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Leveraging Behavioral Finance as a Small Business

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by

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Introduction

According to the U.S. Census Bureau, there were 27.9 million small business in 2010. Small businesses make up 99.7% of U.S employer firms and account for 64% of new jobs created between 1993 and 2011. About half of all new small businesses survive five years or more, and about one-third survive 10 years or more. As expected, as a small business ages, the more likely that it will survive. A large part of this ability to survive as a small business, comes from the ability to innovate, and do so constantly. Interestingly and surprisingly enough, small businesses produced 16 times more patents per employee than a large business. Traditionally, these patents are for invented products, software, or services. How much market research, or, more specifically consumer behavior research, goes into each product, software, or service though? Is it enough that small businesses push as many products as possible through their pipeline? Or is the reason that small businesses fail boil down to their lack of effort and foresight placed into consumer behavior research? I propose that Behavioral Finance can help small businesses greatly because Behavioral Finance concepts can be applied to individual consumers and can help small businesses understand customer better. I also believe that small business owners share the biggest responsibility for knowing their customers inside and out because the "interactive" distance between a small business and a customer is much smaller than of a large corporation. The goal of this proposed thesis is to gain a fundamental understanding of what Behavioral Finance *is*, *how* small businesses can use the methods and concepts that I will introduce in this paper, in their own businesses, as well as use my SBA capstone client as a case study to verify whether Behavioral Finance biases are affecting my client's decision making.

"*Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets. Behavioral finance is of interest because it helps explain why and how markets might be inefficient.*"

– Martin Sewell (University of Cambridge)

Literature Review

I conducted a literature review of a sample of works that I felt are *related* to my specific discourse community on "Small Business and Behavioral Finance", or work that I could draw valuable information from in order to brainstorm my own thoughts and ideas in this particular subsect of Behavioral Finance. I attempted to frame my literature review to only include scholars that either: Gave a general overview of Behavioral Finance and provided a historical timeline of the field; provided commentary on applications of Behavioral Finance and referenced scholars within the discourse community who also share an application perspective of the discipline; discussed the implications (positive or negative) that Behavioral Finance has or can have on individual investors, small business, and every-day consumers; and finally, explained the main anomalies that Behavioral Finance has identified that are relevant to the discipline and relevant to those *outside* of the discipline. It was especially important to find and include work that could be easily understood and interpreted to people outside of the discipline because of how relatively young the discipline is (which makes for a challenging time understanding the important concepts and vocabulary within this discipline), and how *difficult* and dense the material within the discipline are. I did not anticipate the amount of math nor the difficulty of math that existed within Behavioral Finance. I was under the initial impression that the field was mostly conceptual and qualitative. As a result, I decided to steer my research away from the quantitative concepts of Behavioral Finance, and focus on the qualitative concepts that could be easily and readily studied and applied. Most importantly, my literature review needed to be able to answer the main questions surrounding my thesis: "What is Behavioral Finance?"; "What are the most important concepts and theoretical frameworks?"; "What are some examples of irrational behaviors described in Behavioral Finance?"; and finally, "What are the consequences of Behavioral Finance biases and how does the field relate to small businesses?"

I would like to mention that the literature I have included below is by no means exhaustive of the discipline or remotely descriptive of the entire discourse community, but rather, the work that I have included below have provided me with a good start into my research and will lay a strong foundation for me and other scholars to build future research upon.

Discussion of Current Literature and Applications to Small Business

Following my review of the current literature surround Behavioral Finance and its application and relevance to small business, I was able answer all the questions I had posed previously. A more detailed summary of each literature can be found in the Appendix.

"What is Behavioral Finance?"

Behavioral Finance is a sub-sect of Economics and Finance that provides an alternative explanation to how the macro and micro economy works using quantitative frameworks borrowed from classical Economics and Finance, as well as qualitative frameworks borrowed from Psychology. The field is relatively young, and has faced significant challenges since its inception – with many scholarly doubters and critics denying the field's legitimacy and credibility (Sewell, 2007).

"What are the most important concepts and frameworks?"

The most important concepts and frameworks I encountered in the current literature were: Prospect theory; decision heuristics; emotions and visceral factors; and choice bracketing.

