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STOCKS *for the* LONG RUN

SIXTH EDITION

THE DEFINITIVE GUIDE TO FINANCIAL MARKET RETURNS AND LONG-TERM INVESTMENT STRATEGIES

JEREMY J. SIEGEL

with JEREMY SCHWARTZ

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JEREMY J. SIEGEL
with Jeremy Schwartz

New York Chicago San Francisco Athens London Madrid
Mexico City Milan New Delhi Singapore Sydney Toronto

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ISBN: 978-1-26-426981-5
MHID: 1-26-426981-1

The material in this eBook also appears in the print version of this title: ISBN: 978-1-26-426980-8,
MHID: 1-26-426980-3.

eBook conversion by codeMantra
Version 1.0

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Foreword

In July 1997 I called Peter Bernstein and said I was going to be in New York and would love to lunch with him. I had an ulterior motive. I greatly enjoyed his book *Capital Ideas: The Improbable Origins of Modern Wall Street* and the *Journal of Portfolio Management*, which he founded and edited. I hoped there might be a slim chance he would consent to write the preface to the second edition of *Stocks for the Long Run*.

His secretary set up a date at one of his favorite restaurants, Circus on the Upper East Side. He arrived with his wife, Barbara, and a copy of the first edition of my book tucked under his arm. As he approached, he asked if I would sign it. I said, "Of course" and responded that I would be honored if he wrote a foreword to the second edition. He smiled; "Of course!" he exclaimed. The next hour was filled with a most fascinating conversation about publishing, academic and professional trends in finance, and even what we liked best about Philly and New York.

I thought back to our lunch when I learned, in June 2009, that he had passed away at the age of 90. In the 12 years since our first meeting, Peter had been more productive than ever, writing three more books, including his most popular, *The Remarkable Story of Risk*. Despite the incredible pace he maintained, he always found time to update the preface of my book through the next two editions. As I read through his words in the fourth edition, I found that his insights into the frustrations and rewards of being a long-term investor are as relevant today as they were when he first penned them nearly two decades ago. I can think of no better way to honor Peter than to repeat his wisdom here:

> Some people find the process of assembling data to be a deadly bore. Others view it as a challenge. Jeremy Siegel has turned it into an art form. You can only admire the scope, lucidity, and sheer delight with which Professor Siegel serves up the evidence to support his case for investing in stocks for the long run.
>
> But this book is far more than its title suggests. You will learn a lot of economic theory along the way, garnished with a fascinating history of both the capital markets and the U.S. economy. By using history to

maximum effect, Professor Siegel gives the numbers a life and meaning they would never enjoy in a less compelling setting. Moreover, he boldly does battle with all historical episodes that could contradict his thesis and emerges victorious—and this includes the crazy years of the 1990s.

With this fourth edition, Jeremy Siegel has continued on his merry and remarkable way in producing works of great value about how best to invest in the stock market. His additions on behavioral finance, globalization, and exchange-traded funds have enriched the original material with fresh insights into important issues. Revisions throughout the book have added valuable factual material and powerful new arguments to make his case for stocks for the long run. Whether you are a beginner at investing or an old pro, you will learn a lot from reading this book.

Jeremy Siegel is never shy, and his arguments in this new edition demonstrate he is as bold as ever. The most interesting feature of the whole book is his twin conclusions of good news and bad news. First, today's globalized world warrants higher average price/earnings ratios than in the past. But higher P/Es are a mixed blessing, for they would mean average returns in the future are going to be lower than they were in the past.

I am not going to take issue with the forecast embodied in this viewpoint. But similar cases could have been made in other environments of the past, tragic environments as well as happy ones. One of the great lessons of history proclaims that no economic environment survives the long run. We have no sense at all of what kinds of problems or victories lie in the distant future, say, 20 years or more from now, and what influence those forces will have on appropriate price/earnings ratios.

That's all right. Professor Siegel's most important observation about the future goes beyond his controversial forecast of higher average P/Es and lower realized returns. "Although these returns may be diminished from the past," he writes, "there is overwhelming reason to believe stocks will remain the best investment for all those seeking steady, long-term gains."

"[O]verwhelming reason" is an understatement. The risk premium earned by equities over the long run must remain intact if the system is going to survive. In the capitalist system, bonds cannot and should not outperform equities over the long run. Bonds are contracts enforceable in courts of law. Equities promise their owners nothing—stocks are risky investments, involving a high degree of faith in the future. Thus, equities are not inherently "better" than bonds, but we demand a higher return from equities to compensate for their greater risk. If the long-run expected return on bonds were to be higher than the long-run expected return on stocks, assets would be priced so that risk would earn no reward. That is an unsustainable condition. Stocks must remain "the best investment for all those seeking steady, long-term gains" or our system will come to an end, and with a bang, not a whimper.

