IRSTI 06.81.12 https://doi.org/10.26577/be.2022.v142.i4.04

A.O. Adaramola[1]* , P.A. Kayode[2] , O.V. Adewale[3] & O.F. Ogiamien[1]

[1]Ekiti State University, Ado-Ekiti, Nigeria, Ekiti State
[2]Adekunle Ajasin University, Nigeria, Akungba-Akoko
[3]Osun State University, Nigeria, Osogbo
*e-mail: anthony.adaramola@eksu.edu.ng

BEHAVİOURAL FİNANCE: AN EXPLORATORY REVİEW

The belief that investors care about utilitarian, rationality, cognitive errors and self-control characteristics by the traditional financial theories have been challenged in the literature over the years by the behavioural financial theories as being unrealistic. To the latter, investors are more often than not, subjected to self-deception, social influence, emotion and heuristic simplification decision-making biases in real life situations. Therefore, behavioural finance uses the influence of psychology to explain the behaviour of investors. For a better understanding of this approach, this paper presents an exploratory survey of the concepts and theoretical underpinnings with respect to behavioural finance. Methodically, this study traces the foundational theories in financial decision and evolving behavioural finance theories. Our review brings to the fore the gap between traditional finance theories and real-life situations which accommodates human aspects in decision making. Amidst the perceived several biases that may accompany human behaviour as it affects financial decisions, we find that both traditional and behavioural finance theories are essential for informed financial decisions. We advocate a synchronization of the two theoretical leanings in taking investment decisions as standalone approach of any of these two will lead to sub-optimal investment decisions.

Key words: behavioral finance, traditional finance, financial decision,, exploratory survey.

А.О. Адарамола[1], П.А. Кайоде[2], О.В. Адевале[3]& О.Ф. Огиамиен[4]

[1,4]Экити мемлекеттік университеті, Нигерия, Адо-Экити қ., Экити штаты
[2]Адекунле Аджасин университеті, Нигерия, Акунгба-Акоко қ.
[3]Осун мемлекеттік университеті, Нигерия, Осогбо қ.
*e-mail: anthony.adaramola@eksu.edu.ng

Мінез-құлық қаржысы: зерттеу шолуы

Дәстүрлі қаржы теориялары утилитарлыққа, ұтымдылыққа, когнитивтік қателіктерге және өзін-өзі бақылауға қамқорлық жасайды деген сенім көптеген жылдар бойы әдебиетте мінез-құлық қаржы теориялары шындыққа жанаспайды деп дауласып келеді. Екінші жағдайда, инвесторлар көбінесе өзін-өзі алдауға, әлеуметтік әсерге, эмоцияларға және нақты өмірлік жағдайларда шешім қабылдауда эвристикалық жеңілдетуге ұшырайды. Осылайша, мінез-құлық қаржысы инвесторлардың мінез-құлқын түсіндіру үшін психологияның әсерін пайдаланады. Бұл тәсілді жақсы түсіну үшін мақалада мінез-құлық қаржысына қатысты тұжырымдамалар мен теориялық негіздерге алдын-ала шолу жасалады. Әдістемелік тұрғыдан бұл зерттеу қаржылық шешімдер қабылдаудың негізгі теорияларын және мінез-құлық қаржысының дамып келе жатқан теорияларын қадағалайды. Біздің шолуымыз шешім қабылдау кезінде адами аспектілерді ескеретін дәстүрлі қаржылық теориялар мен нақты жағдайлар арасындағы алшақтықты көрсетеді. Қаржылық шешімдерге әсер ететіндіктен, адамның мінез-құлқымен бірге жүруі мүмкін бірнеше көзқарастардың ішінде біз дәстүрлі және мінез-құлық қаржы теориялары қаржылық шешімдер қабылдау үшін қажет екенін анықтаймыз. Біз инвестициялық шешімдер қабылдауда екі теориялық тәсілді синхрондауды жақтаймыз, өйткені осы екі тәсілдің кез келгені оңтайлы емес инвестициялық шешімдерге әкеледі.

Түйін сөздер: мінез-құлық қаржысы, дәстүрлі қаржы, қаржылық шешім, зерттеу сауалнамасы.

О. Адарамола[1]*, П.А. Кайоде[2], О.В. Адевале[3]& О.Ф. Огиамиен[1]
[1]Государственный Университет Экити, Нигерия, г. Адо-Экити, штат Экити.
[2]Университет Адекунле Аджасин, Нигерия, г. Акунгба-Акоко
[3]Государственный Университет Осун, Нигерия, г. Осогбо
*e-mail: anthony.adaramola@eksu.edu.ng

Поведенческие финансы: исследовательский обзор

Вера в то, что инвесторы заботятся об утилитарности, рациональности, когнитивных ошибках и характеристиках самоконтроля в традиционных финансовых теориях, на протяжении многих лет оспаривалась в литературе поведенческими финансовыми теориями как нереалистичная. Что касается последнего, инвесторы чаще всего подвергаются самообману, социальному влиянию, эмоциям и эвристическому упрощению при принятии решений в реальных жизненных ситуациях. Поэтому поведенческие финансы используют влияние психологии для объяснения поведения инвесторов. Для лучшего понимания этого подхода в данной статье представлен предварительный обзор концепций и теоретических основ в отношении поведенческих финансов. Методически это исследование прослеживает основополагающие теории финансовых решений и развивающиеся теории поведенческих финансов. В нашем обзоре выявляется разрыв между традиционными теориями финансов и реальными жизненными ситуациями, учитывающий человеческий фактор при принятии решений. Среди предполагаемых предубеждений, которые могут сопровождать человеческое поведение, поскольку оно влияет на финансовые решения, мы обнаруживаем, что как традиционные, так и поведенческие теории финансов необходимы для обоснованных финансовых решений. Мы выступаем за синхронизацию двух теоретических подходов при принятии инвестиционных решений, поскольку автономный подход любого из этих двух приведет к неоптимальным инвестиционным решениям.

