



## BEHAVIOURAL ANTECEDENTS COMPLEMENTING CLASSICAL FINANCIAL MODELS FOR RATIONAL DECISION MAKING



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### ABSTRACT

#### Article History

Received: 8 August 2019  
Revised: 13 September 2019  
Accepted: 18 October 2019  
Published: 2 December 2019

#### Keywords

Behavioral antecedents  
Capital structure  
Rational decision  
Information.  
Cognitive psychology  
Portfolio choice  
Investment failure.

Behavioral antecedents precede rational investment decision and an investor cannot achieve rationality without credence to psychological impetus. In literature choice making is rationalized and investors conform to set models and rules which theories has become fundamental and expected to be internalized in portfolio ordering. In the absence of rationality, theory postulates the possibility of financial distress, risk to equity holders, in the event of poor performance when a company geared than optimal fails to honor its debt obligations. The current school of thought suggests cognitive psychology of investors as the factor influencing investment decision disputing the rationality of decisions. Corporate and investment failure to the classical and fundamental theorist is alluded to irrational decision and to the behaviorist it is not a rationality issue but cognitive psychological filters that influence the investment decision. Information, its source and influence is out of the equation, as a stimuli. Literature is synthesized on the investment decisions from traditional and classical financial models and how independent of behavioral psychological impinges. Attention is directed to the fact that investors react differently to available information, with rationality achieved when psychological impinges complement classical models, according to investors understanding, disposition, expectations and self-interest.

**Contribution/ Originality:** The paper primary contribution is finding that investors are enjoined to make use of classical financial models and information and their cognitive psychology as directed by the socio-cultural environment to make investment decision.

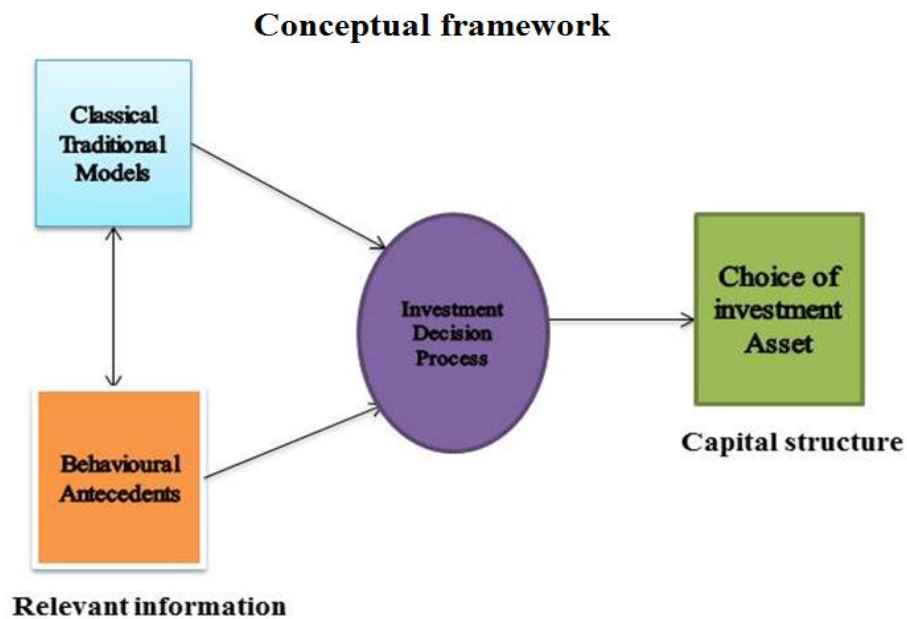
### 1. INTRODUCTION

Offer of financial assets in business finance have seen varying theories as to the rationality of behavior in making investment decisions. There are theories like capital structure, pecking order, trade off, efficient market hypothesis, capital asset pricing model and others. These theories fashion the rationality of behavior to conceptualize the process of portfolio choices, to achieve desired objectives. The investment decision made and funds received by the firm establish the capital structure unique of others in consonance with information from management (Ross *et al.*, 2002; Niu, 2008). Capital structure deviating from the optimal level associated with an industry may expose the firm to risk of financial distress, a disadvantage to equity holders. Pecking Order Theory assumes uneven of information between managers and investors; investors have less information such that common stocks would be undervalued by the market (Myers and Majluf, 1984). In the static trade-off consideration, there should be a balance between interest tax shields of debt and the costs of financial distress

