

Conventional Irrationality

By

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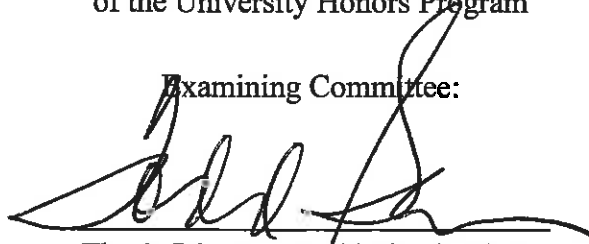
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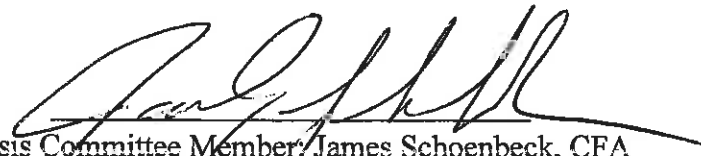
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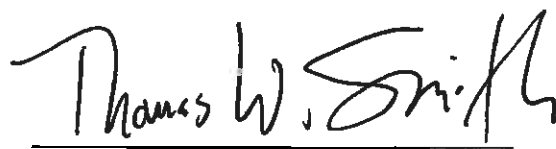
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Abstract

Behavioral finance is relatively new subject matter tying in the fundamental relationship between the mind and financial decision-making. Basic psychological theories and biases will be introduced in the research proposal and will be connected to its impact on financial decisions. This new topic has grown over the years because it has proven to have many direct practicalities in how people behave in making financial decisions. Based on behavioral and cognitive psychological theories, how people think impacts the traditional academic disciplines of economics and finance. This hot topic is continually expanding and developing as a field of practice and delves into why people make irrational financial decisions. The underlying concern is whether or not this topic is credible and actually has a significant influence on financial professionals and everyday investors. From historical examples to peculiar similarities finance and psychology share with one another, behavioral finance may very well continue to grow and be the next big subject of discussion in financial decision-making.

The mind is a powerful tool that influences all of our decisions. These decisions can range from deciding whether or not to participate in community activities, to accepting or declining a job offer, from choosing to spend a Saturday night reading or going out to a sports game, to deciding in attending an in-state college or an out-of-state one. Most everyone is aware of the significant impact making a decision can be. Decisions are prevalent in our lives, which is why bringing more attention to understanding psychological influences in financial-decision making is just as important. Whether one is a financial professional or an everyday investor, behavioral finance has an impact on a person's ability to make a rational financial decision.

CONVENTIONAL IRRATIONALITY

CHAPTER ONE: INTRODUCTION TO BEHAVIORAL FINANCE

Behavioral finance is the study of how psychological biases and theories affect the behavior of financial-decision makers. This is a relatively new subject introduced in the 1970s (Reilly & Brown, 2012). Daniel Kahneman and Amos Tversky, two well-reputed psychologists, are known as being part of the first group of pioneers to explore this topic in depth and emphasize its significance in the academic field, and ultimately, in the professional world (Sewell, 2010). The relevance of behavioral finance is not only in the financial economic topics that prevail in academics, such as the efficiency of markets, but also in the lives of professional investors. Moreover, the influences from behavioral finance bleed into decisions everyday investors make; the subject has incredible practicality to people's everyday decisions. However, behavioral finance's significance in the fields of finance and economics is not emphasized enough. Only when academics and investors alike accept and understand this subject and its need to be fully utilized in the process of financial analysis will the importance of behavioral finance be truly realized.

The technical skills to make financial decisions are absolutely important, but the implications behavioral finance has to the personal and professional world are equally important. Academic scholars have recognized the importance of this subject, but investors have not implemented processes to incorporate behavioral finance in their investment analysis. Without the qualitative variables behavioral finance considers, the analysis professional investors use will continue to remain incomplete as financial professionals who remain psychologically composed can avoid being predictably irrational (Reilly & Brown, 2012). An article for The Research Foundation of CFA (Chartered Financial Analyst) Institute Literature Review stated the

revolutionizing impact behavioral finance has had on the way investments are made could not be denied (Byrne & Brooks, 2008).

There are a multitude of psychological theories and biases that influence investors, but three in particular will be explained in-depth as their relevance demonstrates how behavioral finance impacts financial decisions-making. In the third chapter, a brief summary and recommendation will be given for investors to consider when making future financial decisions. Behavioral finance began to emerge as a serious topic of discussion in the late 1970s (Peng, 2016), with academics such as Daniel Kahneman, leading the way. With decades of research having been conducted (Kahneman, 2011), behavioral finance has only become more of a pressing matter for professional investors to consider in their investment analysis. This would mean both the technical-quantitative factors and the psychological-qualitative factors need to be integrated together in the financial decision-making process.