Ключевые слова: поведенческие финансы, традиционные финансы, финансовое решение, исследовательский опрос.

Introduction

More than ever before, psychology has become increasingly relevant and important in economics and the financial decision-making process. When Clark (1918) argued that even if economists try to ignore psychology, it is not possible for them to ignore human nature which forms the fulcrum of their studies, one doubts if the author knew the magnitude of the impact psychology would have on economic decisions as it is today. Centuries earlier, Smith (1759) had theorized that human decisions are based on a two-character model of rationality and passion. However, several years later economic decisions have been based more on rationality than passion and psychology until a resurgence of researchers' interest in examining the "other part" of man that may shape his decisions apart from rationality. According to Kuriakose (2017), "The supremely rational 'economic man' has birthed both normative and descriptive understanding of how economic actors make decision. So, economic theorists inadvertently did relegate the other part of the economic actor- irrational, greedy, fearful, regretful, sad, happy, generous, selfless and ecstatic- to the backstage". This position would not last for too long as the human irrational nature began to show in his economic decisions.

Bernstein (1991) quoted Myron Scholes' popular statement "Models fail because they fail to incorporate the inter-relationships that exist in the real world" to dilute the absolute rationality stance of traditional finance theories. Human irrationality become evident in many forms, particularly deviations from the norm; figures became not as relevant as they seem in rationality. It became clear that psychological factors, many of which are easily quantifiable, have great influence on economic decisions. Shiller (2003) affirmed that the theoretical models of efficient financial market that see all human as optimizers and rational beings "can be no more than a metaphor for the world around us". The author submitted that it is very absurd to say that all economic decision makers are well aware and able to solve complex "stochastic optimization models" that traditional finance theories use in arriving at decisions... This study is an exploratory survey of the concept, theories and development of psychology of financial decisions which is termed behavioural finance.

Investors are no robots. They have psyche which can make emotions to influence investment decisions. This is where behavioural finance evolves from. It took financial theorists to come to the reality that rational decisions often become inefficient in real life situations such as the stock market. (Shefrin, 2005) states that behavioural finance is the

quest into how psychology influences the financial behaviour of investors. Although psychology is an age long discipline, the application of its principles to finance is a relatively new attempt to ascertain why investors take decisions that appear conflicting with the principles of rationality Kapoor & Prosad (2017). Authors such as De-Bondt, (2002) and Hirshleifer and Subrahmanyam (1998) have identified issues like overconfidence, herd attitude and self-attrition as possible bias that can cause deciding against the norm.

In defining behavioral finance, Ricciardi and Simon (2000) posit that it encompasses efforts at explaining and understanding investors' decision patterns as influenced by their emotions and other psyche factors. In behavioural finance, researchers try to give explanations on what forms the basis for investors' decisions apart from rationality – the human aspect. According to Kapoor and Prosad (2017), behavioural finance explains investors' psychology vis-à-vis his investment decisions under a relaxed postulation of rationality by traditional choice and financial decisions theories. However, Kapoor and Prosad (2017) note that relaxing these assumptions allow some biases to influence decisions and make them sub-optimal which may lead to anomalies in the market and economy.

Materials and Methods

This is an exploratory survey. In achieving the objective of the survey, we used the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) technique. This involves a systematic examination of literature databases premised on the objective of the survey. We did a step-by-step analysis of past conceptual and theoretical literature in a successive manner, starting with the older to the newer ones. In a systematic way, we, as much as possible, surveyed the pool of conceptual and theoretical literature available on the subject of behavioural finance.

This paper surveyed books, journal articles and conference papers among others on the subjects of traditional and behavioural finance theories. We explored well-researched source papers and citations of credential literature from varied sources. At least, 53 well-researched articles and books spanning were reviewed in the course of the survey. First, we explored the traditional theoretical foundations in financial decisions, and the theories surrounding the emergence of behavioural finance. We thereafter examined the literature on salient concepts guiding the field of behavioural finance (including biases and heuristics) and their applications in investment decisions. We pinpointed the differences between the traditional and behavioural theories of financial decisions and critically examined the arguments against behavioural finance as a sole decision template. We conclude by examining how behavioural finance is applicable in the financial decision-making process.

Literature Review

Traditional or standard financial theories and postulations started gaining ground in the 18th century Pompian (2011) with the like of measure of individual's satisfaction expected utility theory by Bernoulli (1954). Human satisfaction from the consumption of certain good or service, according to utility theory, is measurable in quantifiable terms such that a consumer can attach "utils" to items consumed. The theory of expected utility assumed of a rational eco-man or *homo-economicus* who is a maximizer of benefits/satisfaction in the face of constraints. Essentially, the traditional financial theories were premised on the assumptions of the existence of a perfectly rational man; a man who pursues utmost self-interest and a man who is in possession of complete and perfect market information Pompian (2011). Barberis and Thaler (2003) believed that to reach a rational decision, an investor must have a complete and updated information as well as us the information to maximize his satisfaction so that he would not be better off in alternative decision. Kapoor and Prosad (2017) summarized some traditional financial decision theories as shown in Table 1.

