

Investor Behavioural Pattern: An Empirical Study of the Ghana Stock Market

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Behavioral finance has diffused steadily into academia and practice throughout the globe mainly as a result of works of scholars. It seeks to identify psychological factors that influence investor decision making, refuting the assumption of investor rationality and market efficiency championed by classical finance scholars. With the use of questionnaires; data was collected from investors who have invested in stocks listed on the Ghana Stock Exchange. The study found the existence of biases of representativeness, availability, risk aversion, mental accounting, anchoring and overconfidence in the Ghanaian Stock Market. Apart from the irrationality of the investor, market inefficiency was also identified.

INTRODUCTION

Behavioral finance has emerged in recent times as a significant field in academia. This field of finance employs psychology models and theories to explain investor decision-making pattern in the financial market. It stresses that psychology influences decision making in financial markets and detects the crucial variables that create irrational behaviour of economic agents. Ultimately, behavioural finance argues that financial decision-making is influenced by individual and market psychology. In the views of Taffler (2002), behavioural finance helps to address issues such as: factors that cause stock market bubbles (crisis), factors that cause volatilities in the stock market, reasons why mispriced stocks are difficult to identify, reasons why stock prices appear to under react to bad information, and reasons why most board of directors often perceive their companies as undervalued by the stock market.

Classical modern investment (finance) theory and practice is built on theories mainly the Capital Asset Pricing Model (Sharpe, 1964), Arbitrage Pricing Model (Ross, 1976) and Efficient Market Hypothesis Fama (1970, 1991). These theories are built on the notion that:

- 1) the market participants are rational economic beings, and they always act in their self-interest to attain optimal decisions.
- 2) the market fully, accurately and instantaneously incorporate all available information on market into stock prices.

Regrettably, the assumptions of rationality of the market participants and market efficiency have come under intense attack from proponents of behavioral finance. These researchers have documented a list of deviations from market rationality in the form of biases or prejudices that are perceived to be ubiquitous to human decision making which can lead to undesirable outcomes and therefore does not enhance the economic welfare of the investor.

Several empirical findings have raised damning problems about the market efficiency since the 1980s. These studies reveal cases of over or under reaction of the market issues such as the emergence of unexpected bad or good information, and therefore imply the rejection of the efficient market hypothesis. These scholars have contributed immensely to the development of the behavioural finance theory. The proponents of behavioural finance reject these traditional theories and explain that investors are prone to cognitive biases that influence their beliefs and preferences and therefore in most cases throw the assumptions of rationality of economic agents and market efficiency overboard. They also argue that investors' decision making is a factor of several variables or parameters such as age, gender, education, emotions, culture, capital invested, profession, utility maximization, returns among others. These factors assist in determining biases and prejudices that emerge from the investor's behaviour. By arguing that finance and investment decision making are influenced by factors such as individual biases, self-control, mental accounting, savings, fairness, altruism, public good, learning, incentives, memory, attention and categorization; behavioural finance throws more light on theoretical insight about investor behaviour and creates a system for more reliable predictions of investor behaviour pattern. Our emotions and feelings are powerful forces that often override our logical reasoning and this tussle usually affects our financial and investment decision-making which eventually results in sub-optimal results.

This paper seeks to study the behavioural pattern of investors in the Ghanaian stock market by examining the forces that dominate their decisions. It seeks to examine the mentality of investors in Ghana and their investment preferences by attempting to unravel the key factors which impact on their investment decision-making and therefore their transactions on stocks. It strives to explain the irrational factors which have impact on investment decisions and portfolio selection of investors in the Ghanaian stock market.

LITERATURE REVIEW

Classical financial theory assumes that a) investors act in a rational way, and b) take all available information into account in their "buy and sell" decision-making process. The financial market, and the stock market in particular is perceived to be efficient and prices of security are seen to manifest their true or intrinsic values. Underpinning the assumptions rationality and market efficiency are well known theories in classical finance: Portfolio Theory of Markowitz (1952); Capital Asset Pricing Model of Sharpe (1964); Arbitrage Pricing Theory of Ross (1976) and importantly the Efficient Market Hypothesis (EMH) of Fama (1970 and 1991).

Regrettably, there are several studies which refute these theories and argue strongly with empirical evidence against the feasibility of these theories even within the Classical finance circles. Notable among the theories that have been strongly refuted are the CAPM, APT and EMH. Empirical studies depict that the CAPM is not only observable but it is also untestable in reality (Roll, 1977; Fama and French, 1992). The APT suggests that rational investors undo price deviation away from the fundamental values quickly and maintain market equilibrium. Those who hold on to APT nurture the perception that, any mispricing created by irrational traders will generate an appealing opportunity which is expected to be readily utilized by the rational traders or arbitrageurs and the mispricing corrected. Behavioural finance theorists argue that, approaches needed to correct the mispricing can be costly and risky; thus, making the mispricing unattractive and therefore permitting the phenomenon of mispricing to continue (De Long, Shleifer, Summers and Waldmann, 1990; Shleifer and Vishny, 1997; Barberis and Thaler, 2003).

