INVESTOR PSYCHOLOGY AND DECISION MAKING; BASED ON OVERCONFIDENCE AND SELF ATTRIBUTION BIAS: *EVIDENCE FROM ISLAMABAD STOCK EXCHANGE (ISE)*

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Abstract: *The literature in behavioural finance and behavioural economics deviates from the conventional economic model in incorporating behavioural evidence on non-standard preferences and values, such as loss aversion, self-deception or attribution, or overconfidence. In the present world, investment decision is most important phenomena. Investment is current sacrifice for future benefits. Investor's decision making is affected by the behavioural biases the most important of which is overconfidence (overconfidence related to accuracy of personal information).The other related bias is self-attribution, which causes an upward rise in investor's overconfidence about the precision of information and foresight. This study examines the impact of behavioural biases such as overconfidence and self-attribution in decision making that result from the cognitive errors of information processing. This main purpose of this paper is to give empirical evidence on the implication of overconfidence and self-attribution bias on investor behavior and decision making. The result suggests that investors in Islamabad Stock Exchange are overconfident and this overconfidence in the private information and its accuracy and this have an impact on the stock investment decision. Whereas, the self-attribution bias is not showing a significant relationship towards decision making process.*

Keywords: *Overconfidence; Self-Attribution; Investment Decision; Private Information.*

JEL Classification: *G02; G11.*

1. Introduction

The standard notion of finance argues full rationality on the part of investors. This standard perspective had proven very successful in providing models with important useful implications for capital market design, security design, and corporate capital structure. The main pillars of standard finance are based on evidences provided by theories such as arbitrage theory (Stephen 1976), theory of investment and dividend (Modigliani & Miller 1958; Miller & Modigliani 1961), portfolio theory (Markowitz 1952), capital assets pricing (Sharpe 1964) etc. Whereas behavior finance involves human behavior and psychology in finance.

The concept of *behaviourism* in psychology was introduced by Watson (1914). Later on, this concept was advanced by Skinner (1953). The concept of behavior in finance also has its traces in *the wealth of nation* (Smith 1753).The modern behavioural

finance is the outcome of work of most importantly Ulrich, Kehnemann and Tversky (Schmidt & Zank 2005; Tversky & Kahneman 1975). Although the foundation of behavior finance is laid on the ashes of standard finance but it seems to have provided a replacement to standard finance. In standard finance, people are assumed to be rational whereas people in behavioural finance are assumed to be normal; led away by behaviors, preferences, frames, overconfidence, cognitive errors, dissonance and feelings of regret. These concepts revolutionized the world of financial markets, securities and their types, financial regulations, analysts and consultancies-by considering investor as normal human being.

A number of studies and surveys have given the implications of psychology on financial and other economic decisions. Investors must be capable of making a good decision, a right decision at a right time. This decision making process involve making decision choices on the basis of accessible information (Gilboa 1997). Investors consider themselves a rational decision maker, processing all information. The researches show that they are all subject to bounded rationality. Bounded rationality (Simon 1991) means the decision makers is unable to process all perfect information to make optimal decision choice (Simon 1959; Simon et al. 2009). Since human beings have limited cognitive capacity to process the information, so the try to approach a good decision through heuristics (Tversky & Kahneman 1973). Hirshleifer (2001) argued that most psychological biases are basically an outgrowth of heuristic simplification, self-deception, or emotion-based judgments. The focus of our study is self-deception that reasonably explains overconfidence and self-attribution Bias. Overconfidence (Busenitz & Barney 1997) is a behavioural inclination to overvalue the aptitude, knowledge and precision of judgment whereas underlying process biased self-attribution (Zuckerman 1979) is a behavioural inclination to ascribe success to own abilities and failures to other things such as bad luck, affecting an appropriate decision.

How security market would react if the investors are biased by self-deception? Empirical evidences up to decade of 90s presented the results in an amalgamate pattern. Some studies favoured that investors would underreact while others favoured they would overreact. The theoretical evidence to investors' overconfidence and biased attribution of success was provided by (Daniel et al. 1998). This theory argues that overconfident investors react excessively to private information signals and underreact to public information signals. They also argued that investors, who are biased by self-attribution, become more overconfident when they earn money owing to the successful realization of their predictions and judgments.

This main purpose of this paper is to give empirical evidence on the implication of overconfidence and self-attribution bias on investor behavior and decision making. This paper provides empirical evidence to the theory based on investor overconfidence and on changes in confidence resulting from biased self-attribution of investment outcomes (Daniel et al. 2002). The main focus is to analyze if the investors in Pakistan are biased by overconfidence and self-attribution and the resulting over and under reaction to an information or are being skewed towards private information in the process of decision making.

This research has many implications for the literature and future researchers also. As this will adds to the body of literature the prevalence of overconfidence and attribution bias in investors in developing country setting and evaluate the implication of hypothesis of (Daniel et al. 1998) in Pakistani scenario.

