Micro behavioral finance: Challenges and a way forward

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Abstract

Current studies on individual investors’ decision-making often rely on observable socio-demographic variables to proxy for underlying psychological processes that drive investment choices. Doing so clearly ignores the latent heterogeneity amongst investors in terms of their preferences and beliefs that form the underlying drivers of their behavior. To gain a better understanding of the relations among individual investors’ decision-making, the processes leading to these decisions, and investment performance, this paper analyzes how systematic differences in investors’ investment objectives and strategies impact the portfolios they select and the returns they earn. Based on recent findings from behavioral finance the researcher develop hypotheses which are tested using a combination of transaction and survey data involving a large sample of online brokerage clients. In line with the researcher’s expectations, the researcher find that investors driven by objectives related to speculation have higher aspirations and turnover, take more risk, judge themselves to be more advanced, and underperform relative to investors driven by the need to build a financial buffer or save for retirement. To the researcher’s surprise, the finding is that investors who rely on fundamental analysis have higher aspirations and turnover, take more risks, are more overconfident, and outperform investors who rely on technical analysis. The researcher’s findings provide support for the behavioral approach to portfolio theory and shed new light on the traditional approach to portfolio theory.

Keywords: Behavioral Portfolio Theory, Investment Decisions, Investor Performance, Behavioral Finance

1. Introduction and Background

Much of the chaotic behavior seen in financial markets does not make sense conceptually using modern financial theory. A multitude of discrepancies between actual responses in financial markets and those dictated by normative models have been documented. Individuals have been found to violate the axioms of utility theory in the way that they behave, financial markets have often been shown to be inefficient and a range of anomalous phenomena has been recorded. Alternatively, thinking from a more descriptive behavioral viewpoint has grown in recent years to increase understanding of economics and financial market outcomes.

By extension of the same principles to the micro individual level, behavioral finance has also sought to explain why and how people make irrational or illogical decisions when they spend, invest, save, and borrow money (Belsky and Gilovich, 1999; p.2). Financial decision making involves strong emotional processes and hence behavioral economists have used concepts from psychology to better understand the patterns regarding how people behave.

Research has dealt with important issues such as the causes behind why people regularly make flawed decisions with money, and how investors’ actions often conflict with those depicted by the paradigm of rational decision making and traditional portfolio choice theories; the heuristics and biases research program has become particularly important in increasing understanding of individual and market behavior. As a consequence of heuristics/biases, various negative outcomes can result, like the inappropriate and often hazardous purchase of financial products by consumers, ill-advised buying and selling decisions, under saving for retirement, insufficient portfolio diversification and reduced
financial well-being. For example, retail investors in financial markets, who exhibit strong overconfidence bias, i.e. they overrate their own abilities, tend to hold riskier portfolios and over-trade to the detriment of their wealth – this is not the behavior of a utility maximizer (Odean, 1998).

The question posed in this paper is how behavioral finance findings can be actively applied to areas such as in the financial advisor client relationship. Motivation for the paper is grounded in the fact that a gap exists in the literature: behavioral finance has pointed out the weaknesses and failings of traditional rational models without being able to concretely offer a practical alternative which can be used in professional settings. Research has focused on demonstrating in what ways we go wrong rather than detailing how the problems can be avoided or fixed. In actual fact, a popular phrase repeated in many articles relating to biases is often along the lines of “here we have listed some of the most prevalent mental biases and we hope that recognizing these will help you avoid these pitfalls in the future”. In this paper the researcher aim to investigate some of the possible ways in which micro-behavioral finance research can be applied to the real world.

Through the application of psychology and utilizing learning from other behavioral sciences, micro behavioral finance helps to overcome the shortcomings of the traditional finance approach. The plan of the paper is to start with an overview of the various mental errors that provide the basis for much of the behavioral finance literature and second investigates the ways in which behavioral finance concepts can be applied in a practical sense. And last part of the paper examines the link between finance and personality. The paper ends with a discussion and synopsis of the paper’s major arguments.

1.2 Statement of the Problem

In the majority of the financial decisions, such as financial asset trading mentioned in the quote above by Statman (1988), a plethora of behavioral biases which afflict human behavior have been found. The fact that human nature causes investors to fall prey to biases distinguishes them from the rational actors depicted in classical economic theory. Furthermore, empirical research has shown that professional investors as well as private retail investors, are effected by irrational biases in their investment decisions (e.g. Glaser et al. 2005; Haigh and List, 2005; Menkhoff et al. 2006). Thus, a central goal in which behavioral finance strives for involves in analysis at the micro-scale, is to increase our understanding of how individuals make decisions, form expectations, react to risk, how certain groups of financial market participants behave, what kinds of portfolios they choose to hold and how they should trade over time (Olsen, 2008). To achieve this, some of the restrictive assumptions of traditional economics are loosened to take into account how real heterogenic economic agents make decisions, and how they evaluate the desirability of alternative choices and then select a particular option.

