

ANTECEDENTS OF OPTIMISM BIAS OF INVESTORS IN THE STOCK MARKET OF PAKISTAN ALONG WITH THE SCALE DEVELOPMENT OF OPTIMISM BIAS

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ABSTRACT

The purpose of this study is to explore the causes behind the optimism bias of investors in the stock market of Pakistan and to develop scale on it to operationalize this study in the future. The study theorized antecedents of Optimism bias to check and clarify that which antecedent is playing a part (strongest - weakest) headed for the generation of optimism bias in the investors of PSX at the time of decision making. Optimism bias causes a person to have faith in that they are at a slighter danger of facing an undesirable incident compared to others. The early part of methodology comprises semi-structured interviews taken from the professionals of stock market, and then reconfirm the responses of experts by taking semi-structured interviews from investors and apply NVivo on their concise outcomes to get a word-cloud for presuming the definite antecedents of optimism bias, and check the context and content validity of the established scale by approving the scale subsequently the endorsement of 5 language and 5 market experts. The second part comprises the floatation of self-developed scale and to: put on Kaiser-Meyer-Olkin (KMO) test to approve the sample size for the study; put on Bartlett's test of sphericity to check the correctness of the items; check the outliers and put on Exploratory Factor Analysis (EFA) on the outcomes for the drop of over-loading items. The third part comprises the floatation of polished scale with lesser sample size as liken to past floatation of scale to check the inter-item correlation between items in order to get more polished scale. The fourth part comprises the floatation of polished scale with lesser sample size as liken to past floatation of scale to check the trustworthiness of factors (if-item deleted), association between factors, and cause and effect relationship between factors. The last part comprises the floatation of more polished scale with lesser sample size as liken to past floatation of scale to confirm the factors for scale through Principal Component Analysis (PCA). By exploring and confirming the causes of optimism bias of investors in the stock market of Pakistan, the controlling body of stock market (Securities and Exchange Commission of Pakistan - SECP) may control the optimism bias of individuals by providing workshops on it, which may lead to efficient stock market and economy as a whole.

Keywords: Antecedents, Scale Development, Optimism Bias, Stock Market.

INTRODUCTION

Usually, the market is determined by individuals who cannot constantly be considered coherent in their investment assessments, particularly not in the course of financial suffering

(Shefrin & Statman, 2000), and this is due to the behavioral differences of investors in the market.

Behavioral differences of individuals towards investment in the market may define my emerging domain of behavior finance. Behavioral finance is a new approach to financial markets that has materialized (Barberis & Thaler, 2003; Bell et al., 2021), as a minimum in part, in reaction to the complications confronted by the traditional standard. Gradually, Behavioral Finance has developed a broadly accepted and recognized area in finance (Ruggeri et al., 2020; Wahlbeck et al., 2009), supported by many and it can assist us to describe and comprehend the extremely illogical behavioral patterns of the stockholders, who command the stock market. One of the prime achievements of behavioral finance is a chain of theoretical papers displaying that in an economy where coherent and illogical traders interact, illogicality can have a significant and prolonged influence on prices. These papers recognized as the literature on “*limits to arbitrage*”, form one of the two buildings blocks of behavioral finance.

History of Stock Exchange

A well-developed stock market is a means of attracting foreign investment which also boosts economic growth. The investment boom of the 90's marks the most remarkable boom in the history of macroeconomics.

The number of listings increased drastically in 91, however faced a downfall in the next few years. The major reason behind this is due to political instability. The market index fell down to 20%. Subsequently it rose by 93% in the next year.

The return behavior of an emerging market like Pakistan is due to a number of factors. Firstly, the opening up foreign investment in the 90's provided a great benchmark for boom (Tevlin & Whelan, 2000), because at that time emerging markets generated high level of equity (Claessens et al., 1995; Magweva & Sibanda, 2020).

Similarly, because of the impressive performance of stock markets in the 90's, a number of factors which contribute into making a good economy were positively affected. Generally, the investor's premium is based upon the multiple factors that describe economic fundamentals (Ang et al., 2020; Boynton & Oppenheimer, 2006). A good stock market decreased interest rates, created trade concessions and removal of economic sanctions. A good stock market, taking all factors in consideration definitely encourages economic growth.

Pakistan has faced both bull and bear markets in the past for a period of two years each (2007 & 2010) and (2008-2009) respectively. The annual return for the period of Bull market was 40.19% in 2007 and 19% in 2010. On the other hand the annual returns for the bear market of 2008 and 2009 were -40.52%.

It is believed that the amount of risk an investor is willing to take will depend actually upon what type of market they are dealing in. In a simple observation based upon human psychology, more people would be willing to invest in bullish markets where prices rise, especially in a country like Pakistan where greed and impatience is a not to miss psychological factor.

Role of Biases in Stock Exchange

There is a strong relationship among: prior returns and investor's behaviour regarding investment (Ben-David & Hirshleifer, 2012; Duxbury et al., 2015; Kiran & Sharma, 2021); investor's portfolio choice and market return (Edelen et al., 2010; Gemmo et al., 2020); and investor's experience and confidence (Kaustia et al., 2008; Hoffmann & Post, 2015; Trehan & Sinha, 2019).

In the developing countries, especially like Pakistan, the proportion of emotionally biased investors is rising. High level of uncertainty, financial illiteracy, and lack of appropriate information in the market are all compounding factors in the reflection of emotional behaviour of investors in the stock market.

These psychological behaviours have raised an eye on impacts it may cause upon investing decisions and the market. The ability to take risk upon varying markets is in fact highly affected by psychological factors or biases. The varying markets are bullish and bear.

Problem Scenario/Identification

By lack of superior guidelines, unfortunately, the market and investor(s) is facing high level of risk all the time, which may hurt the movements of the market and returns of the investor(s) too. The inefficiency of the current stock exchange in terms of regular trading represents a significant financial burden for the economy, as it may not be the true indicator of economic condition. Such sort of inefficiency that is because of lack of fundamentals and lack of cognitions/rationality and efficient guidelines may occur at the time of investment decisions regarding stocks in the market. By identifying the antecedents that may generate emotional biases, the present study can propose the ways to control the emotionally biased movements of the market through explaining the adverse effects of these biases on returns.

Problem Statement

Husain & Mahmood (2001) conclude that stock market of Pakistan is not the true indicator of economy, as there is a weak association among the prices of stocks and investment behavior of individuals. As we can see and observe in the stock market of Pakistan that the behavior of investor is emotionally biased towards investment decisions and the movements of stock market are highly fluctuating as well (Shabbir et al., 2020). And the biggest dilemma on this stage is that investors might actually not know about the reasons of such emotionally biased behavior and how they can reduce such behavior. And also, there is very little information available towards the reasons behind the biased behavior of investor in the stock market of Pakistan. So, one of the significant factors behind the uneven condition of the stock market is emotionally biased behavior of investors at the time of decision making. And due to this, there is a strong need to explore the antecedent of emotional biases of investors in order to know about the major reasons of emotionally biased behavior, as according to John Dewey (An American philosopher & psychologist) "*A problem well put is half solved*". In case of not exploring the antecedents of emotional biases of investors, the market will face the same or somehow little bit high level of instability in the future. So, there is a strong need to immediately fix this problem of the market in order to get efficient market in the future. Otherwise, it may affect the returns of the investors, the returns of the stock market, and most importantly the economy as a whole.

Research Objectives

The main objectives behind this study was to explore the antecedents that may generate optimism bias in the investor at the time of decision making in the stock market of Pakistan, and to develop the scale on optimism bias of investors in the stock market of Pakistan.

Significance of the Study

According to the analysis of Bustos & Pomares-Quimbaya (2020) and Gatzka (1956), we must deeply study the stock in order to understand the high level of variations in the value of the stock, because, to rectify any problem, it is mandatory to properly identify the problem first. And

to properly know about the problem, it is surely mandatory to know about the reasons behind the problem(s).

Whereas, Baker & Wurgler (2007) and Fildes & Goodwin (2021) argue that role of human behavior is one of the important aspect behind the inefficient condition of the stock market.

