



Addressing investor decision making behavior through overconfidence risk, underdog bias and risk propensity

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Abstract

This study has been carried out to measure the ability of investors to face the level of risk as investors go beyond the risk level or investors have ability to face the risk as overconfidence or underdog bias risk in relation to risk propensity. The study has utilized primary source of data collection from 184 investors who mostly invests in financial securities as: "Pension / Provident Fund Management, Private Wealth Investment Private Equity, Hedge Fund Management, Equity Trading, Fund of Funds, Bond Trading, Stock Broking, and Insurance." This study has inquired respondents to specify their funds' present level of risk. 48% reported that they served in reasonable risk setting, 28% high-risk situation, 12% mixed risk perspective and 12% in conservative perspective.

Keywords: *Decision-making behavior, overconfidence risk, underdog bias, risk propensity*

Introduction

The investment community makes rational decisions depend on investors because they are caretakers of community's wealth. However, consistency and expectedness of decision-making is impossible goal, because decision-makers can frequently behave irrationally (Kahneman, 2011) and occasionally predictably (Rabin & Thaler, 2001). The system 1 thinking (Evans, 2008) that is quick, intuitive, sensitive and apply to shortcuts in decision-making (Stanovich & West, 2000), rather than less thoughtful, system 2 thinking, can explain irrational choices in part. According to Kahneman (2011) perception, excellent experiences, recent events and contextual perceptions are contributing in system 1 thinking to the creation of cognitive biases. This is significant to study the possible cognitive biases and behavioral propensities of investors against background of the restrictions of human perception and decision-making.



One might think that investors would evaluate their investment skills by asking the following two issues to overcome these biases and propensities: 'Do you think you have all the chances of a successful investor to overcome?' and: 'How often will investments risks are faced by you?' 'As the answers to these questions have many impacts on investments, the paper discusses three possible factors that could affect decision-making on investment:

- (a) Confidence level in skills and self-esteem (Guenther & Alicke, 2010).
- (b) Understanding that life encourages achievement or top dog in opposition to underdog bias (Davda & Gilovich, 2016).
- (c) Risk-taking or individual risk tendency (Hoffmann, Post, & Pennings, 2015).

After the point of view of "social comparison theory (SCT)", The researchers have realized that person normally judge how great they are, however don't. A current 60-year SCT meta-analysis showed that, when compared with individuals below our expectations and compared to others above our level.

SCT then indicates which are sensitive to weak performance assessment or appear to miss-evaluate the quality of our own skills and performance particularly in terms of other skills and performance. When investors overestimate their own performance in comparison to others rather than seeking new data or opinion, they could be less effective in making investments decisions.

Davidai and Gilovich (2016) explore that individuals recall more clearly headwinds of their previous knowledge than backwinds. This indicates partial opinion that their life had further challenges than factors that could enable them to achieve, often called the headwind- tailwind asymmetry. Such assumptions might attribute availability or attention bias: when challenges need additional time to deal with and incentives are only experienced, the obstacles are much easier to memorize. This fact is called "underdog bias," which means a biased feeling of existence misrepresentation and performance despite many problems. One might assume that 'underdog bias ' is about overconfidence that refers to the tendency of investors to inadequately review information or data.

Also, if you look at personal skills and the feeling that life is a fight that has been won, you can ask how many investors take risk in making decisions. Risk propensity is perceived like "a decision-makers general willingness to take or avoid risks" (Kahneman & Tversky, 1979). However, the potential value of the stocks is sometimes misjudged by investors based on previous performance (Barberis, Mukherjee, & Wang, 2016).

In comparison, investors can occasionally forecast bond performance through a loss aversion of prospects (Zhong & Wang, 2018). It is well recognized that situational as well as individual factors influence risk behavior (Iqbal, 2013) and investors are required to reduce risk and increase shareholder value as caretakers of value. Risk propensity often differs among individuals (King & Slovic , 2014). Awareness of investor risk propensity is therefore obviously appropriate in helping to protect against premature or incorrect decisions.



By concentrating on investments decision-makers in their businesses, we may start to answer the question: How the South African investment community determines self-rated success and risks propensity and underdog bias.