Behavioral finance research from the likes of Richard Thaler, Robert Shiller, and Daniel Kahneman amongst others has shown over the last three decades that economic agents and financial markets are not rational. In light of these findings, much value can be obtained from investigating whether incorporating behavioral based preference patterns has substantial influence on investor's optimal behavior. Additionally, and more damning of the rationality view of economic agents, is that people seldom adhere to the logical models of choice, which suggests that variations in human behavior might not find any theoretical basis in normative models (Hoch et al., 2001) a gap that this study intend to fill.

1.3 Objectives of the study
The general objective of this paper is how behavioral finance findings can be actively applied to areas such as in the financial advisor client relationship. The specific objectives are:

a. To investigate possible ways in which micro-behavioral finance research can be applied to the real world.

b. Establish ways in which behavioral finance concepts can be applied in a practical sense.

c. Examines the link between finance and personality.

2. Literature Review

Theoretical Review of Behavioral Finance

A quote from the seminal work of J.M Keynes, draw attention to a main element of the behavioral finance doctrine that ‘animal spirits’, instinct and feeling, are often the most important drivers in the financial decision making process, financial markets and the economy as a whole. Humans are emotional creatures and they are cognitively susceptible to a wide range of factors. When a deliberate action is made (whether it be in stock trading, buying or selling, deciding to spend/save/borrow, the asset allocation process, real estate market transactions, or futures trading etc.) an internal decision process must be employed. Additionally it is inherently true that these decision processes cannot be reduced to a series of mathematical equations: the human condition is much more complex and sporadic in nature.

At the same time, memory and learnt experience may not be fully exploited either. This along with frequent irrational behavior, and the existence of systemic errors in judgment and problems in the way all humans try to recall information, when aggregated across investor groups and world markets, can lead to a range of inefficient outcomes and systemic mispricing in financial markets. These occurrences are unexplainable utilizing thinking from the ‘modern’ financial economics paradigm. Some argue that the origins of behavioral finance can be traced back to the Friedman and Savage (1948) paper which discussed why someone might purchase insurance and a lottery ticket concurrently. Some one could be risk-loving and risk-averse at the same time although most agree that the foundations of behavioral finance could be followed back to the concept of bounded rationality which (Jones 1955 )asserts that: decision makers and their politics are rational.

In other words, this basically means that people attempt to act rationally but they have limitations in terms of the information they possess (partial expectations and incomplete knowledge of possible outcomes), the cognitive limitations of their minds, and the finite amount of time they have to make decisions. Herbert Simon in 1955 contended that economic agents, as opposed to always being optimizers on the other hand often seek to satisfy: survival is seen as the key driver of behavior. Simon rejected the concept of full rationality; he stated that individuals reason and choose rationally, but that this is done under the constraints imposed by their own limited search and mental computation abilities.

Decision-makers do not possess the resources or aptitude to reach optimal solutions; instead they only employ their rationality after having substantially simplified the available choices. This is in contrast to the mainstream economics assumption of maximization, which as Simon thought, can lead to behavior which is overly risk taking in nature and can lead to a failure to survive.

More recently however, the field of behavioral economics/finance first started in a more formal way around the mid-1980s by way of the Russell Sage Foundation which acted as a sponsor for research (Sent, 2004). Later the field began to formulate in a more recognized way in the 1990s with the formation of the Behavioral Economics Roundtable which was made up of the most prominent
Behavioral Finance contrasts to traditional finance at a fundamental in that it departs from the REE approach by relaxing the postulation of individual rationality (EU may be a good approximation to how people valuate a risky gamble, such as stock market investing, but it doesn’t explain attitudes to the kinds of gambles studied in experimental settings). After all as Park and Zak contend, “Underneath its mathematical sophistication, economics is fundamentally the study of human behavior” (2007; p.47).

Traditionally speaking in economics, understanding this behavior begins from the basic assumption that agents have objectives and always chooses the most optimal or correct way to accomplish them (this is more or less what economists mean they use the term ‘rationality’). However, empirical observations have demonstrated that the rational choice theory of conceptualizing human actions often does a poor job of depicting actual behavior and it has been shown that people in the real world violate one or more of the Von Neumann/Morgenstern assumptions (Glîmcher, 2003) which are so core to modern economic thinking. As Stanovich and West (2000; p.645) have stated: “human responses deviate from the performance deemed normative according to various models of decision making and rational judgment (e.g. the basic axioms of utility theory).”

