

# ANTECEDENTS OF RISK PERCEPTION OF VARIOUS FINANCIAL INVESTMENT PRODUCTS IN PAKISTAN

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## ABSTRACT

**This study aimed to explore the relationship between psychological biases and risk perception of investors. It employed primary data that was collected by using a questionnaire. The data was collected from individual investors and persons serving in Islamabad stock exchange, corporate offices, and other institutions. Results indicated that psychological biases like, Familiarity bias, Home bias, Gender and Affect do influence the individual investor's risk perception about financial products.**

## INTRODUCTION

Traditional finance theories are of the view that financial investors are rational and they always act according to efficient market hypotheses. However, recently there has been a new debate that considers the behavioral aspect of investors and argues that financial investors, even the smallest ones, are influenced by their psychological biases when they are making their investment decisions. Since 1970's the efficient market hypothesis presented by Fama has been extensively discussed in finance, which states that financial markets are efficient, instantaneously process all the available information and reflect it in the stock prices. Due to this efficient nature of market, any individual investor cannot predict and outperform the market patterns, whatever source of information they use. This EMH gives an idea that all investors are rational and follow efficient investment decision making process. However, the existence of market inefficiencies puts a question mark on the efficiency of the financial markets. If investors are able to outperform the market, it means that due to some irrational judgment they make those investment decisions; thus, opposing EMH (Shiller, 2003). Therefore, it can be said that there is some other driving force that enables them to act in a particular way. This force can be due to some cognitive or affective factors of investor's psychology, and investors are sometimes overwhelmed by these psychological factors, and their ability of making rational decisions is also affected in the process.

Every individual has several options to choose from, whether deciding about education, job, or even investment. These choices put a lot of pressure on an individual while trying to find answers to questions like

what is the maximum loss they would have to bear if anything goes wrong, what is the risk involved, etc. In simple words, risk is defined as "uncertainty about future outcome" or "probability that actual outcome will be different from desired one". Yates and Firer (1996) stated that the risk of wrong financial investment is more than any other type of loss because all of your wealth is at stake, that is why most of the time individuals are worried about total risk of the decision, not just the systematic risk.

The individual's risk-taking behavior changes according to the perception of benefits and risks that developed due to own nature and circumstances (Weber, Blais & Betz, 2002). Risk perception is mainly influenced by individual's background, personal understanding and experiences which further formulate certain beliefs and preferences of individuals, and then exhibit a biased financial investment decision behavior. This biased behavior can be due to feelings of hope and fear (affective influence), using heuristics and biases to process information and selecting choices on the basis of fear, greed, security, conformity and safety to attain certain psychological motives (Sahi, Arora & Dhameja, 2013). By becoming a victim of these biases, sometimes investors take those risks which they may have to regret later, and sometimes they blame their financial advisors for that (Kahneman & Riepe, 1998).

The failure of past research to explain how these biases shape the risk perception of financial investor creates a vacuum in the literature that is waiting to be filled. For that purpose this study will examine how these biases affect the investor risk perception about investment options in Pakistan. Weber and Hsee (1998) argued that different countries of the world exhibit different cultures. Due to these cultural differences the

risk perceptions of individuals vary accordingly. Western and Asian cultures have a lot of differences, thus a behavior exhibited in west does not necessarily hold true for Asian countries. As a result it is very important to investigate these psychological biases in Asian culture as well (Baker & Nofsinger, 2002).

Among all the known biases the chosen ones are significant to study due to their relatively higher importance in the literature. Thus the biases selected for current study are familiarity bias, home bias, gender and affect or emotions. The primary research question of this research paper is that whether the selected biases for the current research affect the risk perception of investors. Do familiar products effect the risk perception of investors? Are domestic products perceived differently as compared to international ones? Does gender of the investor influences the perception of risk? Do investors come under influence of emotions in investment decisions which affects their risk perception? The focus of this research is to investigate how these psychological biases affect the risk perception of various financial investment products and as a result how investors decide where to invest.

The outcomes of study will be helpful for the investors, financial advisor, and students. Understanding these biases is important to get insight of how investors deviate from the path of rationality. This study will not only uncover the existing biases among the investors, but it will also enable them to understand themselves even better and will enable them to make balanced financial judgments. This study will enable financial advisors and financial institutions to learn the psychology of their clients and investors, and guide them better in order to save them from losing all their wealth due to wrong choices under the influence of these biases. The study will also contribute in the existing literature by exploring the relationship of selected biases with the risk perception of investors, which will shape their investment decision. Students can also use these results for academic purposes and for future references.

