Behavioral Finance: It's Scope and Perspective

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Abstract: *The field of behavioral finance has attempted to explain the role of biases, heuristics, and inefficiencies present in financial markets. This paper contains a comprehensive literature review of behavioral finance, as well as inputs from more recent papers of the subject. The various subtopics of behavioral finance will also be analyzed, which include loss aversion, corporate finance, and momentum/contrarian investing. Finally, this paper will draw unique conclusions across behavioral finance and hypothesize about what topics within behavioral finance are likely to show most interesting impacts on behavior of financial markets, hence are area of research in the near future.*

Keywords: *Behavioral Finance, Pricing Inefficiencies, Momentum Investing, Loss Aversion, Corporate Finance.*

I.   INTRODUCTION

The study of finance market transactions has broadly been based around the idea of "efficient markets." The Efficient Markets Hypothesis (EMH), of classical finance states that at any point of time the price of any and all assets and securities being traded is correct and reflects all available information about the asset. The EMH also holds true about the law of one price, which means that there is only ever one price for an asset at any moment in time.

But if truly efficient markets exist, how can there be "bubbles" in stock markets?

Also if all people are 100% rational decision makers, then why there is an existence of casual investor, a novice investor or a professional trader for an investment bank exists and earns different amount of return from the markets? Traditional theory argues that "smart money" investors, or those with the highest level of knowledge about financial markets, then why any noise caused by those that are trading "irrationally" through arbitrage, have been attracting the attention of market regulators?

Increased evidences of such incidences, unexplained by theories of standard finance and ability of computers to analyze the mountains of data from the collective messiness in financial markets resulted to sprung up a new field of finance, which is aptly named behavioral finance. Among the important discoveries of behavioral finance a significant portion of the literature review has been comprised in this paper. Also new articles published in the last few years focusing on day to day events in financial markets has also been discussed. The research questions explored in this paper are as follows:

• **How did behavioral finance begin, and what have been the developments in the subject?**
• **Where does the field of behavioral finance stand at the present time?**
• **Where is the field of behavioral finance going in the future? And, what specific areas within behavioral finance are most commonly seen affecting the financial markets?**

II.   LITERATURE REVIEW

Background

In the 1980's, the monopoly of the efficient markets model was starting to be challenged by the experiments conducted by scholars like **Daniel Ellsberg** and arguments by **Shiller, Tverskey and Kahnenman,** etc. One issue that troubled the efficient markets complete acceptance was the problem of excess volatility. Several observations were about wide swings in stock prices, and volatility was observed in stock prices. This meant that finance was either completely wrong about what made up the value for a stock, or investors were not fully rational. Following this revelation, **Shiller** pushed the idea that markets might be efficient on the micro level, but wildly inefficient on the macro level. In summary, this means that individual stock movements make more sense than the movement of the entire market. In the 1990's, the amount of evidence contrary to efficient markets had become so much that behavioral finance started to gain acceptance.

Shiller's feedback models attempted to show that investors often trade based on trade of other investors rather than off new information. This can lead to inefficiencies and bubbles that traditional theory cannot explain. **Heukelom (2014)** provides a comprehensive account of how behavioral economics and finance were founded on the personal level. Behavioral economics began largely as the result of prospect theory developed by **Daniel Kahneman and Amos Tversky**. Prospect theory argues that people make decisions based on the potential value of gains and losses rather than the utility of the decision, as the utility of decisions is affected by the objective of investors. **Amos Tversky, Daniel Kahneman, and Richard Thaler,** are today considered to be among the founding fathers of behavioral finance.

