Behavioralizing Finance

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Abstract

Finance is in the midst of a paradigm shift, from a neoclassical based framework to a psychologically based framework. Behavioral finance is the application of psychology to financial decision making and financial markets. Behavioralizing finance is the process of replacing neoclassical assumptions with behavioral counterparts. This monograph surveys the literature in behavioral finance, and identifies both its strengths and weaknesses. In doing so, it identifies possible directions for behavioralizing the frameworks used to study beliefs, preferences, portfolio selection, asset pricing, corporate finance, and financial market regulation. The intent is to provide a structured approach to behavioral finance in respect to underlying psychological concepts, formal framework, testable hypotheses, and empirical findings. A key theme of this monograph is that the future of finance will combine realistic assumptions from behavioral finance and rigorous analysis from neoclassical finance.

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1

Introduction

Viewed as a field, behavioral finance is the application of psychology to financial decision making and financial markets. Viewed as a process, behavioral finance is about the transformation of the financial paradigm from a neoclassical based framework to a psychologically based framework. I refer to this process as “behavioralizing finance.”

Neoclassical finance has both strengths and weaknesses. Among its main strengths is its systematic, rigorous framework. Among its main weaknesses is its reliance on the unrealistic assumption that all decision makers are fully rational. Behavioral finance also has both strengths and weaknesses. Among its main strengths is its use of assumptions based on findings from the psychology literature about how people deviate from fully rational behavior. Among its main weaknesses is the reliance by its proponents on an ad hoc collection of models that lack mutual consistency and a unifying structure.

In this monograph I suggest that finance is moving to a new paradigm that will combine structural features from neoclassical finance and realistic assumptions from behavioral finance. To develop this position, I describe the outlines of what such a synthesis entails, and relate it to the issues associated with structure, coherence, and consistency.

The behavioralization of finance involves intellectual shifts by two groups. The first shift features neoclassical economists explicitly incorporating psychological elements into their models. For a sense of neoclassical resistance, see Ross (2005). The second shift features behavioral economists developing a systematic, rigorous framework. For example, most of the current behavioral explanations for the cross-section of returns rely on models that feature a single risky security, rather than the cross-section itself. In addition, one well-known behavioral result might well be incorrect. The behavioral result contends that irrational investors can survive in the long run because they take on more risk than rational investors. However, this contention is at odds with theorems in the general literature about long-run survivability.

Shifts necessary for the behavioralization of finance are underway. Some neoclassical economists have begun to develop behavioral models. Two prominent examples are Jouini and Napp (2006) and Dumas et al. (2009). At the same time, some behavioral economists are beginning to develop models that are as rigorous as their neoclassical counterparts. A good example is Xiong and Yan (2009), whose formal framework shares much in common with Dumas et al. (2009).

These shifts are taking place against a historical backdrop in which financial economists from both camps have displayed some of the same psychological traits that are the focus of behavioral finance. Confirmation bias may well be at the top of the list, the tendency to overweight evidence that confirms one's views relative to evidence that disconfirms those views. My own experience has been that both neoclassical economists and behavioral economists have been resistant to the proposal that each needs to move to a common middle ground where psychological assumptions and rigor come together. Take for example, the behavioral pricing kernel framework, which is an approach I favor. For years, neoclassical economists have tended to claim that the behavioral pricing kernel theorems discussed in Section 5 of this monograph are wrong. However, this situation is changing slowly as some of these theorems have come to be replicated in the work of more traditional economists, such as Jouini and Napp (2006). Likewise, behavioral economists have resisted the unified, systematic approach, arguing that a sentiment-based pricing kernel framework is insufficiently behavioral.

In the past, both neoclassical and behavioral economists have chosen to exclude papers relating to the behavioral pricing kernel at their respective NBER meetings.

I write this survey as some neoclassical economists and behavioral economists have begun the process of moving toward a common middle ground. My approach to this monograph is to describe the highlights of the behavioral finance literature, as expressed through prior surveys, and to identify some of the weaknesses of this literature. These foundations are the subject of Section 2. In the remainder of the monograph, I have two main objectives. My first objective is to discuss works which have emerged since the past surveys appeared, or which those surveys overlooked for one reason or another. My second objective is to present some ideas about trends toward a unifying framework for behavioral finance which captures some of the rigor in neoclassical finance. The contents of these sections represent my thinking about the nature of the common middle ground which brings together the best of neoclassical finance and behavioral finance.