## REVIEW OF LITERATURE

People like to think themselves as rational and logical individuals in their daily decision making activities. But in actual we all are victims of our emotional and psychological inclinations in our perception of the world and decision making process. This affect of emotion and psychological barriers are not only confined to routine life, but also the investment decisions. Thus, the field of behavioral finance deals with this tendency of individuals to make irrational investment decisions. It takes into account those psychological factors which are responsible for this irrationality. This concept of

behavioral finance is contradictory to the traditional theories of finance which assumes that people are rational in their decisions and they make the best out of the opportunities available to them at a point in time. However, behavioral finance argues otherwise, that financial decisions of people are affected by how they interpret and act on the information available to them for any financial decision, and their actual behavior will not be according to rationality but on the basis of their own attitude and preferences. Having said that, it is difficult to say what is actually irrational, market or the investor (Subrahmanyam, 2008). Kahneman and Tversky (1986) demonstrated that the emotional biases and the cognitive errors of an individual can lead them to make poor decisions; hence, their research opened a new way by providing them models for studying how investors make decisions. By understanding that individuals are in a better position to understand their hurdles for rational decision making, and can refrain themselves from poor financial decisions (which they think are rational but actually they are not) can pose a great threat to their overall wealth and in worse situations can lead to an overall financial crisis (Robb, 2013). Therefore, it is the duty of the financial advisors to increase the financial literacy, trust of products and providers, also the understanding of risk among individuals which would help them make better decisions (Diacon & Ennew, 2001).

Cassidy and Franklin (1996) suggested that increasing the financial literacy can increase the likelihood of understanding and managing the risk in a far better way. It will also improve the investor's judgment of risk so that they can get rid of behavioral "traps" (Linciano, 2010). Also, by providing correct guidance a lay investor can take fruitful financial decisions (Ackert, Church & Tkac, 2010). The field of behavioral finance is still in its infancy; recently academic finance has accepted it as a possible model to explain how participants of financial markets make their decisions. According to De Bondt, Mayoral and Vallelado (2013) there are several factors which shape individual's financial decisions, such as habits, emotions, reasons, and social interactions. Numerous studies have considered demographics of investors to find out their perceived risk patterns. Apart from using demographics for evaluating risk perception, Hoffmann, Shefrin and Pennings (2010) suggested that other factors should also be considered for perceived risk evaluation like investment objectives and strategies. However, one cannot deny the importance of these demographics, personality traits and psychological aspects of investors in evaluating their riskiness. Since long, psychologists are trying to uncover the determinants of this judgment and decision making. So, it is very important to study these irrationalities in decision making in Asia as well, because Asian people can be suffering from these biases

differently or it may happen that they do not exist here at all, so it is essential to explore biases present in Asian culture which might be different from other cultures (Kim & Nofsinger, 2008). According to Wildavsky and Dake (1990), using culture to explain the decision making process of individuals broadens the criteria for evaluation of rationality of their decisions, because culture may not influence the characteristics of individuals but it may affect their social meanings, which in result would shape their fears and favors, molding their investment choices. Most of the times investors are not aware of what options are beneficial for them. Using what combination in their portfolio will maximize their returns and minimize the risk. This is why people normally compare their progress in investment by comparing with their initial investment or the market return (Veld & Veld-Merkoulova, 2008).

### **Risk perception**

Risk is a relative term, it depends on the individual that what he considers to be a risk and how he perceives it. Risk is typically defined as uncertainty of the outcome and is not conceived only according to technical and scientific parameters but the psychological, social and cultural context. Experts and individuals perceive risk very differently. Diacon (2004) highlighted the importance of understanding risk perception by arguing that it's an important aspect to consider in an environment where limited information is available and from which no generalized conclusion can be derived by investors. He further explained that the experts are more confident about their choices; hence, more risk lover along with the development of positive attitude towards known as compared to a lay investor. Perception of a risk ends in an action or a decision. The greater the risk perceived, greater will be the compensation demanded for that risk (Sjöberg, 2000). This is why mostly investors become risk averse if they perceive risk to be very high (Sitkin & Weingart, 1995). Individuals consider risk to be a multidimensional and thus evaluate and perceive it on different parameters instead of using only one abstract idea. To assess this multidimensional nature of risk perception, most researchers in finance use the well-known the methodology "psychometric paradigm" presented by Slovic (1972). According to Slovic, Fischhoff, and Lichtenstein (1986) these psychometric techniques are very useful in finding out how individuals are concerned with risk and its management. These techniques help them to cope up with those risks and ensure its effective management. Vlaev, Chater and Stewart (2009) showed that the multi facets of the risk perception, if tapped carefully, can be stimulated in right direction. Similarly, judging individuals in one situation and deciding about how they perceive risk is also not

good.