with the assets and investment plans remaining stable (Jensen, 1978; Myers and Majluf, 1984; Niu, 2008). The classic models of Markowitz (1952), Sharpe (1964), Fama and Miller (1971) and Merton (1972) construct the efficient frontier, and are the single testable hypothesis associated with the valuation of a firm (Roll, 1977; Livanas, 2008).

Other investment decision functions or factors including; market characteristics, individual risk factors and accounting information may also influence investment decision (Jagongo and Mutswenje, 2014). The classical financial theories have been the accepted and driving forces that are mostly considered for investment decisions. Limiting investment decisions to capital structure and the other classical models is obscuring the dynamics and possible optimization of the portfolio of debt and equity capital particularly the potential geared structure. The mean-variance efficient analysis and the other theories may limit the behavioral antecedent of the potential investor in making his preference ordering. Current development on behavioral science is a potential driver to play significant role in investment decision (Shefrin, 2000; Shleifer, 2000; Barberis and Thaler, 2003; Livanas, 2008; Jagongo and Mutswenje, 2014). Behavioral analysis requires education to better informed investors to make the right choices on an equal playing field (Karlsson, 2007). Behavioral analysis should provide qualitative information to complement that of the classical models for feasible investment decision. However, there seem to be lack of such understanding. Qualitative and quantitative research in the UK consistently shows that people have limited knowledge and understanding (Collard, 2009). This notwithstanding it is equally important to accept the fact that investors has the right to decide and make choices as to what investment assets should make up their portfolio. It is appropriate fact that investors consider other factors of qualitative or quantitative nature, either than capital structure and its disposition of financial distress, in making their choices. There are some challenges as; choice and information overload, unstable or undefined preferences, heuristic decision making, framing effects and investment menu design, procrastination and inertia, overconfidence and lack of consumer understanding and knowledge (Collard, 2009). Information is needed by investors to address these challenges to optimize investment returns. Investors have different backgrounds with objectives driven by factors difficult to synchronize and portable in every environment and cultures. They rely mostly on information in the market to make their decisions which information should be credible. Despite the required credibility of information, investors' behavior and reaction may be a matter of their psychological and emotional impulse that may finally direct them. It is possible to get such emotional behaviors modelled to meet set patterns and principles repeated over time in some environments as a practice and cultures difficult to be defiled. The emotional behaviors and responds to the market characteristics may not conform to strict rationality process of the classical models but metamorphose to take shape as prescribed by the mental impulse. It is not be out of place to posit that investors' investment decision is influenced and directed by both quantitative and qualitative drivers. The quantitative drivers coming from information presented in figurative form like financial statements, financial market analysis and those presented by the traditional and classical models complement to reach investment decision. The qualitative drivers may stem from behavioral antecedents preceding investment decision which has been the focus of behavioral finance theory separate from classical theories. The paper directs attention and synthesizes literature to investigate investment behavior of investors, consequential to reaction to available information, which impinges on psychological emotions and on rational response epitomized by classical financial models. Such psychological impinges may encompass socio-cultural, environment, type and disposition of investors and the objectives driving such issues. This process should demonstrate a form of rationality investment (Kumar and Goyal, 2016). For want of information individual investors may not conform to ideal rationality (Kumar and Goyal, 2016). Information then plays a significant role in determining rationality. To down play information in this regard is quite absurd. It is unthinkable for any person to just stand up and go to the financial market and acquire an investment asset not supported by initial enquiries, like going to a café to

