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Stephen D. Hassett

The Risk Premium Factor

*A New Model for Understanding
the Volatile Forces that Drive
Stock Prices*

STEPHEN D. HASSETT



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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
Published simultaneously in Canada.

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Library of Congress Cataloging-in-Publication Data:

Hassett, Stephen D., 1961–

The risk premium factor: a new model for understanding the volatile forces that drive stock prices / Stephen D. Hassett.

p. cm. — (Wiley finance series ; 702)

Includes index.

ISBN 978-1-118-09905-6 (cloth); ISBN 9781118118597 (ebk);

ISBN 9781118118603 (ebk); ISBN 9781118118610 (ebk)

1. Stocks—Prices. 2. Corporations—Valuation. 3. Business cycles. 4. Stock exchanges.

I. Title.

HG4551.H34 2011

332.63'222—dc23

2011017550

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

The Risk Premium Factor

BY JAMES H. HARRIS, JR., AND JOHN W. HARRIS

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To Anne, Sarah, and Charlotte Hassett

Preface

Meet Charlie, just your typical office worker, who spent many years getting beaten down in his office football pool. Each week he'd put in his \$10, and each week he'd lose. Charlie loved football and was always supremely confident in his picks; he just couldn't pick against the spread.

One day, Charlie was home looking over the coming week's games. His young daughter asked what he was doing. He explained. Then, thinking about his poor track record, he asked his daughter if she'd like to help. She was thrilled.

"Eagles at Cowboys—who do you like?" he said.

"Eagles," she said.

"Why?" asked Charlie.

"Eagles are pretty," said his daughter.

"Dolphins at Jets?"

She responded, "Dolphins, they're cute."

And on it went.

By Sunday night, Charlie had 10 wins and 2 losses. He won again on Monday for his best week ever. Charlie won again that week, and the next. Whenever someone asked Charlie what his new secret was, Charlie would say, "I have a system." If pressed, Charlie would even give detailed ex-post analysis to support his picks.

Then Charlie lost, and kept losing.

While Charlie claimed expertise and a system, really he just had a run of good luck. If anyone asked Charlie to explain why his real system worked, he couldn't. This is obviously a parable for investing.

Like Charlie's daughter, investors will often try to justify their gut feel decisions with some explanation. Unfortunately, these explanations can be misleading or confusing. You can read Malcolm Gladwell's *Blink* (Little, Brown, 2005) or Jonah Lehrer's *How We Decide* (Houghton Mifflin Harcourt, 2009) to get a full appreciation of our flawed ability to develop explanations that justify our gut feelings. The average investor is bombarded with conflicting and confusing messages on television and in print. Not only can these reinforce the flawed rationalization, but they can be based on flawed attempts at developing an explanation themselves. To make matters worse,

the average investor also runs American business, so this confusion extends to day-to-day decision making, where executives often make decisions to please the market. Whether you are investing as a corporate decision maker, private equity investor, venture capitalist, or individual investor, if you don't understand how the market values businesses, you really don't understand your system. Having a good investment track record does not mean you understand value; it may just mean you are lucky.

Professors Eugene F. Fama and Kenneth French compared risk-adjusted returns of actively managed mutual funds to what would be expected to happen by chance. After running 10,000 simulations, they found that the actual performance distributions were about the same as for the simulations. Not only were the differences in mutual fund performance consistent with what you would expect to find by chance, but when fees were included, actively managed mutual funds *underperformed* the market.¹

Many others have similar findings. A study by Standard & Poor's found that fund managers tend to not outperform consistently:

*Over the five years ending September 2009, only 4.27% large-cap funds, 3.98% mid-cap funds, and 9.13% small-cap funds maintained a top-half ranking over the five consecutive 12-month periods. No large- or mid-cap funds, and only one small-cap fund maintained a top quartile ranking over the same period.*²

While understanding value does not assure success, it improves your odds and is an important component in successful investing. Since investing is about maximizing value, with every decision, you should be asking, "Am I creating value?" The good news is that understanding value and the things that drive value are not complicated. It's about just three things: earnings, interest rates, and long-term growth.