This is partly due to the fact that many important aspects of 12 Meir Statman, a leading finance academic contends (1999; p.20): “In standard finance people are modelled as human nature are overlooked.13 Research has shown (see for example Larrick, 2004) that descriptive behavior of economic agents falls systematically short of the normative ideals: essentially, a gap between the normative predictions and the descriptive exists. Given that the models using expected utility as a foundational base may not be entirely explanatory of real world financial market outcomes a number of contrasting non-EU theories have been developed: Weighted utility Theory (Chew and MacCrimmon, 1979), Implicit EU (Chew and Epstein, 1989; Dekel, 1986), Disappointment Aversion (Gul, 1991), Regret Theory (Bell, 1982), Rank Dependant Utility Theories (Quiggan, 1982; Seagal, 1987) Hyperbolic Discounting15 (Ainslie, 1992; Loewenstein and Prelec, 1992) and Prospect Theory (Kahneman and Tversky, 1979). Most of these models recognise, and are critical of the fact, that traditional economics upholds a mechanistic concept of human actions and reasoning which is too unrealistic and not empirically sustainable. Unquestionably the most influential and widely acknowledged model in behavioural finance is Prospect Theory.

2.1. Empirical Review

2.2. The Behavioral Biases which affect Financial Decisions

According to (Oslen 2008) Decisions about money and finance are made by various actors in the financial sector from individual retail investors, families, corporate managers, businesses of all sizes, governments, institutional investors, professional investors, financial advisors, traders, brokers, dealers, and fund managers. For instance, throughout their lives individual retail investors will make a wide range of different decisions (saving, investing, buying, selling and holding) with regard to their own personal finances: where to deposit savings, how much and when money will be needed to cover current/future consumption needs, which banking institution to use for day to day transactions, how to pay for their children’s education, how to arrange home equity loans, whether or not to use credit
borrowing for items such as car purchases and which investments will cater for the highest standard of living for the retirement years.

On the other hand, financial advisors and asset/fund managers act as agents as they are responsible for making important decisions about other people’s money (e.g. pension funds) on a frequent basis; they must decide which assets to buy (selection), how much of the portfolio to allocate (weighting) and when to sell or unwind certain positions. Decision making is a complex and cross disciplinary area that is particularly germane to finance. The behavioral view and classical view of financial decision making differ in several key ways First of all from the classical perspective, decision making theory is based upon expected utility and is concerned with goal-directed behavior in the presence of options (Hansson, 1994). It is used to find optimal solutions in circumstances where a decision maker has to analyze several alternatives with risk probabilities attached to each before selecting a choice. There are four fundamental elements: acts, events, outcomes and payoffs. Acts are the alternative actions (options) available for consideration to the decision maker. Events are occurrences which take place outside the control of the agent. Outcomes are the product of the occurrence of acts and events. Payoffs are the values the decision maker is placing on the occurrences payoffs may be positive or negative (Lapin and Whisler, 2001).

When confronted with the alternative acts, economic agents in the classical model are thought to decide which is best by applying concepts from the work of Von Neumann and Morgenstern (1944) on utility. Their model outlines that when a rational decision making procedure is employed, numbers representing personal values for the alternative outcomes can be derived. When probabilities of the events are not known, several approaches are available for an agent to use in developing a criterion to base the choice on. The maximax approach is optimistic and stipulates that the act with the largest possible outcome is chosen. The conservative maximin approach chooses the act with the largest minimum payoff: this means that the decision maker is guaranteed to do no worse than the best of the poorest outcomes. The minimax regret approach involves taking the maximum payoffs of each event and subtracting the outcome from each event from this maximum payoff.

The act with the smallest maximum regret is then chosen. Decision approaches are different for situations where probabilities are known and the probabilities of each event vary (i.e. there is risk of both a positive or negative outcome involved). Under Maximum Likelihood Decision Making the choice criterion is that the alternative association with the most likely event is optimal – the other events and outcomes are excluded and ignored. Using Bayes’ Decision Rule, the act (the choice or bet made) which maximizes the expected payoff (EMP) is the optimum choice, as it has the highest probability-weighted payoff associated with it. Selection amongst alternatives with probability and risks attached to them is based upon the size of their expected utility values (Oliveira, 2007).