Table 1 – Traditional finance theories

Theorist	Year	Theory
Bernoulli (1954:23-36)	1738, 1954	Expected utility theory
John Stuart Mill (1968:1-65)	1844	*Eco-Man or homo economicus.*
Von Neumann and Morgenstern (1944: 5-73)	1944	Games theory
Harry Markowitz (1972:77-91)	1952	Markowitz portfolio theory
Treynor, Sharpe and Lintner (1962:15-22)	1962,1964, 1965	Capital assets pricing model
Jan Mossin (1966:768-783)	1966	Capital assets pricing model
Eugene Fama (1970:383-417)	1970	Efficient market hypothesis
Note: compiled by the author based on the source Kapoor & Prosad (2017:50-54)		

Bernoulli (1954) was one of the earliest proponents of expected utility theory which states that investors take decisions in risky situations by evaluating the expected satisfaction derivable from investment alternatives and choosing options with the highest utility. The Bernuolli (1954) expected utility theory actually took its root from the theory of games developed by him to solve a lottery game puzzle in 1731 when he argued that when gamers calculate the expected payoff on games alone, not many rational players would be willing to take games.

Von-Neuman and Morgenstern (1944) developed an expected utility model that specifies how an economic man, with rationality decides among competing alternatives. These authors based their theory on the assumptions that (i) alternative ranking; (ii) only relevant alternatives are chosen; (iii) continuous outcomes ranking and (iv) target outcomes, not the information presentation method. The expected utility theory attaches probability to outcomes from investment to determine its return. For several years, the expected utility theory was widely accepted for making financial and investment decisions under risk and uncertainty (Savage, 1964:10).

Markowitz (1972) developed the portfolio theory aimed at achieving optimal portfolio containing a combination of risky and risk-free securities. Markowitz theorized that higher expected returns mean better investment only if the risk (deviation) of the returns makes it more attractive than the alternatives. The Markowitz portfolio theory (MPT), guided by the principles of risk diversification, states that combinations of securities with anti-covariant characteristics can significantly reduce risk associated with expected returns. Sharpe (1964) however argued that a shortcoming of the MPT is that it does not allow both "more and less *risk- averse* investors to find their optimal portfolio"

The capital assets pricing model (CAPM) by Sharpe (1964), Lintner (1965) and Mossin (1966) explain the risk inherent in an asset or portfolio that uses excess return on the market portfolio. Like the MPT, the CAPM also posits that investors diversify their portfolios to minimize deviations such that investors will own a fraction of the entire market portfolio. However, Fama and French (1992) submitted that due to anomalies produced by the CAPM in terms of market efficiency, traditional financial theorists jettisoned it in favour of the efficient market hypothesis (EMH). Earlier, Fama (1970) had argued that the securities market is efficient because it quickly recognizes and reacts to information regarding individual security and the market. Therefore, Fama defined the EMH as a financial market where stock prices reflect information about the market and identified three types of such market: strong, semi-strong and weak depending on how security prices respond to information asymmetry in the market. Kapoor and Prosad (2017) observed that the EMH garnered sizeable empirical success during the first ten year of its conception.

The Emergence of Theories and Concepts in Behavioural Finance

Beginning from the 1970s, the traditional financial decision theories that so much incorporated rationality started giving recognition to human psychology as an influencer of investment decisions that is worth consideration. Table 2 contains the summarized list of the main concepts, theories and models that surround behavioural finance and their authors. These and others are what mark out behavioural finance as a well carved out field, different from subsisting general traditional finance theories.

Table 2 – Behavioural Finance Theories and Concepts

Theorist	Year	Theory/Models/Concept
1	2	3
Herbert Simon (1982)	1955	Bounded rationality (Concept/Model)
Festinger, Riecken & Schachter (1956)	1956	Cognitive dissonance (Theory)
Tversky & Kahneman (1981)	1973, 1974	Heuristic biases (availability, representativeness, anchoring and adjustment) – (Concepts)
Kahneman & Tversky (1979)	1979	Prospect theory and loss aversion bias (Theory)
Tversky and Kahneman (1973)	1981	Framing Bias (Concept)
Richard Thaler (2008)	1985	Mental accounting bias (Concept)
De Bondt and Thaler (1985)	1985	Overreaction in stock markets (Theory)
Barberis, Shleifer and Vishny (1998)	1998	Investor sentiments (Model) as it relates to under- and overreaction of stock prices)

1	2	3
Meir Statman and Hersh Shefrin (1994)	1994	Behavioral Capital Asset Pricing Theory
Andrei Shleifer (2000)	2000	Behavioural finance plus efficient market hypothesis to disprove stock market efficiency (Theory, model and concept)
Barberis, Huang and Santos (1999)	1999	Joining prospect theory in asset prices (Model)
Grinblatt and Keloharju (2001)	2001	Behavioural factors influence in stock trading behaviour (Concept)
Hubert Fromlet (2001)	2001	From 'homo economicus' paradigm to realistic paradigm (Concept)
Barberis and Thaler (2003)	2003	Survey of psychological behaviours that shape Finance decisions (Concepts)
Coval and Shumway (2005)	2006	Behavioural biases, stock prices and price reversals (Concepts, models).
Avanidhar Subrahmanyam (2008)	2008	Normative effects of behavioural finance on investors and top management (Concepts)
Richard Thaler (2008)	2008	How mental accounting affects consumer behaviour (Concepts)
Robert Bloomfield (2010)	2010	Behavioural versus traditional finance approach in the explaination of market inefficiencies (Concepts)
Parag Parikh (2011)	2011	Empirical effect of behavioural finance and investor sentiments on value investing
Uzar and Akkaya (2013)	2013	Evolution: From traditional finance to behavioural finance (Concepts)
Note: compiled by the author based on the source Kapoor & Prosad (2017)		

While we do not intend to fully discuss the theories, concepts and models listed on Table 2, we shall briefly discuss a few of them that are pivotal to the foundations of modern behavioural finance theories and practice.