The EMH states that, stock market prices must reflect all available information, both past and current, about the security and the market. The hypothesis postulates that investors assimilate all relevant information into prices and in making buying and selling decisions and subsequently develops the three

forms of efficiency: Weak form of efficiency – asserts that stock prices reflect all past information, Semi-strong form of efficiency – asserts that stock market prices reflect all publicly available information that contributes to the reduction of the range in order to predict an abnormal return, and Strong form of efficiency – asserts that stock prices reflect all relevant information, public and private, including insider information. The EMH has received massive rejection, from researchers who report that investors are susceptible to cognitive biases that influence their beliefs and preferences. The investor decision making depends on a number of factors such as utility maximization, return, socioeconomic factors, age, education, capital invested, culture, society, profession among others. These factors aid in determining biases that occur as a result of the behaviour of the investor.

Several studies have been done to determine the influence of irrational factors on investor decision making. Behavioural finance seeks to analyse participants' psychological decisions and explain the irregularities or inconsistencies recognized or detected in the market. Tversky and Kahneman (1974) developed the field of behavioral finance (economics) through their pioneering work on the psychology of risk. Behavioural finance challenges the basic assumptions of rationality inherent in the classical finance model of decision-making. In order to clarify the various irrational investor behaviours in financial markets, behavioural finance taps into the knowledge of human cognitive behavioural theories from the social sciences, mainly: psychology and sociology. Major theories (biases) used in explaining investor behavior include:

Risk aversion: In explaining the behaviour of an individual investor, it is convenient to assume that the investor is rational and fully-informed and therefore adheres to the principles underlying the Subjective Expected Utility Theory (SEUT). The SEUT perceives the individual is fully informed about the distribution of possible returns; he can process this information accurately, and make choices based on a utility function which has the standard properties of transitivity, continuity and independence. In effect the individual chooses an alternative or investment strategy that maximizes his subjective expected utility.

Mental accounting: Tversky & Kahneman (1974) introduced the concept of individualized mental accounts to elucidate why money is not absolutely fungible for most people. Mental accounting, an absolutely intangible kind of accounting, incorporates financial resources that for personal and often irrational reasons are not easily transferred. Speculative investments are perceived to be highly risky, and in order to avoid the unexpectedly negative returns that can arise, investors allot their investments among speculative and safe portfolio. This results in a scenario of mental accounting bias.

Overconfidence: Behavioral finance argues that investors are susceptible to overconfidence and this can lead them to make biased decisions. This refutes the assumption of traditional finance that the investor is a rational decision maker. Tversky & Kahneman (1974) report that investors who are usually overly optimistic about investment decisions, overestimated the likelihood of financial success, and their knowledge and understanding in finance. Overconfidence arises as a result of the failure of market players to understand perfectly the role of hazard and fortune in predicting the future. People tend to be poorly fine-tuned in determining probabilities and usually overestimate their knowledge and ability to perform well (Alpert and Raiffa, 1982).

Disposition effect: The theory of disposition effect refers to the sequence that people avoid realizing paper losses and seek to realize paper gains. If someone purchases a stock at Ghs20.00, which then falls to Ghs12.00 before increasing to Ghs18.00, most people do not want to sell until the stock increases beyond Ghs 20.00.

Choice and information overload: At variance with the popular belief, more choice is not always better. Investors can in some instances be susceptible to choice overload, and may simply fail to take action. Too many investment choices can result in information overload, which can lead to a fall in participation rate. On the contrary, permitting participants to easily examine choices and reducing the number of choices can increase participation rates (Iyengar, Jiang and Huberman, 2003).

Conservatism: It is the occurrence that people only tend to slowly adjust their beliefs to new information (Edwards, 1968). Usually, the more useful the new information, the stronger the conservatism. This is because new information that is at variance with existing knowledge is seldom accepted.

Fear of regret: People have the propensity to feel the pain or the fear of regret at having committed errors. To avoid the pain of regret, people therefore tend to adjust their behavioural pattern, which may lead to irrationality in some cases. Kahneman and Tversky (1979) found that people have the tendency to emphasize more on losses about twice as much as gains (loss aversion). Associated with the fear of regret bias is ‘cognitive dissonance’, which is the mental torture that people encounter when they are presented with the proof that their beliefs have not been correct (Shiller, 1995).