Eventually behavioral finance researchers started questioning even the most basic of finance laws as researchers attempt to find out how investor biases and the limits of arbitrage affect the efficiency of capital markets. Originally behavioral finance is about identifying and explaining inefficiencies and mispricing in financial markets. **Shleifer and Vishny (1997)** discussed "The limits of arbitrage." In it, the authors point out that limited capital, agency problems, and other constraints hinder the ability of arbitrageurs to arbitrage. Most of the arbitrageurs do not take highly leveraged positions, because they may be forced to close out positions at a loss if investors want their money back. **Chen and Lai (2013)** focused on how the framing of a company can impact expected returns. **Peterurgsky (2014)** researched stock ticker symbols in an attempt to determine whether or not the fluency from the letters in a stock ticker impacted the attractiveness of the corresponding stock as an investment. After conducting a survey of college students, the author was able to conclude that there was no discernable difference between the attractiveness of stocks with fluent names versus those with influent names. **Olsen** discusses how cognitive dissonance is the biggest problem between behavioral finance and traditional financial theory. He explained that cognitive dissonance is the resistance of holding two ideas that are in conflict with one another, and accurately describes the problem of ascribing to traditional finance theory while also believing in the proven facts of behavioral finance. **Olsen** argues that several broad themes of traditional finance create the most cognitive dissonance. Among these is the idea that "the human mind is a problem solving device like a computer," and that "emotions have a negative influence on decision making because emotion is the antithesis of rationality." **Soufian, Forbes, and Hudson (2014)** attempt to shine light onto an alternative to the Efficient Markets Hypothesis because of the latter's reliance on completely rational investors among other things. The authors present an excellent example of the meltdown of the entire financial system in 2008 lead by the default of sub-prime housing loans.

In the end, the reason behavioral finance exists is because not every person can possibly have and invest upon the same amount of information. Every person will read and observe different things, and every person will view the things they see differently. Taking the idea of biases one step further, **Sahi, Arora, and Dhameja (2013)** listed biases leading to below mentioned behavioral traits:
• Prefer known risks over unknown risks
• Rely on a point of reference
• Make investment decisions based on easily available information
• Play it safe with regards to risk
• Invest differently based on income source
• Invest with a view of social responsibility
• Invest in instruments which are familiar
• Feel that past decisions could have been better or were inevitable
• Be averse to losses
• Feel regret
• Be confident in one's own ability
• Rely on family and friends
• Follow trends

If behavioral biases as shown above are as prevalent as they seem to be in developed markets, an interesting question is:
How do emerging markets fit into the field?

Speidell (2009) addresses this question as the author attempts to describe the limits of investing in emerging markets and how best to address them. Familiarity bias that many investors have (seeking out things that are comfortable) most are hesitant to invest outside of their home country. According to **Speidell**, while foreign investors are present in certain countries, local investors account for the lion share of trading in many emerging markets such as Bangladesh and
Kenya. In these countries, investors are extremely prone to feedback trading, or trading based off the trades of others. Another curiosity is that locals often much prefer to buy low- priced stocks.

Momentum Investing

One of the phenomena that behavioral finance has uncovered is the presence of momentum in stock markets. **Daniel, Hirshleifer, and Subrahmanyam (1998)** created a theory to explain momentum through market over and under reactions based on many of the psychological biases identified by various academic works. Momentum theory is based on investor overconfidence and biased self-attribution. Overconfident investors in the model overweight the information they receive and cause stock prices to move far from it's fundamental value. As time goes on, more information comes out and the stock will move closer to its fundamental value. However, with the addition of biased self-attribution the results are not that simple. Self-attribution is tendency for investors to too strongly attribute things aligned with their thinking to their own skill, while attributing things not aligned with their thinking to mere chance. With the addition of self-attribution, public information can cause even more overreaction from a previous private signal. **George and Hwang (2004)** took momentum investing a step further by choosing to form momentum portfolios based off of 52-week highs rather than solely recent performance.

Contrarian and Value Investing

Lakonishok, Shleifer, and Vishny (1994) researched on contrarian investing. The idea of "value investing" or buying beaten down stocks and betting on them to rebound is certainly not a new idea. However, the cause for the success of this strategy has long been debated. The authors find that for nearly every time period a contrarian portfolio with a time horizon of over one year is hugely profitable. Because the results were so dramatic the authors were able to largely breakdown the idea that value stocks are inherently more risky. **Magnuson (2011)** also tackles the question of whether the high returns of value firms are a factor of increased riskiness or of something else. Magnuson's research centered on what happened to stocks after they suffered a bad earnings announcement. The author found that when glamour stocks (stocks with large growth rates) suffered an earnings miss their stock price predictably went down. However, when value stocks suffered the same scale of miss, the stocks on average went up. Moreover, the author found that if a value company's fundamentals weakened (their riskiness went up) the stock still went up on average. The most logical explanation for this is that the market had already priced in the bad results and had actually overreacted on how bad the result might be. Also, because glamour stocks usually trade on large P/E ratios, a large portion of their price is derived from future growth rates.