Two Systems and the Three Pillars of Behavioral Finance

The two systems of the brain describe the fundamental mechanisms for how the human brain works. To understand how psychology impacts financial decisions, psychology needs to be understood first. There are two kinds of thinking: thinking intuitively and automatically, and thinking rationally in a reflective manner. The two systems explain why we act or respond in different ways. As can be understood in the context of the title, the automatic and intuitive system is based on quick thinking and feels instinctive. This system does not involve what we would typically call thinking and can be exemplified in everyday activities (Thaler & Sunstein, Nudge, 2009). The automatic system is associated with a reaction, such as getting anxious right before an important test, or giving a look of confusion when a person does not understand a concept.

The system that is rational and reflective is deliberate and self-conscious. An example would be if someone was asked a math question, such as 44 times 7, or when a prospective student is thinking of which university or college to attend. The two systems are used simultaneously for different activities and are like a seesaw balancing the way we think. In most cases, one system is used more than the other. For instance, with professional athletes, playing in the field means adapting and having quick reactions, which means the way of thinking they use falls under the automatic system (Thaler & Sunstein, Nudge, 2009).

Arnold Wood, who contributed his research on behalf of the CFA Institute, described behavioral finance by metaphorically comparing it to a river with three tributaries: psychology, social psychology, and neurofinance. Psychology focuses on individual behavior, which leads to several heuristics. Social psychology studies how we behave when decisions are made in the presence of others; this area explains how the strong implications of social influences, such as peer pressure, play a role in our ability to make rational decisions. Lastly, neurofinance studies the complexities of the brain and how it functions (Reilly & Brown, 2012). Later in the third chapter, a brief explanation of neuroinvesting will be introduced as one of the possible solutions to irrational financial decision-making.

Fundamental Psychological Theories

As stated, behavioral finance incorporates how our emotions affect our financial decision-making, which is why fear and exuberance are challenges investors must recognize and conquer. In the 2008 financial crisis, fear caused people to be excessively risk-averse when buying or selling assets. This popular cognitive error is known as *Extrapolation* (Smith, 2013), which is when investors become biased over vivid returns instead of recent returns; vivid returns being returns investors remember distinctly. When investors experienced a negative impact from

the 2008 financial crisis, fear set in and prevented them from taking reasonable risks in the future. *Exuberance*, on the other hand, is like self-indulgence; during the dot-com bubble of the late 1990s investors devoted a significant amount of their portfolios to high-growth, dot-com stocks (Smith, 2013).

This subject has grown and evolved over the years, but there are still fundamental concepts that remain unchanged and are rooted in psychological theory's connection with how people make financial decisions. Charlie Munger is a well-respected businessman who, at 91 years of age, still holds the role as Vice Chairman of Berkshire Hathaway, a conglomerate that is controlled by Warren Buffett. Munger has done interviews specifically on psychology and its impact on people's decision-making, listing out several fallacies that are unknowingly used in common practice; having a general awareness of what some of these tendencies are will help professional and everyday investors make rational financial decisions (Munger, 1995).

There are over twenty-five tendencies Munger covered, but particularly interesting were the *curiosity tendency* and the *excessive self-regard tendency*. The names in themselves were amusing enough. The curious are the innovators and pioneers in their respective field. Though I would have liked more elaboration on this tendency, it struck close to me as the curious mind is a healthy mind. Munger stated that curiosity helps investors reduce or stray from negative outcomes that may arise from other psychological tendencies. It acts as a safety net for the shortcomings of the other tendencies (Munger, 1995). In chapter three, *mental plasticity* emphasizes how an open and flexible mind benefits financial decision makers.

The excessive self-regard tendency was intriguing because it explains the inner-workings of being in the "in-group". Munger explained a man's excess of self-regard would make him prefer to be with people like himself, and that includes investors. This section particularly caught

my attention because it explained a few concepts that branched out from this tendency, such as the *endowment effect* (over-appraisal of one's possessions) and the *Tolstoy effect* (giving an excuse for poor performance instead of addressing it). It was also interesting because I was able to personally relate to this tendency; in the past, I had looked for people who supported my decisions or agreed with my perspectives. It was easier to associate myself with people who agreed with me and who would make the same decisions. However, knowing that it only resulted in being narrow-minded, I recognized it prevented me from being flexible and open to other people's opinions and ideas.

Again, Munger emphasized psychology's impact on finance was an important factor in financial decisions. It was an all-encompassing approach in how it affects every part of our lives when he explained all of these tendencies. It was informative and relatable to any person; Munger explained why it is beneficial to be aware of these tendencies in the real world; to have good conduct and wisdom to avoid the extreme outcomes. Munger summarizes the tendencies by stating, "...cognition is ordinarily situation-dependent so that different situations often cause different conclusions..." This is emphasized by all of these psychological tendencies (Munger, 1995).

Munger did state a realistic perspective on raising awareness to these psychological tendencies. He said, "...the tendencies can't be simply washed out automatically, and shouldn't be." However, having a full understanding of the thought processes that goes into making a decision can help instill wisdom and appropriate conduct, therefore facilitating the prevention of making mistakes (1995).

Another common emotion that can have a strong influence on financial decisions is *stress*. It was discovered after research done on two groups of students, one in a tense situation

and the other in a non-tense situation, that the stressed-out students were the ones likelier to take more risk when faced with the possibility of loss and more likely to be conservative between large and small gains. This can be reflected in the stock market plunges that occur by concluding “When anxiety is high, losses are large and our reflexive brains are in fifth gear.”