—Peter Bernstein

Preface to the Sixth Edition

I am honored by the tremendous reception that *Stocks for the Long Run* has received since the publication of the first edition nearly 30 years ago. This sixth edition is the most extensive revision to date, adding six full chapters that include factor or style investing; the efficient market hypothesis; the future of value investing; environmental, social, and governance (ESG) risks; the Covid pandemic; as well as an extensive discussion of the impact of inflation and interest rates on stock prices. Other chapters have also been greatly expanded, including for the first time an analysis of the returns on real estate, the optimal stock/bond allocation, the fate of companies that had become the most valuable in the world, the future of Bitcoin and cryptocurrencies, and an analysis of whether "hot-handed" money managers have continued beating the market. Almost all the data are updated through 2021.

The first edition of *Stocks for the Long Run* was published using financial data through 1992 so this edition includes nearly three decades more data than the first. Those 30 years have witnessed dramatic shocks: the Asian and Long-Term Capital Management crises, the stock market crash of 1987, the dot-com bubble, the Great Financial Crisis, and the Covid-19 pandemic. Yet despite this volatility, the superior returns to stocks have not only persisted, but in fact increased over these past 30 years.

But that does not mean there have been no financial surprises. One of the most unexpected developments is the steep and persistent decline in both nominal and especially real interest rates. Chapter 8 discusses the forces behind this development: the decline in growth in the developed countries, the aging of the population, and particularly the emergence of sovereign debt as the prime "hedge asset." A second unexpected development has been a sharp decline in the returns to *value investing*. I conclude that the fundamental dynamics of market pricing still strongly suggest paying close attention to financial fundamentals as the best investment strategy for long-term investors.

A final surprise has been the disappointing returns in foreign markets, including Europe and especially in the emerging economies. The reasons for the lag are legion: governmental interference with growth, particularly in China and Russia, and the relatively poor performance of *value stocks*, which are far more numerous outside the United States.

But the most important reason for the lag in value stocks has been the remarkable performance of technology firms in the United States. Apple, Microsoft, Google, Amazon.com, and Tesla are the five largest stocks in the United States and five of the six largest (with Saudi Aramco) in the world. Only Apple and Microsoft were trading when the first edition of *Stocks for the Long Run* was published, and they were selling for 30 cents and $2.50 per share, respectively. Tech giants NVIDIA and Meta (formerly Facebook) were nonexistent in 1994.

But just below these top five tech giants is Berkshire Hathaway, Warren Buffett's conglomerate that is the epitome of value investing. No investment style stays in favor forever and the great bull market in tech stocks may have peaked. Admittedly, for short-term traders, fundamentals may matter little and momentum rules the roost. But for those devoted to long-term investment, the reasons for broad diversification and value investing are still persuasive.

In 1937, John Maynard Keynes stated in *The General Theory of Employment, Interest and Money*, "investment based on the genuine long-term expectation is so difficult today as to be scarcely practicable." It is certainly no easier nearly a century later.

But those who have persisted with equities have always been rewarded. No one has made money in the long run betting against stocks. It is the hope that the latest edition will fortify those who will inevitably waver when pessimism once again grips investors. History demonstrates that stocks have been and will remain the best investment for all those seeking long-term growth.

CONCLUDING COMMENTS

My Princeton colleague Burton Malkiel emailed me recently asking if he could use my graph of 220 years of assets returns for the fiftieth anniversary edition of his classic *A Random Walk Down Wall Street.* I am in awe of his vigor as he will turn 90 next August. His advice to me was, "Stay active, Jeremy, stay active!"

And I most certainly will. But I am a realist. I retired as Emeritus Professor of Finance at the Wharton School of the University of Pennsylvania in July 2021 after teaching at that prestigious institution and the

University of Chicago for 49 years. It was deeply fulfilling to instruct over 10,000 students during that nearly one-half century, many of whom have become leaders in the investment, public, and nonprofit sectors.

No one knows how many years we have left. But after completing this edition, I feel free to pursue those activities that in the past came *after* my work: time with family and friends, hobbies, and sorting through years of memorabilia—photos, letters, and research that I have accumulated through my life. But at this moment I am proud to publish what I believe is the best and most inclusive edition of *Stocks for the Long Run* to a much wider audience than I could reach from any university.