When it comes to asset pricing, the common middle ground involves models that identify how markets aggregate heterogeneous investors' beliefs. In some respects, some of the models employed by neoclassical economists are structurally similar to those employed by behavioral economists. Two neoclassical examples are Detemple and Murthy (1994) and Kurz (1997). A behavioral example is Shefrin and Statman (1994). Notably, the neoclassical assumptions involve rational behavior by all agents. For example, Kurz describes the agents in his framework as holding "rational beliefs." In contrast, the behavioral assumptions specify that the source of the heterogeneity is a series of heuristics that give rise to biased beliefs. The modelig distance between the two approaches is short. However, moving from the neoclassical position to the behavioral position requires a philosophical leap.

1.1 Brief History

Behavioral finance is relatively new as a subject of study. Although the *Journal of Finance* published the first formal paper in behavioral finance in 1972 (see Slovic (1972), financial economists did not begin to apply the concepts pioneered by Slovic and other psychologists working in behavioral decision making until the early 1980s. Even then, it took more than a decade for the behavioral approach to gain traction. The first published work in behavioral finance by economists was Shefrin and Statman (1984). In December 1984, the late Fischer Black, then President-elect of the American Finance Association, invited Meir Statman and me to organize the first behavioral session at the annual meetings. At the session Statman presented our paper on the disposition effect, Shefrin and Statman (1985), and De Bondt presented his work with Richard Thaler on overreaction, DeBondt and Thaler (1985). These two papers set the stage for two main streams in the behavioral finance literature, one pertaining to irrationality in investor behavior and the other to inefficiency in asset pricing.

Subsequently, Thaler organized a behavioral research group, first at the Sloan Foundation, and then later at the Sage Foundation, which ultimately led to the NBER Behavioral Finance program. In addition to De Bondt, Statman, Thaler, and myself, the main participants at the Sloan and Sage Foundation included Daniel Kahneman, Amos Tversky, Paul Andreassen, Robert Shiller, Fischer Black, Richard Roll, David Dreman, Larry Summers, and Andrei Shleifer. Thaler collected many of the papers written by members of this group into an edited collection: see Thaler (1993).

Despite the beginnings of a convergence that I mentioned above, currently there is a wide spectrum of views about behavioral finance. At one extreme you will still find the view expressed by some that behavioral finance is nothing more than a collection of findings about anomalies relative to the efficient market hypothesis. At the other extreme you will find the view that the behavioral approach already constitutes a coherent paradigm, with a systematic approach involving psychological concepts, a formal framework, testable hypotheses, and empirical findings. Between the extremes are views that acknowledge that behavioral finance possesses some structure and can be credited with some successes, but overall still lacks coherence and consistency.

In the last decade several surveys of behavioral finance have been written. Hirshleifer (2008a), Barberis and Thaler (2003), Subrahmanyam (2007), and De Bondt et al. (2008) survey the general area, while Baker et al. (2007b) survey behavioral corporate finance. There is little point in fully replicating what can already be found in those surveys. Instead, my intent in this monograph is to summarize the key features of those surveys, and relate these features to the process of behavioralizing finance.

1.2 Organization of Monograph: Foundations and Trends

I have organized this monograph to highlight both the strengths and weaknesses of the behavioral approach. Its strengths emanate from basing its foundations on a rich literature in psychology. Its weaknesses emanate from an overall approach that has been piecemeal. There is no generally accepted coherent behavioral counterparts to the workhorses of neoclassical finance, mean-variance portfolios, asset pricing theory, and the value maximizing agency theory approach to corporate finance. In contrast, much of the literature in behavioral finance is scattered, ad hoc, unsystematic, and lacking in discipline. In one sense the lack of discipline is a positive, as behavioral finance is new, and it might be a mistake to narrow its range of inquiry too early, thereby stifling major new insights. However, it seems to me that many proponents of behavioral finance have been excessively resistant to rigorous analysis, and the time has come to move in the direction of increased rigor and discipline.

Any discussion of paradigm transformation would be incomplete without addressing how behavioral assumptions will impact the major building blocks lying at the heart of the neoclassical framework. These are: mean-variance portfolios, the efficient market hypothesis, the capital asset pricing model, the Black–Scholes option pricing formula, and the Modigliani–Miller principle. This monograph will describe how the substitution of neoclassical assumptions with behavioral assumptions will impact these building blocks.

Section 2 highlights the foundations of behavioral finance by surveying a sequence of surveys. The remaining five sections focus on trends relating to a more rigorous approach to behavioral finance, or more broadly, the behavioralization of finance.