Stock market wisdom says that money needed for future intended use within five years should not be in stocks. As a result, when stock prices fall, investors should not panic because they are getting the same shares that may have been bought yesterday for a lower price today.

The last common example is *regret aversion*. It is costly conventional wisdom for test takers; the idea that when an answer is made, they should not change a doubted answer because the original answer was their first instinct. However, a study at the University of Illinois found that changing an answer was typically the smart move. The reason why students do not want to change answers is because they have more pain switching to an answer that may be wrong than answering incorrectly with an answer originally selected. This is counterfactual thinking, which is more memorable to people than a change to a successful answer (Belsky & Gilovich, 2009).

Behavioral Finance’s Effects on the Assessment of Risk and Return

When it comes to our own personal investments, investors tend to disregard evaluating the whole sample when judging the likelihood of strong returns. For instance, active mutual funds are proven to trail index funds (Smith, 2013), but many investors’ focus only on money managers who beat the averages and nothing else. However, mutual funds advertise their high-performing funds, not their underperforming ones. When investors only draw their attention to the high-return funds, their views shift into believing they will likely be winners themselves (Smith, 2013). It is important for investors not to feel overwhelmed with the choices available and “overtrade” in the market (Steverman, 2014). Overtrading is when there is an inverse relationship between trading volume and the investment returns, which means when trading

more causes returns to decline, overtrading is occurring. Over-sized transactions may be the most difficult concept to explain through traditional finance. However the qualitative complexities associated with overtrading may be explained by behavioral finance (Zhang, Wang, Wang, & Liu, 2014).

The highly-debated efficient market hypothesis states it is impossible to best the market because existing share prices reflect all relevant information. Whether or not one believes this hypothesis, behavioral finance can arguably help investors outperform an inefficient market. Rick Ferri (2011), contributor to the *Forbes magazine*, stated, "It was believed that behavioral pricing mistakes could be capitalized" (para. 4). Behavioral finance has the possibility to take advantage of market mispricing if markets are inefficient. Several studies have focused on behavioral funds, and though their performance had shown to produce around the same return compared to actively managed strategies, they are tantamount to value investing (Ferri, 2011).

CHAPTER TWO: THREE THEORIES/BIASES OF BEHAVIORAL FINANCE

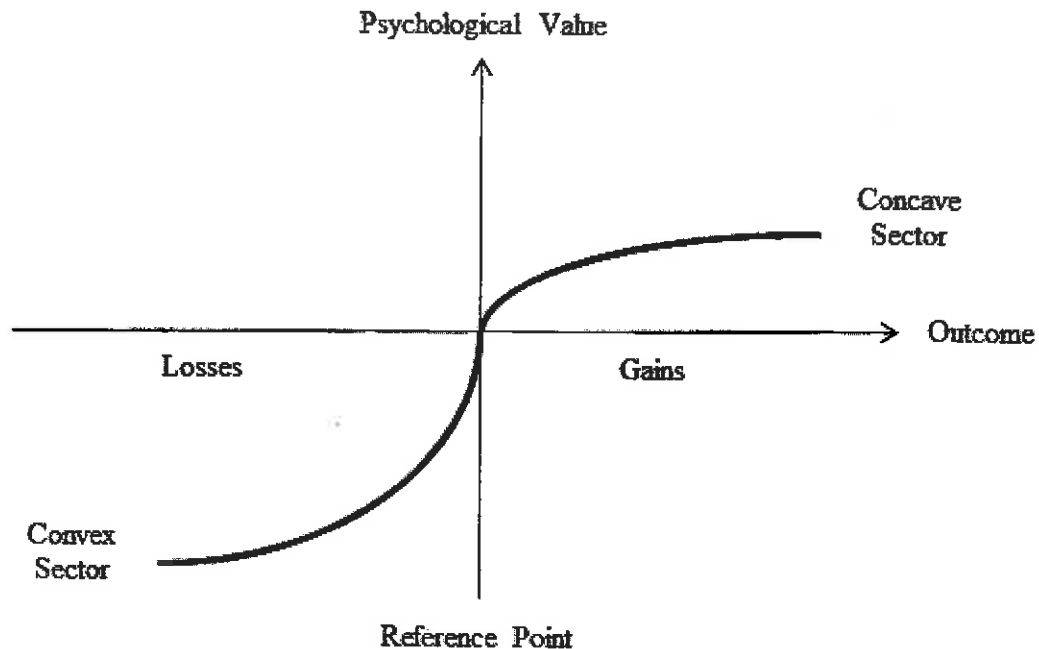
Prospect Theory

This psychological theory explains how investors, whether they are in a professional or personal investment setting, assign value to gains and losses as opposed to final assets. Daniel Kahneman and Amos Tversky developed this theory when they observed how people underweight outcomes that were only probable relative to outcomes that have absolute certainty. Value thereby, replaces probabilities with decision weights. The word prospect comes from the *mixed* options life challenges us with; the gamble of choosing to go for an opportunity to gain or risking some level of loss. Hence the possibilities of these mixed *prospects* are what this theory is based on. The Prospect Theory was created as an extended discussion from other well-known biases (Sewell, 2010).