Simon (1982) proposed the concept of bounded rationality as a departure from the belief that every human is both rational and homo economics. The concept of bounded rationality is predicated on the fact that rationality is not limitless or bounded. All men have one type of limitation or the other in their ability to think, judge and evaluate needs which may render the assumption of perfect rationality unrealistic. Gilovich, Griffin and Kahneman (2002) posit bounded rationality has become a fundamental concept that guides heuristics as well as dual-system thinking models especially because it now forms one of the psychological foundations in the area of behavioral economics. Festinger, Riecken and Schachter (1956) developed the theory of cognitive dissonance which posits that a person can behave in several ways that are conflicting, signaling a situation of mental discomfort, stress or psychological imbalance. In essence, a person's attitude or behaviours can be altered, depending on the situation he is and perception. He has the knowledge that his action may pose immediate or future danger to him, yet in dissonance, still decides to take the action. Festinger et al (1956) believes that cognitive dissonance can only become cognitive consistency (where attitude agrees with behaviour) when circumstances surrounding such behaviours change. How is this theory relevant to behavioural finance? Goetzmann and Peles (1993) attempted to examine how cognitive dissonance affect mutual investors and observed that conflicting attitude/behaviour may occur when investors want to buy, hold or sell financial assets. For example, not all investors will agree that they have made bad investment judgment when they lose even when after there have been signals of rough paths before they undertook the investment. This the authors called "financial cognitive dissonance"

Tversky and Kahneman (1973) developed the prospect theory to explain the process of decision making in risky situations. The theorists' proposition, based on a study carried out on the commercial banking industry, envisages increased risk-taking by investors when there are below-expected results. It is believed that investors can become risk-lovers if they are presently operating below the desired goals such that taking higher risk may encourage higher returns. The prospect theory-based decisions more on value than satisfaction (utility), implying that not all losses or gains are felt the same way. Tversky and Kahneman (1973) proposed three different forms of value attachment to gains or losses: first, the non-uniformity of risk attitude; second, the benchmark for valuing gains and third, losses and loss aversion (the belief that loss last longer than gain). Loss aversion principle implies that investors will seek to avoid loses more than they aspire for gain).

Tversky and Kahneman (1973) developed the concepts of Heuristics and framing bias. While heuristics refer to mental short-cuts in decision making, which allow one to solve problems more quickly and efficiently, framing bias means a situation where decisions based on gains and losses alter final choices of decision makers. Tversky and Kahneman (1979) described three types of heuristics: availability, affect and representative. Availability refers to decision making based on a reminder of some relevant examples that are constantly available in the memory of the decider. Affect heuristics occur when decisions are affected by the present emotional state of the decider while representative heuristics compare the current situation with the most similar mental example or representative (Baker & Nofsinger, 2010).

The concept of mental accounting was developed by Thaler (2008) to describe is a set of mental processes and actions through which people, especially investors make economic decisions. From Thaler's observation, it was discovered that though everyone knows that money is mutually replaceable, decision makers split proposed transactions into different *mental accounts* treat payoffs based on the different accounts.

De Bondt and Thaler (1985) theorized on the overreaction in stock markets. The authors attempted to prove whether the position on experimental psychology research which asserts that "most people overreact to unexpected, sudden and dramatic news or events" is applicable to stock prices. De Bondt and Thaller (1985) believed that the issue of stock market overreaction should be given due attention because it is a behavioural principle that may apply to several other context. In their analysis the authors assessed the degree at which systematic nonzero return after a particular portfolio is formed correlates with systematic residual returns before the formation of the portfolio. Using the monthly stock returns retrieved from the New York Stock Exchange for the period January 1926 to December 1982, the authors' findings validated the overreaction hypothesis. It was found that three years after formation, "losers' stocks" which were considered riskier outperformed "winners' stocks" by more than 25%.

According to Barberis, Shleifer and Vishny (1998) investors' personal expectations can differ from other. Their proposition is based on perceiving the investor as someone "whose beliefs reflect "consensus forecasts" even when different investors hold different expectations; the investor's beliefs can always influence stock prices and returns which can lead to overreaction. Investors overreact when returns expected by investors from a great number of positive shocks and bubbles are smaller than their expected returns from a great number of negative shocks and bubbles. The authors' model assumes that investors do not recognize the random walk nature of stock returns or prices, but he operates between two "world regimes" that are controlled by two different models either of which exhibits the features of random walk instead, while the "world regime 1" exhibits mean-reverting earnings, "world regime 2" follows a trending earnings scenario. These models are in agreement with the representativeness heuristic developed by psychologists.