In Terms of Investors

This study would be beneficial for routine investors, as on the basis of this study, they may know about their emotional biases that exist in their personality at the time of investment decisions in the market.

Most of the time, just few investors try to identify their behavioral immaturity and biasness in the market in order to get efficient market. And the biggest dilemma attached with the approach of those investors is, that they just want to rectify the upper surface (observable area) of their problem instead of the removing the roots of problem. But, this study will be helpful for investors in terms of identifying the root-causes of their biased behaviors.

In Terms of Economy

This study would be highly beneficial for Pakistan's economic condition, as on the basis of this study, the regulatory authorities of Pakistan Stock Exchange, such as: Security and Exchange Commission of Pakistan (SECP) may know about the behavior of investors in the stock market.

On the basis of the present study, the regulatory authorities of Pakistan Stock Exchange may develop policies to control the various emotionally biased behaviors of investors. Such as: few big investors of Pakistan Stock Exchange may enjoy their trading in the market, while, majority of investors feel fear towards their returns on investment, as the big investors of the market are considered to be the game changer of the market. In order to reduce the empowerment of big fishes in the market, only the regulatory bodies of stock may impose restrictions on the trading volume of single investors or may put lock on the limits of buying and selling in the market. By imposing such restrictions, the regulatory authorities may control the abnormal movement of the stocks in the market which may lead to the stable economic condition of the country, as stock market is considered to be as proxy of economy. Additionally, by using this study, SECP can trained the investors towards their rational decision making by arranging workshops.

LITERATURE REVIEW

Investor usually may presume that the market depends upon his "*feel*" of the market (Podolak et al., 1952; Rafique et al., 2020). If he feels consciously or subconsciously good about the market, he is likely to make more investments. On the contrary, if he doesn't get that good "*feel*" he will probably renounce investments. Thus, his consciousness and sub-consciousness lends bias to his stock market rationality.

Behavioral Portfolio Theory

Friedman & Savage (1948) watched that individuals purchase lottery tickets since they try to achieve higher social classes, while they purchase insurance as security against falling into lower social classes.

The concept of behavioral portfolio was initially presented by Shefrin & Statman (2000), in which, people diversify their portfolio in an efficient way in order to secure their retirement

and achieve their long-term goals too. But, the development of such efficient portfolio is not easy task, because market oriented skills (Bodart & Carpentier, 2014; Shehata, 2020) and financial services from experts (Cole, 1966) are essential for the development of such an optimal portfolio for investment.

Equity Market and Economic Efficiency

A well maintained equity market is essential for the progress of stock markets which boosts economic growth (Stoll & Whaley, 1990; Zheng & Walsh, 2019), so, if the equity market is efficient, firms can easily raise funds by issuing securities (Capasso, 2008; Lund, 2019). Similarly, if equity markets are efficient, firms can issue securities which can prove to be an efficient way of raising funds. In order to become efficient stock market, transparency is the key factor (Baamir, 2008; Ionaşcu et al., 2021). An efficient and well-functioning equity market may facilitate the economic growth and development process in an economy (Fauzi & Wahyudi, 2016) through the following means: augmentation of household saving, efficient allocation of investment resources, and alluring foreign portfolio investment. On the other hand, not fully-functioning stock market may lead to the instability and inefficiency (Choi & Ortega, 2021; Zuckerman, 2004).

Emotional Biases

Agnew (2006); Coval & Shumway (2005); Fisher Kenneth (2000); Korniotis & Kumar (2011); Quaiocoe & Eleke-Aboagye (2021; refer to the impact of emotional biases of investors on the movement of stock market, but very few of them mention the reasons behind such emotional behavior of investors and that too in terms of specific countries. Consequently, there is a strong need to identify the antecedents of the biases of investors in the market. Discussing irrationality in terms of Pakistani financial markets, we come across numerous different scenarios.

Optimism

Human estimation is subject to systematic biases. For example people are over-optimistic about the future. They tend to credit themselves for success whilst blame external factors for failures (Van den Steen, 2004). Thus, this estimation is usually a result of choice driven over optimism mechanism. An individual's beliefs are independently and identically distributed. Thus, the disagreement and optimizing behavior leads the individual to be positively biased upon the consequences of his own inactions.

Thus, individuals tend to overestimate the precision of their own estimates and the control they have on the actual outcome.

Individualism is a phenomenon in which people considers themselves better and different than other to accomplish the independency of the society. This free behavioral attitude affects in a sense that provides and gives rise to overconfidence as they always consider themselves more reliable and different and above average with special qualities (Chui et al., 2010). They overestimated their abilities. While, on the other hand, according to Elliott (1980) and Segerstrom et al., (2017), there is a strong association exist among optimism and progress, as you can only feel good about things, good things will happen to you. And optimistic behavior may also play a role in order to boost-up motivational and encouragement level (Banerjee, 2018; Eigen & Listokin, 2012) and also positively influences on individual's and group's productions (Lopes et al., 2011). But, this may not be the case all the time, as optimism may helpful in minimum cases and harmful in maximum cases (Céspedes et al., 2020; Eigen & Listokin, 2012).

While, according to Lopes et al. (2011), few of the individuals consider human satisfaction, optimism, and happiness are the three main elements in life.

Optimism is a psychological phenomenon (Cnen et al., 2021; Coelho, 2010); in which people usually feel happy on the basis of various aspects, such as: psychological strength & personality characters, individual advantages, success & sovereignty in life and work, societal support & respect, safety, and satisfaction (Furnham & Cheng, 2000).

Optimistic investors never think about the drawbacks of their investment decisions in the market and always hope for positive results of the decisions. On the basis of such sort of perceptions, Snyder in (2002) proposed the Hope Theory, which states that there is no such evidence available for the false happening. It has prodigious applicability to meeting with the future (Morrow, 2004). The theory was formulated with regards to scholarly weakness and, all things considered, it might depend too intensely on the thought that the nonappearance of negativity makes positive thinking.

However, a number of studies carried out by psychologists and economics suggest that it is better to be accurate than over optimistic as the latter holds risk and irrationality. Though, optimism is a result of motivated reasoning it tends to overlook or underestimate the possible risks associate with a decision (Armor et al., 2008; Cusimano & Lombrozo, 2020). The optimism bias is a product of set conditioning and reasoning the human mind goes through. Therefore, it is more like a “*prescribed optimism*”.

Many studies have found that optimism is somehow hardwired into the human brain (Laqueur, 2013). The effect is so strong that a negative bias can totally change a person’s viewpoint.

Personal predictions are often effected by personal optimisms and beliefs. People tend to believe that holding positive beliefs will alter unfavorable outcomes (Armor et al., 2008; Takano et al., 2019). Naturally this creates a sense of biases in decisions.

Optimistic behavior can also badly affect the investment decision of the investor. Optimistic investors may over-value their own decisions which may leads to negative investment returns most of the time (Blitz & Swinkels, 2021; Heaton, 2002). According to Hilary, Hsu, Segal, and Wang, (2016), human assessment and interpretation sometime may leads to orderly predispositions as overconfidence and over-optimism.

Much psychological evidence shows that humans do not have rational expectations and are unreasonably over optimistic (Coelho, 2010; Yong et al., 2020). Contrary to popular belief that one is not vulnerable and others are a sheer example of how over optimistic a human can tend to be. This is actually the “*judgment error*” or optimistic bias.

Psychology and Economics propose a “*judgment bias*” for such action. A number of motivational theories suggest such over optimism an individual may have. For example the “*self-esteem*” need motivates them and creates a sense of overconfidence and over-optimism. Thus, these biases create error in actual and rational judgment (Gigerenzer, 2018; Van den Steen, 2004). However, other theories argue that individuals take full responsibility of the outcome irrespective of it being favorable or not. This theory is backed up by the psychological theory and bias of “*self-serving bias*”.