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Acknowledgments

It is never possible to list all the individuals and organizations that have contributed to *Stocks for the Long Run*. But one individual stands out: Jeremy Schwartz, my star student at Wharton who currently serves as Global Chief Investment Officer at WisdomTree Investments.

I offered Jeremy the job of principal research assistant for the fourth edition of this book in 2001, immediately after he took my Wharton honors class during his sophomore year. I was investigating some complicated risk-return analysis using varying time horizons. On Friday, I gave him the data and a brief outline of what I wanted to do and told him to come back Monday morning so we could discuss the methodology needed to solve the problem. When he arrived after the weekend, I asked him if he had a chance to look over the data. He responded, "Yes, in fact I have all the results that you asked for!" Indeed he did. I knew I had found someone very special.

At that time, I was also considering a second book, *The Future for Investors*. Although Jeremy had his heart set on spending his junior year abroad in Australia, he instead took the entire year off to help me do the research for that book. As I acknowledged in *The Future for Investors,* I could not have written that book without his analysis and encouragement. Many of the themes we developed were added to subsequent editions of *Stocks for the Long Run*. It is for these reasons that I have added Jeremy Schwartz's name to mine as one of the authors for this edition of *Stocks for the Long Run*.

Of course, there were others who contributed importantly to this edition. Joseph Attia, currently a sophomore at Wharton, was my second principal researcher. His diligence in collecting and processing the data, particularly for the new material, was invaluable. And his "eagle eye" in catching mistakes and improving the presentation as the manuscript passed through various proofs far exceed my already-high expectations of this young man.

Elroy Dimson of London Business School, whose *Triumph of the Optimists* (2000) did for international markets what I had done for US markets, was especially generous with his material and research. David

Bianco, the CIO of DWS Americas, has provided me with data on S&P profit margins, and we have enjoyed many discussions on this topic.

Erica DiCarlo provided me vital background information on my chapter on ESG investing, and Casey Clark, President and Chief Investment Officer at Rockefeller Asset Management provided data on ESG returns. Liqian Ren, Director of Modern Alpha at WisdomTree, completed the extensive Monte Carlo simulations that informed the analysis of the proper stock/bond allocation for a forward-looking portfolio, and Matt Wagner, Research Associate at WisdomTree, provided useful assistance in evaluating buybacks and international markets. I also want to thank Robert Ibbotson and Yakov Amihud for providing me with their data on liquidity stock returns.

But importantly, my Wharton colleague Robert Stambaugh has been an invaluable resource for all the chapters relating to factor investing and ESG, among other topics. Despite his busy schedule, he responded quickly and thoroughly to all my questions and unstintingly shared his material with me.

And I cannot ignore the contributions of Shaun Smith to *Stocks for the Long Run*. Although he did not contribute to this edition, he was my prime researcher for the very first edition. Most of the tables and charts that have been updated through the next five editions are built on his earlier efforts.

I also wish to thank Judith Newlin, who had been so patient with the time it took to develop my new chapters. I wanted the material to be as accurate as possible, and she provided invaluable suggestions to make this the best, most complete edition to date. Finally, I wish to thank the management of WisdomTree, and particularly the CEO, Jonathan Steinberg, for supporting the literally hundreds of talks and presentations I have given in these past nearly 20 years.

It was at 6:30 a.m., Thursday, March 17, when I sent my last chapter to my editor. I was on a family vacation in the British Virgin Islands and I wanted to work early (getting up each day at 5 a.m.) so I could have more time with my family. Authors know the burdens that writing places on those around you, and I am grateful that those closest to me, and especially my wife, Ellen, have given me time to indulge my passion. It is liberating that I can enjoy our next trip: a cruise through Belgium this April, ending with the Keukenhof Tulip Festival and the Floriade Expo 2022 in Amsterdam, knowing that the great bulk of my responsibilities for this book are behind me.

March 2022

STOCKS *for the* LONG RUN

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I

VERDICT OF HISTORY

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1

The Case for Equity

Historical Facts and Media Fiction

The "new-era" doctrine—that "good" stocks (or blue chips*) were sound investments regardless of how high the price paid for them—was at the bottom only a means of rationalizing under the title of "investment" the well-nigh universal capitulation to the gambling fever.*

—Benjamin Graham and David Dodd, 1934[1]

Investing in stocks has become a national hobby and a national obsession. To update Marx, it is the religion of the masses.