satisfy your thirst with empty hands, without paying for the service. It looks like the argument on rationality or irrationality is skewed at the success or failure of an investment decision. When the decision goes well it is rational otherwise it is irrational (Adair *et al.*, 1994; Zahera and Bansal, 2018) Irrationality of the decision is then seen as stemming from behavioral distortion which cannot be factual. Any distortion is a matter of underlying information either qualitative or quantitative used in the investment decision not being sufficient, reliable or relevant. The cardinal point is that investment processes and methodologies are all addressing expectations because of uncertainties and we cannot achieve 100% accuracy in every domain of the processes. Secondly not every investment is taken with the objective of expecting maximum returns or cash flows but some may be for an objective to correct an ill, and to limit the incidence of deviance in society. The objective enforces and ensures conformity of policy and accepted norms and cultures. Once the objective is met rationality is settled. This should defeat the argument on distortions and biases as noise, projected by behavioral finance negatively in investment decisions. They are rather drivers that shape thought in situations of uncertainty. The problem addressed here is traditional and behavioral theories are seen as being independent in decision making. Traditional theories consider rationality as adherence and conformity to rules and principles and behavioral theory diffuses rationality but focus on cognitive psychology. Rationality of information as the underlying factor for investment is missing out in the equation of behaviorists. In situations of uncertainty credible information is key, the absence of which investor will employ cognitive psychology embedded in their socio-cultural experiences and behaviors to complement the traditional decision processes. The rest of the work is addressing; traditional models of rationality; behavioral finance and investment decision; behavioral antecedents driving investment decision, and psychological distortions and emotions.



**Figure-1.** Traditional/ classical financial models/ complementing behavioral antecedents.  
 Source: Researcher model.

Figure 1 is demonstrating how classical financial models complements behavioral antecedents to guide the investor for choice of investment asset that lead to capital structure dependent on relevant information and how communicated. The adequacy, reliability and relevance of information determine the level of cognitive psychology and the socio-cultural influence to impact on the final investment decision on choice of capital.

## 2. TRADITIONAL MODELS OF RATIONALITY

Different views on market behavior are expressed and theories developed to explain the movement in share prices and guide investors' decision on share acquisition and disposal. Investors build their investment portfolio on the basis of available information. Share price behavior theory and analysis, the theme under this section, focus on how some classical theories influence investors' preference and choice complemented by cognitive psychology

### 2.1. Fundamental Analysis, as Basic Theory

The value of the firm or the share price, as a quantitative information, holds the view of all future expected dividend payments on the share discounted at the shareholders cost of capital. There are two approaches for price predictions as:

- a. Constant payment of dividend every year.
- b. Dividend growth at constant rate (g) every year, for a given foreseeable future.

The rationality of valuation of the share is largely an implication of change in interest rate of return as against the coupon or existing rate. The market prices of shares will fall when there is rise in interest rates and when there is any decline in interest rates share prices will rise. When interest rate rises as against the existing rate on the share, investors will move elsewhere for the new opportunity therefore, the price of the share will fall for lack of attraction until the rate on the share change and moves up. Likewise if the interest rate of the market declines, as against that of the share, the price of the share will rise because more of the shares will be demanded by investors. The variables guiding the predictions of share values and prices depends on available information that shapes the behavior of the investor. How relevant is the information motivating the decision should be of concern to the investor or analyst. The data and any information there from are mostly past and historical derived from past dividend payments to predict future expectations. Models are hypothetically developed to test and predict future return and value outcomes as guides to investors. The investor then employs any of the psychological factors as overconfidence, herding, heuristic, framing and others suitable in the given culture and environment to make a decision.

### 2.2. Charting or Technical Analysis

Charting as a technical skill in presenting data on visual mode or graphical representation of share prices help predict direction. It is expected that the prices will follow similar pattern and repeat itself over time. It cannot be claimed with certainty that every major price movement can be predicted accurately and satisfactorily to make the correct investment decision because of lack of relevant information. Chartists are not concerned with predicting price change but primarily interested in trend reversals, which is further proof to provide information for investment decision. These are hypothetical models developed to test and predict future return outcomes and as a guide to investors. The charts on their own cannot be the final decision of investment. It is the cognitive psychology working on such data that find tune the process to make a decision influenced by socio-cultural understanding of the investor.