Does Analysts make Smart Money or Just as Dumb as Everybody Else?

Also on the topic of momentum, **De Bondt and Thaler (1990)** ask the question of whether or not security analysts also contribute to overreaction in the stock market. Most finance theorists would hold that securities analysts are part of a group of so called "smart money".

However, **De Bondt and Thaler** find that the same pattern of overreaction found in undergraduates is present in the forecasts of trained security analysts. This conclusion casts further doubt onto the idea that smart money will arbitrage noise away from the stock market.Going further, **Corredor, Ferrer, and Santamaria (2013)** examine analysts to see if they really are in fact "smart" at all. The first thing the authors note is that analysts are historically very optimistic. This means that they offer many more positive ratings than negative ones. In order to find out whether analysts are in fact smart, the researchers attempt to find out if this optimism was simply the result of modeling investor sentiment or something else.

Loss Aversion and Diversification Heuristics

The authors analyzed possible causes of an inflated risk premium and were able to come up with a combination of factors to explain it. The authors concluded that a reasonable explanation for the high equity risk premium was a combination of loss aversion and short evaluation periods. Loss aversion is the tendency to react more strongly to losses than gains. Interestingly, **Benzion, Krupalnik, Shavit (2013)** added to **Benartzi and Thaler's** piece to show that the addition of a high-risk stock fund option to the original experiment reduced the effect of myopic loss aversion

The first article to identify the type of diversification mentioned above was **Benartzi and Thaler (2001).** In the article, the authors gave out questionnaires to see how people with knowledge of investing were likely to invest their money. **Benartzi and Thaler** found that investors have a tendency to invest an equal portion of their savings into all options provided by their employer or plan provider. They termed this extreme form of diversification the "1/n heuristic," and while not bad in and of its self, it leaves investors extremely susceptible to having riskier or safer portfolios than intended based solely on the composition of funds that a company offers. However, the researchers were able to conclude that as the result of a diversification bias investors are still driven to put portions of their money in funds that they know have higher fees, the same expected payouts, and the same historical success as a different fund. As **Mauck and Salzieder** point out, this is a clear violation in the Law of One Price. Some mutual funds attempt to artificially inflate yields through

"juicing" as **Harris et. al. (2014)** shows. Juicing as described by the author is the buying and selling of stocks close to their ex-dividend date to artificially inflate the dividend yield that a fund advertises. Equally as unfortunate as the fact that mutual funds engage in juicing, is that as a result of juicing funds are rewarded with greater capital inflows from investors even though they are hurting investors with increased transactions costs and lower overall returns. Also, stocks have been shown to have negative returns just after their ex dividend date, so any theory of increased returns through increased dividends does not hold water.

Predicting Future Prices

One concept behavioral finance has been particularly successful to explain is bubbles in stock markets. **Shiller (1998)** used the foundations of behavioral finance to predict a large collapse in stock prices that became known as the tech bubble. **Vasiliou et al. (2008)** looks at how behavioral finance can be used to predict future prices. In their paper, the authors analyze the returns on the Athens Stock Exchange in Greece from 1995- 2005 of large cap stocks to see whether a combination of technical analysis and behavioral finance can create profitable trading strategies. As EMH argues that all information available at any given moment in time is completely priced into the stock at the moment it becomes available, and as a result no profit can be made through analyzing trends, or anything of the sort. On the other hand, the strategy of technical analysis argues that one can make profits because the stock market moves in trends and will behave in the future as it has in the past. This kind of strategy lends itself quite nicely to behavioral finance theory around feedback theory and momentum observations. In their paper, the authors employed the use of short and long-term moving averages to predict the future prices of stocks. The authors then either bought or sold the stock depending on whether the model suggested it was a buy or a sell. The authors concluded that under the examined trading rules the strategy was "highly profitable" and as a result confirmed the presence of behavioral phenomenon in the Athens Stock Exchange.