—Roger Lowenstein, 1996[2]

Stocks for the Long Run *by Siegel? Yeah, all it's good for now is a doorstop.*

—Comment from caller on CNBC, March 2009, at the bottom of the worst bear market in 80 years

"EVERYBODY OUGHT TO BE RICH"

In the summer of 1929, a journalist named Samuel Crowther interviewed John J. Raskob, a senior financial executive at General Motors, about how the typical individual could build wealth by investing in stocks. In August of that year, Crowther published Raskob's ideas in a *Ladies' Home Journal* article with the audacious title "Everybody Ought to Be Rich."

In the interview, Raskob claimed that America was on the verge of a tremendous industrial expansion. He maintained that by putting

just $15 per month into good common stocks, investors could expect their wealth to grow steadily to $80,000 over the next 20 years. Such a return—24 percent per year—was unprecedented, but the prospect of effortlessly amassing a great fortune seemed plausible in the atmosphere of the 1920s bull market. Stocks excited investors, and millions put their savings into the market seeking quick profit.

On September 3, 1929, a few days after Raskob's advice appeared, the Dow Jones Industrial Average hit a historic high of 381.17. Seven weeks later, stocks crashed. The next 34 months saw the most devastating decline in share values in US history.

On July 8, 1932, when the carnage was finally over, the Dow Industrials stood at 41.22. The market value of the world's greatest corporations had declined an incredible 89 percent. Millions of investors' life savings were wiped out, and thousands of investors who had borrowed money to buy stocks were forced into bankruptcy. America was mired in the deepest economic depression in its history.

Raskob's advice was ridiculed and denounced for years to come. It was said to represent the insanity of those who believed that the market could rise forever and the foolishness of those who ignored the tremendous risks in stocks. Senator Arthur Robinson of Indiana publicly held Raskob responsible for the stock crash by urging common people to buy stock at the market peak.[3] In 1992, 63 years later, *Forbes* magazine warned investors of the overvaluation of stocks in its issue headlined "Popular Delusions and the Madness of Crowds." In a review of the history of market cycles, *Forbes* fingered Raskob as the "worst offender" of those who viewed the stock market as a guaranteed engine of wealth.[4]

Conventional wisdom holds that Raskob's foolhardy advice epitomizes the mania that periodically overruns Wall Street. But is that verdict fair?

The answer is decidedly no. Investing over time in stocks has been a winning strategy whether one starts such an investment plan at a market top or not. If you calculate the value of the portfolio of an investor who followed Raskob's advice in 1929, patiently putting $15 a month into the market, you find that his accumulation exceeded that of someone who placed the same money in Treasury bills after less than four years! By 1949 his stock portfolio would have accumulated almost $9,000, a return of 7.86 percent, more than double the annual return in bonds. After 30 years the portfolio would have grown to over $60,000, with an annual return rising to 12.72 percent. Although these returns were not as high as Raskob had projected, the total return of the stock portfolio over 30 years was more than eight times the accumulation in bonds and more

than nine times that in Treasury bills. Those who never bought stock, citing the Great Crash as the vindication of their caution, found their savings far lower than investors who had patiently accumulated equity.[5]

The story of John Raskob's much-ridiculed advice illustrates an important theme in the history of Wall Street. Bull markets and bear markets lead to sensational stories of incredible gains and devastating losses. Yet patient stock investors who can see past the scary headlines have always outperformed those who flee to bonds or other assets. Even such calamitous events as the Great 1929 Stock Crash, the financial crisis of 2008, or the Covid-19 pandemic have not negated the superiority of stocks as long-term investments.

ASSET RETURNS SINCE 1802

Figure 1.1 is the most important chart in this book. It traces year by year how real (after-inflation) wealth has accumulated for a hypothetical investor who put a dollar in (1) stocks, (2) long-term government bonds, (3) US Treasury bills, (4) gold, and (5) US currency over the past two centuries. These returns are called *total real returns* and include income (dividends and interest) distributed from the investment (if any) plus capital gains or losses, all measured in constant purchasing power. The compound annual real returns for these asset classes are also shown on Figure 1.1.

These returns are graphed on a *ratio*, or *logarithmic*, scale. Economists use this scale to depict long-term data, since a straight line represents a constant percentage change. The ability of stock returns to hug that trendline is striking.