Underdog Bias

Every person must overcome various forms of procedures or experiences to get to the current situation. Davdai and Gilowich (2016) stated that person's review headwinds they face extra than the tailwinds that help them, and individuals have knowledge of overcoming more than being hurt. Underdog bias is created on the perception that people are more likely to feel their headwinds and obstacles than tailwinds and rewards (Davda & Gilowich, 2016).

Overconfidence Bias

Overconfidence is often described as an individual's skill to overrate the exactness of information available (Siwar, 2011). Overconfidence is a propensity for people to overrate their awareness, skill and quality of data" (Bhandari & Deaves, 2006). Interestingly, investors overrate their own personal knowledge at the risk of ignoring information that is widely available (Chuang & Lee , 2006).

Risk Propensity

The risk propensity represent decision-makers' ability to bear risks or to reduce them (Gilley, Walters, & Olson, 2002). Risk propensity is described as an emotional reaction generalized at the individual level when dealing with the unknown possibility of gain or loss. The degree to which individuals seek risk vs. risk adverse is diverse dependent on the circumstances and expected stage of risk (Iqbal, 2013).

Significance of study

This study mainly about biases and their impact on the investor decision making behaviour that how investor take risk and make mistakes and bear losses? Investor takes sudden decision that impact on the trend of investment although irrational investor always take decision in illogical way that why these biases effect on their decisions making creteria (Combrink, 2018). The study will concentrate on investors who are presently participating in investment decisions in their businesses. Such individuals' risk propensity is seen as important, as they have not only deal with risk reduction while evaluating decisions. They usually have risk level that convey to their clients for form of fund they are deciding to invest in (Hoffmann, Post, & Pennings, "How Investor Perceptions Drive Actual Trading and Risk-Taking Behavior.", 2015).

Research questions

- How does overconfidence affect investor's decisions?
- How does underdog bias affect investor's decisions?
- How does investors face risk propensity?



Problem Statement

This study addresses about decision making of investor and psychological biases which directly impact on decision which tends to take quick decision . Investment decisions have become important day-to-day activities. That's why understanding about the different variables like underdog bias, overconfidence bias and risk propensity that affect these decisions is important for investors to make timely and correct decisions. This study determines the variables which affect investors ' desire when deciding on investments. Previous studies were show to examine the role of investor data search behavior (Rana, Khan, & Baig, 2014), but limited studies researched the resolving function of searching information behavior between various variables and decision-making behaviour.

Literature Review

Since economists understand that human beings are not rational but are limited our capacity to address difficult issues (Simon H. , 1955), researchers observed restriction, particularly if decision-makers are unable to enhance choice but simply to be satisfied by making best decisions within limits. Economists proposed rational decision laws where preferences can be estimated among several choices (Baye & Prince, 2013) or expected value of results is relative to starting opinion (Nutter, 2010). But research indicates that decision-making behavior differs from the estimated or basic economics standards (Evans, 2008).

That shortcuts decisions can lead bias decision-making (Kahneman, 2011) and judgment mistakes (Iqbal, 2013). Slovic, Fischhoff, Lichtenstein, & Roe (1981) defined past heuristics as inferential rules that allow individuals to turn complicated or undefined complications into easier one. Biases examine incorrect usage of knowledge or incorrect expectations regarding self and circumstance of decision.

The availability bias defines the use of information that is easily available or remembered when we donot take all knowledge that necessity, we should presume that it is complete (Kahneman, 2011) or only ignore details that we do not know (Slovic, Fischhoff, Lichtenstein, & Roe, 1981). Our experiences and information available influence perception we control and which is sometimes confused (Ross & Sicol, 1979; Taylor, 1991). That can cause investors to overreact in their instant decisions (Kiliger & Kudryvtsev, 2010), specially for insignificant and risky shares, to large changes in stock prices (Kudryvtsev, 2018). The underdog bias, overconfidence and risk perception of research are at heart of this availability bias.