### 2.3. Random Walk Theory

This theory envisages an intrinsic prices is dependent and reflection on:

- a. The fortunes of the company, that is, if the company is doing well it will reflect in the values or prices of the company.
- b. The expectations of investors. If investors are with high hopes with the view that there are good prospects ahead it will compel them to demand more of the share and push the prices up.

This theory assumes the intrinsic value of the share price changes as new information becomes available. Investors will behave and react with direct response to price movement at random. With share price movement being random, it could as well be erratic, therefore investors should be cautious about the movement in making investment. There is the interplay of raw data and cognitive psychological impinges to make a deserving decision.

#### 2.4. The Efficient Market Hypothesis (EMH)

This is major finance theory that came out of the study or work undertaken by Eugene Fredric Fama, 1965. The work posits that Market (Stock Exchanges) is efficient where;

- a. Trade reflects available information and share prices change quickly according to future prospects and the market position.
- b. The market is fair to all participants.
- c. Transactional cost is normal, not outrageous to discourage trading.

The proponents of EMH assert investors do not earn above-average returns without risk (Bank and Brustbauer, 2014; Anspach, 2017). Any anticipation of prices movement can be predicted if:

- a. An effort of the firm will be profitable and shareholders demand pushing the price up to enjoy dividend growth.
- b. In the absence good fortunes shareholders will know therefore, the company's shares will not be of demand and its prices will fall.
- c. If interest rates rise, shareholders will want a higher return from their investment and therefore market prices shall decline.

The stock can be categorized into three degrees of efficiency as; weak form, semi strong form, and strong form

Weak market is a test that demonstrates price response to past information without knowledge of any mis-priced securities (Clarke *et al.*, 2001; Rothbort, 2009). The current market has no value in anticipation of new information.

With semi strong market prices reflect;

- a. Available information on past price movements.
- b. Knowledge available publicly on valuation of shares.

The market anticipates share price changes before new information is publicly announced and made known (Clarke *et al.*, 2001; Rothbort, 2009; Anspach, 2017). The market should be semi-strong efficient if it is able to anticipate an idea of new acquisition. The idea should reflect in the price of the share before the announcement, so that the share price change in advance of the acquisition move is confirmed.

Strong market is a test proving prices reflecting information from;

- a) Past price.
- b) Public knowledge.
- c) Insider knowledge.

These fundamental and efficient market hypotheses have been variously criticized and challenged as to its correctness (Clarke *et al.*, 2001; Rothbort, 2009; Bank and Brustbauer, 2014; Anspach, 2017; Causi, 2017).

Other anomalies about Efficient Market Hypothesis revealed by Clarke *et al.* (2001) are the issues of; over-reaction and under-reaction affecting price changes in the market as posited by De Bondt and Thaler (1995); Ball and Brown (1968) value versus growth where participants in the market over estimate future growth rates for stocks of high book value relative to stocks of low book value; small firm effect where average returns are too high to be justified by CAPM posited by Banz (1981).

Investors being rational should react and behave differently and randomly, towards information made available by the firm, depending on their interest, uses and understanding of the information. Investors are influenced by available information to react and behave accordingly in making their preference ordering and investment decision that finally gives the firm its capital structure. The bottom line is the cognitive psychological impinges of the investor emanating from experience and influences of the socio-cultural environment to digest the information for rational investment decision.