Framing effects: One other significant bias in decision-making emerges due to the fact that a lot of participants of the market are easily swayed by the manner in which saving and investment questions are presented or framed for them. If a number of different investment alternatives are presented, issues such as numbering and the order in which they appear will influence the choice made (Mitchell and Utkus, 2004; Brown et al., 2007).

Procrastination and inertia: A key behavioral bias that has been identified through empirical research affecting investment decision making is the effect of inertia and procrastination. Investment decisions are susceptible to procrastination since investors will not always make decisions when short-run costs are involved even if the long-term gains are substantial. Procrastination becomes more relevant when the investment plan design allows investment choice and members face substantial planning or informational costs in making investment decisions. (Mullainathan and Thaler, 2000; Mitchell and Utkus, 2004; Choi, Laibson, Madrian and Metrick, 2004; Madrian and Shea, 2001; Mitchell and Utkus 2003; Benartzi and Thaler, 2007).

Heuristics: When confronted with a large number of complex decisions, investors often rely on heuristics, or rules of thumb, that serve to tone down the complexity of assessing probabilities into simpler judgments. Even though heuristics make decision making easier they can sometimes lead to biases, especially when situations change. Heuristics can therefore result in suboptimal investment decisions. For instance when the investor is faced with N choices for how to invest retirement money, a lot of people allocate using the $1/N$ rule. If there are three funds, one-third goes into each. If one of the three is a stock fund, one-third goes into equities. Benartzi and Thaler (2001) reported that many people follow the $1/N$ rule. Huberman and Jiang (2006) also reveal that the use of the $1/n$ rule is related to the ease of applying it. More worryingly in the investment arena, heuristics may result from individual being unable to assess risk in terms of probabilities. Tversky and Kahneman (1974) found the impact of human heuristics on the decision-making process. Three of the popular heuristics reported by Tversky et al (1974) include:

Representativeness: When people are tasked to judge the probability that a person A belongs to group B or C, probabilities are evaluated by the degree to which A is representative of B or C, neglecting base rates. This is to say that people typically evaluate the probabilities by the degree to which a person is representative of a group.

Availability heuristic: This type of heuristic is employed to assess the frequency or probability of an event occurring on the basis of how rapidly instances or associations come to mind. When instances or associations readily come to mind, this scenario leads to an overestimation of the frequency or probability of this event occurring. For instance people are overestimating the return of stocks falling if they can quickly identify an investor whose stock return has declined.

Anchoring and adjustment: Individuals who make judgments under uncertainty use this type of heuristic by starting with a certain reference point or anchor and then adjust it insufficiently to reach a final conclusion. For instance, if you have to assess another person’s performance, the anchor for your final or adjusted judgment may be your own level of performance. You might underestimate or overestimate the performance of the person using your own level of performance as reference point.

Prospect theory: The Prospect Theory developed by Kahneman and Tversky (1979) shows how people manage risk and uncertainty. It explains the apparent regularity in human behaviours when assessing risk under uncertainty. It explains that, people are not consistently risk-averse; instead they are risk-averse in gains but risk-takers in losses. In their view, people place more emphasis on the outcomes that are perceived to be more certain than (those) that are considered mere probable.

METHODOLOGY

The study looks at the behaviour of investors who have invested in stocks listed on the GSE. It seeks to examine and understand the behavioural patterns of the investors as well as allow the researcher to report on the behavior of investors - under and over reaction to events information. The study adopted the approach used by Chaffai and Medhioub (2014).

Data collection

The study relied on primary data through the use of questionnaire. In all a total of 280 questions were distributed to 280 investors but 250 responded fully and returned them. Primary data was used for the study through the use of the questionnaire. The questionnaire is considered to be a reliable research tool for the interpretation of psychology of investors. The questions used were mostly closed ended questions. However, a few open ended and Likert scale questions were also used. The questions focused on the behaviour of investors either directly or indirectly. The results of the questionnaires enabled the researchers to determine the behavioural pattern of investors who have invested in stocks listed on GSE. It revealed the general attitude of the individual investors toward investment decision-making.

Sample size of the respondents is 258 individual investors who hold shares on stocks listed on GSE. The sampling technique used for this purpose is convenience sampling. The stock brokers and staff of Research Department of GSE were contracted as intermediaries for the distribution of the questionnaires to investors. The interest in the Ghanaian stock market was because of the recent movements in the stock indices as a result of the political and macroeconomic volatilities in the country. Investor decision making is affected by events that occur in the financial markets and the country in general.