Barberis, et al (1999) applied the prospect theory developed by Tversky and Kahneman (1981) to the determination of stock prices. The authors posited that the degree of risk aversion among agents varies as their investment performance varies. They proposed a context for stock pricing based on the traditional consumption approach with the ideas behind prospect theory and the effect of "before" returns influence risky choices. Baberis *et al* (1999) argued that as it is in prospect theory, investors will get satisfaction from two areas: the value of his financial wealth and level of consumption. Here most investors are assumed to prefer loss-aversion (more sensitive to decrease in wealth vis-a-vis increase).

Statman and Shefrin (1994) propounded the behavioral capital asset pricing theory which was woven around a market where information traders and noise traders exist. According to these authors, "information traders use the Bayesian trading rule to forecast estimated returns while noise use non-Bayesian rules which makes them prone to errors and biases. In a perfect market with information traders, Statman and Shefrin (1994) posited that there would be no need for behavioural theory in such a market. However, empirical evidence has proved the existence of a perfect capital market difficult, hence, theorists should take cognizance of human behaviours in determining stock prices. This same position was held by Shleifer (2000) Grinblatt and Keloharju (2001), Barberis and Thaler (2003) Coval and Shumway (2005), Subrahmanyam (2008), Bloomfield (2010) and Parikh (2011) on the growing relevance of human behaviour in financial decisions.

The Concepts

1. Biases and Some Other Heuristics

Although we had earlier discussed some of the heuristics associated with behavioural finance in the

previous section, it is essential that a more detailed review is done on some of them to aid our understanding of the concepts that shape modern behavioural finance decisions, particularly on the issues of biases and heuristics in the decision-making process. The following discuss gives insight into some of these concepts.

Representativeness bias

Usually termed: «Like goes with like», representative bias, as stated by Tversky and Kahneman (1973) refers to when people make judgments based on similar events and the decision so made is both subjective and probabilistic. Baker and Nofsinger (2010) posited that representative bias connotes the propensity for people to make decisions based on their assessment of similar results, examples and classifications of events. Tversky and Kahneman (1973) believed that representativeness bias contradicts the basic principles of statistics by basing decisions on similar events alone. This is termed *base rate neglect*. Further, the authors argued that this bias contains some elements of insensitivity to sample size, misinterpretation, randomization and lack of predictability of outcomes. For example, too much faith can be placed on small numbers as representative of the whole and the "gambler's fallacy" (a scenario where a gambler plays lottery expects an immediate reversal of bad luck because it happened in another similar scenario. It is cheer illusion to believe that past good outcomes will mean future good results (extrapolation bias). Again, how true is the assertion that "good stocks are a sign of good companies"? Lakonishok, Shleifer and Vishny (1994), discovered this assumption may not necessarily hold as growth stocks underperform value stocks consistently in their study. This study also disproved the "chartist" position which suggests that future stock prices can be predicted with high degree of accuracy by the behaviour of previous stock prices.

Familiarity Bias:

According to Baker and Nofsinger (2010), this is a bias caused by the decision to invest in stocks you are already familiar with. The problem with this position, however, is that efficient portfolio diversification with its attendant benefits is ignored. All eggs may eventually be carried in one basket and losses from such can be colossal just the gains. In most cases, risk consideration is the major factor that encourage making investment decisions based on familiarity with the stock. For example, foreign exchange risk caused by its volatility can discourage investors from buying stocks of international conglomerates thereby driving investors to buy stocks of local firms which they are familiar with.

Loss aversion

Losses cause more psychological pain than gain causes psychological happiness is the summary of this concept. Tversky and Kahneman (1979) stated that investors are more of risk-averters than gain-seekers, so they will do all within their reach to avoid loss.

Inertia, Self-deception, Attribution and Affect Bias

When economic decision makers become uninterested in improving their conditions even when their willingness to do so will make them economic better, they are said to be inertia. Kapoor and Prosad (2017) believed that the main reason behind such a disposition is when the decision maker if conservative. Self –deception is making decisions in order to preserve self-image even when such decisions are not economically beneficial. Such decision makers allow their search for positive self-image to cloud-out an objective evaluation of a current situation. Such disposition clearly promotes biased decisions. Another type of bias is self-attribution which describes a situation where decision makers adduce successes to their personal efforts but attribute bad results to others. Obviously, this will create biased judgment as the decision maker is precluded from making mistakes in his decisions. Affect bias arises when decision makers permit their previous dispositions to a decision to shape all subsequent decisions on a subject. Again, this is an extreme position as it lacks cognizance to specific conditions and situation under which decisions are made.

Regret

Simon (1982) stated that the concept of regret in the theory of behavioural finance describes it as when decision makers base their decisions on emotions triggered by making a comparison between present outcomes with that of an alternative already foregone. Inman and Mc-Alister (1994) gave a picture of regret when they said "when choosing between an unfamiliar brand and a familiar brand, a consumer might consider the regret of finding that

the unfamiliar brand performs more poorly than the familiar brand and thus be less likely to select the unfamiliar brand. For example, when investors make decision to buy (or not to buy) stock, an emotional reaction is created which may mean that such investors may not be willing to buy stocks with declining value in order to avoid the regret of unprofitable investment decision. However, when an investor follows the "crowd" to purchase an eventually declining stock, the regret is reduced knowing that the "bad investment decision" was not made only by the investor.

Overconfidence?