### **3. BEHAVIOURAL FINANCE AND INVESTMENT DECISION**

This section looks at behavioral finance in investment decision questioning the reliability and authenticity of traditional financial theories in investment decision in situations of risk and uncertainty (Zahera and Bansal, 2018). In complex situations saddled with high volume of unclassified information, the capacity of the human brain/mind to analyze and select the relevant information for informed decision is short changed for shortcuts, heuristic decision-making methods. Technology and sophistication is impacting on the financial market with information so complex to dissuade investors into cognitive distortions in a bid to avoid risk (Jagongo and Mutswenje, 2014). Behavioral Finance has recently captured the attention in the investment domain and the discussion on how decision is influenced by attitudes and characters on the flip side which are not featuring in the fundamental and traditional theories. It focuses on financial and investment decisions matters to establish behavioral in the psychology, sociology and anthropology disciplines (Causi, 2017). The quest for alternate strategies, as against traditional financial theories, to explain and guide investors in choosing their investment portfolio in the midst of risk and uncertainty of investors' interest brought in behavioral finance (Shefrin, 2000). Keynes (1936) emphasized a market of wants with optimism and pessimistic tendencies beyond psychological comprehension. This limitation is motivating an inner urge to demonstrate how investors' psychological energies can fill the gap based on emotions and sentiments in moments of uncertainties. This go against the accepted norm of rationality in the decision process which leave investors in disarray when it matters most. A revelation in the financial market is disputing the reality of rationality and market efficiency to interpret behavior (Causi, 2017). There are cases where investors decision deviates the theoretical rules of rationality (Simon, 1955; Zahera and Bansal, 2018) and the objective of optimizing returns and cash inflow but may be influenced by emotional instincts (Keynes, 1936) driving by cultural, environment and investors dispositions, risk and uncertainty (Neumann and Morgenstern, 1953; Slovic, 1969). Unstructured decision processes dealing with complex information ridicules the psychological capacity of investors. In this case the brain attempts heuristic decision-making methods to make a decision (Causi, 2017). Literature is revealing the capacity of the human mind to influence behavior when it comes to investment decision dependent on available information, prevailing circumstances and environment with no respecter to the traditional financial theories. It seems as if the psychological impinges on investment decision and that of classical models are mutually exclusive in coming out with the final portfolio choice. To assume an exclusive posture in the investment decision process portrays investment as an event having nothing to do with the environment and it cultures and publics. The behavioral and psychological impinges as qualitative drivers on one hand and traditional and classical models on the other complement each other to achieve the best of decision satisfying the investor, his/her environment and publics and other objectives in general terms.

### **4. BEHAVIOURAL ANTECEDENTS DRIVING INVESTMENT DECISION**

Behavioral finance projects a condition depicting spectacular event where psychological emotions are independent of other factors that can influence investment decision. The concept laid more emphases on the number, frequency and complexity of information that beckon on the brain to facilitate short cuts, heuristic decision-making methods, to reduce the data processing time (Causi, 2017) as well as cognitive filters (Simon,

1955; Slovic, 1969; Tversky and Kahneman, 1971) to select the relevant information to make an informed decision. The information under consideration may come from different sources and the investors may have different objectives, influenced by their environment and cultures, acting as drivers of psychological and emotional challenges in investment decision. The drivers and pillars on which the number, frequency and complexity of information may evolve include; the type or kind of investor, culture of the investor, environmental issues and corporate social responsibility in addition to financial and economic data (information). Informal communication in the form of interpersonal communications, word-of-mouth communications are good channels of soliciting information (Shiller and Pound, 1989; Ivković and Weisbenner, 2007). To make savings, interpersonal exchanges with trusted confidants in acquiring more information increase trading among overconfident investors (Epstein and Schneider, 2008; Abreu and Mendes, 2012). In the normal sense investors eschew information from friends and family confidants but go for specialized source of information to increase their trading activities, and accept risky assets (Abreu and Mendes, 2012). Institutional investors, accommodating professional skills and expertise, have high prevalence in depending on formal and quality source of information emanating from corporate bodies; example company's stock characteristics, financial situation, industry and sectoral information (Abreu and Mendes, 2012; Jagongo and Mutswenje, 2014; Islam *et al.*, 2017).