Contrastingly, a behavioral finance view of the financial decision-making process (Redhead, 2008) differs from the classical view in several key aspects. Firstly, decision making from the behavioral perspective relaxes some of key assumptions of the classical model. The Bayes Decision rule that is so central to traditional finance theory, does have the advantage in that it makes the greatest use of all available information. If alternative ‘X’ has a higher expected utility than that of ‘Y’ then it should always be selected. However, it is assumed that the agent is indifferent to risk, and problems may arise when the alternatives involve different magnitudes of risk – if option ‘X’ has a higher utility due to high risk but high possible payoff also, taking that high risk gamble may not be the best choice available ated in reality due to other considerations. Studies in finance deal with decision making under risk often on the basis of stochastic financial data such as asset price returns (Wu et al., 2005).
In behavioral finance a main assumption is that choice may not be the outcome of a utility maximization process; this directly contrasts with traditional finance. Relating to money specifically, sound financial decision-making is based upon performing a logical cost benefit analysis and a crucial element of such a cost benefit analysis is determining the value of money over time. However, about issues such as pension structure saving and for retirement for instance, it has been found that individuals make flawed decisions consistently due to a lack of self-control, limited information, time, and cognitive ability (Mitchell and Utkus, 2003). People are often not able to make decisions which are in their own long term financial interest. One example which highlights this problem well comes from Elan and Goodrich (2010) who examine an individual’s propensity to choose whether to save or not; in other words deferring consumption.

2.3. Decision Heuristics and Cognitive Biases

In the majority of the financial decisions, such as financial asset trading mentioned in the quote above by Statman (1988), a plethora of behavioral biases which afflict human behavior have been found. The fact that human nature causes investors to fall prey to biases distinguishes them from the rational actors depicted in classical economic theory. Furthermore, empirical research has shown that professional investors as well as private retail investors, are effected by irrational biases in their investment decisions (e.g. Glaser et al. 2005; Haigh and List, 2005; Menkhoff et al. 2006).

Thus, a central goal in which behavioral finance strives for involves in analysis at the micro-scale, is to increase our understanding of how individuals make decisions, form expectations, react to risk, how certain groups of financial market participants behave, what kinds of portfolios they choose to hold and how they should trade over time (Olsen, 2008). To achieve this, some of the restrictive assumptions of traditional economics are loosened to take into account how real heterogenic economic agents make decisions, and how they evaluate the desirability of alternative choices and then select a particular option.

Behavioral finance research from the likes of Richard Thaler, Robert Shiller, and Daniel Kahneman amongst others has shown over the last three decades that economic agents and financial markets are not rational. Humans are not as smart as standard economic theory would have us believe and as Kahneman summarized in his Nobel Prize Lecture (2002)

In light of these findings, much value can be obtained from investigating whether incorporating behavioral based preference patterns has substantial influence on investor's optimal behavior. Additionally, and more damning of the rationality view of economic agents, is that people seldom adhere to the logical models of choice, which suggests that variations in human behaviour might not find any theoretical basis in normative models (Hoch et al., 2001). Humans don’t always behave according to the assumptions of utility theory in that they do not search to identify all possible outcomes, they are not always able to assign accurate probabilities to these outcomes, and they are not able to unfailingly pick the best payoff from the options considered (Isenberg, 1989).

According to normative decision theory, such as Savage’s (1954) subjective expected utility (SEU), when decision makers rank one alternative above another they would tend to rank them identically in other occasions in which these possible choices would be available. However, agents often change preferences in front of different framing of the same information (Tversky and Kahneman, 1981).

2.4. Investment Heuristics and Biases

What heuristic ‘shortcuts’ and biases do investors use in making decisions with money? Decision biases influence the way in which decision makers obtain, process, and assess information on which they construct their choices (Hogarth, 1987). They will undoubtedly play a large role in financial
decisions. The empirical work in this area has been conducted in a wide range of contexts, from trading floors to laboratory settings. Although, as the same mental processes are employed there is no reason to think that biases would be domain specific (DeMeza, Irlenbusch, and Reyniers, 2008).

Evidence has been presented which shows that consumers (Payne, 1976), but also investors of all kinds (DeBondt, 1998) are prone to biased decision making and heuristic cognitive processes. For example, choosing to invest at the wrong time is a regular occurrence for individual participants in financial markets (especially the equity market) – many investors follow the herd by buying at the peak and then proceed to panic sell at the market bottom. Recent examples include the internet bubble in 1999, the bursting of the USA housing bubble which occurred in 2007, and the flight of capital from equity markets in Europe throughout 2012.