Underdog Bias

The perception that one experienced more important challenges than enablers compared to others represents underdog bias. In this bias, one experience challenges in one's direction of life are more clear than positive occasions due to force of overcome difficulties (Davda & GiloWich, 2016). Underdog bias is directly associated with the availability bias in which the most important information in one's mind receives maximum value in decision making. In comparison, (Rozin &



Royzman, 2001) say perceptions are influenced in positive direction, leading to a diminish of negative events over time. If experiences of struggle are more available to people and when they see themselves as heroes of their own life stories. we believe that they have overcome challenges they have required (Davda & Gilovich, 2016). This assumption, therefore, may direct a view that playing field must increased to level of inappropriate decent behaviour, which has numerous consequences for investment decision-making (Davda & Gilovich, 2016; Tamborski, Brown, & Chowning, 2012).

Davidai & Gilovich (2016) propose a association among self allocation and underdog bias by explaining how people who believe they face stronger headwinds are often more likely to gain a greater part of profits than others. At the same time, we identify that concept of life being challenging indicated in underdog bias, compares ability to identify positive occasions, as in overconfidence and opposite association.

Over confidence Bias

The experience of performance is known as overconfidence bias on average better than average (Guenther & Alicke, 2010). An extension of literature suggests how irrational behavior by investors leads to overconfidence, irrational behavior and immediate financial market anomalies. Merkle (2017) concluded that overconfidence drives investors to be riskier, less diverse and more trade oriented.

This occurred as overconfidence was overestimating the quality of investors ' own expertise and their assumption that they could better predict the future than others. The fact is that there is a lack of confidence. Availability bias partly describes why people overestimate their personal influence to the performance of the party, since remembering their acts is simpler than other actions, (Sch16; Koo & Yang, 2018).

Hindsight bias can also additional important source of overconfidence in which knowledge on previous successes can be viewed as a predictor of future performance. Taleb (2007) states in the much-quoted Book “Black Swan” that the past in spite of our propensity to construct future rations for past events, is not a reasonable predictor of the future (Knoll & Arkes, 2017). It creates an irrational confidence that their previous successes will lead to similar future benefits. The experience of the investment community is therefore necessary.

If you analyze whether there is a relationship between excessive confidence and risk, you will remember that excess confidence is not advantageous because it contributes to the risk (Lovallo *et al.*, 2003). An individual who has had a particular experience can trigger a quality bias which may explain why certain circumstances are seen by a particular person as being more or less dangerous (Kahneman, 2011), or if knowledge is missing, risk ignorance may occur (Stanovich & West, 2000).

Overestimation of individual’s capacity to judge riskiness of the condition and its own risk modification practices can also result in overestimation (Hoffmann, Post, & Pennings, 2013). Therefore, overconfidence can also contribute to aspirations for the



“best-case scenario” (Lovallo & Kahneman, 2003), and if paired with essence of risk management, risks will increase (Gilovich & Douglas, 1986).

Risk propensity

The classic prospect theory of Kharneman and Tversky (1979) provides an alternative perspective; owing to absence of utility theory describe risk expectations (Baye & Prince, 2013; Iqbal, 2013). Prospect theory suggests that persons face a possible gain and risk-seeking in face of potential loss as they want protection. People are obviously averse to failure (Kahneman, 2011), but there are few marks that risk tendency is depend on person private first choice opinions (Novemsky & Kahneman, 2005). Predictable earnings happen to point of reference for risk aversion (Baye & Prince, 2013). In fact, if individual possesses something, endowment effect raises the observed worth of the point over the will to give for similar item (Thaler, 1980).

In addition to impact and support influences of reference points, risk propensity can also be outcome of person features for example: emotions regarding alternative. King and Slovic (2014) have shown how the tendency to risk in investment decisions can be influenced. A risk factor can also affect the actions of individuals (Iqbal, 2013). External factors in addition to personal factors can lead to a greater fear or aversion (Lovallo & Kahneman, 2003). Bucciol and Ministeriaci (2018), for example, have exposed that the risk trend is higher immediately after economic growth.