EVOLUTION OF A THEORY

I began formulating my theory in 1998, while I was with Stern Stewart & Co., a management consulting firm in New York. I began questioning the arguments in the financial press that the equity markets were overvalued based on high price-to-earnings (P/E) ratios with no discussion of how interest rates impacted valuation. Through my years of corporate development where I valued numerous acquisitions, and my corporate financial strategy work with Stern Stewart, I knew that the cost of equity was a key driver in valuation where higher cost of equity results in lower valuations.

This book sets a foundation, then walks through the simple process of understanding value. It begins with some theory that led to a discovery. I

will summarize it here. Don't be intimidated if you don't follow it all yet, we will revisit it step by step in the first part of this book.

A risk premium, in general, is the amount of excess return an investor expects for taking on risk, and the equity risk premium is the amount of risk that investors expect above a riskless investment, like Treasury bonds, for investing in the stock market. Many, if not most, theorists assumed the equity risk premium was a constant based on historical premiums above the risk-free rate.

I began hypothesizing that that the equity risk premium is not a static number but a variable that fluctuates in direct proportion to the long-term risk-free rate. The central idea is that the risk premium is fixed as a percentage of the risk-free rate, not a fixed premium. Intuitively, this seems to make sense, but I needed to prove it. Using a constant growth equation, I made some simplifying assumptions and ran the numbers, and it seemed to work.

But if it were so simple, why had no one else thought of it? Admittedly, this question caused me to pause—for more than 10 years. I periodically updated my theory over the next decade and was glad to see it all still worked, and wondered: why don't people know how simple the market really is? I can't answer these two questions, but I do know that misperceptions about the stock market are a serious problem. They cause individuals, companies, and even governments to make bad decisions and bad investments. Perhaps the most significant is the lack of understanding among many corporate executives of how their strategic and tactical decisions translate to valuation.

I finally published my new theory in the *Journal of Applied Corporate Finance* in early 2010.³ This book expands on that article, introduces new concepts and applications, and updates the results of the model through early 2011.

OVERVIEW

Understanding the stock market requires a little math, but nothing more than addition, subtraction, multiplication, and division. This book introduces a simple formula based on readily available data that has explained market cycles for the past 50 years. By understanding how investors value the stock market, executives can apply the same simple concepts to corporate decisions to increase value.

Above all, this book is about dispelling the notions that the stock market is a mysterious arbiter of value, when, in fact, it is easy to understand and almost reptilian in response to readily observable factors. Reptiles respond in very predictable and instinctive ways using their small brains. Surprisingly,

so does the market, and it's all linked to some deep-rooted psychological behavior called *loss aversion* uncovered by Daniel Kahneman and Amos Tversky in the late 1970s (Kahneman won the Nobel Prize). This book exposes the stock market's small brain and introduces a very simple (small-brain) model that shows that the market responds to just three factors: earnings, long-term growth, and interest rates.

If you are not a numbers person, I have some bad news; if you want to understand the stock market, you need to do some math. The good news is that all you really need is addition, subtraction, multiplication, and division. If you can do that, you can understand the stock market because the value of the market can be expressed with a very simple formula. For the numbers people, I will show how the formulas and assumptions are derived along with exploring advanced decision-making applications. Non-numbers people, don't be intimidated. When I present a formula, it will be preceded or followed by a description of the inputs or variables. Read them. They are not complicated.

This book also links stock market value to corporate decision making. While the theoretical linkage has always been there, understanding and belief have largely been absent. By understanding *and believing* basic valuation concepts, decision makers will be in a better decision to make value-creating decisions. If you are already a sophisticated investor or financial analyst, you are undoubtedly very familiar with many of the concepts and arguments discussed in this book. You will be in the best position to appreciate the simplicity with which old and new concepts are combined to produce a new way of understanding value in the market.

Understanding the factors that drive the stock market is more than an academic exercise. With a framework to understanding what drives the overall market, business leaders are positioned to drive value in their own businesses. While driving increases in shareholder value is one of the most important responsibilities of any business leader, many are handicapped by not having a deep understanding of the true drivers of value. Others are handicapped because they simply don't believe that the market actually behaves in a way that is consistent with the theories they have been taught. They are not alone. Even prominent economists claim stock market valuation is not fully understood. In a 1984 speech to the American Finance Association, Lawrence Summers said:

It would surely come as a surprise to a layman to learn that virtually no mainstream research in the field of finance in the past decade has attempted to account for the stock-market boom of the 1960s or the spectacular decline in real stock prices during the mid-1970s.⁴