Automated trading has been expanding exponentially over the past several years as engineering has caught up with finance. Large institutions are running entire funds that trade on automated algorithms. This is the topic of **Kumiega and Vliet (2012)** as they attempt to initiate academic research into this new tool in finance. In the article, **Kumiega and Vliet** discuss automated trading and the behavioral aspects surrounding it. Obviously, there is very little sub-optimal behavior in a machine if the programming is done well, but there is behavioral component in the actual management of the program to design the machine itself. In general, it has been shown that managers are more apt to throw money at a project rather than shut it down even if it's a financially poor decision. Also, the authors postulate that that this may be pushed even further because of the financial incentives surrounding automated trading development. Despite the high startup costs of an automated trading system, the authors conclude that given its rise in popularity, there must also be a sufficient behavioral component in the stock market to justify its existence.

Application In the Real World

The true test of a financial theory is how it can be applied in the real world. **Kahneman and Riepe (1998)** detailed several biases and general characteristics that investors may possess. The authors also describe what they believe to be the best way to work around them as a financial planning professional. These biases and characteristics include:
• Overconfidence
• Over-optimism
• Hindsight bias
• Overreaction
• Regrets of both omission and commission.

Application is Financial Planning

Like **Kahneman and Riepe, Doviak (2015)** approached behavioral finance from the point of view of a financial planner. In her paper, **Doviak** attempts to hone in on the advisor side and provide readers with strategies for applying behavioral finance to one's practice. **Doviak** stresses that while incorporating behavioral strategies is not for everyone, analyzing a clients tendencies and discussing the reasons behind their biases as well as ways to get around them can lead to increased success in the planning field. The fact that a financial planner is writing about applying behavioral finance to a practice shows that behavioral finance has truly reached the level at which it is applicable to everyday professionals, which is a big step for any theory. **Bucciol and Zarri (2015)** analyzed large amounts of data on the personalities and subsequent allocation of investment dollars of individuals to find out if there is any discernible connection between personality and the way someone invests their money. Interestingly, the authors found that those who scored low on tests for agreeableness or high for cynical hostility were significantly more likely to take greater risks with their investments. This is a significant advance in the understanding of investors, because before this work finance theory has assumed that

investors decide on where to put their money in roughly the same way. However, what this article shows is that the way one sees their life and the world can actually have a sizable impact on their investments.

Investment Decision-Making and Securities Selection

Aside from financial planning and advising, the largest application of behavioral finance is in investment decision-making and securities selection. **Wright (2008)** looks at 16 self-proclaimed behavioral mutual funds to see whether applying behavioral finance to investment decision-making is profitable one, and if there is anything not yet discovered about it's success. Also of note, one of the main funds discussed in the article is actually managed by **Richard Thaler and Daniel Kahneman** sits on the board of the company who runs it. **Wright** found that the behavioral funds experienced an above average flow of dollars into the behavioral funds. Also, these funds generally beat S&P 500 index funds on a raw basis, but their risk-adjusted returns were more or less the same. The author also concluded that this increased risk comes from the so called "value factor". Because their excess return came from the value factor, the author argues that behavioral funds at their core are simply value funds with better marketing. This marketing is why they attract higher inflows of capital not because they are actually better funds.

The reasoning behind this argument is mostly sound, and it would be remiss to suggest that a behavioral fund is remarkably different than a simple value fund, but there is one difference. In a value fund, the manager is using any different number of tools to come up with what they believe is a "cheap" asset. In a behavioral fund, the manager should be locked on to the under and overreactions of the market specifically. The difference is small, but it is a difference nonetheless. Also, regarding the "value factor" finance theory argues that it is a multiplier of returns because it shows inherent risk in the asset.

