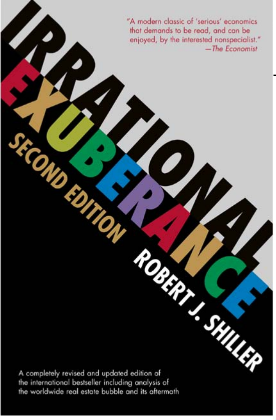
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IRRATIONAL
EXUBERANCE
SECOND EDITION
ROBERT J. SHILLER
A completely revised and updated edition of the international bestseller including analysis of the worldwide real estate bubble and its aftermath

Irrational Exuberance

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Robert J. Shiller

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To Ben and Derek

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Preface

This book is a broad study, drawing on a wide range of published research and historical evidence, of the enormous recent stock market boom. Although it takes as its specific starting point the current situation, it places that situation in the context of stock market booms generally, and it also makes concrete suggestions regarding policy changes that should be initiated in response to this and other booms.

The need for such a book is particularly urgent today, in view of the widespread and quite fundamental disagreement about the stock market. When people disagree at such a basic level, it is usually because they possess only pieces of the overall picture. Yet meaningful consensus can only be achieved by laying out all the available facts. I have therefore tried in this book to present a much broader range of information than is usually considered in writings on the market, and I have tried to synthesize this information into a detailed picture of the market today.

Why did the U.S. stock market reach such high levels by the turn of the millennium? What changed to cause the market to become so highly priced? What do these changes mean for the market outlook in the opening decades of the new millennium? Are powerful fundamental factors at work to keep the market as high as it is now or to push it even higher, even if there is a downward correction? Or is the market high only because of some *irrational exuberance*—wishful thinking on the part of investors that blinds us to the truth of our situation?

The answers to these questions are critically important to private and public interests alike. How we value the stock market now and in the future influences major economic and social policy decisions that affect not only investors but also society at large, even the world. If we exaggerate the present and future value of the stock market, then as a society we may invest too much in business start-ups and expansions, and too little in infrastructure, education, and other forms of human capital. If we think the market is worth more than it really is, we may become complacent in funding our pension plans, in maintaining our savings rate, in legislating an improved Social Security system, and in providing other forms of social insurance. We might also lose the opportunity to use our expanding financial technology to devise new solutions to the genuine risks—to our homes, cities, and livelihoods—that we face.

To answer these questions about today's stock market, I harvest relevant information from diverse and, some would say, remote fields of inquiry. Insights from these fields too often go unnoticed by market analysts, but they have proved critical in defining similar market episodes throughout history, as well as in other markets around the world. These fields include economics, psychology, demography, sociology, and history. In addition to more conventional modes of financial analysis, they bring potent insights to bear on the issues at hand. Much of the evidence is drawn from the emerging field of behavioral finance, which, as the years go by, is looking less and less like a minor subfield of finance and more and more like a central pillar of serious finance theory.

I marshal the most important insights offered by researchers in these fields. Taken as a whole, they suggest that the present stock market displays the classic features of a *speculative bubble:* a situation in which temporarily high prices are sustained largely by investors' enthusiasm rather than by consistent estimation of real value. Under these conditions, even though the market could possibly maintain or even substantially increase its price level, the outlook for the stock market into the next ten or twenty years is likely to be rather poor—and perhaps even dangerous.

I do not purport to present a wholly new conception of financial market behavior. This book is a work neither of economic theory nor of econometrics, although it partakes in both. Rather, it is an attempt to characterize the complex nature of our real markets today, considering whether they conform or do not conform to our expectations and models. By assembling the most relevant evidence, economic and otherwise, on the state of the market, I hope to correct what I consider to be the perilous policy paths now being followed by legislators and economic leaders. I also hope to challenge financial thinkers to improve their theories by testing them against the impressive evidence that suggests that the price level is more than merely the sum of the available economic information, as is now generally thought to be the case.

Within the past generation the branch of financial theory that is derived from the assumption that all people are thoroughly rational and calculating has become the most influential analytical device to inform our mastery of the market. Those financial theorists who consider the market price to be a cunningly efficient processor of financial information have had a profound effect on the systematic management of the world's wealth, from the corner stockbroker right up to the Federal Reserve. But most of these scholars of finance and economics shrink from public statements about the level of the stock market (although they are often more loose-lipped in expressing their opinions at lunch and over beers) because they do not want to be caught saying things in public that they cannot prove. Assuming the mantle of scientific detachment, these financial economists tend to fall back on the simple but elegant model of market efficiency to justify their professional position.

However, there are serious risks inherent in relying too heavily on such pristine models as the basis for policy discussion, for these models deal only with problems that can be answered with scientific precision. If one tries too hard to be precise, one runs the risk of being so narrow as to be irrelevant. The evidence I present in the following chapters suggests that the reality of today's stock market is anything but test-tube clinical. If the theory of finance is to grow in its usefulness, all economists eventually will have to grapple with these messier aspects of market reality. Meanwhile, participants in public debate and economic policy formation must sort out this tangle of market factors now, before it is too late.

Among the unanticipated consequences of today's investment culture is that many of the tens of millions of adults now invested in the stock market act as if the price level is simply going to keep rising at its current rate. Even though the stock market appears based on some measures to be higher than it has ever been, investors behave as though it can never be too high, and that it can never go down for long. Why would they behave this way? Their logic is apparently consistent with the free-rider argument. That is, if millions of researchers and investors are studying stock prices and confirming their apparent value, why waste one's time in trying to figure out reasonable prices? One might as well take the free ride at the expense of these other diligent investors who have investigated stock prices and do what they're doing—buy stocks!