Individuals as well as experts perceive risk and risky situations differently in different situations (MacCrimmon & Wehrung, 1985). Therefore it is important to understand factors which shape this perception. Schmidt (2004) highlighted some major factors of risk perception. They are voluntariness (the risk taken voluntarily is more acceptable than an imposed one even if it's more riskier), controllability (risk which are considered to be under one control are viewed as less risky to those controlled by others), delay effect (the more prolong are the results of a decision, the more it is considered to be risky, natural vs. manmade (if the risk actually occurs or developed intentionally), familiarity and habituation (known and familiar risk gradually loses its shocking impact), and media ( risk declared in media is considered to be more important and genuine).

### **Familiarity bias and risk perception**

Before making any investment decision people normally check its available information. The investment decisions are normally taken on the basis of experience, past experiences, and knowledge about the investment option (Hon-snir, Kudryavtsev & Cohen, 2012). Familiarity is the phenomenon in which people tend to invest in known assets. Because of this familiarity with the assets, people become comfortable with them assess their risk and benefit accordingly. People are always comfortable in investing in familiar assets, even at the expense of ignoring the benefits diversification (Huberman, 2001). Under the influence of familiarity bias, individuals become more confident about familiar options and underestimate the risk related to particular investment option; thus resulting in misestimating and wrong perception of risk related to it. This will, in longer run, causes serious problems for investors (Seiler, Seiler, Harrison, Lane, 2013); over investment without proper consideration is one of the consequences (Hiraki, Ito & Kuroki, 2003).

According to Toshino and Suto (2004) individuals as well as institutional investors are normally more familiar with the domestic market. As they have abundance information about domestic market they underestimate the risks associated with domestic market on the basis of this information. This misleading information leads them to be more optimistic about domestic market than for any less familiar foreign market. Thus familiarity (either geographically or professionally) is driven by information available (Massa & Simonov, 2006). After having enough experience with investment decisions individuals tend to think that they do better in situations which are familiar and about which they are knowledgeable. They feel more motivated for those investment options which are

familiar over the unfamiliar ones even if their chances of winning are otherwise (Heath & Tversky, 1991). As the level of familiarity increases, individual's level of confidence increases (Park & Lessig, 1981). Thus he feels more competent about his chosen option. Lai and Xiao (2010) showed that becoming the victim of familiarity bias investors make inefficient investment decision. However, if the consumers have sufficient competencies they can overcome these biases and be a rational decision maker. The judgment of risk and return is also affected by this familiarity. According to Ganzach (2000) whenever familiar financial assets are judged on risk return criteria, individuals normally use psychological constructs to evaluate their performance. Also, if the asset is unfamiliar, the perception of risk related to it is very high even if that is not the actual case (Song & Schwarz, 2009).

*Hypothesis 1. If an individual is prone to familiarity bias, the risk perception of that investor will also be affected.*

### **Home bias and risk perception**

Individuals hold a set of financial products to form a portfolio of their investment. This portfolio consists of domestic as well as foreign ones. The portfolio is diversified when they have a combination of assets. The finance literature has numerous examples which show that including foreign financial products in the portfolio results in profit maximization. However, contrary to this, actual investors prefer the domestic financial products over the foreign ones, and forego the potential benefits of international diversification (Tesar & Werner, 1995). This behavior of individuals in which they hold too little of their portfolio assets in foreign products is known as home bias (Lewis, 1999).

The behavioral explanation of this home bias has the notion of mitigating risk. The foreign assets are unfamiliar to individuals; this unfamiliarity induces a fear of unknown among the individuals and they are reluctant to invest in them. In literature, there are three main reasons for home bias; transaction cost of foreign assets, hedging and information asymmetry. These factors induce a home bias in individuals because they perceive higher returns and less risk for domestic assets (Cooper & Kaplanis, 1994). This perception of domestic assets to be less risky is the reason why individuals are confident about domestic assets and are too optimistic about them. Due to this, investor's portfolio remains undiversified and this is actually the result of investor's choice (French & Poterba, 1991). Having an undiversified portfolio is sometimes due to fact that in case of foreign investment, investor has to incorporate

the effect of exchange rate in the estimation of profits from the foreign assets because international portfolio analysis is quite difficult as compared to domestic ones (Buckley, Buckley, Langevin & Tse, 1996).