In the real world, an individual may mistakenly consider himself risk averse by preferring, e.g., self-employment over paid employment holding a belief that he has better chance of beating the odds in the former than the latter. Another example of such judgment error scenario is start-ups which are notorious for failing because entrepreneurs tend to have the optimistic bias.

Positive illusions are the core reason for the judgment error and optimistic bias (Coelho, 2010). In simpler terms, unrealistic optimism leads to unrealistic expectations.

Many decisions are fundamentally dependent upon outcomes. Expectations are optimistic and dependent upon prior predictions. Thus, the ability to learn from past experience holds more significance than the judgment bias. Optimistic theories persist with feedback (Amore et al., 2021; Massey et al., 2011). As positive feedback creates hope for future outcomes and creates a sense of optimism.

In forming their optimistic projections, many investors believe they are anticipating a replay of the past. Their memory of the past is heavily influenced and somehow conditions them in future decisions (Dimson et al., 2004). Therefore, as inaccurate, it is to believe that a stock with good past returns promises future profits is conditioned by past memory into optimistic bias.

Therefore past returns are one of the factors to create irrational optimism in the future (Dimson et al., 2004; Pertiwi et al., 2019).

One of the main reasons behind the optimistic behavior of investors toward their investment is optimistically framing of individual's mind by brokers (Bar-Gill, 2006; Carleton et al., 1998; Dertwinkel-Kalt & Wenzel, 2019; Eigen & Listokin, 2012; Willis, 2001) while brokers become optimistic because of biased forecasting of future movements (Chatterjee & Milani, 2020; Eigen & Listokin, 2012; Huang & Wright, 2015; Kwag & Shrieves, 2006) and such biased forecast may adversely affect the future returns (Easton & Sommers, 2007; Shah et al., 2018). These concepts of framing by brokers and observing expert's actions can be described by the Theory of Reference Group Behavior (Merton, & Kitt, 1950) which states that people usually select one dominant group as per their perception for the investment decisions in the market (Bearden & Etzel, 1982).

An agent who tries to enact according to possibilities of success is more likely to choose an overestimated approach rather than an underestimated one. This choice of enacting depends upon several exogenous and endogenous factors paired up together (Van den Steen, 2004).

Optimistic managers believe that capital markets undervalue their firm's risky securities. Additionally, optimistic managers overvalue their own corporate project and tend to invest negative net present value projects.

Unrealistic optimism is a well-defined psychological phenomenon. When it comes to managerial economics, people are prone to ground less optimism (Coelho, 2010).

Market manipulation assumes that mutual funds manager's earnings contain bias because managers are lured in by incentives (Baker et al., 2020; Willis, 2001). However, they may face an incentive-driven reporting bias in relation to their compensation contracts. Therefore, it is clearly understood that managers bias according to the conditioning they receive (incentives, contracts etc.) Hence, the positive association between mutual fund manager's forecasts and stock returns somehow creates "*optimism*". The deeper meaning is actually the personal benefit that a manager may receive which derives a sense of optimism into his decision.

Managers usually irrationally 'overestimate' firms that are performing well and develop optimism for such firms. On the other hand, managers tend to 'underestimate' firms which are doing badly (Heaton, 2002; Li et al., 2021). Psychologically, literature suggests that people are also optimistic when things are going well. The reason behind this is that people tend to be more optimistic about results and outcomes they can control. For instance, a manager may be optimistic about a good producing firm as he is conditioned to believe that future returns will also be goods. This conditioning somehow gives him 'control'.

Business decisions are in dubiously characterized with fundamental uncertainty; however, optimistic beliefs may help individuals to overcome uncertainty and may affect entrepreneurial activity (Bernoster et al., 2018; Fraser & Greene, 2006).

As entrepreneurs learn with experience their opinions are also framed with objective facts learnt over time. As the Bayesian decision theory suggests that prior beliefs are updated by existing facts. Therefore, in the process some entrepreneurs may realize that they were 'too optimistic' initially (Fraser & Greene, 2006). Thus, instead of moving towards pessimism they will eventually realize their conservatisms bringing down the over optimism bias. So, this type of realization creates a dynamic which moves the economy towards equilibrium which may have been affected by overestimated economic decisions and vice versa.

Therefore, four significant conjunctions hold up. Firstly, individuals are 'uncertain' about their entrepreneur talent. Secondly, they hold prior beliefs or conservatisms. Moreover, individuals inclined towards maximum utility underestimating possible uncertainties that come with it. And lastly, they learn when the actual business takes place (Fraser & Greene, 2006). Thus, the level of optimism burgeons with time.

Secondly, people are more optimistic about outcomes they are committed to (Heaton, 2002; McAfee et al., 2019). For instance managers may be deeply committed to a good firm because of its reputation, wealth and employment partiality.

Another main reason behind the optimistic behavior of investors toward their investment is optimistically framing of individual's mind by analysts (Awais et al., 2020; Francis, 1997) while analysts become optimistic because of biased forecasting of future earnings, as they sometime wants to increase the trading volume of the market's stocks. Analysts tend to issue more optimistic annual earnings for firms that have shown recent losses compared to recent profits (Jung et al., 2019; Sedor, 2002). This implies that analysts tend to "*under react*" to losses and show irrational optimism. This optimism is often intentional or biased in speculative terms. According to Kwag & Shrieve (2006), the analyst's optimism occurs when they over-estimate their abilities towards the investment in the market. People usually take help from others or follow the actions of experts, when there is a high level of uncertainty in the market or when they have little or no knowledge about the market movements.

Analysts tend to overestimate future earnings based upon prior final earning announcements. This forecasting behavior is derived from two types of biases. The first, being the truthful one or emotional bias (optimism). Whilst the second being the reporting bias or the market manipulative one.

Analyst's forecasts of earning to determine expected returns are highly affected by current forecasts, current book values and current price values (Easton & Sommers, 2007). These values are eventually used to estimate the markets expected rate of return and cost of capital. However, what individuals don't understand that such values are heavily biased. They are illustrated optimistically and are measured a year before the earnings announcement. Thus, such a bias holds great significance statistically and economically.

Analyst's recommendations are consistent with expectations of raw returns (Easton & Sommers, 2007; Guo et al., 2020). Expected rate of returns based on earnings forecasts are higher based on current data. Thus, researchers should be very cautious when using analyst's recommendation as they are heavily biased and over optimistic.

Extant literature provides several reasons that an investor may behave optimistically. For example, sometime, investor becomes optimistic when: the seasonal change in macroeconomic indicators (Deviatilova et al., 2018; Teplova & Mikova, 2015) and such concept can be clarified

on the basis of Economic Theory (Hollander, 1973); overconfident behavior towards their investment in the market (Ahmad Sabir et al., 2019; Tekçe & Yılmaz, 2015) and such concepts can be explained by the Theory of Overconfidence (Daniel et al., 1997); investors have an incorrect perception of their surplus (Iossa & Palumbo, 2009); there is a very low competition in the market (Fisman, 2006); there is a case of gambling, like lotteries (Meyer et al., 2008); there is a high feeling of expectation and aspiration for a specific thing to occur (Sethi & Seligman, 1993); analysts frame the mind of individuals through the forecast of their earnings on the basis of very high aspirations (Hong & Kacperczyk, 2010); and they usually set high expectations regarding returns (Niven, 2000).

H₁ Increase in investor's overconfidence behavior may lead to increase in investor's optimism.

People realize their biases deviate from the ideal standard when the outcome is opposite to what expected. However, the shocking implication is that people still cling to the belief of being “*optimistic*” concluding that they weren't ‘optimistic’ enough (Armor et al., 2008).

Though, accuracy of desirable outcomes improves with experience but remains optimistically biased nevertheless. Certain ideas, beliefs and conservatisms tend to diminish with time eliminating the initial hope. Therefore, an individual tends to be optimistic because of the ‘hope’ he holds framing certain expectations of a business venture (Massey et al., 2011).

While, on the other hand, a keen remedy of optimism towards investment decision is to take advice regarding optimal portfolio selection from the rational experts in the market (Joos et al., 2016).