But unknown to most investors is the troubling lack of credibility in the quality of research being done on the stock market, to say nothing of the clarity and accuracy with which it is communicated to the public. Some of this so-called research often seems no more rigorous than the reading of tea leaves. Arguments that the Dow is going to 36,000 or 40,000 or 100,000 hardly inspire trust. Certainly *some* researchers are thinking more realistically about the market's prospects and reaching better-informed positions on its future, but these are not the names that grab the headlines and thus influence public attitudes.

Instead the headlines reflect the news media's constant attention to trivial factoids and "celebrity" opinion about the market's price level. Driven as their authors are by competition for readers, listeners, and viewers, media accounts tend to be superficial and thus to encourage basic misconceptions about the market. A conventional wisdom of sorts, stressing the seemingly eternal durability of stocks, has emerged from these media accounts. The public has learned to accept this conventional—but in my view shallow—wisdom. To be fair to the Wall Street professionals whose views appear in the media, it is difficult for them to correct the conventional wisdom because they are limited by the blurbs and sound bites afforded them. One would need to write books to straighten these things out. This is such a book.

As noted earlier, the conventional wisdom holds that the stock market as a whole has always been the best investment, and always will be, even when the market is overpriced by historical standards. Small investors, in their retirement funds, are increasingly shifting their investments toward stocks, and the investment policy of 100% stocks in retirement funds is increasingly popular. They put their money where their mantra is. This attitude invites exploitation by companies who have an unlimited supply of equities to sell. "You want stocks? We'll give you stocks."

Most investors also seem to view the stock market as a force of nature unto itself. They do not fully realize that they themselves, as a group, determine the level of the market. And they underestimate how similar to their own thinking is that of other investors. Many individual investors think that institutional investors dominate the market and that these "smart money" investors have sophisticated models to understand prices—superior knowledge. Little do they know that most institutional investors are, by and large, equally clueless about the level of the market. In short, the price level is driven to a certain extent by a self-fulfilling prophecy based on similar hunches held by a vast cross section of large and small investors and reinforced by news media that are often content to ratify this investor-induced conventional wisdom.

When the Dow Jones Industrial Average first surpassed 10,000 in March 1999, Merrill Lynch took out a full-page newspaper ad with a headline saying, "Even those with a disciplined long-term approach like ours have to sit back and say 'wow.'" In the bottom left corner of the page, next to a stock plot ending up at 10,000, appeared the words "HUMAN ACHIEVEMENT." If this is an achievement worth congratulating, then we should congratulate employees whenever they submit glowing self-evaluation reports.

At present there is a whiff of extravagant expectation, if not irrational exuberance, in the air. People are optimistic about the stock market. There is a lack of sobriety about its downside and the consequences that would ensue as a result. If the Dow were to drop to 6,000, the loss would represent something like the equivalent value of the entire housing stock of the United States. There would be harmful and uneven effects on individuals, pension funds, college endowments, and charitable organizations.

We need to know if the price level of the stock market today, tomorrow, or on any other day is a sensible reflection of economic reality, just as we need to know as individuals what we have in our bank accounts. This valuation is the future food on our tables and clothes on our backs, and nearly every decision to spend money today ought to be influenced by it. We need a better understanding of the forces that shape the long-run outlook for the market—and it is such an understanding that this book is intended to provide.

Outline of This Book

After an introductory chapter placing the current stock market into historical context, Part I discusses precipitating events: factors outside the stock market, such as technology and demography, that nevertheless shape the market's behavior. It also covers amplifying mechanisms that cause these precipitating factors to have such an outsized effect on the market. These mechanisms can reinforce confidence in the market despite its already high price by creating situations in which price changes cause further price changes, thus beginning the speculative bubble.

Part II introduces cultural factors that further reinforce the structure of the speculative bubble. These factors include accounts of the economy that contend that it has moved into a "new era" that makes it impervious to downside forces, accounts that are amplified by the news media. Examples of similar "new era" thinking at each of the previous market peaks in the twentieth century are recounted, as are numerous examples from other countries.

Part III discusses the evidence we have collected about the psychological anchors and herd behavior that further define the speculative bubble.

Part IV investigates attempts on the part of academic and popular thinkers to rationalize the recent market levels through, for example, the efficient markets theory and the "learning" of certain "facts" about the behavior of the market.

Part V analyzes the implications of the current speculative bubble for individual investors, institutions, and governments. Several prescriptions for urgently needed policy changes are offered, as are suggestions for ways in which individual investors can lower their exposure to the consequences of a "burst" bubble.

Acknowledgments

Jeremy Siegel, while clearly not agreeing with me on all points, urged me to set down my ideas in this book. He is its real instigator. Jeremy has been a lifelong friend. Our families regularly vacation together, and I learned a distinctive approach to finance from him while strolling the beach together or watching our children fish.

John Campbell, my former student, then co-author on a dozen scholarly papers on financial markets, and for years a close friend, has been my intellectual other half in formulating many of the ideas that led to this book. My original work on volatility in financial markets was refined and significantly advanced with his collaboration. He has also offered many helpful suggestions for this book and comments on the manuscript.

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I am grateful to the Russell Sage Foundation for sponsoring the behavioral finance workshops that Richard Thaler and I have been organizing for the past ten years at the National Bureau of Economic Research. The term *behavioral finance* refers to research on financial markets that takes into account the details of human behavior, including human psychology and sociology. This book benefits immeasurably from the work of the many scholars in the emerging field of behavioral finance, which is now beginning to take a solid place in university finance departments.

The U.S. National Science Foundation has supported much of my basic research on financial markets. Their continuing support of my work for over twenty years now has enabled me to focus attention on issues independent of financial pressures.

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