According to Barber and Odean (2011), preferring local and familiar stocks result in undiversified portfolio. Due to this undiversification, investors over invest in local assets, considering them to be safe and less risky. This home bias can take many forms. It can be preference of domestic over foreign assets as well as preference of locally situated foreign firms as well. Coval and Moskowitz (1999) provided evidence for preference of locally situated firms. The information asymmetry among the investors about local and foreign firms induces the preference of less risky option, which is the domestic one. The consequences of this undiversification are explained by Nordén (2010) that home bias results in bad financial performance. There are ample evidences from researches that individual investors as well as institutions prefer local asset classes over the foreign ones, (Ke, Ng & Wang, 2010; Imazeki & Gallimore, 2009; Chan, Covrig & Ng, 2005; Kilka & Weber, 2000).

Real world investment portfolios show that individuals hold higher degree of domestic assets in their portfolios. Oehler, Rummer and Wendt (2008) claimed that apart from home bias in their mutual funds, individuals also display 'European Bias' that equities from European countries which are strongly overrepresented. Furthermore, the managers are unable to overcome the overall home bias effect. According to Baltzer, Stolper and Walter (2011) the basic reason for home bias can be ambiguity aversion. And in uncertain situations, using geographical closeness as proxy individuals tend to put their assets in familiar ones. However, recent researches are showing a new trend emerging in the portfolio formation. Investors are now accepting the importance of a diversified portfolio with the inclusion of foreign assets and reaping its benefits. A contrasting finding is by Niszczota (2013) in which he claimed that international diversification is strong in individuals who are open to experience (a personality trait). This trait increases the risk taking tendency of individuals; they perceive risk to be less in spite of information asymmetry and unfamiliarity. Another research which produced distinct result from the traditional ones is by Rubbaniy, Lelyveld and Verschoor (2013) which showed that all the mature pension funds are internationally diversified and home bias have fallen. Larger portfolios are using international diversification at the expense of fixed income domestic options.

*Hypothesis 2. Individuals who show higher preference of domestic financial assets over*

*the foreign ones will directly influence their perceived risk as well.*

### **Gender and risk perception**

Literature in finance suggests that women make more conservative investment decisions as compared to men because of their risk averse nature. Thus, they are typically stereotyped as more risk averse than man in any financial decision making. A number of studies in literature are supporting this belief (Zinkhan & Karande, 1991; Watson & McNaughton, 2007; Jianakoplos & Bernasek, 1998; Felton, Gibson & Sanbonmatsu, 2003; Fehr-duda, Gennaro & Schbert, 2006). According to Bayyurt, Karışık and Coşkun (2013) the nature of investment of men and women differs because of their particular risk preferences. Men being more risk takers prefer common stock and real investments while women being risk avoiders take conservative decisions and go for funds, time deposits and gold. Weber et al. (2002) developed a psychometric measure and assessed the risk perception of men and women in five different domains. They were financial, health/safety, recreational, ethical, and social decisions. Women are ranked risk averse in four out of five domains. Thus, concluding that males are more risk taker increase the likelihood of engaging in risky decisions. Previous researches in finance show some different findings. Embrey and Fox (1997) showed that in certain circumstances women tend to hold risky assets if there is an expectation of inheritance, employment or higher net worth. Overall, gender was not considered to be a critical determinant of financial investment decision.

According to Powell and Ansic (1997) women are less risk takers than males because they adopt different strategies according to the financial environment in which they are making decisions, but overall it doesn't affect the performance of both genders. However, as strategic decisions are more evident than risk preferences outcomes, women are labeled to be risk averse on this basis. Olsen and Cox (2010) in their research provided evidence that professional as well as non professional women appear to be risk avoiders when they face any social or technical hazard. This situation occurs even if both men and women have the same level of experience and expertise. He, Inman and Mittal (2008) provided a new relation between gender and risk perception. They argued that risk perception of men and women is highly contingent; it depends on how they perceive themselves to be competent and resourceful to solve a particular issue. The more a gender thinks itself to be resourceful, more will be its risk taking capacity. A study by Wang (2009) explained that mostly past researches have examined the perceptions of gender in financial

decision making rather than their actual experiences. So, direct experiences should be considered for evaluation. Women exhibit less financial knowledge and confidence about their investments. As financial knowledge is positively related to behavior, women show poor financial behavior. The major problem for researchers who want to study gender preferences of financial risk is the lack of gender-disaggregated data. All the available financial data is totally gender blind. No discrimination of men and women savings data, investment patterns, etc., this is why it is very difficult for researchers to find any obvious patterns of risk preferences among women (Staveren, 2001).