Given the totality of biases that are present in investors it is obvious that it is easy to make mistakes when investing. Because of this, **Fromlet (2001)** created a checklist of sorts for defensive behavioral finance, which he defines as doing just enough to ensure you do not make mistakes. The checklist Fromlet created is a list of questions and reminders for one to ask himself before acting on a decision. The checklist is as follows:
• Check the source of your information.
• Try to get exclusive information
• Make sure to not make the wrong conclusions in fundamental analysis
• Are your advisors overconfident?
• Are you yourself overconfident?
• Speak with your strategic opponents.
• Compare positive ad negative views
• Be careful of anchoring to an expectation
• How old is the information or forecast?
• How strong is the herd mentality?
• Consider how important messages are being reported (positive/negative
• Is this the latest news in line with my strategy?
• Understand the numbers
• Dare to question recommendations
• See behavioral finance as a strategic tool
• Does it look irrational?

This kind of a checklist is valuable to an individual investor for multiple reasons. First, if an investor is considering an investment idea they came up with, then this checklist can serve as an initial screen for investors to make sure that they are looking at the idea from all angles. Secondly, if an investor is considering an idea given to them by an advisor the investor still needs to be able to do their own due diligence and make sure that is a good strategy. This list gives investors in the second category the right questions to look into and to ask.

Corporate Finance and Capital Budgeting

One part of behavioral finance that is overlooked at times is its effect on corporate finance and capital budgeting. On this topic, **Stein (1996)** tackles below mentioned question:
How finance managers should tackle capital budgeting in light of information brought to the forefront
And how should companies calculate required rates of return if a beta is not predictive of future results, and therefore the Capital Asset Pricing Model (CAPM) is rendered useless?

Stein offers two ways for capital budgeting if CAPM is thrown out. The first is a model that attempts to project future stock returns. If this is the goal of the manager, then something closer to the Fama-French three factor model should be used. However, it can be argued the required returns calculated by the Fama-French model have relatively nothing to do with risk. So, if the goal is to accurately model the risk of the asset, one needs a model that will more accurately capture the real risk of the asset. Ironically, CAPM, or something like it

may be one of the best options if this is one's goal. This is because CAPM theoretically factors in the risk of the stock with a company's beta. **The trouble with only using this however is that normal CAPM betas are subject to considerable noise, and therefore may not be a great measure of fundamental risk.**
So, there is still room for discussion as to what the best model to use for capturing asset risk. Also, Stein concludes that a company's choice on whether to use either approach should lie in whether the company is short term or long-term focused, and whether or not the company has financial constraints. If the company is short term focused it should use models that most closely model future prices, but if it is long-term focused and does not have financial restraints use of the asset risk model is likely to be more advantageous.

Also on the topic of corporate finance, **Heaton (2002)** looks at managerial optimism and how free cash flow can both help and hurt companies with overly optimistic managers. In the article, Heaton finds that managers who are overly optimistic over-estimate the NPV of company's projects and also believe that a firm's risky securities are undervalued. This premise has two results.

The first is that the manager will tend to take projects that are actually Net Present Value (NPV) negative, because they are overly optimistic about the project's true worth. In this sense free cash flow (FCF) is a bad thing because it makes it easier to accept bad projects.

On the other hand, if a manager views a company's securities as undervalued, then he will be less likely to want to issue new securities to fund NPV positive projects. This combination leads to significant loss for the company. In this sense, free cash flow (FCF) is a good thing, because a manager will be able to accept NPV positive projects without issuing new securities.

Another application of behavioral finance to corporations is through prospect theory.

Prospect theory argues that subjects evaluate the potential value of losses and gains rather than the utility of the final outcome. Also, subjects evaluate these values using certain mental strategies, or heuristics, which may not be fully rational. **Kliger and Tsur (2011)** take prospect theory a step further by applying it to troubled corporations. The authors attempted to find out if a company's reference point of loss aversion on the prospect theory curve changed in correspondence with its business performance. The authors were able to conclude that the better a firm's results were, the more loss averse the firm was likely to be. Also, the exact opposite was true for firms that had recently suffered bad performance. Firms that had suffered bad performance were less loss averse and more willing to take risks. While it may seem like common sense that a struggling firm would take more risks to get back on top, a change in investing strategy based off recent performance is a meaningful departure from traditional finance theory. In the end, the authors were able to show that recent performance was a very large factor in future risk vs. return capital budgeting.

Sentiment Shifts

Traditional theory holds that investors will behave the same regardless of market conditions, however simply thinking about how scared some people still are to invest after the financial collapse in 2008 shows that this cannot possibly be the case. **Livanas (2011)** tackles this issue as he attempts to find out how far away from fully rational utility investors really are.