Research Gap

This study concern about investor bias which impact to take irrational decision making. Decision making has varied from one investor to another investor. Every decision maker has own investment criteria and patterns. Some investor take quick decisions some are take risk averse. In this study, few biases in psychological point of view discussed from these bias underdog bias is only limited to this article an inadequate literature is exist. The three variables derive from behavioral economics, and all three are affected by various biases and heuristics (Davda *et al.*,2016). Every variable was measured independently but none of the variables were measured to decide if they are associated.

The overconfidence bias is a hindsight bias. Individuals with past experience will decide that their future success should be dependent on their past success. This is not generally true, unfortunately, especially in complex, non-repetitive environments (Agans & Shaffer, 1994). The hindsight bias is not restricted to an individual's performance experience. A strong reputation that comes into a new role or a good past performance will cause a team manager or leader to offer a person special treatment because they expect strong performance to continue in the future. In extreme cases, this may cause the person to have a halo effect (Forgas, 2011).

The underdog bias was related to the propensity to sympathize and identify with the challenge of competitors with low a-priority winning chances (Kim, *et al.*, 2008) as well as the encouragement of participants to stay involved in the competition (Frazier



& Snyder, 1991). But the bias toward upward progress can also play a role. As we have shown, people are confident about the probability that low-ranking individuals or teams will be successful. If the underdog was encouraged enough to succeed, people believe that it is possible for him to increase his position. It is generally assumed that people will take decisions that boost their performance, improving their future position. Underdogs occur when individuals try to achieve a challenging mission with little likelihood of victory in opposition to a fortunate adversary (Kim, *et al.*, 2008) or when the individual is inherently socially demerits or need the resources to compete efficiently.

Overconfidence is a well-documented bias in judgmental psychology and easily discovered its way into financial literature. While the concept of overconfident investors appears to have some immediate interest in describing individuals in the financial market behavior, recent research indicates that the basic processes are more difficult. The term overconfidence includes at least three dissimilar concepts which we submit to as "types of overconfidence." We use the terminology Moore and Healy (2008) to describe these different types and to differentiate between overvaluation, overlap and over-exactness.

- a) **Overestimation:** People can be overconfident about absolute skill or efficiency. They overestimate their personal performance, for example the grade you get on an examination or the time you have to run a marathon (Grieco & Hogarth, 2009). Overestimation also occurs in performance judgments in which participants respond to questions of general knowledge before or after experiments (Lichtenstein, Fischhoff, & Phillips, 1982). Overestimating rates are growing with complexity and personal task importance (Frank, 1935; Moore & Healy, The trouble with overconfidence. *Psychol. Rev.* 115 (2), 2008). Investment ranks high on both dimensions, and we predict significant overestimation in financial performance judgments. This prediction considers overestimation as context-specific, as it has been shown not to be universal (Moore & Healy, The trouble with overconfidence. *Psychol. Rev.* 115 (2), 2008; Blavatsky, 2009; Clark & Friesen, 2009). For overestimation, personal agency is essential, so we do not find cases of mere over optimism (e.g., market performance).
- b) **Over placement:** The opposite of overestimation is over placement in relation to comparisons within a group. This is in close connection with the better than average (BTA) effect, which is a tendency to look above the average in many areas (Alicke & Govorun *et al.*, 2015)
- c) **Over-precision:** Another form of over-confidence exists in forecasting anonymous values, especially in questions about ranges where a value with a certain probability will fall. People generally show over-precision and apply far too short intervals (Alpert & Raiffa, 1982; Klayman & Soll, 2004), regardless of whether questions of general knowledge (e.g., "Nile duration,") (Russo & Schoemaker, 1992) or financial values (e.g., "Dow value in one year,") (Glaser, Langer, & Weber, 2013) are the objective of the prediction.



Household finance researchers have generated considerable work on the impact on attitudes, aspirations, risk perceptions (i.e. personal understanding of market risk) and investment choices of direct and indirect response to market risk. These researches have used the financial crisis of 2007–09 to examine the effects of a major negative event. Hudomiet, K'edzi and Willis (2011) focused on improvements in the distribution of expected subjective returns, showing a significant increase in investor disagreement over the long term. The rise increased the variability of the individual reactions to business events. In reality, Weber, Weber and Nasic (2013) found that risk perceptions are very stable relative to return and risk expectations, and changes in risk-taking were linked to changes in subjective market portfolio risk and return expectations.