The main investor heuristics biases and psychological traps documented in the behavioral finance literature are listed below (collated from Staw, 1976 and 1981; Samuelson and Zeckhauser, 1988; Hammond, Keeney and Raiffa, 1998; Pompian and Longo, 2005; Ware, 2008). To organize the many biases which have been registered, academics have used different categorization methods. A key distinction, which is echoed throughout the behavioral finance literature, lies between the two major bias archetypes: emotional and cognitive.

3. Research Methodology

This study was a library survey, intended to analyze the available literature on how behavioral finance findings can be actively applied to areas such as in the financial advisor client relationship. The appropriateness of this method to the study was the ability to review a wide variety of secondary literature that is relevant to the research area. Population of the study comprised of three empirical cases: To investigate possible ways in which micro-behavioral finance research can be applied to the real world, establish ways in which behavioral finance concepts can be applied in a practical sense and finally examines the link between finance and personality.

Purposive sampling technique was used. This method enabled the researchers to select cases that had the desired information or the required characteristics that were useful in achieving the objective of the study.

All these cases were drawn from different sectors in accordance with the research topic. The study made use of only secondary data which was extracted from various published sources as well as the internet. These included books, journals or periodicals among others. Content analysis method was used in view of the qualitative nature of much of the data collected. The method was quite appropriate in the analysis of the contents of documentary materials such as books, journals and internet resources.

4. Discussions and Analysis

The aim of this work is to investigate micro-behavioral finance issues in particular reference to how the main concepts can be applied in a practical professional sense. Over the last few decades, many fruitful strides have been taken and the alternative behavioral viewpoint in finance academia has become more widely accepted.

The supposed rational decision making process has been found to fall prey to our preconceived beliefs, attitudes and assumptions, but it is influenced greatly by our unconscious emotions and behavioral patterns. Consequently, cognitive reasoning is negatively impacted upon which results in sub-optimal decision-making, and asset prices that deviate from fundamental values for sustained periods. Furthermore, these biases/errors in decision making are costly.
Knowledge with regard to how we make these mistakes and the ways in which we can improve, has benefits for all direct or indirect financial market participants. The incorporation of psychology with finance is still in its infancy but it has already born much fruit. Indeed in recent years, financial theory has been enhanced greatly by the study of investor psychology and behavior, with many academics advocating that the importance of the relationship between psychological processes, how investors buy/sell, and price movements in financial markets. Having said that, the controversy about market rationality may not be resolved anytime soon this is according to (Stracca, 2004; p.398).

The ideas in this paper also have implications for financial economics, which has long struggled to explain why investors make systematic errors about financial decisions. Moreover, the paper poses questions with regard to the adequacy of investor profiling in a professional sense. The human decision making mechanism involves non-rational thought processes based on combinations of emotion, mental shortcuts, perception, intuition, and judgment. We use these to better understand the world, but when quick rules of thumb are employed an optimal decision outcome is not guaranteed.

Applying psychology to portfolio management in particular has many benefits for both the advisor and client. Emotions obviously influence our decisions, although since it is not easy to quantify emotions, traditional economic research has usually ignored such influences. As the findings regarding personality touched upon previously show, a strong correlation between personality and biases is more than just plausible and may actually be quite robust. The connection between personality and a person’s vulnerability to behavioral biases, risk attitude, and time preference, is relevant for the practical development of investment strategies.

5. Conclusion

Recent work (Barber et al., 2009) shows individual investors’ tendency to underperform relative to the market. To date, variables which are relatively easy-to-observe such as age, gender, and transaction channel have been used to explain this underperformance and are used as proxies for typically unobservable psychological biases such as overconfidence, loss aversion, and familiarity.

To the best of researcher’s knowledge, the existing literature has not directly measured these biases using consumer behavior methods such as investor surveys (Graham et al., 2009). Neither has the existing literature positioned its findings of underperformance in a behavioral portfolio framework by employing underlying variables which are less easy-to-observe such as investment objective and strategy. The researcher’s results might be useful for policy makers, as they show that “the usual suspects” of individuals who trade excessively might differ from the actual culprits. The findings are that investors using fundamental analysis actually trade more than investors relying on technical analysis, which contrasts with the common belief but fits a behavioral portfolio framework.

To the extent that fundamental investors “think” they know the underlying fundamentals that drive stock prices but actually do not, there is a clear target group for educational incentives that has not received the attention it deserves until now. These investors may be provided with questionnaires and self-administered investment quizzes to evaluate their true knowledge about market fundamentals and tailor-made education offered by government agencies or financial authorities.

6. Suggestion for Further Studies
Based on these findings mostly from developed countries, the researcher recommended a further study on how behavioral finance can be applied in practical sense especially most developing countries.

References