Another way to eliminate specified irrational biases is by the truthful feedback they give. Optimism only persists with positive outcomes and not expectation or hope. Desirability also influences the level of optimism in an investor (Massey et al., 2011). If desirability does not correspond with the actual outcome a reality check sets in.

METHODOLOGY

Methodological Approaches

This study used the Mixed Method (Pragmatic Approach) which is the combination of both qualitative and quantitative study. Mixed method helps to achieve the major objectives of the study, which are to find out: the dominant reasons behind the optimism bias of the investors in the stock market of Pakistan; and to inspect and systematically analyze why investors of Pakistan Stock exchange (PSX) behave in an optimistic way. It is then best to make use of both the resources.

Philosophical Context

In philosophical context, this qualitative study is constructivist in nature and is based on the subjective approach. Usually the emphasis of qualitative studies is to clarify, understand, and describe the human experiences, as it entails collecting a series of strong, complete, and saturated descriptions of the knowledge under exploration (Polkinghorne, 2005).

On the other hand, this study is explanatory in terms of testing the self-developed scale through reliability measures (Cronbach's Alpha) and various statistical tools, such as: regression & correlation. On the basis of explanatory study, the main goal is just to confirm the relationship among optimism bias of investors and their antecedents in PSX.

Phases of Methodology

Several scales have been established to measure numerous approaches, perceptions, or thoughts of people (Potter, 1995). Most of the developed countries established scales as per their requirements in order to control the emotional biases of the people where necessary. The main focus of this study as per the requirement of Pakistan's market is to explain and explore too the antecedents of optimism bias of the people towards investment in the stock market.

The development of rigorous scale is a hard, onerous, and time-taking procedure (Schmitt & Klimoski, 1991). As per the suggestions of Schwab (1980) the development of measures categorize into three simple phases. Phase 1 is an item establishment while phase 2 is a scale development and phase 3 is about scale evaluation.

Phase 1 of Items Development

For inductive purpose, present study collected data on the basis of primary sources, for which: I first took Comprehensive Interviews (Polkinghorne, 2005) regarding optimism bias of investors from stock market experts and professionals.

After conducting the interviews of experts and professionals in the stock market of Pakistan, the study also tested the results of those interviews on NVivo for transparent analysis (Richards, 1999; Bazeley & Richards, 2000; Gibbs, 2002; Welsh, 2002) and got 'word clouds' for word frequency (Bringer et al., 2004; Smith & Firth, 2011; Miles et al., 2013) and selection of Optimal Antecedents (Bazeley & Jackson, 2013; Henderson & Segal, 2013). According to Schriesheim et al., (1993), content suitability should be evaluated instantly after items have been established in order to improve and/or change items before questionnaire's preparation and management. As NVivo helps the study in order to organize and discover the work in quick and easy manner. The study used this information to conduct: efficient analysis, information interrogation, and justification of findings with proof.

The study conducted Semi-Structured Interviews (Wengraf, 2001; Longhurst, 2003; Brinkmann, 2014) of various stock market experts in order to get maximum data (Louise Barriball & While, 1994) through cross questioning (Brugha et al., 1999) in interviews.

After taking interviews from the experts of the PSX, I took the interviews of many investors in PSX, based on the responses of experts, in order to confirm about the optimism bias that may really exists in the majority of investors at the time of investment decisions. Because, no one may generally accept that he/she is really an optimistic personality, but this is not the case, and Eleanor MacLean wrote in her book "*Between the Lines*" that not even a single person is totally cognitive in this world. So, that task may only be performed on the basis of the responses of experts. As experts may deal with the hundreds of investors on frequent basis and they usually know about the psyche and mental condition of investors and deal with them accordingly.

After that, the study got the approval of 5 market experts regarding the content of the self-developed scale, and also got the approval of 5 language experts regarding the context of the self-developed scale.

Phase 2 of Scale Development and Testing

Comprehensive information about the scale is a function of the number of items in a scale, and scale sizes could disturb replies (Roznowski, 1989).

Population

According to the above mentioned process, the professionals and experts of stock market were the population for this study for the first phase which was explaining and exploring too the antecedents of optimism bias among investors of PSX. Semi-structured interviews were conducted to extract maximum information. In phase 2, confirmation of scale, individual investors were taken as population for the study. Self-developed questionnaire were distributed among investors in Islamabad, Lahore and Karachi.

Sample

For the development of scale on Optimism bias, the study took the interviews of 70-80 experts of PSX, and to confirm their responses, the study took the interviews of hundreds of investors of PSX. While, to test those scales, the study took the responses of investors on various stages of the study.

Scale Development and Testing

As per all these guidelines, the third step in the study is to develop Frequency Scales (Likert, 1932) which was used to test the fixed choice response of the individuals (Rattray & Jones, 2007). It helps the study in terms of understanding the perception of individual investors towards their decisions in the market.

Forth, the study will apply the Kaiser-Meyer-Olkin (KMO) test to confirm the sample size for the study. The range of the KMO is 0-1, and $=$ or > 0.5 will consider as acceptable (Williams et al., 2010). Fifth, the study will apply Bartlett's test of sphericity to check the appropriateness of the items, the values of all the items are based on their significance (Dziuban & Shirkey, 1974).

Sixth, the study checked the reliability (if item deleted) of such developed scales through pilot testing (Rattray & Jones, 2007) by collecting data of 120-170 investors. Theory of Reliability (Barlow & Proschan, 1975; Bartko & Carpenter, 1976) is a method to measure the constructs.

Phase 3 of Scale Evaluation

Seventh, the study analyzed the results of such primarily collected data (Francis, 1978) through Descriptive Analysis (Nida, 1949).

Eighth, the study analyzed the results of each person on the basis of their aggregate scores of each element in the scale (Glas & Ellis, 1993).

Ninth, the study confirmed the relationship between variables through Exploratory Factor Analysis (EFA) (Cudeck, 2000; Gorsuch, 1988; Worthington & Whittaker, 2006) with the help of at-least 100-150 responses (Ferguson & Cox, 1993). As according to Guadagnoli & Velicer (1988), a sample size of 150 observations is enough to get a precise result in EFA, given that item inter-correlations are practically strong. Conversely, others would propose that this is lacking and a rule of thumb would be five respondents per item (Bryman & Cramer 1997).

Tenth, the study checked the ratings of same single observer repeated on multiple diverse occasions through inter-item correlation (BrckaLorenz et al., 2013).

Eleventh, the study confirms the association between emotional biases and their antecedents through Correlation (Taylor, 1990), and also check the level of sensitivity of each antecedent towards the generation of emotional biases through Regression (Seber & Lee, 2012; Watson, 1964; Fox, 1997).

And finally, the study explained and explored too the variables with inter-relations through Principal Component Analysis (PCA) in order to remove the case of redundancy (Anthony, 1999). PCA is the commonly testified factoring technique (Hinkin, 1995). In PCA, retaining elements with Eigenvalues more than one is generally used a principle for the retention of elements. Justification for the holding and removal of objects will evidently associate both theoretically and statistically.

RESULTS AND DISCUSSION

NVivo

In the first stage of results, the study converted the responses of experts (brokers) and professionals (investors) into a *Word Cloud* for a deep level of analysis, through the use of NVivo, which is qualitative data software.

Optimism

Optimistic investors think that nothing can be wrong in the future, but this is not the rational way to think. Optimistic investors usually ignore negative factors attached with their decisions. Any potential or existing investor in the market suffers from this bias. Investors are usually optimistic in their approach and decision making. The concept of optimism is defined by *Hope Theory* (Snyder et al., 2002) which underlines that there are three key components that make up confident thinking: (1) Goals – Approaching life in a goal-oriented way, (2) Pathways – Discovering diverse ways to accomplish your goals, and (3) Agency – Have faith in that you can initiate change and succeed in these goals.

Optimistic investors exist in the market, but they are less in numbers, while, the percentage of investors with optimism in the market is high as compared to other investors.