#### *4.1. The type or Kind of Investor and their Behavioral Drivers*

Investors may be classified by grouping as an individual or institutional investor, by gender as male or female, age group as youth or elderly, professional skills and expertise with different psychological and emotional influence. Institutional and individual investors may require different information and their source in their investment decision. Individual investors may be influenced by expected returns and herd behaviors (Banerjee, 1992; Welch, 1992; Warther, 1995) family composition, biological connectivity, and lifestyle to achieve rationality (Lin, 2011; Mathuraswamy and Rajendran, 2015). Economic and political facts direct institutional investors in their decisions (Menkhoff, 1998) and investment mentors to support any conclusion drawn. Behaviorists ponder of irrational and rational investors having diverse reaction to market information. Rational investors consolidate their market positions with the irrational ones kick out due to insolvency. Gender, education, age and market orientation also have influence investment decision with behavioral biases exposing less fancy individuals of their inexperience in classical decision-making (Hoffmann *et al.*, 2015; Chavali and Mohanraj, 2016). These are testimonies that psychological impinges influence investors in choice and preference ordering to complement available information from other models where there is uncertainty or other qualitative objectives are at stake.

#### *4.2. Culture*

Culture is another diver that influences investors' decision. Positive affirmation towards socio-cultural welfare for general good of the environment into the foreseeable future, play a role in the investment ambition and performance of investors (Howard, 2014; Li *et al.*, 2016). Market is not always stable and predictable. Fluctuations may set in with volatility sentiments directing the returns to be offered investors, who as rational beings may be informed on their investment disposition (Howard, 2014). Personal values of honesty, comfortable life and family security on the behavioral decision-making and choices have a great impact on the investment of individual investors (Agyemang and Ansong, 2016).

### **5. PSYCHOLOGICAL DISTORTIONS AND EMOTIONS OPTIMIZING RATIONALITY**

Heuristic biases distortions take different forms and levels of effect and to deal with it require heuristic strategies matching the problem characteristics (Tversky and Kahneman, 1971). The distortions (biases) can be

an error in an investment decision with insufficient return and excessive risk exposure; collective biases from different investors whose behavior exceed a certain critical level with contagion effect; generic market inefficiencies featuring prices distortions or anomalies in return for different investment cycle (Kahneman and Tversky, 1979). Prospect theory provides a strategy to compare risk return relation of different investment opportunities and their utilities. Behavioral distortions of loss aversion, overreaction and behavioral biases have propensity to enable rationality and irrationality decision to impact negatively on the economy. However, with adaptive market hypothesis (Soufian *et al.*, 2014) the market adapt itself to its inefficiencies and recover to function as anticipated by the participants. Investors may prefer short-term gains and losses to their own long term investments a situation of “myopic loss aversion” (Benartzi and Thaler, 1995) Human subjectivity, emotions and desires, familiar influence, investment objectives, risk dimension, the feeling of guilt, rationalization, fear and anguish are forms of psychological distortions that may deviate rationalism in investment decision (Godoi *et al.*, 2005; Kleinübing Godoi *et al.*, 2005). The heuristic behavior by different authors are summed up in Barberis and Thaler (2003); (Causi, 2017) as:

- a) Over confidence- a behavior that deals with attitudes of over estimation of investors own abilities (Lichtenstein *et al.*, 1977; De Bondt and Thaler, 1995; Barber and Odean, 1999).
- b) Anchoring Heuristic- the tendency to cling to original figures and eschew change even with new information available to take advantage (Barberis and Thaler, 2003).
- c) Representativeness deals with the status quo of economic agents (Kahneman and Tversky, 1974; Slovic and Tversky, 1982; Warther, 1995).
- d) Availability- Lackadaisical Phenomenon of relying on past experience in decision making (Kahneman and Tversky, 1974).
- e) Loss aversion- The individual behavior is tilted towards losses more than gains under conditions of uncertainty, panic and fear of losing monetary value (Kahneman and Tversky, 1979).
- f) Under reaction and over reaction- under reaction is state of prices of securities reacting to new information below expectation in the interim (Barberis *et al.*, 1998). Over reaction is the situation prices of securities respond quickly to new information beyond expectation in the long term (De Bondt and Thaler, 1985; Barberis *et al.*, 1998).
- g) Conservatism- Judgement that follows the status quo, a resistance to change affecting the decision making of individual.
- h) Heuristics behavior; preference to game of chance or bet, a comparative ignorance, depicting a situation revealing the shortcomings of the individual competencies of an event and superior expertise in another.