Overconfidence refers to self-overestimation with respect to a particular decision. Naturally, every human most times over-value his skills and potentials. Mahajan (1992) provided a template on how to measure an individual's overconfidence in a decision-making process. According to the author, overconfidence is shown by "comparing whether the specific probability assigned is greater than the portion that is correct for all assessments assigned that given probability." One main feature of overconfidence is cognitive dissonance, failure to learn from past bad investment decisions. Overconfidence in investment decisions can be caused by gender pride, skill, experience and information. For example, Barber and Odean (2000) in a study discovered that men were more overconfident with respect to their skills than women in investment decisions. Nevertheless, the study also found that women made more good investment decisions than men as the former were able to cut investment costs and get higher returns on investment than men.

Results and Discussions

Traditional theories in financial decisions evolved due to the need to have well-articulated template for making informed financial decisions. Most of the foundational theories in finance have been tailored towards making decisions based on quantitative calculations, estimations and predictions. However, as noted by. Kapoor and Prosad (2017), such quantitative approaches could not solve the problem of disturbances in the stock market. Price crashes, bubbles, boon and doom, under-reaction, over-reaction and other anomalies still characterize the stock market to date. This situation propelled financial theorists to probe into other factors that could be important in the determination of happenings in the stock market, including a peep into human psychology. This quest birthed a new area of thought called behavioural finance. Today, it is commonly stated that the work of Tversky and Kahneman (1973) was the path-breaking effort at establishing behavioural finance as an area of study with decision making under risk as its focus. Their study conceptualized as prospect theory approached satisfaction from the value rather than the utility angle on which most traditional theories are based. We had earlier discussed this theory in the previous section. So, what is actually the problem with traditional finance theories? None! Modern behavioural finance theories are neither superior nor inferior to the traditional finance theories. The two are complements. However, our focus in this section is to first examine the basic differences between these two approaches to financial decision making and second, to show that behavioural finance theories have become complements to traditional financial decision making.

Differences between Traditional and Behavioural Finance

We summarize some arguments and positions which differentiate the traditional finance thoughts to those of behavioural finance.in Table 3.

Table 3 – Differences between Traditional and Behavioural Finance

Argument/Position	Traditional	Behavioural
1	2	3
Rationality	Financial decisions are made by rational decision makers. Rationality ensures that all financial decisions are optimal and all decisions without it will be sub-optimal	Not all financial decisions are based on rationality because not all decision makers are rational
Positive psychology	Decider's psychology will always work in his favour because his psychology will always support him	Decider's psychology can turn out to be his bane, making him to embrace bias, under/overreaction and cognitive dissonance

1	2	3
Perfect market	The security market is efficient, and resources are efficiently allocated	Since not all decision makers act rationally, the market cannot be perfect or efficient.
Stock price	Price equals intrinsic value and reflect the actual state of investor's disposition and market at all times	Some investors may prefer value growth to stock price increases. Price is not always a reflection of the state of investors and market at all times
Assumptions	All investors are the same, maximizers of utility and all are accurate in their predictions.	These assumptions are unrealistic due to psychological differences in decision makers
Information	Quantitative, predictable and analyzable	Qualitative and psychological some of which are not analyzable.
Note: authors' compilation		

Sheriff (2016) did a good job in dichotomizing the differences between traditional (classical) and behavioural finance theories. The author submitted that first, the assumption of rationality of all economic decision makers is at best, unreal and puerile because not all decision makers are "fully rational", and rather many of them make decisions through some rule of thumbs called heuristics and biases caused by emotions and other psychological tendencies. Behavioural finance seeks to bridge the gap between traditional economic theories and human psychology. Almost all economic decisions portray some elements of psychology, but psychological factors can cause suboptimal decisions occasioned by irrationalities, emotions and biases. Table 4 contains some of the arguments advanced against the use of heuristics and other features of behavioural finance.

Table 4 – Arguments against behavioural finance

Criticism	Results	Remarks
Absolute irrationality	Slow or no response to information.	Economic decisions need some degree of rationality
Probability under/over-estimation	Biases	Overconfidence, error in prediction, representativeness and conservatism
High rate of information mismanagement	Cognitive dissonance, regret aversion	Ignoring obvious wrongs because of one's decision and avoiding good investment for fear of making bad choices is counter productive
Crowd effect	Herding and anchoring	Following majorities' decision to invest may be wrong after-all. Many investors give to peer pressure (herding) in making their investment decisions.
Note: authors' compilation		

Making decisions under uncertain circumstances can be very tasking. Sheriff (2016) posited that most decision makers, when faced uncertain situations, make use of behavioural heuristics to decide. Such heuristics include decision based on availability (familiarity); representativeness (similarity) and patterns in random sequences (others assessment). The fear of regret also limits decision makers' liberty to decide quickly and accurately. According to Statman and Shefrin (1994), "people avoid actions that create regret, and seek actions that cause pride and fearing regret and seeking pride causes investors to be inclined to selling winners too early and riding losers too long".

Since behavioural finance had become the major trend in financial decision making, the puzzle is now to what extent does behavioural finance influences financial markets and decisions? Shiller (2003) believed that the impact is yet unclear. This is because the behaviour of financial market and financial decisions are influenced by several social and psychological factors, hence, to solve market anomalies and take good decisions, behavioural finance theories are not superior but complementary to the traditional finance models.

Application of Behavioural Finance

What makes people make irrational decisions even in the face of obvious better alternatives? The reasons are what behavioural finance principles try to explain. Evolving behavioural finance have broadened scholars and researchers' knowledge on the relevance of psychological factors to financial decision making. Though there are possibilities of bias and other individual dispositions that can affect decision makers, heuristics in particular have become veritable tools in making reliable financial decisions. Kuriakose stated that behavioural finance principles and heuristics have become relevant in capital budgeting, stock issues, mergers and acquisitions, retirement plans/pension management, dividend policy and investment. We briefly examine some areas where behavioural finance are applied in modern financial decision making.