Some people see the stock market as arbitrary and random in setting values. But despite occasional bouts of extreme volatility (including, of course, the recent crash), most academics (and many practitioners) would likely agree with the proposition that the market does a reasonably good job of incorporating available information in share prices. At the same time, however, certain factors can clearly cause the market to misprice assets. These include problems with liquidity, imperfect information, and unrealistic expectations that can knock valuations out of line for a period of time. But such limitations notwithstanding, over a longer horizon the market appears to be reasonably efficient in correcting these aberrations. The valuation model introduced in this book explains market value and helps identify periods where mispricing may be evident.

This book introduces a model called the Risk Premium Factor (RPF) Valuation Model. The RPF Model explains the stock market and provides a quantitative explanation for the booms, busts, bubbles, multiple expansion, and contractions we have experienced over the past 50 years. The model explains stock prices from 1960 through February 2011, (the time of this writing) including the 2008–2009 “market meltdown.” It does this with a new and original, but surprisingly simple, approach that combines generally accepted approaches to valuation with a new way of estimating the market or equity risk premium (ERP) that produces very good explanations of market P/E ratios and overall market levels. Figures P.1 and P.2 show how the P/E predicted by the model, when applied to S&P operating earnings, explains levels of the S&P 500 since 1986 on a monthly basis over the past 50 years on an annual basis.

My approach to estimating the ERP (discussed in detail later) is the most original part of this overall hypothesis. Many, if not most, theorists assumed the ERP was a constant based on historical premiums above the risk-free rate (generally 10-year or 30-year Treasury yields). If we assume that long-term real interest rates do not fluctuate and real growth can be approximated by real long-term gross domestic product (GDP) growth that is also generally assumed to be stable, the market-wide P/E would always be a constant if the risk premium is also fixed. But, of course, the P/E multiple on the earnings of the S&P 500 is volatile, with year-end values ranging from 7.3 in 1974 to 29.5 in 2001.

A constant risk premium implies that investors are satisfied with a proportionately smaller premium as the risk free rate increases. I suggest that the ERP is not a static number but a variable that fluctuates in direct proportion to the long-term risk-free rate as a fixed percentage, not a fixed premium. In other words, the premium maintains constant relative rather than absolute relationship. With this new insight, the risk premium can be determined by

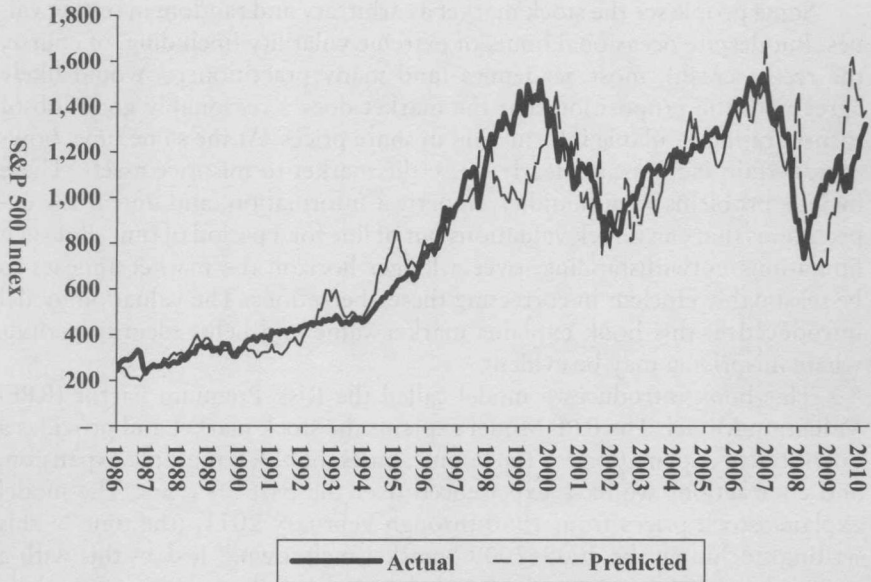


FIGURE P.1 S&P 500 Actual vs. Predicted, 1986–February 2011 (Monthly)
Source: S&P earnings and price from 1988 to Present, from Standard & Poor’s web site (www.standardandpoors.com/indices/sp-500/en/us/?indexId=spusa-500-usduf-p-us-l-); S&P monthly earnings for 1/86–11/88 from “Online Data Robert Shiller” (www.econ.yale.edu/-shiller/data.htm); treasury yields from Federal Reserve, H.15 Selected Interest Rates (www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15). Since earnings are released quarterly, the model was extended to monthly and daily price data by using operating earnings as a constant for each month in the quarter applied for the month preceding quarter end (i.e., December to February = Q1) under the assumption that market expectations would have incorporated earning expectations. Calculations and methodology by the author.