As in Pakistan, the economic conditions are not very much stable, so, investors become pessimistic in short-run while they become optimistic in long-run because, they hope that in future, the situations can be stable in the near future.

The positive trends in the market (positive market movements) lead to optimism among investors without any consideration for uncertainties in the market. The concept of market movements is defined by the *Theory of Price* (Muth, 1961), which states that high demand of the stock in the market may generate positive movement for the investor in the market. Optimistic people become selfish too because of positive market movements and they charge high prices for their stocks in these conditions. In positive market conditions, optimistic investors want to get abnormal profits as they like the situation of arbitrage in the market, while, arbitrage is generally the result of market inefficiency.

Optimistic investors feel happy and relaxed at the time of inflation in the market, as they think that the prices of stocks will also rise with inflation in the market. They become optimistic in terms of revenue during the time of inflation in the market. The concept of inflation is defined by the *Theory of Inflation* (Cheung et al., 2008) which shows the constant rise in the prices of goods and services over the period of time.

H₂ Increase in uncertainty of the market may lead to increase in investor's optimism.

Usually, new investors become optimistic in the market. The self-confidence (own perception) and past experience of investors also nurture this bias in the market, as they think that they are going on the right direction. The concept of own perception is explained on the basis of *Self-Efficacy Theory* (Bandura, 1997), according to which, an investor generally believes in his abilities to accomplish a specific task in an efficient way. On the basis of their own

perception, optimistic investors think that they have strong forecasting ability to foresee the future movements on the basis of past, while past is not the good predictor of the future because future is uncertain; they also think that they can take efficient decisions in each and every step and in any situation as well; and they also think that they can easily evaluate the stock's current position in an efficient way on the basis of their evaluation skills.

On the basis of positive illusions, optimistic investors think that they have the ability to handle any type of future condition (illusion of control), but this may not be the case all the time, as no one have the ability to control each and every situation all the time. Positive illusions are the result of over-confident behavior in investors and it became hazardous for investors in the future. This concept of positive illusions is further defined by *The Broaden-and-build Theory of Positive Emotions* (Fredrickson, 2004) which suggests that positive emotions widen one's awareness and encourage new, diverse, and exploratory thoughts and actions. According to Conway et al., (2013), positive emotions may leads to the positive illusions in terms of the actions of individuals.

H₃ Increase in investor's positive illusions may lead to increase in investor's optimism.

Optimistic investors think that just on the basis of expert's advice in the market they can take efficient decisions, get high amount of revenue, and hedge their future movements as well, because, they typically have strong believe on the decision making power and analytical skills of experts. According to *The Seer-Sucker Theory* (Armstrong, 1980), the suggestions of experts are very valuable at the time of forecasting. So, optimistic investors may give high value to the suggestions of experts in the market towards their investment decisions.

Optimistic investors over-estimate their abilities, which is the result of over confidence. This phenomenon of over-confidence may be explained on the basis of *Theory of Overconfidence* (Daniel et al., 1997), according to which, a person's subjective confidence in his or her decisions is reliably superior to the objective accurateness of those decisions. Investors take optimistic decisions because they think that they will not be affected by the negative event as others. As the stock in which they are investing will not be hurt so badly as compared to other stock resulting because of any negative event. But, this may not be the case all the time; their decisions can affect their returns and the movement of market as well.

Favorable yields in the past create solid foundations for optimism among investors in the market. Usually, decisions based just on the basis of past belief may not be efficient in most of the cases, as past is not the good predictor of the future. Based on the past data, optimistic investors only invest in those companies which were in profit in the past while they don't want to invest in those companies which were in loss in the past as they sometime think that past is everything for decision making. On the other hand, past is not the resourceful predictor of the future, because each and everything is changing with the passage of time.

When there is lack of alternative stocks available in the market, at that time, investors become optimistic about their returns. As they think that due to scarcity of specific stocks in the market, they have very low level of competition and they can generate enough profit in this condition. Conferring to the *Law of Demand* in economics, price of an object will rise, once it will be available in very limited volume (Hildenbrand, 1983).

Usually, optimistic investors feel extremely conscious of their returns in uncertainty as they think that they can get abnormal returns in uncertain situations of the market. According to the *Generalized Theory of Uncertainty* (Zadeh, 2005), high level of fluctuating environment may weaken the probability of success.

Investors with optimistic behavior always focus on well reputed firms for their investment. The concept of firm's reputation is described by the *Corporate Reputation Theory* (Weigelt & Camerer, 1988). Optimistic investors think that: well reputed firm can increase the level of efficiency through their leadership skills; well reputed firm can reduce the level of risk through financial literacy; well reputed firm can take good care of their investors because of good governance policies; and well reputed firm can secure their future on the basis of their efficient planning skills (Fombrun, 1996).

Sometime, optimistic investors take decisions on the current position of the firms as they think that current position reflects the past position and also shows the future position. In general, on current position, people just take decision because of their limited psychological knowledge toward a specific thing. The concept of decisions based on psychological knowledge is described by the *Behavioral Decision Theory* (Edwards, 1961), which explains the use and effect of psychological knowledge on decision making power. Whereas, just focusing on the present is not a good sign for efficient investment as investor should properly analyze it on the basis of current as well as past behavior of the firms.

Optimistic investors also think that they can generate efficient returns just on the basis of periodic forecast, but this is not the case, as short-term forecast can't be successful most of the time, and periodic return usually, may not give efficient returns in the future. The concept of periodic forecast is explained by *The Theory of Economic Forecasting* (Clements & Hendry, 1994) which is the practice of making estimates about the economy.

H₄ Increase in investor's decisions just on the basis of seasonal forecast may lead to increase in investor's optimism.

Optimistic investors are somehow gambler in nature, as they think that each next move will give them efficient returns. According to the concept of *Compulsive Gambling* (Custer, 1982), people gamble constantly in spite of hurtful undesirable penalties or a desire to end, as they always focus on the next move. Like gamblers, optimistic investors think that their investment is their life. They also sometime feel dependent on their family and friends.

Another main reason behind this behavior is lack of market study or lack of market experience. This concept of lacking experience is described by *Piaget's Theory of Cognitive Development* (Piaget, 1976), according to which, people generally not make efficient and rational decisions deprived of wide-ranging knowledge which they can acquire through market practice. And people with lack of market experience usually like short-term investment as compare to long-run, because, they think that in the fluctuating market of Pakistan, long-run investment can be risky.

H₅ Decrease in investment's maturity time may lead to increase in investor's optimism.

In general, irrational people tend to be optimistic in the market who doesn't want to conduct any sort of research before taking any investment decisions in the market. The concept of irrationality in decision making is described by the *Contingency Theory* (Lorsch & Morse, 1974) that claims that there is no finest method to form a company, to lead a business, or to make judgments.

The emotions and cognition of investors is not in the control of money managers. The investors are not willing to make decisions on advice of others and they are unable to understand the trends of market so it resists their control over optimism. Money managers and brokers have active engagement with investors in the market and they provide valuable information to their

According to the above-mentioned results of KMO, the selected sample size of all the items is appropriate for this study. Because, the range of KMO is 0-1, and the value of = or >0.5 is considered to be appropriate for the study (Williams et al., 2010).

Items	Significance
TF1 – TF2	0
MS1 – MS4	0
I1 – I2	0
OP1 – OP4	0
PI1 – PI3	0
EF1 – EF4	0
O1 – O3	0
PB1 – PB4	0
LC1 – LC4	0
U1 – U2	0
FR1 – FR8	0
CP1 – CP3	0
SF1 – SF2	0
G1 – G5	0
OPT1 – OPT6	0

According to the above-mentioned results of Bartlett's, the selected items of all the factors are appropriate for this study. Because, the values of all the items are significant, and the significant values of Bartlett's are considered to be acceptable for the study (Dziuban & Shirkey, 1974).

For this study, 250 feedback forms were floated among the investors of Pakistan Stock Exchange (PSX), which contains 15 variables (Time Frame, Market Situation, Inflation, Own Perception, Positive Illusions, Expert's Feedback, Overconfidence, Past Belief, Low Competition, Uncertainty, Firm's Reputation, Current Position, Seasonal Forecast, Gambling, and Optimism), and 56 items, whereas, each variable involves the items ranging from 2-8.