Prospect theory describes how gains and losses are valued differently, and that individuals tend to make decisions based on perceived gains instead of perceived losses, even if the probability of a perceived loss is greater than of a perceived gain (Tversky and Kahneman, 1992). Prospect theory is very important and relevant to small businesses because the potential for business growth is much greater than for an established, large business. I hypothesize that small businesses tend to make decisions based on potential growth and financial gain, rather than potential financial loss because their motivations for business success are very high. As part of my hypothesis, I believe that small business owners put a disproportionately large weight on positive outcomes compared to negative outcomes because they are much more involved with their business' operations rather than the financial performance.

Decision heuristics are mental shortcuts and simple rules of thumb that help individuals make complex decisions (Colisk, 1996). Decision heuristics play an important role in small businesses because they tend to have less professional financial resources than a larger firm, and are likely performing accounting and financial planning roles themselves rather than outsourcing those jobs to another firm. Because they are performing these roles *while* managing everyday business, I believe the likelihood for quick, mental shortcuts are increased. Some of these mental shortcuts can include: Poor estimates of probability, and mental math mistakes.

Emotions and visceral factors is a concept that describes how an individual's physical and social environment can affect their physical and mental wellbeing, which can then influence their decision making (Lowenstein, 2000). Understanding emotions and visceral factors is important in a small business context because the owner typically handles the majority of the business' decision making, and thus, is at a greater risk for irrational decision making.

Choice bracketing explains how the way a problem or situation is presented, can significantly influence the way an individual makes a decision (Tversky and Thaler, 1990). Choice bracketing is a crucial framework for small businesses because *how* a business problem is presented to an owner can influence their decision. Choice bracketing is also important because a small business can leverage this framework to reshape their business' image to influence how their customers perceive their business.

"What are some examples of irrational behaviors described in Behavioral Finance?"

Some examples of irrational behaviors described in Behavioral Finance include: Making a quick decision based off of a recent news event because it was the most readily accessible source of information, not because it was the most relevant or most valid (Tversky and Kahneman, 1973); unknowingly making a poor decision due to feeling sad because of a rainstorm happening outside (Lowenstein, 2000); and seeking evidence that confirms a decision already made, rather than seeking evidence that may refute or criticize that decision (Wason, 1960).

"What are the consequences of Behavioral Finance biases and how does the field relate to small businesses?"

The consequences of Behavioral Finance biases can be numerous and financially significant. Individuals who are influenced by prospect theory may make riskier decisions because they perceive the positive outcomes of it to be much greater and worth the risk. Individuals who are influenced by decision heuristics can make a disastrous decision because they made an error using mental math. Individuals who are influenced by emotion and visceral factors can be overwhelmed by fear of failure and potentially hold back from making a necessary decision. Individuals who are influenced by choice bracketing, or framing, may be susceptible to "attractive" looking scams. Overall, all of these consequences can have severe financial effects by either, reducing net income; reducing operating efficiency; decreasing gross, operating, or net profit margins; and decreasing the various measures of return on investment (ROIC, and ROE).

The field relates to small businesses because they too, are affected by Behavioral Finance biases and share a need of preventing those biases from influencing their decision making. Also, the consequences of these biases *can* have a magnified effect on small businesses because of their small size and lack of access to financial capital, making them extremely sensitive to any form of financial or operating weakness.

Proposed Study

I conducted my proposed research as an extensive literature review of existing work in the area of Behavioral Finance, and I used my BA 495 capstone client as a case study to verify whether my client exhibits any of the Behavioral Finance mistakes listed in Bizbrella's list, as well as the published works I've listed previously in Table 2. Additionally, I will describe the client's competitive landscape as well as its targeted demographic in the following paragraph. Also, I will discuss the recommendations I made to the client regarding brand image and consumer behavior because they directly relate to my thesis as well as display my application of my thesis research to the client. Ultimately, my goal was to be able to leverage my findings into my BA 495 capstone client's business. One of the main inspirations for this topic was my meeting with the client. The client owns, manages, and operates a zipper repair company here in Portland. The client's main concern at the time was whether or not to spend his business' generated, free cash flow on marketing, and if the client decided to, how the client should do it. I had hoped that my research would help the client in making that decision, and I hope that now, after working with the client for the past 8 weeks, the client is able to benefit from my recommendations.