The main objectives of our study are:

- To investigate the relationship between overconfidence bias and investor making decisions
- To investigate the relationship between self-attribution bias and investor decision making

This study examines the impact of behavioural biases such as overconfidence and self- attribution in decision making that result from the cognitive errors of information processing. This study has relative importance because investor community in Pakistan is not much equipped with knowledge and exposure. So their decision is much biased by overconfidence and self-attribution. Most importantly, the idea of this study is much more in accordance to previous literature, but our main focus is to apply those ideas in developing country setting for contextual contribution. This study has incorporated the most recent data for analysis and result generation. So we aim to find the extent to which our investors, biased by overconfidence and self-attribution value private information at the expense of public information.

2. A Brief Review of Literature

The literature in behavioural finance and behavioural economics deviates from the conventional economic model in incorporating behavioural evidence on non-standard preferences and values, such as loss aversion, self-deception or attribution, or overconfidence. Empirical research shows that people unable to update their beliefs accurately and encompass their own preferences and beliefs that deviate from rational investors' beliefs in many dimensions (Kahneman & Tversky 1972; Tversky & Kahneman 1975). Moreover human being has restricted cognitive capacity, that's the reason; they are unable to process information up to its highest competence in the process of problem solving (Simon 1959).

Since human information processing capacity is finite, so they choose imperfect decision making procedures, or heuristics, to arrive at reasonably good decisions cheaply (Kahneman & Tversky 1973; Simon 1955). The cheap decision processes can be called heuristic simplification. However, the systematic decision error can be the result of certain other reasons. Hirshleifer (2001) is of view that most common behavioural biases can be considered a response to heuristic simplification, self-deception, or emotion-based judgments. Heuristic simplification helps us to clarify many different psychological biases, such as availability effects : heavy focus on information that stands out or is often mentioned, at the expense of information that blends in with the background (Tversky & Kahneman 1973), framing effects : where the explanation of a situation affects judgments and preferences (Kahneman & Tversky 1981), money illusion (wherein nominal prices affect perceptions and beliefs), and mental accounting (Thaler 1985).

Self-deception helps explain *overconfidence*: a propensity to overrate one's ability, skills or judgment precision and biased *self-attribution* (a natural propensity to ascribe successes to one's own ability, skills and judgments and failure to bad luck or other factors) and confirmatory bias: a behavioural propensity to infer circumstances as consistent with one's pre-existing beliefs (Jonas et al. 2001).

There are other dimensions of overconfidence bias that is evidenced in literature. An extensive empirical research evidenced the propensity of individuals to believe them as 'above average' on positive characteristics (Abbes 2013; Kruger & Dunning 1999).The 'better than average' thinking also affects the ascribing of outcome. As

individuals expect their behavior to lead them to success, they ascribe the outcomes to their actions when they succeed and to bad luck when they fail (Feather & Simon 1971; Lin et al. 2014). This attribution of outcomes further reinforces overconfidence (Malmendier & Tate 2005).

Recent empirical studies find that agents' overconfidence (i.e., attaching too high precisions to their private signals) could lead them to sub-optimal decisions. Barber and Odean (2000) document that individual investor's trade excessively despite earning negative returns. Choi and Lou (2010) showed that the average mutual fund manager tends to boost his confidence to a larger extent after receiving confirming public signals than to decrease it after disconfirming public signals. They were also in a view that this bias is stronger among inexperienced managers and is largely absent among experienced ones. The bias also leads to poor future performance, which is driven by managers' sub-optimal portfolio choices.

Kyle and Chuang and Lee (2006) characterize the overconfidence hypothesis by considering three testable implications: First, overconfident investors overreact to private information and underreact to public information. Second, market gains increase investors' overconfidence, and consequently they trade more aggressively in subsequent periods. Third, excessive trading of overconfident investors in securities markets contributes to the observed excessive volatility. Daniel et al. (1998) argued that if investors are overconfident; they overweight their own private information while ignoring publicly available information. As a result, investors overreact to private information and underreact to public information, and this asymmetric response of overconfident investors induces short-horizon momentum and long-horizon reversal in stock returns.

Based on above literature, our expected hypotheses are

H1: There is a significant impact of self-attribution bias on investor decision making

H2: There is a significant impact of overconfidence bias on investor decision making

The self-attribution bias states that people tend to attribute successes to their own skills and foresight but failures to bad luck (or other external factors).When investors receive any confirming signal from public, they tend to overestimate their ability to gather and process information, and revise the perceived precisions of their private signals upward too much, upon observing confirming public signals. In contrast, they revise their perceived precisions downward too little with disconfirming public signals (Choi & Lou 2010). The self-attribution bias is measured in term of self enhancement (Paulhus & Williams 2002; Pfeffer et al. 1998; Krueger 1998) and self-protection (Pyszczynski & Greenberg 1987; Hoffmann & Post 2014). In self enhancement, people show an irrational degree ascribing success to own. Whereas in self-protection people show an irrational degree of disclaimer to the failures (deny the responsibility of failures).