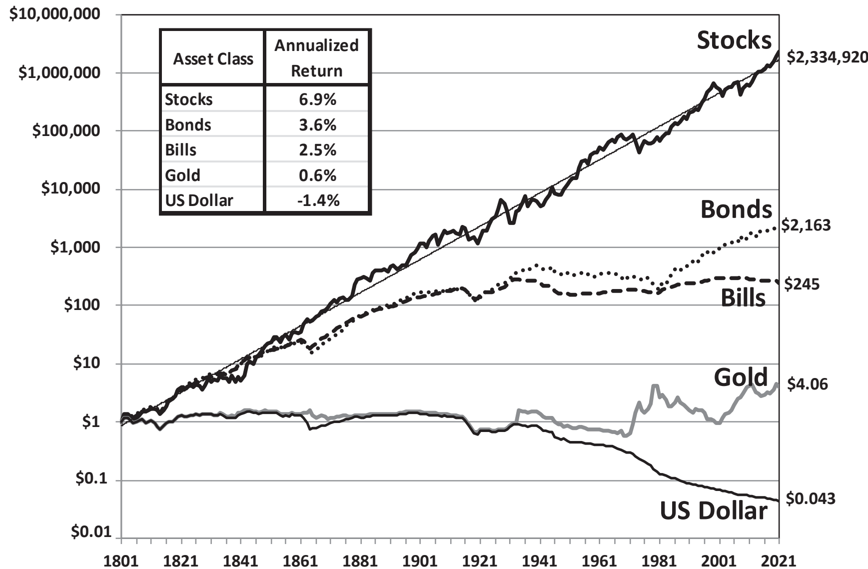
Over the 220 years we have examined asset returns, the average compound annual real return on a broadly diversified portfolio of stocks has averaged 6.9 percent per year. That 6.9 percent per year means that a fully diversified stock portfolio, such as an index fund, has nearly doubled in purchasing power on average every 10 years over the past two centuries.

It is noteworthy that if we extend the stock returns through the bear market that occurred in the first half of 2022, the long term real return is reduced to 6.7% per year, exactly the same return I indicated in the first edition of Stocks for the Long Run, published almost 30 years ago.

The real return on fixed-income investments has averaged far less; on long-term government bonds, the average real return has been 3.6 percent per year, and on short-term fixed-income assets, such as Treasury bills, 2.5 percent per year.

FIGURE 1.1

Total real return indexes (1802–2021)



Asset Class	Annualized Return
Stocks	6.9%
Bonds	3.6%
Bills	2.5%
Gold	0.6%
US Dollar	-1.4%

The average annual real return on gold has been only 0.6 percent per year. In the long run, gold prices have risen just ahead of the inflation rate, but little more. The dollar has lost on average 1.4 percent per year of purchasing power since 1802, with most of the depreciation coming after World War II.

In the short run, stock returns are very volatile and are driven by changes in earnings, interest rates, risk, and uncertainty as well as psychological factors, such as optimism and pessimism. The downward blips of the stock return line in Figure 1.1 represent major bear markets, which frighten so many investors and keep them out of the market. Yet these blips fade into insignificance when compared to the broad upward thrust of stock returns.

We shall examine the returns of the major assets in detail in the next chapter. In the remainder of this chapter we shall look at how economists, investment professionals, and market pundits have viewed the investment value of stocks over the course of history and how the great bull and bear markets impact both the media and investors.

HISTORICAL PERSPECTIVES ON STOCKS AS INVESTMENTS

Throughout the nineteenth century, stocks were deemed the province of speculators and insiders but certainly not conservative investors. It was not until the early twentieth century that researchers came to realize that equities might be suitable investments for a broader group of investors under certain economic conditions.

In the 1920s, the great US economist Irving Fisher, a professor at Yale University and an extremely successful investor, believed that stocks were superior to bonds during inflationary times but that common shares would likely underperform bonds during periods of deflation, a view that became the conventional wisdom during the early twentieth century.[6]

Edgar Lawrence Smith, a financial analyst and investment manager of the 1920s, exploded this conventional wisdom. Through his historical research, Smith was the first to demonstrate that accumulations in a diversified portfolio of common stocks outperformed bonds not only when commodity prices were rising but also when prices were falling. Smith published his studies in 1925 in his book *Common Stocks as Long-Term Investments*. In the introduction he stated:

> These studies are a record of a failure—the failure of facts to sustain a preconceived theory, . . . [the theory being] that high-grade bonds had proved to be better investments during periods of [falling commodity prices].[7]