<u>Hypothesis</u>

My "hypothesis" for this thesis is that small businesses *can,* in-fact, leverage Behavioral Finance concepts in their businesses by using concepts within the discipline to positively influence consumer decision-making. I believe small business may actually be the most effective at applying Behavioral Finance concepts because they are the most “scalable”, in terms of sales growth, customer growth, and market share growth. Because of this scalability, small businesses have the most to gain and the least to lose by attempting to incorporate Behavioral Finance to their business. I also hypothesized that my client would exhibit many of the Behavioral Finance mistakes listed in Table 2, with: “Decision Heuristics”; “Emotions and Visceral Factors”; “Choice Bracketing”; and “Pseudo-Certainty Effect” being the most predominant ones exhibited because they are the most common Behavioral Finance mistakes that people make.

Challenges and Limitations

There were plenty of challenges and limitations to this thesis research. The main ones were: Parsing through the over-abundance of scholarly work in the entire field; Narrowing down the scholarly work to only literature that specifically looks at the individual, everyday consumer; and understanding the math behind the discipline. Another big challenge was interacting with the client when it came to providing constructive feedback and strict recommendation. My capstone team and I discovered that our client’s personality was much different than ours, and also had values that were collectively different than ours. This combination forced us to have to get out of our own preconceived notions and clear our minds of any biases that we had. With this in mind though, we still encountered friction with the client during meetings. However, this friction was very constructive as it led me to observe the behavioral finance biases that I was noticing not just with the client, but also within our team! Fortunately, I was well-equipped with the necessary resources to overcome these challenges, thanks to an extremely resourceful capstone adviser, business client adviser, and reliable teammates.

Findings:

I found that my client *did* exhibit Behavioral Finance biases, exhibiting mainly: Decision Heuristics, in the form of mental shortcuts and mental math; Emotions and Visceral factors, in the form of key decision-making driven mostly by emotions; Confirmation Bias during our client recommendation meeting; and Cognitive Dissonance when the client gave us feedback on our recommendations. I was pleasantly amused, and surprised that my client exhibited the same behavioral biases described by the literature that I researched. I would say that most of my amusement and surprise was due to the fact that I had very delusional, high hopes that my client would not exhibit any biases in decision making.

I discovered that the client's operational and financial performance were affected by these biases as my client's business had poor inventory turnover, stagnant net-income, dependence on a single revenue stream, and lack of reinvestment into the business in-spite of excess free cash flow. My team and I encountered a lot of pushback and mild stubbornness early on during client meetings. However, once the client began to trust us over time, I noticed that the client became much more receptive and less *reactive* to our recommendations and constructive feedback. It was then, that my team and I were able to discover that the client's biggest weakness was not in his financials, but in his marketing plan. More specifically, it was the *lack* of a marketing plan that put the client's business in a growth standstill. My solution to this was to develop a performance evaluation to "tool", that would be able to measure the financial effects of any proposed investment. This tool would then help us decide on which investment to choose, by providing an objective, bias-free visualization of financial performance before, and after the proposed investment. The tool was a Google Sheets spreadsheet I created that measured the value effect on the business of a single investment, given a set of operating assumptions tied to that investment. The spreadsheet would measure the value effect through the Discounted Cash Flow method, discounting free cash flows at the investment's required return. The result would be an intrinsic value of the business which would be compared against the intrinsic value of the business before the investment. If value is created or destroyed, the client would use that information to determine whether or not to make an investment in that project. I created the spreadsheet to also have a sensitivity analysis function where typing in "Base Case", "Worst Case" and "Best Case", would alter the operating assumptions. This additional layer of detail would also help the client avoid any kind of bias by providing more useful information and reducing the amount of uncertainty. Also, because this tool has been designed to perform all of the mathematical calculations without any assistance from the user, this eliminates the possibility of the client performing mental math. Ultimately, this tool would be cleaned up and given to the client so that the client could evaluate future investments, bias-free, and on his own.