I chose the Prospect Theory because it is one of the fundamental theories in behavioral finance developed by the pioneers in the field. I also selected this theory because of its personal relevance; when I was a child, I used to play a card game where we betted quarters and dimes. When I won games and collected money, that gain felt fairly good. However when I lost games and gave money away, it had a significant negative impact. Even now, when I receive my check from my employer, the increase in money is nowhere near as mentally impactful as the loss of money when I make a large payment for major expenses such as for rent or emergencies.

The Prospect Theory had three biases that served as building blocks. The first is *loss aversion*. Simply stated, loss aversion is when gains and losses are directly compared to one another, losses have a much more powerful impact than gains. This bias is applicable to more than just financial decisions and actually originates from basic human instincts of evolution. When threats are treated more urgently than opportunities, organisms have a more likely chance to survive. Loss averse means a possibility of gaining \$200 would not be as significant to an investor as the fear of *losing* \$150, hence loss aversion (Kahneman, 2011).

The Prospect Theory is also based on *risk aversion* and *risk seeking* biases. Risk aversion means people usually prefer a result that has absolute certainty versus a “favorable gamble” that would have equal or a slightly higher level of expected value. Risk seeking is the exact opposite of risk aversion; there are situations in which investors would prefer to take a gamble, specifically in minimizing losses. For example, investors had the option of choosing between two unfavorable outcomes in that they either were going to lose \$500 for sure or have a 90% chance in losing \$650. Investors would typically choose the second option as they would have some chance of not losing money, even though their choice had a higher expected loss (Kahneman, 2011).



With Prospect Theory, a reference point is made and the value function is then defined on deviations from that reference point; gains would typically be concave and losses would be convex (Sewell, 2010). An example of a reference point would be the purchase price of a stock, and the actual gains and losses, such as plus or minus fifty dollars, would be along the x-axis (Byrne & Brooks, 2008). With Prospect Theory, the psychological benefit of winning and psychological cost of losing money is the main factor to be considered when making a financial decision with risk (Kahneman, 2011). The x-axis represents the actual gain, such as a dollar amount, while the y-axis represents the perceived gain or loss to the investor. The y-axis is subjective in value as each investor perceives their gains or losses with a different weight. Negative y-axis values can be attributed to the amount of pain having losses mean for the investor while positive y-axis values can be attributed to the amount of joy having gains mean for the investor (Sewell, 2010).

The graph of the line can be explained through the biases stated before. Risk aversion explains the typical concave pattern for gains and risk seeking describes the common convexity

of losses. The general steeper decline of the line when having losses is due to loss aversion (Sewell, 2010).

This theory also describes risk attitudes by creating a fourfold pattern, emphasizing the biases stated before. Investors would typically have risk aversion when gains are of moderate to high probability or losses of low probability, while investors would be risk seeking when there are gains of low probability or losses of moderate to high probability (Sewell, 2010).

When investors go through multiple events of gain and loss, each event is valued separately, and then combined to result in a cumulative feeling. Simply calculating the net effect of the gains and losses to evaluate if an investment is desirable is not enough; if there are two options that yielded the same amount of money in the end, investors should be wary of their own cognitive biases that are associated with the Prospect Theory in the events of gaining and losing money (Smith, 2013).

As briefly mentioned in chapter one, the endowment effect describes the value an individual would attach to an item when he or she owned it. The just-acceptable buying price and just-acceptable selling price are thought to be identical by traditional economics, however the gap between those two values are actually quite large. When a good is owned, especially one that is not regularly traded, the perceived value is magnified. Richard Thaler, a professor of behavioral science and economics at the University of Chicago and, in 2015, the President of the American Economic Association, found an overlap of the psychological influences in the Prospect Theory and endowment effect. There were key differences between being in the state of *having* an item and *giving it up*, versus the pleasure of *getting* an item. The reference point for the endowment effect would be whether or not the individual owns the item or not, then the willingness to buy or sell the item would be decided on (Kahneman, 2011). This not only shows

the inter-workings of two psychological theories working together in unison, but shows the complexity these simple psychological concepts have on financial decisions. The mix of Prospect Theory into the endowment effect shows how the biases are all related and possibly overlap and build off of one another; they affect one another in a way that crosses over to other well-known biases and theories as well as having the possibility of creating new psychological influences. Behavioral finance encompasses an intertwined system comprised of psychological biases and theories.

Overconfidence

Gary Belsky and Thomas Gilovich, authors of *Why Smart People Make Big Money Mistakes* stated that, "Overconfidence comes in many flavors, one of them unwarranted optimism." An analysis of gym registrations was done and had stated members paid more on average for monthly or annual memberships than they would have with single-day or ten-visit passes because the gym-goers were overconfident about their commitment to exercising at the gym and overestimated the frequency of the amount of times they would go to the gym. It is important to distinguish between high hopes and actuality (Belsky & Gilovich, 2009).