It is common knowledge that capital budgeting involves quantitative estimations that reduce all expected costs and incomes to figures. However, with the advent of behaviourl finance, it is possible to evaluate corporate capital budgets from both quantitative and managers' psychology perspectives. Kuriakose again argued that in reality, managers' character traits such as optimism, positivism, fears, confidence, self-esteem, overconfidence etc. can lead to better or wrong decisions. Kuo (2013) explained how behavioural finance can be of help in saving for retirement. For example, the author stated that behavioural economics can be used to by pension managers to influence how people save for their future by developing products and strategies that will transport them from inertia to people who become grossly interested in retirement savings.

In dividend policy, Gürtler and Hartmann (2003) asserted that emotions and mental accounting traits also have limited rationality because they may appraise variations in "wealth instead of final wealth". Therefore, not all investors will value dividends the same way. There can be investors who have inertia to dividend payments because of issues relating to taxation and "smallness" of dividends. Wolfgang, Rieger and Soypak (2013) studied how mental accounting influences dividend decisions among 5,750 firms selected across 32 countries. The authors find that a positive relationship existed between investors' loss-aversion and the time they use in discounting dividend payout ratios. Investors' inertia has also been found to affect portfolio management Kuriakose (2017) which invariably leads to sub-optimal portfolio decisions.

Conclusion

This exploratory survey was carried out to critically examine the concepts, theories and applications of behavioural finance to modern investment decisions. We used the PRISMA approach to do in-depth search into theoretical and conceptual literature on the research subject. The PRISMA system is a systematic review of literature databases based what the study set out to achieve. We did a sequential review and analysis of existing conceptual and theoretical literature from old to recent and current leanings. Systematically, we, as much as possible, surveyed the pool of conceptual and theoretical literature available on the theories of traditional and behavioural finance.

Considerably, the survey perused and analyzed opinions, leanings, propositions and theories from books, journal articles and conference papers on the dichotomy and interplay between traditional and behavioural finance. We explored well-researched source papers and citations of credential literature from varied sources. We reviewed about 53 well-researched articles and books, although the researchers read a host of many others.

Starting from a brief overview of the traditional finance theories, the survey explored the development of modern financial decision as it is influenced by psychology. The paper further assessed the differences between the "two blocks" of theories (traditional and behavioural) and their application. We discussed in depth the concepts of biases and heuristics in behavioural finance. It was noted that while the traditional finance theories rest much on technical analysis and data monitoring, the behavioural finance theories posit that investors should not depend too much on figures but on their financial psychology. A critical examination of the traditional – behavioural finance dichotomy revealed that while the theories on both sides have their obvious advantages and shortcomings, rather than being substitutionary or competitive, they are complementary. We therefore advocate a blend of the two arms (traditional and behavioural theories) in the investment decision process.

Furthermore, continuous empirical studies that validate various positions and theories of the behavioural finance school is also advocated because of the volatility and unpredictable nature of human investment behaviours.

References

Clark, J. M. (1918). "Economics and modern psychology", Journal of Political Economy, 26, no. 1; 1-30. Smith, A. 1759. "The theory of moral sentiments" Oxford: Clarendon Press.

Smith, A. (1779). The theory of moral sentiments: An Inquiry into the nature and causes of the wealth of nations, London: George Routledge and Sons.

Kuriakose, F. (2017). Behavioural finance: beginnings and applications, published lecture note to graduate students of finance at St. Berchmans College, Changanasserry, Kerala, India: DOI: 10.2139/ssrn.2956364.

Bernstein, P. L. (1993). Capital ideas: The improbable origins of modern Wall Street. Oxford: Simon and Schuster.

Shiller, R. J. (2003). From efficient market theory to behavioural finance // Journal of Economic Perspectives, 17 no. 1: 83-104.

Shefrin, H. (2005). A behavioral approach to asset pricing. Brooklyn, Academic Press.

Kapoor, S. & Prosad, J. M. (2017). "Behavioural finance: A review", Procedia Computer Science, 122, 50-54.

De Bondt, W.F. M. (2002). Bubble psychology. In asset price bubbles: The Implications for monetary, regulatory, and international policies. Cambridge, London, England: The MIT Press.

Hirshleifer, D., K., Subrahmanyam, A. A. (1998). "Theory of overconfidence, self-attribution and security market under and overreactions". Journal of Finance, 53: 1839-1886.

Ricciardi, V., Simon, H. (2000). "What is behavioural finance?" Business, Education and Technology Journal, 1: 1-9.

Pompian, M. (2011). Behavioural finance and wealth management: How to build optimal portfolios that account for investor biases (2nd ed.). New Jersey: Wiley Finance Publications.

Bernoulli, D. 1954). "Exposition of a new theory on the measurement of risk", Econometrica, 22, no. 1, 23-36.

Barberis, N. C., Thaller, R. H. (2003). A survey of behavioural finance. Handbook of the economics of finance, 1053-1128. North Holland: Elsevier Science B.V.

Mill, J.S. (1968). Essays on some unsettled questions of political economy. New York Augustus M. Kelley.

Von-Neumann, J, & Morgenstern, O. (1944). Theory of games and economic behavior. Princeton: Princeton University Press.

Markowitz, H. M. (1972). Portfolio selection. Journal of Finance, 7, no. 1: 77-91.