Disposition effect is a phenomenon explaining investors' tendency to appreciate the gains, but refuse to realize losses (Shefrin and Statman, 1985). Investors in this position sell those funds which have made positive returns and are refuse to dispose the loss-making funds (Shapira and Venezia, 2001; Dhar and Zhu, 2006).

### 5.1. Herding

Herding has to do with the behavior where individuals follow the footsteps of others in making their own judgements

From literature one may noticed that investors' behavior behind any investment decision is greatly influenced by available information at the market place and its relevance. Taking the case of Efficient Market Hypothesis the arguments made for it or against, it is dependent on the information underlying the analysis. If the information is not right for the analysis there is bound to be inconsistencies in either case of; for or against the EMH. These anomalies and inconsistencies may be due to the information made available in the market as to its relevance, adequacy and reliability to the decision making or research analysis. Bank and Brustbauer



(2014) writing on investment sentiments in financial markets saw the need to study investors' sentiment in investment. They opined that investors are prone to sentiments and they constantly react to information influenced by their cognitive psychology. Abdulkadir *et al.* (2016) noticed in Nigeria window dressing accounting information in anticipation of inviting investors to acquire shares with the intension to over-value assets and net worth.

Relying solely on traditional finance theory and accounting information to conclude on the possible outcome of investors' decision could distort other vital factors, in behavioral terms, which motivate investors in making their preference ordering and choice. The psychological, distortions and biases seen negatively as noise in investment decisions should rather be drivers shaping and complementing classical models to optimize rationality in decision making. The outcome of the preference ordering, based on emotional response to available information is the capital structure. It can be deduced that the wrong decision based on wrong response with emotional sentiments, to wrong and complex information give birth to erratic capital structure. Therefore financial distress is not occasioned by capital structure per se but by the wrong fundamentals underlying the final investment decision giving birth to the financial structure.

## 6. CONCLUSION

The work looked at classical models of finance and psychological behaviors of investors that precede their investment decisions and how the two may compliment to help investors achieve their goal and objectives. The classical models are built and theorized on the basis of rationality postulating that investment decisions are made with guiding principles and rules. Investors relying on information, in the financial market, on the firm investment assets prevail on their decisions. The behavioral antecedents encompassing psychological distortions and emotions and behavioral finance as a concept laid more emphases on the number, frequency and complexity of information engage the brain to facilitate short cuts, heuristic decision-making methods, to reduce the data processing time (Causi, 2017) as well as cognitive filters (Simon, 1955; Slovic, 1969; Tversky and Kahneman, 1971) to select the relevant information to make an informed decision. The two, classical models and psychological behaviors are projected as being mutually exclusive to influence investment decision in different style. Behavioral finance dwelling on the psychological impulses investment decision is challenging the rationality of decisions made through the classical models emphasizing the presence of psychological distortions and emotions in the decision process. Literature is not in total support of this assertion from the behavioral finance. It is here established that the two work in unison in the investment process and are not independent. The behavioral finance prevails when an investment decision fails, adducing the problem to classical models as being irrational. We cannot exonerate agency from the investment failure. Every decision is made based on available information which should be relevant, reliable and adequate and the information is from the firm and its agents. The information should as well be properly communicated. There is the need of developing strategies and framework of reporting and communication of financial information to the investing public taking account of their socio-cultural background. This will expose investors to alternatives in positive and negative shades to reduce the biases in investment decision (Nenkov *et al.*, 2009). Cunningham (2002) in a models demonstrated how prices are formed, and how investor behavior can help to analyze corporate governance compelling classical and behavioral finance complement for better decision and not against each other.

**Funding:** This study received no specific financial support.

**Competing Interests:** The author declares that there are no conflicts of interests regarding the publication of this paper.

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