I chose this bias because I wanted a broad bias that encompassed several other biases. The overconfidence bias emphasizes how behavioral finance is not a simple subject matter, and instead, is a complex field that connects several biases and theories with one another that creates an intertwined system of psychological influences that affects a person's ability to make rational financial decisions. Overconfidence is also a bias that is easy to understand and that almost anyone can relate to their experience when making decisions.

During my short tenure as a Financial Representative at Northwestern Mutual, the financial advisors had an informal phrase for young men and women who are generally in their

twenties. One of the key types of insurance Northwestern Mutual provides is disability insurance as an individual's ability to work is his or her most important asset. However, because they are young, they commonly turned down that type of insurance to be a part of their overall financial plan. Several financial advisors would then state, when they are young, they think they are like Superman. They are invincible and void of having the slightest chance of being disabled, however that is not the case. Being young is not an adequate factor in deciding whether or not someone will get disabled. They take the gamble because of the overconfidence they have in their perceived ability to avoid such situations. The Council for Disability Awareness stated just above one in four twenty-year olds will become disabled at some point in time before their retirement age (Council for Disability Awareness, 2013).

The same could be said for insurance in general. Until people feel it is an absolute necessity or if they are young, they are willing to take the gamble in whether they would be in a situation where they would need it, but as the financial advisors say, when they need it the most is when it is already too late. The chances are low in actually having an event where an individual would need insurance which is why investors are overconfident they can beat the odds. And understandably so, if a person does not buy insurance, they may have made a rational financial decision with positive expected value. As it is unlikely to have an occurrence where a person would need to make a claim, investors rather not spend the money and extra cost it they would incur from having insurance. According to the Insurance Information Institute, in 2015, fifty-four percent of Americans are unlikely to invest in a life insurance policy within the next year (Insurance Information Institute, 2015).

Anchoring is another popular concept that falls under the broader umbrella of overconfidence. Hagglng is a very popular way of bargaining in countries outside of the United

States at street markets. When a base value is given for an item, it would be used as a reference point if later discounts were to be added. It does not mean if a price is cut in half that the true value is lower and that the person was ripped off. It simply means if he or she were not willing to pay a higher price than what he or she paid for, with or without that original price as a reference point, then the real discounting should have started at that figure (Belsky & Gilovich, 2009).

The *confirmation bias* is also in line with overconfidence as investors who are overconfident in their financial decision will find information or proof that their decision was the right one. This bias is also known as the *disconfirmation disinclination*, meaning once an investor has an initial impression or preference towards a certain investment choice, the investor would avoid any questions that would challenge the preconceptions of that idea. Hence, a decision without adequate, or proper, information can lead to a choice made on void rationale. On a consumer basis, the confirmation bias can have effect on customers through brand loyalty. When a consumer is loyal to a certain brand, suddenly that brand is put in a favorable light and given an extra threshold of approval, simply because the customer had past purchases with products or services with good results that had the brand name and are accustomed to its products or services. The confirmation bias is more for the investor to convince themselves that they made a rational choice. Anchoring and the confirmation bias put together result in a compounding effect that can adversely affect the rationality of an investor (Belsky & Gilovich, 2009). The overconfidence bias can be applied to multiple personal financial decisions such as investment decisions, insurance decisions, and retirement decisions.

Mental Accounting

Mental accounting is another interesting psychological tendency. Many people do not see themselves as reckless spenders, but for some reason, are not able to save enough. People are

cost-conscious about making large financial decisions, such as buying a home, car, or furniture, but the same mindset is not applied towards items with small prices, such as coffee every morning, or buying groceries every week. The problem is the fact that large-price purchases are only done every few years, while the small-priced items are purchased every week, or sometimes, every day. It is the daily ritual through which a system for savings takes place (Belsky & Gilovich, 2009).

I chose this psychological tendency because I wanted to select a tendency that was a specific psychological influence in behavioral finance and not as fundamental or broad as the prospect theory and the overconfidence bias. This was also an intriguing tendency as it explains the “mental accounting system” in someone’s mind and how it is different for every person.

For example, if someone were to buy a concert ticket that cost \$100, but lost it at the venue before they entered, they would most likely not buy another one. However if in the same scenario, that person decided to buy the ticket at the stadium, yet they lost \$100 somewhere at the venue but still had enough money to buy a ticket, they most likely would buy another one. They are both essentially the same dilemma in which a loss of real money, \$100, would then lead to the subsequent purchase of another ticket that costs \$100. This exemplifies mental accounting in which the first scenario would be considered as a total entertainment cost of \$200. When perceived in that manner, a ticket for that price as entertainment would be taken as too expensive for many individuals. However, once again, in the second scenario, mental accounting takes place, in which that same person would separate the \$100 costs into separate categories; \$100 that was lost and \$100 that was used to purchase the ticket. The losses of \$100 in those two situations are considered separate and treated in different ways because the loss occurred in different ways. The thought process that the two occasions of a loss of \$100 were unrelated is

what triggered mental accounting (Belsky & Gilovich, 2009). As shown in this example, the psychological influences of mental accounting that occur in financial decisions can have a detrimental impact on investors. This is also why it affects many individuals who want to save properly, but are not aware of the factors influencing their ability to make rational decisions.

