a financial setting.⁵ Specifically, it is the study of how psychology affects financial decisions, corporations, and the financial markets. This book focuses on a subset of these issues—how psychological biases affect investors. The investor who truly understands these biases will also appreciate more the tools that traditional finance has provided.

WHAT TO EXPECT

The next seven chapters of this book discuss psychological biases that affect your daily lives. These chapters are all structured in a similar manner. First, the psychological trait is identified and explained using common, daily activities. Second, the results of research studies show how the bias affects real people. Lastly, the degree that investors are affected by the bias is examined.

Chapters 2, 3, and 4 demonstrate how investment decision making is affected by emotions. As demonstrated in the previous example, people set their range of possible outcomes too narrowly. This is part of a broader problem called "overconfidence." Overconfident investors trade too much, take too much risk, and earn lower returns. This topic is discussed in Chapter 2. Chapter 3 illustrates how investors' views of themselves cause them to avoid feelings of regret and seek pride. Consequently, investors sell winner stocks too soon and hold on to loser stocks too long. Lastly, Chapter 3 demonstrates that your past failures and successes have a dramatic impact on your current decision-making process. Indeed, your memory of the past may actually change over time to soften your regret over failures.

Chapters 5 through 7 demonstrate how the functioning of the brain affects the investor. For example, every day you are bom-



barded by information. The brain uses a process called mental accounting to store and keep track of the important decisions and outcomes. Chapter 5 shows that the consequences of this process are that people make poor financial decisions. Discussed in Chapter 6 is one particularly important implication—how investor's view portfolio diversification. The brain also uses shortcuts to quickly process information. These shortcuts create a tainted view of the information. This leads to the investor problems of representativeness and familiarity in Chapter 7.

The last two chapters are a little different. Chapter 10 discusses how investing has entered our social culture. The interaction between psychology, group psychology, and investing can contribute to market mania and price bubbles. The Internet also interacts to magnify the psychological biases. Lastly, Chapter 9 discusses the difficulty of maintaining self control in the face of these psychological biases. Planning, incentives, and rules of thumb are helpful in avoiding the common problems. Strategies for overcoming these problems are proposed.

End Notes

1. This is an old psychology example. However, the illusion is discussed in Daniel Kahneman and Mark Riepe, "Aspects of Investor Psychology," *Journal of Portfolio Management* (Summer 1998): 52–65.
2. This exercise is similar to that of Edward Russo and Paul Shoemaker, *Decision Traps* (New York: Simon & Schuster, 1989) and a presentation by Hersh Shefrin at the 2000 Financial Management Association annual meeting.
3. This analysis is done in Roger Clarke and Meir Statman. "The DJIA Crossed 652,230." *Journal of Portfolio Management* (Winter 2000): 89–93.
4. See "All Bets Are Off: How the Salesmanship and Brainpower Failed at Long Term Capital." *Wall Street Journal*, Nov. 16, 1998, page A1.
5. See the discussion in Meir Statman. "Behavioral Finance: Past Battles and Future Engagements." *Financial Analysts Journal* (Nov./Dec. 1999), 18–27. I use the term *traditional finance* where Meir uses the term *standard finance*.