The study got the responses from 143 investors in total, and out of which only 124 feedback forms were completely filled. After putting the responses of 124 feedback forms into SPSS, the study checked the outliers, and found 7 outliers on aggregate basis. The outliers were from Rows 109, 96, 91, 87, 82, 81, and 79.

Exploratory Factor Analysis (EFA)

	Component														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TF1	0.281			0.702			0.301				0.224				
TF2				0.657		0.265			0.215	0.214					
MS1			0.296	0.349		0.36	0.216	0.362					-0.301	-0.216	
MS2			0.319	0.571		0.226									
MS3	0.222			0.572				0.332				0.295			
MS4				0.298		0.251		0.248				0.539		0.263	
I1	0.437		0.303	0.365		0.269								0.385	
I2	0.333		0.254	0.256										0.653	
OP1	0.408		0.4		0.308		0.259								-0.32
OP2	0.27		0.26			0.394			0.221		0.295	0.322			
OP3	0.348			0.322	0.411		0.205	0.388							
OP4	0.497		0.206			0.372	0.219							0.28	-0.227
PI1	0.785														
PI2	0.749	0.205		0.271											
PI3	0.499			0.276								0.322			
EF1	0.335			0.39		0.298			0.368	0.273					

EF2			0.304			0.234	0.486		0.294			0.243	0.24		
EF3		0.274				0.398	0.28	0.389		0.279					
EF4						0.41	0.2	0.571					0.211		
O1				0.378		0.616		0.222	0.202						-0.264
O2						0.756	0.241								
O3	0.246		0.213		0.363	0.472					-0.205	0.206	0.303		
PB1	0.227		0.246										0.618		
PB2					0.356			0.668				0.233	0.256		
PB3	0.334				0.44	0.21		0.31			0.243	0.405			
PB4					0.504	0.439				0.23	0.238	0.268			
LC1			0.278		0.421	0.216	0.256	0.259					0.207		
LC2			0.214		0.714										
LC3					0.664				0.291				0.235		
LC4		0.274		0.266	0.355						0.247			0.471	
U1				0.263						0.641	0.23				
U2					0.221					0.831					
FR1					0.24			0.211		0.256	0.738				
FR2			0.215							0.513	0.339	0.338			0.247
FR3				0.236	0.226	0.243					0.602				
FR4	0.341		0.277		0.224		0.506		0.334		0.21				
FR5	0.2						0.818								
FR6							0.691		0.264						
FR7	0.317	0.236						0.572	0.318						
FR8									0.811						
CP1		0.3	0.284		0.333				0.423			0.32			
CP2		0.35	0.271				0.203				0.253	0.548			
CP3		0.337	0.286		0.374					0.325					-0.322
SF1			0.84												
SF2			0.799												
G1	0.352	0.32	0.406								0.293		0.426		
G2		0.22	0.205		0.218			0.21	0.258				0.204		0.642
G3		0.314						0.222	0.223				0.703		0.232
G4		0.437	0.205	0.223	0.271				0.207						0.306
G5	0.207	0.732													0.247
OPT1		0.473	0.334	0.209					0.443			-0.217			
OPT2		0.733													
OPT3		0.617	0.211					0.212		0.3					-0.251
OPT4	0.206	0.33	0.268					0.229	0.476	0.228		0.25		0.249	
OPT5		0.293				0.202			0.261	0.362		0.378			
OPT6		0.411					0.546	0.218			0.21				

Extraction Method: Principal Component Analysis;
 Rotation Method: Varimax with Kaiser Normalization.
^aRotation converged in 39 iterations.

According to the above mentioned results of Rotated Component Matrix: PI1 and PI2 are significantly loaded on Factor (component) 1; G5, OPT2, and OPT3 are significantly loaded on Factor (component) 2; SF1 and SF2 are significantly loaded on Factor (component) 3; TF1, TF2, MS2, and MS3 are significantly loaded on Factor (component) 4; LC2 and LC3 are significantly loaded on Factor (component) 5; O1 and O2 are significantly loaded on Factor (component) 6; FR5 and FR6 are significantly loaded on Factor (component) 7; PB2 and FR7 are significantly loaded on Factor (component) 8; FR8 is only significantly loaded on Factor (component) 9 which may not generate any variable and stands meaningless; U1 and U2 are significantly loaded on Factor (component) 10; FR1 and FR3 are significantly loaded on Factor (component) 11; MS4 is only significantly loaded on Factor (component) 12 which may not generate any variable and stands meaningless; PB1 and G3 are significantly loaded on Factor (component) 13; I2 is only significantly loaded on Factor (component) 14 which may not generate any variable and stands meaningless; and G2 is only significantly loaded on Factor (component) 12 which may also not generate any variable and stands meaningless.

The above mentioned results of factor loading of Optimism shows that, the study can develop 11 factors out of 15 factors, as 4 factors (9, 12, 14, & 15) may only contain 1 item that may not be enough for the generation of the factor.

Second Time Floatation of Questionnaire in the Stock Market of Pakistan

For this study, after performing EFA on it, again, 200 feedback forms were floated among the investors of Pakistan Stock Exchange (PSX), which contains 11 factors (Time Frame, Market Situation, Inflation, Positive Illusions, Expert's Feedback, Overconfidence, Low Competition, Uncertainty, Firm's Reputation, Seasonal Forecast, and Optimism), along with 23 items, whereas, each variable involves the items ranging from 2-4. On this step, I gave new names to each variable again after the detailed analysis of the responses of primarily collected data through interviews of experts and investors in the PSX.

The study got the responses from 141 investors in total, and out of which only 119 feedback forms were completely filled.

Inter-item Correlation

Optimism

	O1	O2
O1	1	
O2	0.762	1

Note: <0.15 shows no correlation, >0.15 &<0.5 shows average correlation, >0.5 &<0.8 shows good correlation, and >0.8 shows very high correlation (BrckaLorenz et al., 2013)

According to the above mentioned results, the study will take O1 and O2 for variable 1 (Optimism) of optimism.

Inflation

	I1	I2	I3
I1	1		
I2	0.478	1	
I3	0.455	0.514	1

According to the above mentioned results, the study will not develop any variable for optimism from this data.

Seasonal Forecast

	SF1	SF2
SF1	1	
SF2	0.739	1

According to the above mentioned results, the study will take SF1 and SF2 for variable 2 (Seasonal Forecast) of optimism.

Overconfidence

	OC1	OC2	OC3	OC4
OC1	1			

OC2	0.543	1		
OC3	0.354	0.489	1	
OC4	0.432	0.438	0.372	1

According to the above mentioned results, the study will take OC1 and OC2 for variable 3 (Overconfidence) of optimism.

Low Competition

Table 8		
INTER-ITEM CORRELATION ANALYSIS		
	LC1	LC2
LC1	1	
LC2	0.443	1

According to the above mentioned results, the study will not develop any variable for optimism from this data.

Positive Illusion

Table 9		
INTER-ITEM CORRELATION ANALYSIS		
	PI1	PI2
PI1	1	
PI2	0.550	1

According to the above mentioned results, the study will take PI1 and PI2 for variable 4 (Positive Illusion) of optimism.

Time Frame

Table 10		
INTER-ITEM CORRELATION ANALYSIS		
	TF1	TF2
TF1	1	
TF2	0.525	1

According to the above mentioned results, the study will take TF1 and TF2 for variable 5 (Time Frame) of optimism.

Expert's Feedback

Table 11		
INTER-ITEM CORRELATION ANALYSIS		
	EF1	EF2
EF1	1	
EF2	0.342	1

According to the above mentioned results, the study will not develop any variable for optimism from this data.

Uncertainty

Table 12		
INTER-ITEM CORRELATION ANALYSIS		
	U1	U2
U1	1	
U2	0.568	1

According to the above mentioned results, the study will take U1 and U2 for variable 6 (Uncertainty) of optimism.