Richard Thaler, along with Daniel Kahneman and Amos Tversky, had begun to ask another imperative question about a psychological influence in behavioral finance yet to be introduced. The seemingly simple question they were asking themselves was “How do people think about money (Thaler, *Misbehaving*, 2015)?” Mental accounting is distinguishing real money and real losses. If one is aware of the influences mental accounting has on their financial decisions, the better the possibility a system for savings will take place.

CHAPTER THREE: PREVALENCE OF BEHAVIORAL FINANCE

I have given a detailed analysis of behavioral finance’s impact through a collection of research from financial professionals and academic scholars; they have years of experience in finance and have earned respect from their published works. Through their own comprehensive research on the subject, their publications have helped spread the awareness of this growing field of study. Through all of the research from Daniel Kahneman and Amos Tversky to all the academics and professionals in the field today, it is clear that everyone needs to learn more about this subject; more awareness to all spenders, savers, borrowers, and investors of this subject is essential, as well as raising the attention of professional investors.

Implications for Financial Professionals

Even for the rational investors in the field, they are analyzing information from the aggregate market, and every investor out there is absolutely not completely rational in all of their financial decisions (Reilly & Brown, 2012). The stock market and bond market are prime

examples of the practical applications behavioral finance can have in the professional business world.

Robert J. Shiller, who was a 2013 Nobel Prize recipient in economics and the author of the book *Irrational Exuberance*, stated how irrational exuberance was a name given to explain the social phenomenon of why markets were bid up to levels that was unsustainable. Irrational exuberance explained the market psychology that was occurring in the stock market. When the markets were out of line, irrational exuberance was the psychological basis to explain the speculative bubbles. Shiller defined speculative bubbles as a situation in which a price increase occurs, therefore spurring investors' enthusiasm about the investment despite having doubts about its real value. The excitement of other investors draws in a larger class of investors and amplifies the price increases even farther. The speculative bubbles were caused by the psychological contagion of joining in the excitement of investing in a particular security causing the excessive price increases of the security.

With bond markets, Shiller explained how long-term interest rates may be influenced by psychological biases. The long-term interest rates are more difficult to control hence they are more speculative and prone to cause "bond bubbles." Bond bubbles are identical to speculative bubbles in the stock market, except for the fact that the upswings are in the bond markets. Short-term rates are not much of an issue as central banks can exert more control over these rates. Investors respond in a speculative behavior that is part of the determination in bond market prices. For example, "flight to quality" which is when investors move their money to safer investments, is a viable cause as to why there were low, and even negative, bond yields after the 2007-2009 financial crises. Behavioral finance offers a reason as to why such occurrences happen when traditional theoretical paradigms cannot (Shiller, *Irrational Exuberance*, 2015).

These examples prove the implications and direct applications behavioral finance can have on financial professionals as the stock market and bond market are affected by these psychological influences.

Everyday Investors

Simply put, behavioral finance relates to everyone because every person is a financial decision-maker, whether it is on their own personal account or for their occupation. This is why the awareness of behavioral finance is important as this affects anyone, on any given day, in any given context involving money.

Nearly everyone benefits from having a general awareness of behavioral finance; it affects our everyday financial decisions, which makes it relevant in the real world. Ben Steverman, a writer for *Bloomberg Business* stated, "It's hard to find a place today where concepts of behavioral finance aren't being applied to real-world situations (Steverman, 2014)", which explains why behavioral finance is relevant, even if it is a relatively new field of study. Almost everywhere an individual goes, we are surrounded by financial decision-making at all times. For example, with college students, we ask ourselves, "How should we fund our college education? To what capacity should we fund it from government loans, from our part-time jobs, or from our parents?" The financial questions we ask ourselves work the same for people in all areas of life, such as buying a house, saving for retirement, taking a promotion at work, getting a new car, or investing in stocks.

Nearly every day, people make financial decisions, sometimes hastily and during times of stress; with these decisions, there are a mix of emotions and biases. Behavioral finance states these two areas coincide with each other which reinforce its importance. Everyday investors do not need to have an in-depth knowledge of behavioral finance. However, they should be aware of the subject; if they are aware, they can strategically have an active role in investing and take a

reasonably risky investment position by diversifying, having good spending and saving habits, and refraining from feeling the need to “beat the market”. The difficulty of predicting market movements cannot be understated; people should invest in a broad range of assets, while having a clear picture of their expenses (Smith, 2013).