Treynor, J. L. (1962). Toward a theory of market value of risky assets. Unpublished manuscript. Final version in Asset Pricing and Portfolio Performance, 1999, Robert A. Korajczyk, ed., London: Risk Books, 15–22.

Mossin, J. (1966). "Equilibrium in a capital asset market". Econometrica, 34, no. 4: 768-783.

Fama, E. (1970). "Efficient capital markets: A review of theory and empirical work", Journal of Finance, 25, no. 2: 383-417.

Savage, L. (1964). The Foundations of Statistics. New York: Wiley & Sons.

Sharpe, W. (1964). "Capital asset prices: A theory of market equilibrium under conditions of risk", Journal of Finance, 19, no. 3, 425- 442.

Lintner, J. (1965). "The valuation of risky assets and the selection of risky investments in stock portfolios and capital budgets". The Review of Economics and Statistics, 47: 13-37.

Fama, E., French, K. (1992). "The cross-section of expected stock returns". Journal of Finance, 47, no. 2: 427–465.

Simon, H. A. (1982). Models of bounded rationality. Cambridge, MA: MIT Press.

Festinger, L., Riecken, H. W., and Schachter, S. (1956). When prophecy fails: A social and psychological study of a modern group that predicted the destruction of the world (1st Ed.). Minneapolis: University of Minnesota Press.

Tversky, A., Kahneman, D. (1981). "The framing of decision and the psychology of choice", Science, 211, no. 4481: 453-458.

Tversky, A. Kahneman, D. (1979). "Prospect theory: An analysis of decision under risk". Econometrica, 47(2): 263-292.

Tversky, A. Kahneman, D. (1973). "Availability: A heuristic for judging frequency and probability". Cognitive psychology, 5, no. 2: 207-232.

Thaller, R. H. 2008). "Mental accounting and consumer choice." Marketing Science, 27, no. 1: 15-25.

De Bondt, W. F.M., Thaler, R. (1985). "Do the stock markets overreact?" The Journal of Finance, 40, no. 3: 793-805.

Barberis, N., Shleifer, A. and Vishny, R. (1998). "A model of investor sentiment",. The Journal of Financial Economics, 49: 307-343.

Statman, M., Shefrin, H. (1994). "Behavioral capital asset pricing theory". The Journal of Financial and Quantitative Analysis 29, 323-349: https://doi.org/10.2307/2331334.

Shleifer, A. (2000). Inefficient markets: an introduction to behavioural finance, U.K., Oxford University Press.

Barberis, N. C., Huang, M and Santos, T. (1999). "Prospect theory and asset prices, The Quarterly Journal of Economics, 116, no. 1: 1-53.

Grinblatt, M., Keloharju, M. (2001). "What makes investors trade?" Journal of Finance, 56: 589-616.

Fromlet, H. 2001). "Systematic analysis of departures from the homo-economicus paradigm are essential for realistic financial research and analysis". Business Economics, 36, no. 3, 47-52.

Coval, J. D., Shumway, T. (2005. "Do behavioural biases affect prices?" The Journal of Finance, 60, no. 1: 1-34.

Subrahmanyam, A. (2008). "Behavioral finance: A review and synthesis". European Financial Management, 14, no. 1: 12-29.

Bloomfield, R. (2010). Traditional versus behavioural finance in behavioural finance, investors corporations and markets, Kent Baker and John Nofsinger, Eds. New York, John Wiley and Sons.

Parikh, P. (2011). Value investing and behavioural finance. New Delhi: Tata Mcgraw Hill.

Uzar, C., Akkaya, G. C. (2013). "The mental and behavioural mistakes investors make", International Journal of Business and Management Studies, 5, no. 1, 120-128.

Gilovich, T., Griffin, D. and Kahneman, D. (Eds.). (2002). Heuristics and biases: The psychology of intuitive judgment. Cambridge, UK: Cambridge University Press.

Goetzmann, W. N. Peles, N. (1993). “Cognitive dissonance and mutual fund investors”. The Journal of Financial Research, 20, 145-158.

Baker, H. K., Nofsinger, J. R. (Eds.). (2010). Behavioral finance: Investors, corporations and markets. United Kingdom, John Wiley & Sons.

Lakonishok, J., Shleifer, A., and Vishny, R. W. (1994). “Contrarian investment, extrapolation, and risk”. The Journal of Finance, 49, no. 5: 1541-1578.

Inman. J. Mc-Alister, L. (1994). “Do coupon expiration dates affect consumer behavior?” Journal of Marketing Research, 31: 423-428.

Mahajan, J. (1992). “The overconfidence effect in marketing management predictions”. Journal of Marketing Research, 29: 329-342.

Barber, B. M., Odean, T. (2000). “Trading is hazardous to your wealth: The common stock investment performance of individual investors”. The Journal of Finance, 55, no. 2, 773-806.

Sheriff, M. (2016). “Behavioral finance vs. traditional finance” Available at: https://www.researchgate,net/publication/311970631

Kuo, J. (2013). “Real-world applications of behavioural finance ‘ Available at:,

Gürtler, M. Hartmann, N. (2003). Behavioral dividend policy, Working Papers No. FW04V1, Technische Universität Braunschweig, Institute of Finance.

Wolfgang, B, Rieger, M. and Soypak, C. (2013). “The behavioral foundations of corporate dividend policy: A cross-country analysis”. Journal of Banking and Finance. 42: DOI: 10.2139/ssrn.1804265.