the following formula:

$$\begin{aligned} \text{Equity Risk Premium} &= \text{Risk Free Long-Term Rate} \\ &\quad \times \text{Risk Premium Factor (1.48)} \end{aligned}$$

This also explains why the risk premium varies over time; as interest rates vary, so does the risk premium. This risk premium factor (RPF) seems to hold steady for long periods of time, changing just twice from 1960 to present (February 2011). The RPF was 1.24 from 1960 to 1980, 0.90 from 1981 to June 2002, and 1.48 from July 2002 to the present. As shown in

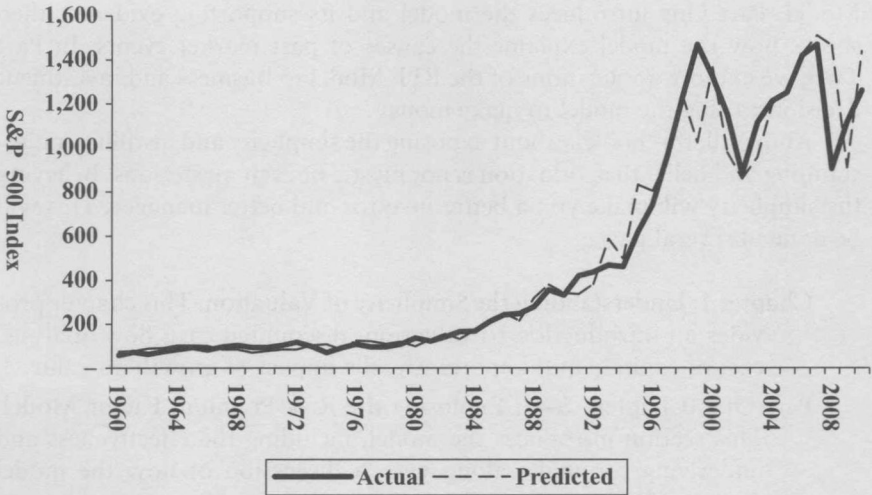


FIGURE P.2 S&P 500 Actual vs. Predicted, 1960–2010

Source: S&P earnings and price from 1988 to present from Standard & Poor's web site (www.standardandpoors.com/indices/sp-500/en/us/?indexId=spusa-500-usduf-p-us-l-); S&P averages 1960 to 1988 from Damodaran Online: Home Page for Answath Damodaran (New York University) (<http://pages.stern.nyu.edu/~adamodar/>); Treasury yields from Federal Reserve, H.15 Selected Interest Rates (www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15). Calculations and methodology by the author.

Figure P.2, the model does a very good job of predicting market levels, even through the present financial crisis.

This result is also consistent with “loss aversion,” the well-documented (by Kahneman and Tversky) willingness of investors to sacrifice significant gains to avoid considerably smaller losses. In one study, they found that the coefficient was 2.25.⁵ This implies that on average, participants would be indifferent to a coin flip to win \$225 or lose \$100. This is the same as choosing between a guaranteed \$100 versus a coin flip for \$325.⁶ The analogous calculation for the RPF model would suggest that if the risk-free rate is 4 percent and the RPF is 1.48, a \$1,000 investment bond would offer a guaranteed \$40, and equities a required return of \$99.

HOW THIS BOOK IS STRUCTURED

All of these concepts will be explored in detail. Chapter 1 reviews the basics of valuation, setting the stage for Part One, the introduction of the RPF

Model. Part One introduces the model and its supporting evidence, then shows how the model explains the causes of past market events. In Part Two, we explore applications of the RPF Model to business and investment decisions, using the model to make money.