Chapters 2–8

Section 2 is a survey of recent surveys of behavioral finance. The section summarizes the major contributions to behavioral finance, as seen through the eyes of some of its key contributors. This discussion provides an overview of the field, and sets the stage for identifying both the strengths and weaknesses of the behavioral approach. The remaining sections provide an opportunity to present some thoughts on what a systematic behavioral approach might entail.

Section 3 introduces the key psychological concepts used in behavioral finance. These concepts divide naturally into beliefs and preferences, both of which reflect human psychology. Among the belief-related psychological concepts discussed in the section are unrealistic optimism, overconfidence, and representativeness. Among the preference-related concepts are prospect theory, SP/A theory, regret, and self-control.

Section 4 deals with behavioral portfolio selection. Beliefs pertain to the manner in which investors' judgments about risk and return reflect bias. Behavioral beliefs involve a series of biases such as hot hand fallacy, gambler's fallacy, and home bias. Preferences pertain to the manner in which investors frame and evaluate cash flow representations. Framing effects lead many investors to adopt a piecemeal approach to portfolio selection, in which purchasing decisions are influenced by salience or attention, and realization decisions are influenced by a phenomenon known as "the disposition effect." The disposition effect is the tendency to sell winners too early and ride losers too long in all months of the year except December. Behavioral preferences also explain how investors segment their portfolios into risk layers, and exhibit a taste for positive skewness. The section describes a series of hypotheses about the preference for dividend-paying stocks that stem from the behavioral finance literature, and describes findings from tests of these hypotheses.

Section 5 describes how behavioral portfolio choices impact asset pricing. The literature on behavioral asset pricing theory is eclectic, and features a wide variety of models, centered on the concept of sentiment. Many of the models in the behavioral asset pricing literature were developed to analyze overreaction and underreaction in financial markets. With the intent of describing a less eclectic, more systematic approach to asset pricing, the section focuses on a behavioral SDF-based approach. This approach brings together the powerful asset pricing tools favored by neoclassical asset pricing theorists and the realistic assumptions favored by behavioral asset pricing theorists. The behavioral SDF-based approach offers a unified treatment of behavioral beliefs and behavioral preferences, showing how these features combine to impact the mean-variance frontier, equity prices, the term structure of interest rates, and option prices. In this respect, the discussion in the section emphasizes the latter two applications.

Section 6 discusses behavioral corporate finance. Behavioral corporate finance is concerned with the manner in which behavioral beliefs, behavioral preferences, and inefficient prices impact the corporate financial decisions made by managers. The literature on behavioral corporate finance involves the study of how psychology impacts capital budgeting, capital structure, corporate governance, and mergers and acquisitions. In the section I focus on three themes that strike me as areas providing fertile ground for future work. The three areas are the study of how specific individual traits impact corporate financial decisions, the impact of group composition on collective corporate financial decisions and corporate value, and the manner in which psychological characteristics of entrepreneurs impact the choices they make about risk and return.

Section 7 discusses the role which psychological factors play in the structure of financial market regulation. The section points out the importance of psychological forces in the shaping of the major legislation underlying financial market regulation in the United States. Examples of past regulation are merit regulation ("blue sky laws"), the Securities Act of 1933, the Securities Exchange Act of 1934, Sarbanes–Oxley, and regulations covering the Savings & Loan industry. Issues which are more contemporary involve the regulation of financial derivatives, investment banks, ratings agencies, hedge funds, and the credit card industry. The section describes how capture theory, perceptions of fairness, and shocks to the economic and financial system impact the regulatory system, especially issues pertaining to the global financial crisis that erupted in 2008.

Section 8 contains some concluding remarks which highlight the main points in this monograph.

1.3 Home Bias and Omissions

As I mentioned above, Section 2 provides a survey of recent surveys, beginning with Hirshleifer (2008a) and moving on to Barberis and Thaler (2003), Baker et al. (2007b), and Subrahmanyam (2007). All of these surveys reflect the biases of their authors in terms of perspective and emphasis. Home bias is particularly evident, meaning authors are prone to emphasize their own work. No single survey is comprehensive. For example, none of these surveys discusses the experimental work on asset pricing bubbles, particularly the work of Smith: See his Nobel address, Smith (2003).

In the interest of disclosure about home bias and omissions, I should say at the outset that this survey will follow suit, meaning it will also feature home bias and omissions. Surveys are part review, part synthesis, and part editorial. I hold particular views about the state of behavioral finance, its strengths, its weaknesses, and quo vadis–where it is going? I plan to use this survey as a vehicle to communicate my perspective about the direction in which I would like to see behavioral finance specifically, and finance generally, go.

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