In the book *Nudge*, Richard Thaler and Cass Sunstein describe nudges as the way in which we make choices and how we are led to make better ones in the future. This goes past financial decision-making as it can be explained in several different contexts people have every day (2009). *Nudging* is defined as steering people towards better financial decisions by presenting choices to them in different ways (The Economist, 2012). As described above, psychology plays a major part in our financial decisions, such as nudging people to join enrollment into an employers’ contribution plans at work for retirement, especially for the young workers as starting to save for retirement can dramatically make a difference if someone chooses to save now versus a few years down the road (Thaler & Sunstein, *Nudge*, 2009). For instance, if someone was 30 years old and he or she would save \$100 now, followed by adding another \$100 every month until age 65, they would save up to \$142,302, assuming a conservative 6% in annualized returns. However, if that same person started to save at age 40, and even if they doubled their savings to \$200 a month, he or she would only reach up to \$138,852 at age 65. This example shows what ten years could mean financially for someone and the benefits of saving earlier (Rapacon, 2016). That is why being aware of these *nudges* is one way to go about making more rational decisions.

Psychology is about how we think and make choices. If it explains the causes for how we react to several different daily activities and affects several areas of our life, activities involving financial decisions are no exception. Psychology plays a major role in how we make our

financial decisions, and is why it is imperative for all investors, including individual investors, to consider their own biases. The first step is to recognize when mistakes are made, and then understand why they occurred. After the mistakes are recognized and understood, the investor must take remedial action to correct that behavior and avoid making those mistakes again (Byrne & Brooks, 2008).

Having a reasonable understanding of behavioral finance gives people the opportunity to understand their own decision making and gives them the ability to see why they make certain financial decisions. These are some of the reasons why behavioral finance is pertinent to the academic and professional world.

Addressing the Effect of Behavioral Finance

From professionals in investment firms to independent investors at home, behavioral and cognitive psychological theory plays a major role in why investors make irrational financial decisions. I will assess behavioral finance's impact on investors' financial decisions, and provide recommendations on how to incorporate psychology in financial analysis to help avoid irrationality. The more people are aware of behavioral finance's impact in their everyday lives and their own personal psychological influences in their decision-making process, the more it will enhance their investing decisions, while giving professional investors a competitive edge in their stock market decisions.

Through the research conducted, it can be concluded that:

- In order for professional investors to have a sound process for financial analysis, they must incorporate psychological theory into their financial decisions by understanding when their biases arise.
- Behavioral finance is prevalent in every part of our lives.

- There are several psychological theories and biases to consider, but at least having a general awareness of them and putting them into practice when making financial decisions will help everyday investors.
- There is still plenty of research and development that needs to be conducted in this field of study in accordance with significance in the real world.

The recommendation I propose is to promote awareness of behavioral finance. This subject is not typically known by the general public so the first step would be to raise awareness of its importance. When someone is more aware of the self, the thoughts, emotions, and instincts one has, the better understanding someone can have of the broader psychological influences involved in decision-making (Chen, 2013). This can mainly be done by an intensive push on emphasizing it into the college curriculum. The more impact it has on academia, the further it will raise awareness amongst young adults entering the workforce. Almost all textbooks in the field of finance have some sort of context or reference to behavioral finance, whether a minor snippet of it is mentioned or a whole chapter is dedicated to it. After more awareness is brought to this subject, financial professionals will recognize that behavioral finance should be implemented into their financial analysis. Behavioral finance should also be a highly encouraged elective course for college students in any major because of its prevalence in everyday life.

However, this discussion is not limited to simply being aware of behavioral finance and its impact on our everyday lives. Investors not only need to accept their own biases and be aware of them, but once they understand the psychological biases that may occur, they must take corrective actions to ensure they make the rational and objective decisions. A simple initial solution to doing this is for an individual to associate his or her own biases that were used to

possibly influence the decision he or she made. With the numerous psychological biases, it is likely the involvement and possible exposure of these biases were present in that decision.

Neuroinvesting is another possible solution individual investors can do when making financial decisions. Wai-Yee Chen, an investment author and a Derivatives Specialist adviser, created a concept known as Neuroinvesting. It essentially offers strategies in how to mix psychology into investment decisions and ways to overcome one's own personal biases (2013). By considering the context of the decision and how the decision was made, individuals can begin to take a step back and rethink what biases may have influenced them to make that decision or take certain actions.

An example of how to *nurture* an individual's skills in neuroinvesting is by finding a person's mental personality. When an investor knows how they think and has a better grasp of their own mental attitude, the more rational they become as an investor. For example, to become an "excellent instinctual investor", Wai-Yee Chen recommended practicing mental plasticity. Instinct plays an important role in investing; mental plasticity gives people the ability to adapt and is malleable. Simply changing one's own framework in the way one thinks would help make an individual a better investor. The malleability of intelligence is described as believing in the ability to learn new skills and continually improve, while changing to new circumstances. This is opposed to "fixed intelligence", where accepting what was given and lacking initiative prevails. Having a malleable mindset also falls in line with a mastery-oriented framework. People who are weak in a certain area or skillset, strive to get better at it, or master it, by concentrating their efforts in practicing that skill for use in the future (2013).