Data Analysis

The data set incorporated questions on Socio-economic, investment and financial and psychological factors. Socio-economic factors: age, employment status, level of education, profession. Investment and Financial factors: amount invested, risk taking, volume of stocks. Psychological factors: questions centered on overconfidence, mental accounting, anchoring of investors among others.

RESULTS AND DISCUSSION

TABLE 1
DESCRIPTIVE STATISTICS FOR SOCIO-ECONOMIC FACTORS

Age	Less than 25 yrs	26 - 35 yrs	36 - 50 yrs	51 - 65 yrs	More than 65 yrs
	39	105	71	31	12
Level of Education	High School	Cert/Diploma	Bachelors	Masters	Doctorate
	12	31	122	65	28
Profession	Student	Employed	Manager	Academic	Retired
	15	148	34	42	19

Table 1 depicts that majority of investors are below the age of 36 years. Majority of investors are in the 26-35 age bracket (40.7%). Investors who are more than 65 years represent the lowest percentage of 4.65 %. Table 1 also depicts that almost all respondents have obtained formal education to some extent. There seems to be a positive link between education and equity investments. That is to say that education exposes people to the benefits and gains in equity investment and this motivates them to make rigorous choices/options available to them. Investors therefore are likely to have good knowledge and skills to make optimum or close to optimum investment decisions.

It can also be seen that majority of the investors studied have invested between Ghs600 and Ghs12000 constituting 63.95 percent. Forty six (46%) have invested between Ghs12,000 to Ghs30,000 with only few investing over Ghs30,000. This implies that investors in both low and high income groups have invested in stocks listed on the GSE.

TABLE 2
DESCRIPTIVE STATISTICS FOR INVESTMENT FACTORS

Amount Invested	Below Ghs600	Ghs600 - Ghs3,000	Ghs3,000 - Ghs12,000	Ghs12,000 - Ghs30,000	Above Ghs30,000
	12	93	72	46	35
Ownership Duration	Below 6 mths	6 mths - 1 yr	1 yr to 2 yrs	2 yrs to 5 yrs	Above 5 yrs
	17	55	87	68	31

Table 3 captures some salient biases considered for this study that affect investor decision making.

TABLE 3
PRINCIPAL BIASES INFLUENCING INVESTOR BEHAVIOR

Predictor variables	Related questions to identify the behavior
Risk aversion	Q7(b); Q8(a); Q9(a); Q10(b)
Anchoring	Q16(a); Q17(c); Q18(a); Q19(b)
Representativeness	Q27(a)
Availability	Q24(d); Q25(a); Q26(a,d)
Overconfidence	Q11(a); Q12(b); Q14(a); Q15(a)
Mental accounting	Q20(b); Q21(a); Q22(b); Q23(a)

TABLE 4
DESCRIPTIVE STATISTICS FOR FACTORS INFLUENCING INVESTMENT BEHAVIOR

Risk aversion	Q7(b)	Q8(a)	Q9(a)	Q10(b)	Weight of behavior
Frequency	114	121	105	73	103.25
Percentage	44.19	46.90	40.70	28.29	40.02
Anchoring	Q16(a)	Q17(c)	Q18(a)	Q19(b)	Weight of behavior
Frequency	67	81	112	108	92.00
Percentage	25.97	31.40	43.41	41.86	35.66
Representativeness	Q27(a)				Weight of behavior
Frequency	130				130.00
Percentage	50.39				50.39
Availability	Q27(c)	Q25(a)	Q26(a,d)		Weight of behavior
Frequency	108	81	142		110.33
Percentage	41.86	31.40	55.04		42.76
Overconfidence	Q11(a)	Q12(b)	Q14(a)	Q15(a)	Weight of behavior
Frequency	125	99	43	96	90.75
Percentage	48.45	38.37	16.67	37.21	35.17
Mental accounting	Q20(b)	Q21(a)	Q22(b)	Q23(a)	Weight of behavior
Frequency	93	69	90	118	92.50
Percentage	36.05	26.74	34.88	45.74	35.85