Smith maintained that stocks should be an essential part of an investor's portfolio. By examining stock returns back to the Civil War, Smith discovered that there was a very small chance that an investor would have to wait a long time (which he put at 6 and at most, 15 years) before being able to sell your stocks at a profit. Smith concluded:

> We have found that there is a force at work in our common stock holdings which tends ever toward increasing their principal value. . . . [U]nless we have had the extreme misfortune to invest at the very peak of a noteworthy rise, those periods in which the average market value of our holding remains less than the amount we paid for them are of comparatively short duration. Our hazard even in such extreme cases appears to be that of time alone.[8]

Smith's conclusion was right, not only historically but also prospectively. It took just over 15 years to recover the money invested at

the 1929 peak, following a crash far worse than Smith had ever examined. And since World War II, the recovery period for stocks has been even better. The longest it has ever taken an investor to recover an original investment in the stock market (including reinvested dividends) was the five-year, eight-month period from August 2000 through April 2006.

The Influence of Smith's Work

Smith wrote his book in the 1920s, at the outset of one of the greatest bull markets in our history. Its conclusions caused a sensation in both academic and investing circles. The prestigious weekly the *Economist* stated in 1925, "Every intelligent investor and stockbroker should study Mr. Smith's most interesting little book and examine the tests individually and their very surprising results."[9]

Smith's ideas quickly crossed the Atlantic and were the subject of much discussion in Great Britain. John Maynard Keynes, the great British economist and originator of the business cycle theory that became the paradigm for future generations of economists, reviewed Smith's book with much excitement. Keynes stated:

> The results are striking. Mr. Smith finds in almost every case, not only when prices were rising, but also when they were falling, that common stocks have turned out best in the long-run, indeed, markedly so. . . . This actual experience in the United States over the past fifty years affords prima facie evidence that the prejudice of investors and investing institutions in favor of bonds as being "safe" and against common stocks as having, even the best of them, a "speculative" flavor, has led to a relative over-valuation of bonds and under-valuation of common stocks.[10]

Smith's writings gained academic credibility when they were published in such prestigious journals as the *Review of Economic Statistics* and the *Journal of the American Statistical Association*.[11] Smith acquired an international following when Siegfried Stern published an extensive study of returns in common stock in 13 European countries from the onset of World War I through 1928. Stern's study showed that the advantage of investing in common stocks over bonds and other financial investments extended far beyond America's financial markets.[12] Research demonstrating the superiority of stocks became known as the "common stock theory of investment."[13]

Smith's research also changed the mind of the renowned Yale economist Irving Fisher, who saw Smith's study as a confirmation of his own long-held belief that bonds were overrated as safe investments in a world with uncertain inflation. In 1925 Fisher summarized Smith's findings with these prescient observations of investors' behavior:

> It seems, then, that the market overrates the safety of "safe" securities and pays too much for them, that it overrates the risk of risky securities and pays too little for them, that it pays too much for immediate and too little for remote returns, and finally, that it mistakes the steadiness of money income from a bond for a steadiness of real income which it does not possess. In steadiness of real income, or purchasing power, a list of diversified common stocks surpasses bonds.[14]

Irving Fisher's "Permanently High Plateau"

Professor Fisher, cited by many as the greatest US economist and the father of capital theory, was no mere academic. He actively analyzed and forecasted financial market conditions, wrote dozens of newsletters on topics ranging from health to investments, and created a highly successful card-indexing firm based on one of his own patented inventions. Despite hailing from a modest background, his personal wealth in the summer of 1929 exceeded $10 million, which is over $150 million in 2021 dollars.[15]

Irving Fisher, as well as many other economists in the 1920s, believed that the establishment of the Federal Reserve System in 1913 was critical to reducing the severity of economic fluctuations. Indeed, the 1920s was a period of remarkably stable growth, as the variation in such economic variables as industrial production and producer prices was greatly reduced, a factor that boosted the prices of risky assets such as stocks. As discussed in Chapter 23, there was a remarkable similarity between the stability of the 1920s and the decade that preceded the 2008 financial crisis. In each period, not only had the business cycle moderated, but there was great confidence that the Federal Reserve would be able to mitigate, if not eliminate, the business cycle.

The 1920s bull market drew millions of Americans into stocks, and Fisher's own financial success and reputation as a market seer gained him a large following among investors and analysts. But in early October 1929, market turbulence greatly increased investors' interest in his forecasts. Market followers were not surprised that on the evening of October 14, 1929, when Irving Fisher arrived at the Builders' Exchange