Although interesting, these results refer to a particular, exceptional time. It could be that while expectations and perceptions are changing rapidly, risk behaviors are responding more slowly to experiences. Several scholars have analyzed the relationship between medium-and long-term market factors, return expectations, and risk perceptions (e.g., (Vissing-Jorgensen, 2003; Dominitz & Manski, 2011); and for the United States, (Greenwood & Shleifer, 2014; Hurd, Van Rooij, & Winter, 2011), for the Netherlands). The evolution of preferences over time indicates that the preference of 'households' to have less stock exposure during recessions is motivated by their individual perceptions, not simply by countercyclical risk aversion " (Amromin & Sharpe, 2014, p. 847).

1. While risk-taking behavior is a generally studied subject in finance, an examination for observational work indicates that user decision-making study is relatively limited in perspective of financial services (Byrne, 2005). Previous study on risky decision-making determined the person risk-taking behavior in organizational sense it is a shortage of decision-making research in stock market in general and no one from a developing economy.

Traditional models, some of which received Nobel awards, categorized financial risk as measurable something, because it is measured fluctuations

- (1) Investors are entirely rational
- (2) Capable to deal with difficult option
- (3) risk-averse
- (4) Wealth maximizing representatives.

It means investors choose an investment that maximizes gains and minimizes risks. Sitkin & Pablo (1992) reviewed prospect theory by finding differences, when past performance resulted in a willingness to occupy in risky behavior, and planned an alternate model for risky behavior factors. They proposed the two different factors influencing risky behavior, namely risk propensity and risk perception.

Risk perception is described a person assessing associated risk of situation challenges (Sitkin & Wiengart, 1995). This measure is depending on the predictive estimate of one's level of uncertainty, controllability, and confidence in a problem circumstance. Cognitive biases resulting from ways of thinking known as heuristics are likely to



influence understanding of the risk (Diacon, 2004). This serves as a shortcut to process and simplify knowledge. The influence of disposition presented by the theory of prospect is a negative relation between perception of risk and behavior.

The primary associates to the variation between individual investors which affect risk-taking behavior. The second-dimension associates to effect of a situation. As a result, views on risk propensity are also conflicting (Huff, Keil, Kappelman, & Prybutok, 1997). One institute of consideration may discuss that risk propensity is characteristic of continuous over time (Gerrans, Faff, & Hartnett, 2012); whereas another school of thinking is that it is a feature that modifies in the course of a process of learning. Recent research on behavior control over risk-taking actions suggests that risk propensity is influenced by human features.

Conceptual Framework

The current study gives a look which based on the three variables naming (underdog bias, overconfidence bias and Risk propensity). As shown by a review of classic and recent research, boundary rationality theory provides several observations into decision-making limitations. These limitations are either insufficient use of knowledge or a risk-seeking or avoid risk, remove the risk of gain, person characteristics and emotion, and external or situational factors, depending on the choice being evaluated. It appears that when investors make decisions on previous skills, they may lead to overconfidence, perception of previous restrictions and potential of taking risks.

We still don't identify that investors will show underdog bias, if they are overconfident and risk-seeking. If investors think they have harder time to success than their fellow investors (underground bias), they will be less expected to believe. Due to the hindsight effect, that they have more expertise than their fellow investors (Knoll & Arkes, 2017). In other words, when perception of positive time occasions is a characteristic of overconfidence, a concentrate on inverse precedent occasions as in underdog bias indicates potential inverse association among these biases. It is still not understandable that overconfidence can lead to risk-taking by investors.