Firm's Reputation

	FR1	FR2
FR1	1	
FR2	0.425	1

According to the above mentioned results, the study will not develop any variable for optimism from this data.

Market Situation

	MS1	MS2
MS1	1	
MS2	0.477	1

According to the above mentioned results, the study will not develop any variable for optimism from this data.

Third Time Floatation of Questionnaire in the Stock Market of Pakistan

Reliability

For this study, after checking the inter-item correlation among items, again, 150 feedback forms were floated among the investors of Pakistan Stock Exchange (PSX), which contains 6 variables (Time Frame, Positive Illusions, Uncertainty, Overconfidence, Seasonal Forecast, and Optimism), and 12 items, whereas, each variable involves 2 items.

The study got very good responses from 103 investors in total, and out of which only 94 feedback forms were completely filled.

The tables given below shows the results of Cronbach's Alpha (if item deleted).

If Item Deleted	Cronbach's Alpha
Optimism 1 (O)	-
O2	-
SF1	-
SF2	-
OC1	-
OC2	-
PI1	-
PI2	-
TF1	-
TF2	-
U1	-
U2	-

As per the results of above mentioned table: there is no need to delete any items of any factor, because in case of less than 2 items, the overall result will be considered to be acceptable if it is above 0.7.

Variables	Cronbach's Alpha
Optimism (O)	0.898**
Seasonal Forecast (SF)	0.891**
Over Confidence (OC)	0.724*
Positive Illusions (PI)	0.697
Time Frame (TF)	0.698
Uncertainty (U)	0.700*

Note: >0.7*, >0.8**, &>0.9***

According to the above-mentioned results: TF and PI have weak reliability; U and OC have moderate reliability; while O and SF have good reliability. The values of all of the variables are acceptable for this study.

Correlation

	O	PI	SF	TF	OC	U
Optimism (O)	1					
Sig						
N	94					
Positive Illusions (PI)	0.449**	1				
Sig	0					
N	94	94				
Seasonal Forecast (SF)	0.393**	0.174	1			
Sig	0	0.093				
N	94	94	94			
Time Frame (TF)	0.459**	0.452**	0.346**	1		
Sig	0	0	0.001			
N	94	94	94	94		
Over Confidence (OC)	0.413**	0.345**	0.158	0.377**	1	
Sig	0	0.001	0.128	0		
N	94	94	94	94	94	
Uncertainty (U)	0.440**	0.306**	0.271**	0.284**	0.251*	1
Sig	0	0.003	0.008	0.006	0.015	
N	94	94	94	94	94	94

Note: <0.01 **, <0.05 *, <0.09

According to the above-mentioned results PI, SF, TF, OC and U are highly significant and positively correlated with O. So, all the variables are acceptable for this study.

Regression

Adjusted R-square	Standard Error of the Estimate
0.392	0.64737

According to the above mentioned results, the adjusted R-square is 0.392 which shows 39.2% variation in dependent variables is due to the variation in specifically selected independent variables. But, the basic theme of this study is to develop the scale instead of generalizing it. Whereas, the value of standard error of estimate is 0.64737 which is close to zero, which means that the over-all data is well-organized, as Standard Error of Estimate less

than or equal to 2.5, would be able to produce appropriately fine 95% prediction interval (Efron & Tibshirani, 1986).

F	Significance
12.999	0

According to the above-mentioned results, the F-stat is significant at 0.000, which shows that the developed model for the testing of optimism bias of investors in the stock market of Pakistan is correct.

Variables	β	t	Significance
Constant		-0.964	0.338
PI	0.209	2.214	0.029
SF	0.214	2.437	0.017
TF	0.146	1.486	0.141
OC	0.195	2.171	0.033
U	0.227	2.568	0.012

According to the above-mentioned results: TF is insignificant; whereas PI, SF, OC and U are significant with positive beta signs. So, all the variables (PI, SF, OC & U) except TF are acceptable for this study. On the other hand, constant is insignificant, which shows that there is no case of omission, and the selected independent variables are appropriate for this study.

Whereas, the beta coefficient shows that: variation in 1 unit of U may affect the 0.227 units of O; variation in 1 unit of SF may affect the 0.214 units of O; variation in 1 unit of PI may affect the 0.209 units of O; and variation in 1 unit of OC may affect the 0.195 units of O.

These results also show that investors become optimistic when: investor's positive illusions rise; investors take decision just on the basis of temporarily seasonal forecast; investors invest in well reputed firms only; and there is high level of uncertainty exist in the market.

Eigen Value

Component	Eigenvalue
1	3.706
2	1.622
3	1.128
4	1.081

The scale on optimism bias contains 6 variables (5 independent & 1 dependent), and according to results 4 variables have greater than 1 eigenvalue. So, 4 variables are accepted for the study.

Forth Time Floatation of Questionnaire in the Stock Market of Pakistan

Reliability

For this study, again, 100 feedback forms were floated among the investors of Pakistan Stock Exchange (PSX), which contains 5 variables (Positive Illusions, Uncertainty, Firm's Reputation, Seasonal Forecast, and Optimism), whereas, each variable involves 2 items.

The study got responses from 57 investors in total, and out of which only 52 feedback forms were completely filled.

Variables	Cronbach's Alpha
Positive Illusions (PI)	0.952***
Seasonal Forecast (SF)	0.900***
Optimism (O)	0.693
Overconfidence (OC)	0.652
Uncertainty (U)	0.778*

Note: >0.7*, >0.8**, &>0.9***

According to the above mentioned results: O and OC have weak reliability; U has moderate reliability; whereas PI and SF have excellent reliability. The values of all of the variables are acceptable for this study.

Correlation

	O	PI	SF	FR	U
Optimism (O)	1				
Sig					
N	52				
Positive Illusions (PI)	0.481**	1			
Sig	0				
N	52	52			
Seasonal Forecast (SF)	0.436**	0.296*	1		
Sig	0.001	0.033			
N	52	52	52		
Overconfidence (OC)	0.401**	0.352	0.169	1	
Sig	0.003	0.01	0.271		
N	52	52	52	52	
Uncertainty (U)	0.498**	0.362**	0.286*	0.134	1
Sig	0	0.008	0.04	0.342	
N	52	52	52	52	52

Note: <0.01 **, <0.05 *, <0.09

According to the above mentioned results PI, SF, OC, and U are highly significant and positively correlated with O. So, all the variables are acceptable for this study.

Regression

Adjusted R-square	Standard Error of the Estimate
0.417	0.66353

According to the above mentioned results, the adjusted R-square is 0.417 which shows 41.7% variation in dependent variables is due to the variation in specifically selected independent variables. But, the basic theme of this study is to develop the scale instead of generalizing it.

Whereas, the value of standard error of estimate is 0.66353 which is close to zero, which means that the over-all data is well-organized, as Standard Error of Estimate less than or equal to 2.5, would be able to produce appropriately fine 95% prediction interval.

F	Significance
10.122	0

According to the above mentioned results, the F-stat is significant at 0.000, which shows that the developed model for the testing of optimism bias of investors in the stock market of Pakistan is correct.

Variables	β	t	Significance
Constant		-1.06	0.294
PI	0.208	1.686	0.098
SF	0.241	2.104	0.041
OC	0.243	2.126	0.039
U	0.321	2.742	0.009

According to the above mentioned results: PI is very weakly significant with positive beta sign; SF and FR are significant with positive beta signs; whereas U is highly significant with positive beta sign. So, all the variables (PI, SF, OC, & U) are acceptable for this study. On the other hand, constant is insignificant, which shows that there is no case of redundancy here.

Whereas, the beta coefficient shows that: variation in 1 unit of PI may affect the 0.208 units of O; variation in 1 unit of SF may affect the 0.241 units of O; variation in 1 unit of OC may affect the 0.243 units of O. and variation in 1 unit of U may affect the 0.321 units of O.