Conclusion:

I did not exactly know what to expect after embarking on an eight-week journey into the depths of Behavioral Finance, however, I came back from that journey much more educated and informed about how the field of Behavioral Finance came to exist in the state that it is in now, as well as the challenges and obstacles that almost discredited the discipline entirely. I was also pleasantly surprised during my client observations to find that my client exhibited many of the Behavioral Finance biases that I had been researching for months about. My surprise was purely out of fascination that I was able to replicate and observe them first-hand. Beyond being pleased at being able to observe these anomalies occurring in real-life, I appreciated the opportunity I had to be able to verify these biases with my client. Being able to inform my client that there were biases being exhibited, and then being able to provide solutions to prevent that, made the research that I've done, and the consulting that my team provided, worth it. In the end, my team and I were able to provide our client with the necessary tools to combat Behavioral Finance biases while also pointing out the biases that his consumers exhibited so that our client could leverage that "upper hand". I hope that the research that I conducted, lays a stronger foundation for future scholars to build upon work in this niche area of Small Business Behavioral Finance. Finally, I hope that I have been convincing in explaining the importance of Small Businesses understanding their own biases, as well as explaining the importance of being able to overcome them and then *leverage* them to grow.

Appendix:

Table 1: Key Takeaways from Research

Key Takeaway	**Citation**	**Short Summary**
Investor's Reaction Lag	Lewellen, Jon and S.P. Kothari. "Behavioral Finance." *MIT Sloan Management* 2004: n. pag. Print.	Slow adjustment to public information is inconsistent with the theory of "market efficiency". The slow adjustment is consistent with Behavioral Finance.
What is Behavioral Finance?	Sewell, Martin. "Applied Behavioural Finance." *University of Cambridge* 2007.February 2007 (2007): 1–13. Print.	Behavioral Finance is an alternative means to explaining how the economy works. The field has undergone significant challenge since its birth – with many doubters and critics denying its legitimacy and credibility.
Emotional Triggers and Business	Steverman, By Ben. "Manipulate Me : The Booming Business in Behavioral Finance." (2014): n. pag. Print.	Many firms today are seeking behavioral finance app developers with the hopes of leveraging the data to "shape" consumer behavior.
Anomalies in Behavioral Finance	Stracca, Livio. "Behavioral Finance and Asset Prices: Where Do We Stand?" *Journal of Economic Psychology* 25.3 (2004): 373–405. Web.	5 key anomalies that shape market inefficiency: (i) decision heuristics, (ii) emotional and visceral factors, (iii) choice bracketing, (iv) unknown preferences, and (v) reference dependence
Behavioral Finance Mistakes Small Business Owners Make	Bizbrella. "6 Behavioral Finance Mistakes Small Business Owners Make All The Time." (2015): 1. Web.	Six behavioral finance mistakes small business make: 1.) Confirmation bias; 2.) Overconfidence; 3.) Illusion of Knowledge; 4.) Pseudo-Certainty Effect; 5.) Fear of Failure and Seeking Pride; 6.) Availability Bias

Key Takeaway #1

Professors S.P. Kothari and Jon Lewellen provide an introduction into Behavioral Finance and provide to readers the key scholars in this discipline as well as provide insight into their study of the relation between market index returns and aggregate earnings surprises.

Kothari and Lewellen's research is motivated by the lag-time seen between post-earnings announcement and market reaction. The slow adjustment to public information is inconsistent with the theory of "market efficiency". The slow adjustment is consistent with Behavioral Finance. Scholars that talk about this slow adjustment include: Barberis/Shleifer/Vishny (BSV, 1998); Daniel/Hirshleifer/Subrahmanyam (DHS, 1998); and Hong/Stein (HS, 1999). Kothari and Lewellen provide time-series evidence to back their findings. They also use literature that concentrates on cross-sectional return predictability.

They found that market returns do not depend on past earnings surprises, and that aggregate relation is inconsistent with under reaction (or overreaction). They also found that market returns are negatively (not positively) related to concurrent earnings news, and that the #s seem economically significant. Good aggregate news can be bad news even. What's troubling is that even after decomposing earnings changes, it still does not fully eliminate the negative correlation between earnings news and returns.