Overconfidence bias can be defined in three ways; first it can be measured through the overestimation of one's actual ability, over performance, level of control and chance of success (Malmendier & Tate 2005). The trait of overconfidence is to focus on one's own ability. Second measure of overconfidence occurs when people think themselves to be better than others, such as when a majority of people rate themselves above than the average (Kruger & Dunning 1999). For simplicity we will call this trait as over placement (Larrick et al. 2007). The third way overconfidence has been measured is irrational degree of certainty regarding the accuracy of one's beliefs, ignoring the other factors associated with the decisions that he is taking or what we will call over precision (Barber & Odean 2001).

3. Methodology

In this study, survey method was used to collect primary data from the investors of Islamabad Stock Exchange (ISE). There are two main reasons using questionnaires or primary data. Overconfidence and self-attribution are a behavioural aspect of human beings so it is more realistic to measure it through survey rather than using proxy based on secondary data. Another reason for use of primary data is stock market of Pakistan is not that much developed. It is very difficult to find account level information of investors. Measurement tool used is five point Likert scale (ranging from strongly disagree to strongly agree) that was adopted and adapted according to our study. A total of 150 questionnaires were distributed out of them, 100 were considered valid for evaluation of results. Hence the response rate is 66% which is considered quite satisfactory. Overconfidence includes 15 items; self-attribution bias is checked through 8 items whereas the investor's decision making is analyzed through 9 items.

4. Data Analysis and Results

The collected data was analyzed using frequency percentage, descriptive statistic, and correlation and regression analysis. The reliability coefficient of data is acceptable for all variables. The Cronbach alpha is the most widely used index for determining internal consistency. Here the reliability coefficient is acceptable and lies above *0.60* (Roberts 1980).

Most of the respondent's i.e. 86 % are male and rest of 14 % are female, lies in different ages groups, only 5 % are greater than 51 years age (>51) while 11 % respondents are belong to 41-50 years age group on the other hand majority of respondents (43 %) are the part of 31-40 years age group and rest of 41 % are less than 30 (>30).

Table 1. Descriptive Statistic

	Minimum	Maximum	Mean	Std. Deviation
Age	1	4	1.8	0.82878
SA	2.25	4.5	3.43	0.47571
OC	2.67	4.87	4.06	0.42012
IDM	2.56	4.89	3.63	0.58477

Correlation analysis is used to measure strength of the association (linear relationship) between two variables. The result of correlation analysis shows that a significant positive correlation is observed among self-attribution bias and overconfidence bias *(0.542).*

In order to estimate the relationship we used following equation,

$$IDM = \beta_0 + \beta_1 SA + \beta_2 OC + \varepsilon_0 \quad (1)$$

Where *IDM* denotes investors' decision making*, SA* denotes self-attribution bias, *OC* denotes overconfidence bias.
Regression analysis was carried out in order to check the linear relationship among investor's overconfidence and self-attribution with decision making behavior. Although the coefficient for self-attribution is positive but we reject our first hypothesis as the value is insignificant. This insignificant value suggest that the investor in ISE are least biased by self-attribution while making investment decision. In the case of Pakistan, one of the two facets of self-attribution bias seems to be true i.e., self-protecting bias since the ascribing of failures or unfavourable outcomes to others such as bad luck or people is very common for investors biased by self-attribution (Pyszczynski & Greenberg 1987). Whereas the coefficient for overconfidence bias carries a positive sign is highly significant. The model suggests that overconfidence do have an impact on the stock investment decisions for the studied sample, based on this overconfidence in the private information and its accuracy. The literature provides a link between these two biases as investor having self-attribution bias would become more overconfident when any of his judgment or perception becomes successful (Daniel et al. 1998).

Table 2. Regression Analysis

	β	Std. Error	t	Sig.
(Constant)	1.074	0.489	2.195	0.031
SA	0.108	0.13	0.829	0.409
OC	0.594	0.148	4.029	0.00
R Sq.	Adj. R Sq.	Std. Error of the Est.	F	Sig.
0.231	0.215	0.51815	14.547	.000

5. Conclusion

This study examines the impact of behavioural biases such as overconfidence and self-attribution in decision making that result from the cognitive errors of information processing. The result suggest that that the investor in ISE are least biased by self-attribution while making investment decision. In the case of Pakistan, one of the two facets of self-attribution bias seems to be true i.e., self-protecting bias (ascribing failures or unfavourable outcomes to others such as bad luck or people).The model suggests that overconfidence do have an impact on the stock investment decision, based on this overconfidence in the private information and its accuracy. Investors having overconfidence and self-attribution bias value the information more that is possessed by them and react to it. Whereas they don't value public information owing to the higher degree of overconfidence. The area of behavior and cognitions is least explored in Pakistan. So there is a good opportunity for future research and exploration of behavior on investor decision making.

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