These results also show that investors become optimistic: when investor's positive illusions rise; when investors take decision just on the basis of temporarily seasonal forecast; when investors invest in well reputed firms only; and when there is high level of uncertainty exist in the market.

Eigen value

Table 26 Total Variance Explained. The scale on optimism bias contains 5 variables (4 independent and 1 dependent), and according to results 4 variables have greater than 1 eigenvalue. So, 4 variables are accepted for the study.

Finally Explored the Antecedents of Emotional Biases of Investors in the Stock Market of Pakistan and their Reasons

At the end of the whole process for the scale development, the *scale on optimism bias* contains 4 factors (Optimism, Seasonal Forecast, Firm's Reputation, & Uncertainty) along with 08 items, in which, each factor contain 2 items.

Investors see each and everything positively (optimism), when: they become non-habitual in the market; and they become over-confident in the market too. On the basis of non-habitual behavior, people really don't know about the actual fundamentals of the market. They usually buy the stocks in the trend of raising prices and sell stock in case of falling prices, but, such sort of decisions may not give fruitful results all the time. Optimistic investors usually try to just

focus on short-term changes (seasonal variations) in the market, and try to make decisions according to them.

However, in order to analyze the short-term variations as well, a seasonal forecast is very much important factor. In addition to this, seasonal forecast ability of an investor plays a vital role behind the generation of optimism bias in investors. As, on the basis of just seasonal forecast, most of the investors think that they can efficiently take long-term decisions through such periodic estimates and also generate revenue as per their requirements through such specific period forecast. But, most of the time, heavy risk attached with decisions that are just based on short-term seasonal forecast. So, many investors, who just based on short-term seasonal forecast, may try to analyze the reputed firms just, as they are not highly volatile in any situation.

Whereas, overconfidence is another factor, that is playing a role in the generation of optimistic behavior of investors. Investors with extremely relax behavior; always try to invest in firms on overconfident basis. And after investing in such way, they think that, all will be positive with their investment in the future. While, future is uncertain, and nothing can be constant in the future.

Uncertainty is another factor that maintains a significant role in the generation of optimistic behavior of investors. During highly volatile situations, investors feel very conscious of their investment, and also think that they may get abnormal profit or bear abnormal loss in case of ambiguity (Figure 2).

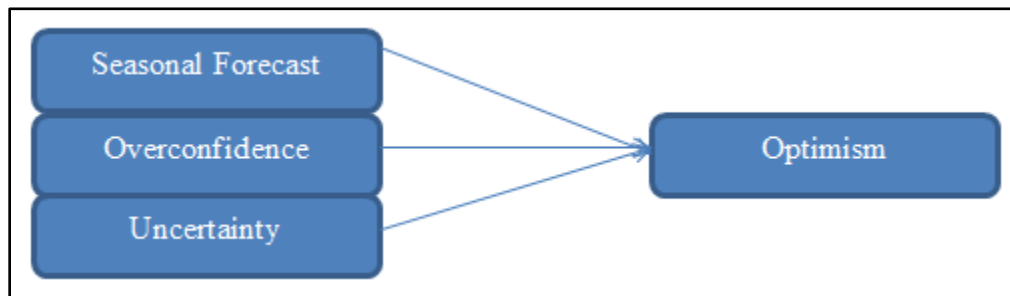


FIGURE 2
THEORETICAL FRAMEWORK OF SELF-DEVELOPED SCALE
CONCLUSION

Stock market of any country is considered to be as proxy of economy. But, for this, it would be mandatory for the market to be based on fundamentals. Whereas, the stock markets of most countries in the world are not based on their fundamentals, such as: the earning reports of companies; the strength of companies in the industry; new product lines; capital structure of the firm; technological improvements; new strategies of the firm; general economic factors (interest rate, exchange rate, tax rates, unemployment rate, recession, inflation, level of consumer's confidence, discretionary income of consumers, government policies, etc.), and among them, the developing countries are the most prominent. In addition to this, not only the absence of fundamentals results in inefficient behavior of the market, and the human behavior also plays a significant role in this regard.

The study manifests that it is quite possible to explain as well as explore the optimism bias of investors, and that impressions of bias have obviously noticeable, significant, and consistent effects on individuals rational decision making ability, businesses, stock market, and economy as a whole.

As per the experts of market, who deal with investors on regular basis, ‘the dilemma of the investors in stock market of Pakistan is that they don’t try to identify their mistakes (biases) towards the inefficiency of the market but they want an efficient stock market always’.

By all counts, and with proven results, it is no wonder that human emotions are playing a vital role towards the fluctuating behavior of stock market of Pakistan. This study explained as well as explored the various antecedents of optimism bias of investors in the stock market of Pakistan.

Whereas, in order to remove this bias among investors, Securities and Exchange Commission of Pakistan (SECP) can play a very much important role by arranging seminars to educate existing and incoming investors regarding the basics of savings, financial planning, investing and capital markets. SECP may also motivate investors for savings by various techniques or by offering various schemes, such as: JamaPunji, as lack of saving is another problem behind rational investment. SECP should take a step towards broker free market, as in 2002, SECP Chairman “*Irtiza Husain*” said that only those markets had developed where exchanges were run independently of the brokers. Usually, brokers may not give loyal advice to investors, as they give them advice as per their own requirements, such as: they can advise investors to invest in such a stock through which they can get efficient commission.

SECP should arrange workshops in collaboration with market professionals and associations in order to: protect retail investors; create awareness about saving and investment; build investor confidence; and control optimistic behavior of investors at the time of investment in the PSX. The main goal of SECP must be financial literacy and clarifying the applicants regarding capital markets and mutual funds to protect interests of the shareholders.

The reforms for biased-free investment must be taken by SECP for bringing Pakistani investors at or near par with the investors in the advanced countries in the succeeding few years can benefit the entire country and consequently must be enthusiastically supported.

To well defend current and upcoming investors contrary to financial scams and for general progress of the financial sector and the economy in the long run transference of this awareness through seminars and workshops at various levels regarding the antecedents of investor’s emotional biases.

Optimism

According to the results of the study: H1 is approved, as increase in investor’s overconfident behavior may lead to increase in investor’s optimism; H2 is approved, as increase in uncertainty of the market may lead to increase in investor’s optimism; H3 is approved, as increase in investor’s positive illusions may lead to increase in investor’s optimism; and H4 is also approved, as increase in investor’s decisions just on the basis of seasonal forecast may lead to increase in investor’s optimism. Whereas, H5 is rejected as there is no impact of maturity time of investment on the optimism bias of investors.

From all the independent variables of Optimism (Overconfidence, Uncertainty, & Seasonal Forecast), the most strongest variable that is playing a vital role in the generation of optimism bias of investor is Uncertainty, in which, investors become optimistic even in lack of market efficiency, as they feel that they can generate abnormal profit in vagueness. Secondly, Overconfidence plays a considerable role in the generation of optimism bias of investor. After investing through overconfident behavior, investors think that they may not face loss in any case, but, this may not be the rational thinking. Lastly, Seasonal Forecast is another considerable factor in the generation of optimism bias of investor. Through short-term seasonal forecast,

investors usually become over-confident, and think that their investment will give them just positive results.

APPENDIX

Questionnaire

Optimistic investment behavior

Nature of Research: Academic Purpose

Please indicate that to what extent does you agree or disagree with the following statements.

Scaling: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Optimism

S. No	Statements	1	2	3	4	5
1	The future results of my investment will be surely positive.					
2	I usually buy the stocks in the trend of raising prices and sell stock in case of falling prices.					

Seasonal Forecast

S. No	Statements	1	2	3	4	5
1	I can efficiently take long-term decisions through periodic estimates.					
2	I can generate revenue as per my requirements through specific period forecast.					

Firm's Reputation

S. No	Statements	1	2	3	4	5
1	I invest in firms with efficient technical abilities.					
2	I invest in firms with efficient work environment.					

Uncertainty

S. No	Statements	1	2	3	4	5
1	I may feel very conscious towards my investment in case of instability.					
2	I may get abnormal profit or bear abnormal loss in case of vagueness.					

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