This work benefits my research greatly because it provides a strong framework for me to shape and narrow my research to. Also, there is a significant amount of qualitative as well as quantitative data that *specifically* analyzes the effects of individual investors' reactions to market news, which is exactly the demographic of investors that I am framing my research question around.

Key Takeaway #2

Martin Sewell provides an introduction and brief, but detailed history of Behavioral Finance including all of the main influencers who shaped the field to how it looks today. He provides this detailed history by naming the main influencers of Behavioral Finance (which includes Sociologists, Psychologists, and Classical Economists) as well as naming their most influential work and how their work progressed the discourse community.

Sewell notes that the two most influential scholars of Behavioral Finance are Kahneman and Tversky, two brilliant psychologists who regularly published their work into Finance journals. Kahnemen and Tversky had built up the discourse by presenting a critique of expected utility theory, the founding principle of Economics and Finance, as well as introduced several decision heuristics that influence decision making. Sewell points out that Kahnemam and Tversky gained respect and credibility when a colleague, Richard Thaler, also argued that there are circumstances when consumers act in a manner that is inconsistent with economic theory, and proposes that Kahneman and Tversky's theories should be used as the basis for an alternative framework. An important but often overlooked fact that Sewell points out to readers is that Behavioral Finance was not an easy, quick, or pain-free discipline to start. The birth and of the discipline as well as its survival today is a clear indicator that it has faced plenty of critics and doubters. One of these doubters that Sewell mentions is Eugene Fama, often referred to as the Father of Finance.

Martin's work is valuable to my proposed thesis and further literature review because it helps me identify the size of my discourse community as well as identify the key scholars in the discourse community. Learning about the history of the community gave me insight into the relative youth of the discipline and discourse community. With Martin's work, I am able to be well-versed in the language that the scholars are speaking in.

Key Takeaway #3

Ben Steverman approaches the topic of Behavioral Finance from an individual investor or consumer perspective. He gives a brief introduction into the area of study by providing real-world examples of how Behavioral Finance exists in our daily lives.

Ben's article for Bloomberg focuses on the "Emotional Triggers" that affect individuals and how "big corporations" are leveraging the knowledge of Emotional Triggers to better understand consumer/investor behavior. One of these Behavioral Finance data firms is Ideas42. Ideas42, a New York based nonprofit, has helped large, established financial services companies with designing more effective savings products, as well as small-dollar loans and automobile loans with lower rates. Famed University of Chicago economics professor Richard Thaler is an adviser to Ideas42.

Ben also points out how many of the apps we use today, including Facebook, Twitter, Google, and Snapchat, already have social software frameworks designed and implemented that track what triggers an emotional response and learn from those instances.

However, the tools in the Behavioral Finance "toolkit" can appear rigid when applied to real-world situations. "There's a huge difference between the real world and theory." For example, the theory of "loss aversion" says people react more strongly to the threat of a loss than the possibility of a gain. So if you get a notification that you're about to be charged a $95 fee, you'll be more motivated to act and avoid that fee. But few people want to use an app that catalogs their financial failings without some positive reinforcement. Also, what is extremely frustrating for designers of behavioral finance products is that users' responses can be so unpredictable. An app that was ineffective years ago can all of a sudden become popular now.

Ben also points out an ethical and moral issue with behavioral apps. Many experts worry that as behavioral finance becomes more socially accepted and "integrated", it could ignite fears that this kind of social learning is being used to manipulate people into doing something they would otherwise not do. Many of these behavioral application design companies say that they only work on projects that provide social good though.

This article is very useful for my thesis proposal and literature review *because* it is the first article I've read that tackled the ethical and moral issues of social learning and social manipulation via applications. This article gave a more modern perspective on Behavioral Finance and educated me on "where" the discipline is today in relation to everyday people as well as the large corporations that are beginning to apply behavioral finance concepts to their businesses.