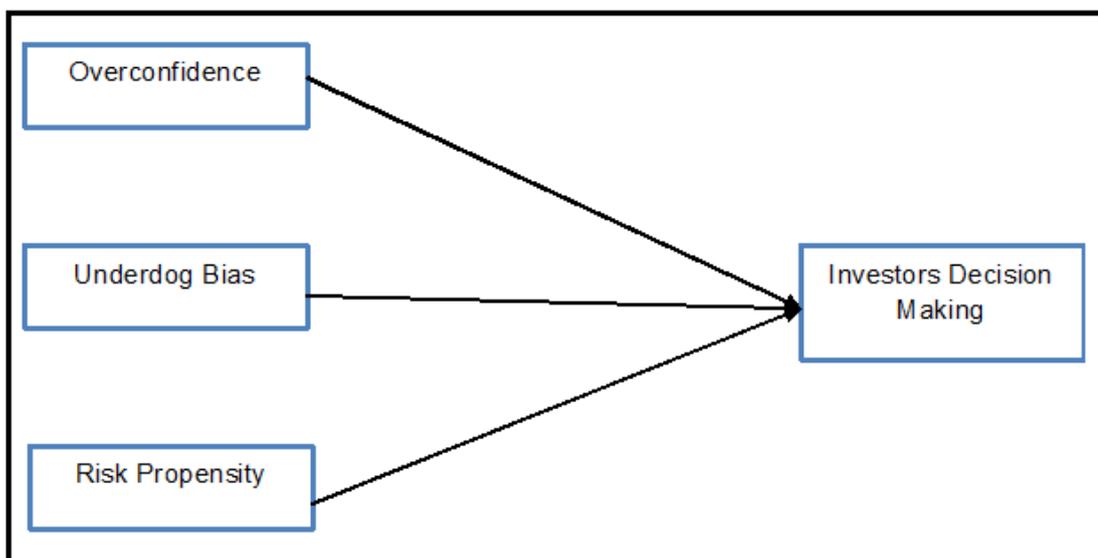
H1: There is significant relationship between overconfidence and investor's decision.

H2: There is a significant relationship between underdog bias and investor's decision.

H3: There is a significant relationship between risk propensity and investor's decision.



Research Model



Research Methods

Because of risk associated decisions and economic caretaker obligations, investors who are taking decisions by taking risk are key respondents of this study. Stock exchange listed investors are being selected for data collection. Investment teams in the market of Pakistan respondents were restricted to decision-makers.

We contacted 494 investors who are investing in Pakistan Exchange Market (PSX) by keeping in focus the variables of study i-e: overconfidence in taking decision, underdog bias, and risk propensity. The number of respondents found suitable for this study by using kerjice morgan (1970) formula. The respondents were contacted electronically through emails; phone calls .184 respondents shared their responses and response ratio of 39.2 %. Following the elimination of unfinished surveys, the resulting sample of 184 respondents was enough to prevail over increased risk of sample error (Wegner et al., 2016).

Measures

The preamble to the survey was used to present the study, get approval and show respondents based on demographics. Most of research included “Underdog-Bias, overconfidence, and risk propensity” measure depends on the prospect theory, and recently created “*risk-propensity scale*” of investors.

Underdog bias assessed on the basis of 8 construct-related items as defined by “Davidai and Gilovich” (2016). Six elements were maintained after Pearson Correlation analyses to make sure convergent validity and Cronbach alpha scores show the instrument's internal consistency ($\alpha=0.832$). The sample items are: “*I have to work harder than others in the effort to gain respect that I deserve,*” or “*My investors are more demanding than other investors, but I generate the same result*”. The five items average generated score per individual for single underdog bias model.



The method is like method adopted by accounting faculty by “Davidai and Gilovich” (2016) for research. Overconfidence assessment was mixture of scale utilized by “Williams and Gilovich” (2008) and “Core Self-Evaluation Scale (CSES)” questions (Judge, Erez, Bono, & Thore, 2003) which were developed for investment community. The first risk propensity measure or risky decision propensity was built from prospect theory (Kahneman & Tversky, 1979) providing variety of two choices to respondents for example: Would you prefer to take "80 % chance of R4 million and 20 % chance of nothing" versus a "100 % chance of R3 million?" or a "20 % chance of losing R4 million and an 80 % chance of losing nothing" versus "25 % chance of losing R3 million and a 75 % chance of losing nothing?"