Livanas studied 236 Australian pension investors to determine what their risk aversion and time horizons were. He also looked at how the changes recently made to their portfolios changed their assumed risk levels. The conclusion of the analysis was that as sentiment changed to the negative, risk aversion levels increased. As sentiment surrounding the market becomes negative, or investors are pessimistic about stock returns, it would make sense that investors would be more averse to taking on risk. The practical application of this is that if investors act as this model predicts the effects of a collapse will be essentially compounded by changes in investor sentiment and risk aversion.

This is because as markets turn to the negative there are people that want to sell their securities or assets, however in order for investors to take on risk and buy the stock in question from the seller they will demand a more discounted price than they previously would have. This causes the problem to compound and the result is a steep financial downturn and very discounted prices. In the larger picture, this type of argument fits nicely into the idea that the stock market moves in bear and bull cycles.

Another great view at how investors behave when pressured is presented in **Hu and McInish (2013).** In the article, the authors look at spam e-mails relating to stock recommendations in order see how investors react towards them. Specifically, the authors looked at a sample of 580 different spam e-mail campaigns for different stocks, and analyzed returns from before and after the emails were sent to see if they caused an abnormal spike in trading. It is also of note that the sample of spam e-mails for this study had previously been used in several other scholarly articles. Many of the stocks being spammed were "pink sheet stocks" meaning that they were penny stocks and not traded everyday. However, the researchers noted large increases in trade volume after the spam e-mails were sent. The researchers were able to conclude that spam e-mails do in fact move the market. In addition, the authors also discovered that the more specific and outlandish the predictions in the e-mails were, the more the market moved.

III. CONCLUSION

Where Are We Headed- What is the Future?

After covering a massive amount of information, it is still important to note that it is impossible to incorporate every aspect of behavioral finance in one go. However, just as important as covering as much about the current state and history of a field is projecting where it is going. With regards to this there are likely several different areas of behavioral finance that will shine in the coming years. Some of the perspective areas are:

Wealth and Investment Management

As stated in the paper, investment advisors must take on behavioral finance on two fronts. Advisors must be able to both understand the behavioral phenomena present in prices as well as the behavioral biases and heuristics present in their clients. As a result, it is believed that there is likely to be increased research done on individual investor biases until there is the creation of a somewhat standard test for investor biases.

Hirshleifer (2014) also discusses what he believes behavioral finance will focus on in the future and came up with a similar thought process. **Hirshleifer** argues that more research into the attitudes and motivation surrounding decision-making needs to be done. Specifically, this would include one's choice to borrow vs. save, risk tolerance, and willingness to exploit other participants.

Analysis of Particular Biases and the Grouping of Biases for research

Hirshleifer argues that behavioral finance needs to shift into social finance. **Hirshleifer** defines social finance as studying how "social norms, moral attitudes, religions and ideologies affect financial behaviors."Also important in social finance is, "how ideologies that affect financial decisions form and spread." The idea of social finance is an intriguing one, and if researchers are successful in researching the way these social constructs affect investment decisions it will be a significant achievement.

Developments in Behavioral Corporate Finance

Though the CFO's and managers in charge of capital budgeting are professionals, overconfidence is still very prevalent in businesses. Also, because of the high arbitrage costs for outside investors these problems are much more likely to go unaddressed. Particularly interesting research in the future may include the degree to which activist campaigns from hedge funds to correct the behavioral mistakes of managers. Also, future corporate finance research should focus on the creation of a replacement to or more accurate version of CAPM that still measures asset risk.

Finally, there are two more areas that behavioral finance should look to in the future.

First, researchers need to commit to and get behind a replacement for the Efficient Markets Hypothesis. If this is done, then behavioral finance will have a firm footing and a clear position on how it believes markets truly work. Secondly, it will be interesting to see if researchers can come up with a structure for a market life. Also, research should be done to see if there is a consistent pattern of behavioral biases or mistakes that investors in emerging markets exhibit that gradually become less and less prevalent as the market becomes more developed, or does each economy develop independently based on the population and its unique elements.

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