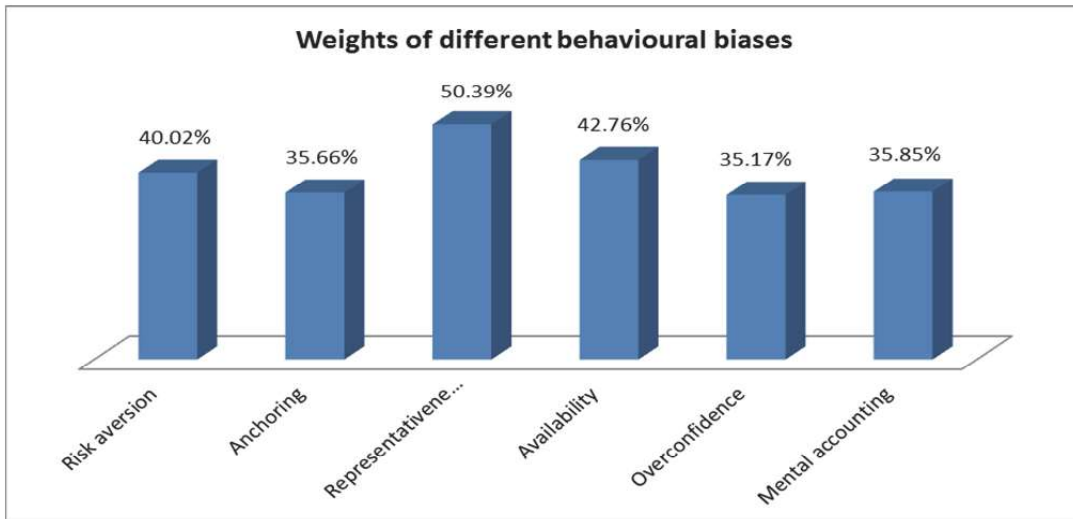
The study confirms the existence of some six key psychological biases as portrayed by most of such researchers. This can be seen in Table 4. The bias of Representativeness is found to be the most prevalent among the sample of investors studied, with the weight behaviour of 50.39%. It can therefore be concluded that about half of the sample prefer to choose their portfolio of securities that in their own estimation perform better while selling other stocks. The bias of representativeness was followed by Availability bias with a weight of 42.76%. The existence of this bias in the Ghanaian stock market is likely to follow new trends and information in the market and therefore tend to enjoy some advantages that come with it, if any, from such phenomenon.

Other psychological biases represented in the market are mental accounting, anchoring and overconfidence with weight of behaviour ranging between 35.85%, 35.66% and 35.17% respectively.

The study revealed that the higher educated investors (from bachelor degree holders and above) who constitute 83% of the respondents are susceptible to psychological bias. Again, investors who invest between Ghs600 and Ghs12,000 representing 211/258 are prone to behavioral biases

The above discussion depicts that a number of biases and prejudices exist in the Ghanaian investors' mind that affect the behavioural pattern of investors. Again, the level of prevalence of such biases occurs in different proportions or levels. The study therefore emphasized on the prevalence of such biases, the assumption of such biases in stock markets is therefore confirmed in Ghana. The weights of psychological biases studied are extracted from Table 4 and presented graphically in Fig.1.

FIGURE 1
WEIGHTS OF DIFFERENT BEHAVIOURAL BIASES



The graph depicts that the bias of representativeness, availability, risk aversion and mental accounting are most prevalent (weight behavior) which largely influence the behavior of investors. The presence of psychological biases and human prejudices is not caused by cyclical factors but they occur as a result of structural factors which are closely linked to a specific range of individuals. This therefore confirms the results of other empirical works that the stock market in Ghana is not efficient and individual investors are significantly influenced by psychological biases and prejudices.

CONCLUSION AND RECOMMENDATIONS

This paper seeks to study the behavior of investors in the Ghanaian stock market. It examines the effect of psychology or emotions on the behavioral pattern of investors and unravels the irrationalities that exist in the market. Using a sample of 250, the researchers concluded that psychological biases and behaviour irrationalities exist in the Ghanaian stock market. The study reports that behaviour biases of representativeness, availability, risk aversion, mental accounting, anchoring and overconfidence prevail in various proportions in the Ghanaian stock market, the biases of representativeness, availability and risk aversion being the most prevalent or important. By taking into account the different criteria that have been used for various behavioral biases, we conclude that there exist behavioral biases. This means that the presence of behavioural biases is not due to cyclical factors but to psychological factors closely related to a specific range of individuals.

The increasing analysis of the psychology in the stock market, and the financial market in general has emphasized the need to take a closer and more critical look at the assumption of rationality of market participants and the efficiency of the financial market especially the stock market. Going forward, investors, investment analysts and other participants of the market must consider the need to take into account human psychology in their investment decision making and analysis. This is due to the fact that the results have brought out enough evidence to show that the Ghanaian investor to a large extent; employs psychological factors in their decision-making.

There is the need to draw upon the knowledge and understanding of both the classical and behavioural finance framework in financial and investment decision making after all humans are not only rational beings, they are also emotions-driven to some significant extent.

More research, especially comparative studies should be done in Ghana and Africa in general, to determine the universality of the behavioral finance concept and to detect any country-specific investor behavioural pattern.

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