Data Gathering and Analysis

The questionnaire was being directed to make small changes between six investment experts and two non-investment experts. The last questionnaire was electronically transmitted to decrease the time and possible mistakes in collecting information. About 30 questionnaires were not added in study because of incomplete filled.



Results

Demographic	Range	Frequency	Percentage
Age	20-30	8	4.2
	31-40	63	32.4
	41-50	97	50
	50 and above	26	13.4
Gender	Male	170	88
	Female	24	12
Qualification	Higher	18	9
	Graduation	102	52.9
	Post Graduation	74	38.1
Trade Experience	0-5	10	5.2
	6-10	14	7.3
	11-15	44	22.6
	16-20	40	20.6
	20 and above	86	44.3

Among the sampled respondents, the majority respondents have fallen into 41 to 50 age group with 50% of total responses received. The teenagers were very few in numbers with 8 responses only having 20 to 30 age group. The female population was only 12 %, and 88 % were the male investors. Majority of the respondents holds graduation degree with 52.9%. While on the other hand 86 respondents with 44.2% having major experience greater than 20 years.

The forms of investment companies represented “Pension / Provident Fund Management (29%), Private Wealth Investment (27%), Private Equity (14%), Hedge Fund Management (7%), Equity Trading (7%), Fund of Funds (6%), Bond Trading (3%), Stock Broking (2%), and Insurance (1%).” We inquired respondents to specify their funds' present level of risk. 48% reported that they served in reasonable risk setting, 28% high-risk situation, 12% mixed risk perspective and 12% in conservative perspective.



Table 3: Demographic differences (ANOVAs) of underdog bias, self-rated performance”

“Underdog bias”				“Self-rated performance”		
	“F-Crit	F-Stat	p-value	F-Crit	F-Stat	p-value”
Age	3.54	2.19	0.378	2.48	1.69	0.139
Gender	2.60	8.10	0.003**	2.90	0.70	0.332
Education	3.54	1.47	0.526	2.48	0.63	0.634
Level of Risk	3.54	2.36	0.175	2.48	0.64	0.635
Experience	3.152	2.63	0.629	2.15	2.78	0.002**
Fund Type	2.49	2.29	1.182	2.65	0.68	0.780
“Risk Propensity”				“Risky choice propensity (prospect theory)		
Age	2.54	1.19	0.378	2.48	1.19	0.139
Gender	3.60	9.10	0.003**	2.90	9.10	0.332
Education	2.54	0.47	0.526	2.48	0.47	0.634
Risk Level (Org)	2.54	1.36	0.175	2.48	1.36	0.635
Experience	2.15	0.63	0.629	2.15	0.63	0.002**
Fund Type	1.49	1.29	0.182	1.65	1.29	0.780

**Correlation is significant at the 0.01 level.”

“Correlation is significant at the 0.05 level”.

According to specific investment-based questions, the outcomes may differ from past findings on underdog bias. In the study by “Davidai and Gilovich” (2016), respondents linked themselves to particular individuals, for instance: their parents, where research made broad reference to investment community.

Remarkably, those with slightest skill rated their lowest self-performance (64%) and those with highest experience (79%). However, it was not a progressive form for age groups. While the extreme poles of the sample have a significant difference, it remains therefore significant that overconfidence existed in all the groups but particularly in the profession for a long time. Moreover, it can be argued that high degree of confidence of participants is depending on correct observations of their business-specific capability. In this self-analysis (Tversky & Kahneman, 1973), the availability heuristic of previous achievement may play a role. According to Kahneman (2011), experience in this business is difficult to obtain due to the uncertainty of financial markets and then repeatable activities are the condition for expertise (Kahneman & Klein, 2009).



Table 4: Prospect Theory Comparison

	Options		Kahneman and Tversky (1979)		Current Study	
	Option X	Option Y	X	Y	X	Y
	(5000, 0.8)	(4000)	70%	30%	70%	30%
	(5000, 0.2)	(4000, 0.25)	71%	29%	62%	38%
	(4000, 0.9)	(7000, 0.45)	78%	22%	14%	86%
	(-5000, 0.8)	(-4000)	89%	11%	82%	18%
	(-5000, 0.2)	(-4000, 0.25)	46%	54%	73%	27%
	(-4000, 0.9)	(-7000, 0.45)	90%	10%	80%	20%

N=161.