A concept of *fusion investing* was also introduced, which integrates fundamental value and investor sentiment into the valuation process. The fundamental value of a security is from

discounting expected future dividends. Investor sentiment is the demand of “noise” traders (Reilly & Brown, 2012). Noise traders are described as traders who trade based on information they misinterpreted or trade for non-informational reasons (Barber, Odean, & Zhu, 2005). These two terms added together yields the market price of the security. To exemplify the influence of investor sentiment, when noise traders are bullish, the stock prices would be higher than normal and arguably add more value to the security above the fundamental value. In order to measure investor sentiment, the factors to be considered are analysts’ recommendations, price momentum and high trading turnover. With these variables, investor sentiment may decide the market price of a stock that would either exceed its intrinsic value or be at a discount to its intrinsic value. This combination pricing model emphasizes the benefit of infusing the psychological influences of behavioral finance into the traditional model of fundamental analysis. This concept relies on the actions of noise traders. During high periods of activity, the market returns could be heavily influenced by investor sentiment, but if the noise traders are not as active, fundamental valuation would equate to most of the market return. This goes beyond spreading awareness about behavioral finance and its effects on investors, so whether or not investors decide to focus on the traditional, analytical side of investment analysis, or delve into the behavioral effects on the investment analysis, it is contended the two components still exert their effect on investment decisions (Reilly & Brown, 2012).

As described above, persistence to continually learn, adapt, and grow is what is known as mental plasticity. This concept extends pasts the limits of financial decisions into many other areas of life. Mental plasticity relates to financial-decision making, because for investors, having this mindset is essential to understand how to convert risk into returns, change failures to future successes by learning from past mistakes, growing and gaining new skills to switch problems

into opportunities. Neuroinvesting incorporates psychology into investing in such ways as changing the mental attitude of an investor. Being positive and optimistic reaps benefits for investors, and as simple as this sounds, having this holistic mental approach of positivity is not one that is easily created, but continuously practiced on (Chen, 2013).

On a separate note, Wai-Yee Chen's newfound concept also proves how this topic is relatively new and continually developing as a field of practice in the finance and economic realm; the areas within behavioral finance are growing as more research is made and expanding as newfound concepts and theories are created. This subject matter is only growing more as academics and professionals alike are realizing the importance of behavioral finance and exploring the intricacies it can have on the impact of return and risk. Wai-Yee Chen's observations also prove behavioral finance is beginning to slowly become considered more deeply in financial decisions and be a part of the investment analysis process.

Relation to Myself and My Professional Career

In the last section, I discussed possible solutions to the challenges behavioral finance produces. The first was to promote awareness and encourage others to learn more about the subject matter through education. As I am aware of behavioral finance and advocate learning more about this subject and have been exposed to its content in my college classes, I can continue to further my knowledge of behavioral finance. On a personal basis, that is the least I can do. The more I learn about the subject, the better equipped I will be to make my financial decisions and be fully competent in knowing which biases and psychological theories are associated with the decisions I make. This will further my ability to make rational financial decisions. I can also implement neuroinvesting into the investment decisions I make by learning more about this particular area within behavioral finance and know how to react to the

psychological influences that affect me when I make financial decisions. As stated, this is a concept that is relatable to everyone and can be beneficial to all investors, so this is absolutely a solution I can immediately implement into my everyday decision-making process.

Behavioral finance is a subject I can incorporate into my everyday life, no matter what occupation I choose. Whenever I make a financial decision, I must be aware of the psychological influences that may be affecting my decision and try to react rationally to it. As already stated, the prevalence of behavioral finance in everyday life cannot be overstated. Whether I have a career in investing or in another business field, behavioral finance has proven to be shown in all facets of life. If I were to have a career directly involved in investment analysis, I would then promote the usage of fusion investing and explore ways in which I can integrate it within the investment analysis process to not only get the fundamental value of the market price of a security, but the investor sentiment that is also associated with it.

In addition, I could promote awareness of behavioral finance in whatever field I choose by highlighting to employees its impact in financial decisions in every line of business. The more knowledgeable everyone has of the subject, the more capable everyone would be to make rational decisions. Again, the psychological impact this field has can extend to almost any decision. Ultimately, the career I choose is unrelated to whether or not I will need to use behavioral finance and how I will utilize it to my advantage. The fact of the matter is that behavioral finance relates to any career as they involve financial decisions, and whether it is subtle or not, that have tendencies towards psychological influences. I will utilize it by spreading awareness of this subject and using the tools I stated above in my decision-making process. Spreading awareness on this subject will not only enable others to recognize their biases, but further their understanding of financial literacy.

The professionals should be encouraged to have work meetings, solely focused on how to be more aware of their own biases and how to control them when making financial decisions. This will help professionals perform at their best by having the technical expertise as well as knowing what psychological influences they must consider. If professionals can incorporate a dollar-cost averaging strategy by spending their investment budget in separate increments throughout the investment period, regardless of whether the market goes up or down, it will create a system of self-control; regret would be minimized and irrational financial decision-making would be prevented. If investors refrain from making decisions hastily based on one opinion of the market, the anxiety associated with trading in or out of a market can be removed from the logical analysis in financial decision making. This will save the potential cost irrationality can have to investors; being unaware of behavioral influences can cost them money. When it comes to financial-decision making, the most important point to bear in mind when referring to psychological biases is that money is not emotional, people are.

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