Above all, this book is about exposing the simplicity and instilling understanding and belief that valuation is not mystic or even mysterious. Believing the simplicity will make you a better investor and better manager. This will be done in several parts:

Chapter 1: Understanding the Simplicity of Valuation. This chapter provides an introduction to valuation, discounted cash flow analysis, cost of capital, and, importantly, the impact of growth on value.

Part One (Chapters 2–4): Exploring the Risk Premium Factor Model. This section introduces the model, including the effectiveness and underlying rationale, along with a discussion of how the model explains the major financial events of the past 50 years.

Part Two (Chapters 5–11): Applying the Risk Premium Factor Valuation Model. This section reviews a variety of applications of the model, including valuation for mergers and acquisitions, new ventures, stock market, and growth rates implied by stock price.

The companion web site for this book includes data, tools, and links to additional reading and resources.

AS YOU BEGIN

This book dispels the notions that the stock market is a mysterious arbiter of value, when, in fact, it is easy to understand and almost reptilian in response to readily observable factors. It is designed to remove the mystery, to help make you a better investor and better manager.

STEPHEN D. HASSETT

Acknowledgments

I first want to thank my wife, Anne, for her patience and critical eye in helping me develop and especially edit this book. I also want to thank those who provided important feedback as I evolved this work from theory to working paper to article to book.

It starts with Bob Bruner, who is now dean of the Darden Graduate School of Business Administration at the University of Virginia, who was my finance professor. His incredibly engaging case method teaching of finance sparked my initial interest in mergers and acquisitions that eventually led to this book. Back in 2006, he also took the time review my initial few pages of notes, formulas and charts, and encouraged me to pursue my research. Bob referred me to Ken Eades, also at Darden, who was very generous with his time and offered me early encouragement and feedback as I moved my research from notes to working paper to article.

Don Chew, editor of the *Journal of Applied Corporate Finance* (owned by Morgan Stanley and published by Wiley), not only published my article, but provided editing that made my original work so much better. John McCormack, associate editor of the *Journal of Applied Corporate Finance*, provided important critical feedback and suggestions as I developed my JACF article—all of which is now reflected in this book.

Roger Grabowski at Duff & Phelps, and coauthor of *Cost of Capital: Applications and Examples* (Wiley, 2010) took an interest in my work after reading the JACF article and subsequently provided great feedback and new ideas for expanding some of my original applications.

Finally, I would like to thank my agent, Bob Diforio, who took a chance on a first-time author, as well as the team at Wiley who patiently guided me through the publication process while improving the finished product: Debra Englander, Editorial Director, Emilie Herman, Senior Editorial Manager, and Donna Martone, Senior Production Editor.

S. D. H.

About the Author

Stephen D. Hassett is a corporate development executive with Sage North America, a subsidiary of The Sage Group plc, a leading global supplier of business management software and services. He published “The Risk Premium Factor Valuation Model for Calculating the Equity Market Risk Premium and Explaining the Value of the S&P with Two Variables” in the *Journal of Applied Corporate Finance* (Spring 2010) and is a regular contributing author for the Seeking Alpha investment web site.

Hassett was previously Vice President, International and Emerging Businesses (New Ventures), for the Weather Channel Interactive, where he started a successful merger-and-acquisition program. He oversaw new growth opportunities and businesses, including Web and mobile properties in Europe, Asia, Latin America. Prior to joining the Weather Channel, Hassett was with Servidyne, Inc., which acquired iTendant, a SaaS software company where he was CEO and cofounder. Previously, he was with Stern Stewart & Co., a management consulting firm specializing in value-based management, where he was a vice president, advising clients and leading engagements to increase shareholder value through corporate and financial strategy, value-based management, mergers and acquisitions, and the design and implementation of Stern Stewart’s proprietary EVA[®] framework for decision making and incentives in a variety of industries, including media, technology, and manufacturing. Prior to that, Hassett was Vice President, Development of the Architectural Products Group of Oldcastle, Inc., a Global 500 company, where he was responsible for merger-and-acquisitions, strategy, and planning. Earlier in his career, Hassett was a systems consultant with Watson Wyatt, where he designed and programmed PC and mainframe systems.

He holds an MBA from the Darden Graduate School of Business Administration at the University of Virginia and a BS in management systems from Rensselaer Polytechnic Institute.*

*The opinions expressed in this book are mine and do not necessarily reflect those of any past or present employers or clients.

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