*p < .05, **p < .01.

We identified differences to our sample from the findings of the original study. On question presented investors select among the following choices:

X: a 70% opportunity of Rs. 5 million and a 30% opportunity of nothing; or Y: with a 70% opportunity with 30% nothing. In outlier question 3, based on the original Certainty Equivalent formula, According to prospect theory, in comparison to original study (Kahneman & Tversky, 1979), investors would prefer option Y which our sample did. We assume that reason our investment experts chose a lesser risk choice with a higher probability because their loss-gain ratio varied from original population. The result of another question required investigation. This question offered investors a select between the following options: X: a 71 % opportunity to lose Rs. 5 million and a 29 % opportunity to lose nothing, or Y: a 38 % opportunity to lose Rs. 3 million and a 62 % opportunity to lose nothing.

In sample, results reveal that the self rated performance has no ability to forecast risk propensity. Correlation between variables found non supportive up to par value and has shown a negative and weak relationship among constructs at a sample of 184 at $r=-0.37$.

Since King and Slovic (2014) showed that emotions can confuse the riskiness of conditions, or that instinctive and irrational reasoning can take over (Evans, 2008), other factors that affect risk propensity must be investigated. In the risk analysis option, it would appear that our investors have made good decisions.

Conclusion

In this research, probable influence of underdog bias, confidence levels, perceived and select risk propensity on investment decision-makers were observed by determining the relationship among these constructs. Considerate how these interrelated variables could influence the investment community how decisions can be best made. By applying a new measure of risk propensity, this research made an ordinary experiential involvement to evaluate the risk propensity for investors more easily because these were capable to associate results with “risk propensity scale” depending on decisions between options in according to prospects theory.



The individual experience may have led to a more positive rather than impersonal conditions, for instance: market forces. Sample results report an environment that is interpersonal. The research leads to understanding underdog bias of investor, and future research will necessity to survey how people's advantages are better identified than challenges

This study has not obtained a look into a higher risk propensity for investors depend on both descriptive measure of risk propensity and another one that describes the influential “Kahneman and Tversky scale” (1979). Similar findings were obtained from the prospect theory scale with the exception of the items described in the calculation for certainty equivalent (Tversky & Kahneman, 1992). The results added to previous literature which generated different results on decision-makers ' risk propensity (Djeriouat., 2017; Iqbal, 2013; King & Slovic , 2014).

Additional study by investors can discover features of risk propensity of self-regulation. New risk propensity measures will also consider the probable best base being placed forward by respondents (Stephens-Davidowitz, 2014), including an examination of scenario-based evaluations and current behavior. The effect on business results in a developing market is encouraging, as the caution of investors and their level of self-rated performance are close to what can be predicted in the general population. However, more measures can introduce to help investors to become aware of any bias in terms of their own expertise, in order to make better use of information sources in decision making.

However, when investors don't understand challenges in their career as being generated by themselves, they may be concerned about the causes of their mistakes. Again, this demonstrates the need to develop a sound perspective on investor performance. Initial study has found that individuals with a high level of control between themselves, strong behavioral ability and independent thinker are more willing to self-assess correctly (Yammarino & Atwater, 1993). More research is needed to conclude how to establish correct self-perceptions between investors.

The restrictions of study include necessity for confirmation of newly established “Investment Risk Propensity Scale”, potential biased response by investors, and drawback of the scope of sampling system for the South African investment population. These restrictions require more investigation on investor bias and risk propensity in various situations.

Limitations & Future Directions

The study was limited to a few number of investors trading in Pakistan Stock Exchange so the results of this study cannot be generalized for all investors who are trading in PSX. The study has only contacted respondents electronically, it would be better to contact physically by visiting PSX and will help to demonstrate more reliable and accurate responses. The future studies can be conducted by applying this same novel with qualitative nature of study.



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