<u>Key Takeaway #4</u>

This paper by Livio Stracca provides a survey of the anomalies identified in the behavioral finance literature, with a specific focus on literature which might affect market prices. In this paper, the anomalies are group into five distinct categories, (i) decision heuristics, (ii) emotional and visceral factors, (iii) choice bracketing, (iv) unknown preferences, and (v) reference dependence. Stracca discusses these anomalies within the context of the expected utility model, and sets these anomalies against the model to highlight the differences between "classical" finance, and behavioral finance.

This paper is useful for my thesis proposal because it is the most detailed piece of literature that dives into the key-concepts and major talking points of Behavioral Finance. This paper is also a versatile piece of literature because it can be read from a very general and surface level perspective of the discipline, and can also be read from a very detailed angle as well. This paper will be a frequently visited source as well as a frequently cited source throughout my thesis research.

<u>Key Takeaway #5</u>

This article by Bizbrella provides a helpful list of behavioral finance mistakes that small business owners make on a regular basis. These mistakes include: Confirmation bias; overconfidence; illusion of knowledge; pseudo-certainty effect; fear of failure and seeking pride; and availability bias. This article is extremely useful for me because I will be verifying whether or not my client exhibits any of these biases when he conducts business with his clients. I will be relying on this article and list heavily when I conduct analysis on my client.

Table 2: Main Concepts in the Literature

Concept	**Citation**	**Key Findings**
Decision Heuristics	Colisk, 1996	Individuals make use of shortcuts and simple rules of thumb in making decisions, because they do not (and cannot) solve the (complex) problem, mainly reflecting deliberation and optimization costs. A very common blunder is to mis-perceive the laws of probability.
Emotions and Visceral Factors	Lowenstein, 2000; Romer, 2000	Emotional and visceral factors play an important role in individual decision-making and may do so also in the financial market. A famous example is the evidence that weather in a trading location as well as traders' sleep patterns influence equity prices, presumably by affecting their emotional states.
Choice Bracketing	Tversky & Thaler, 1990	The way a certain decision making problem is presented matters (framing and elicitation).
Stochastic and Context-Dependent Preferences	Starmer, 2000	It is impossible to present the existence of consumer's pre-determined decision making preferences as preference reversals have often been reversed.

Reference Dependent Models	Tversky & Kahneman, 1992	Prospect theory is a key contender to expected utility.
Confirmation Bias	Wason, 1960	People are bias toward confirming their existing beliefs. This bias contributes to overconfidence in personal beliefs and can lead to poor decision making.
Illusion of Knowledge	Fisher, Goddu, Keil, 2015	Searching the web gives people an “illusion of knowledge”.
Pseudo-Certainty Effect	Tversky & Kahneman, 1981	Tendency for people to perceive an outcome as certain while it is actually uncertain
Cognitive Dissonance	Festinger, 1957	The mental discomfort experienced by a person who simultaneously holds two or more contradictory beliefs

References

Bizbrella. "6 Behavioral Finance Mistakes Small Business Owners Make All The Time." (2015): 1. Web.

Behavior, Investor. "Chapter 13 Behavioral Finance and Market Behavior Introduction." (2002): n. pag. Print.

Hammond, Robert Christopher. "Behavioral Finance : Its History and Its Future." (2015): 1–45. Print.

Lewellen, S.P. Kothari and Jon. "Behavioral Finance." *MIT Sloan Management* 2004: n. pag. Print.

Razvan Stefanescu, and Ramona Dumitriu. "Contrarian and Momentum Profits During Periods of High Trading Volume Preceded by Stock Prices Shocks." 378 (2016): 378–384. Print.

Sewell, Martin. "Applied Behavioural Finance." *University of Cambridge* 2007.February 2007 (2007): 1–13. Print.

Shleifer, A. *Inefficient Markets: An Introduction to Behavioral Finance*. Vol. 158. N.p., 2000. Web.

Steverman, By Ben. "Manipulate Me : The Booming Business in Behavioral Finance." (2014): n. pag. Print.

Stracca, Livio. "Behavioral Finance and Asset Prices: Where Do We Stand?" *Journal of Economic Psychology* 25.3 (2004): 373–405. Web.

Wang, Mei. "Topics in Behavioral Finance (I) About Myself ..." I (2008): n. pag. Print.