*Hypothesis 3. Gender of an investor will affect its perceived risk of financial product.*

### **Affect and risk perception**

In the past decision making was treated as a purely cognitive process in which individuals evaluate a situation and take decision entirely to maximize their utility. However, recently affect and feeling has made its place in the decision making paradigm. Paul Slovic and his colleagues had presented the concept of affect heuristics as a theory to explain the fact that how people assess risk under the influence of feelings. These authors argued that while making any decision people are influenced by the images and feeling they had developed throughout the process of decision making. These feelings also influence the perceived risk and return of the activity (Alhakami & Slovic, 1994; Finucane et al. 2000). The perceived risk and return of an activity is dependent on the type of affect related to it. They also found out that the risk and benefit analysis of an activity liked by people is different from the one which is disliked. The risk of liked activity is treated as low and its benefit as high.

Affect influences the decision making process by playing two roles, expected affect and immediate affect. As the name suggests, expected affect predicts the feeling of an individual when decision outcome occurs in future, while immediate affect are the feelings experienced at the time of making decision. In the past, only expected affect has been taken into consideration for decision making and risk benefit analysis. Immediate affect has the power to influence or change the perceptions and judgment of a person about risk benefit outcomes. If these emotions intensify, they alter the perceptions very strongly, change the decision making course and take priority over the rationality (Loewenstein & Lerner, 2003). Loewenstein, Weber, Hsee and Welch (2001) also explained that the affect experienced at the time of decision making often diverge the individuals from the

rational assessment of risk. This divergence enables the emotional assessment to drive behavior. However, this is not the case all the time. Slovic, Finucane, Peters and Mcgregor (2004) explained that affect heuristic sometimes form the neural and psychological substrate of utility, thus enabling the individuals to be rational in many important situations. It works when, in the light of the experience, individuals predict correctly that whether they will like the outcomes of their choices or not, but in situations where consequences are different and individual expectations fail, it can be a disaster.

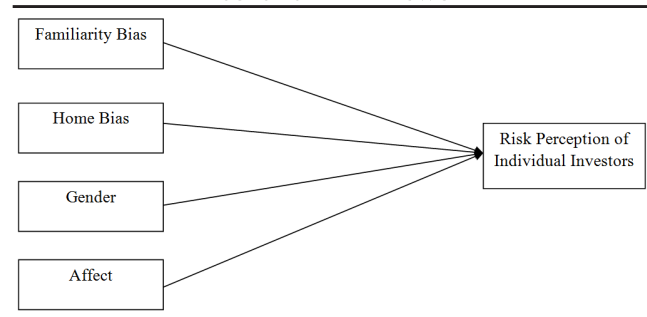
Investor's sentiments are driven by both rational and irrational factors, so it is important to see what determinants individual use in a particular situation (Fernandez, Gonçalves & Vieira, 2013). Numerous studies have tried to explain how this affect heuristic influence the risk benefit judgment, risk perception and decision making process. Kuhnen and Knutson (2011) explained that the area of brain which deals with emotion, risk, reward, punishment is same suggesting that expected emotions affect the decision making process. In positive emotional state, people are induced to be more confident about their capabilities of investment and prone to take risks. Decisions taken under the influence of emotions and affect are fast and efficient in some situations, but that is not the case all the time (Grable & Roszkowski, 2008). Aspara (2009) demonstrated that investment decision is partly cognitive and partly aesthetic or affect based. Individuals choose those financial products or institutions which show a positive attitude overall as compared to others who have similar risk and returns pattern. Considering financial decision to be rational, feelings are considered to be negatively affecting the rationality in the past. However, Seo and Barrett (2007) showed that how feelings affect the decision making process entirely depends on how individuals experience, perceive and use them. They found out that people with more intense feelings achieved higher performance in decision making when they were able to identify and use them efficiently.

Aspara and Tikkanen (2011) demonstrated that most investors feel and extra motivation for their investment decision when they include affect component in decision making. Individual will make extra investment in the company or the financial product for which they have a positive attitude. Macgregor, Slovic, Dreman and Berry (2000) explored that this affect is also a vital factor in determining the pricing of an asset. In securities which lack any history, individuals use their affect and imagery to judge their worth and then decide about their investment. Similarly, Fong, Lean and Wong (2008)

claimed that people tend to use their sentiments in investment decision when they do not have proper and sufficient information about the investment. When sentiments are higher, people become more risk lover, perceive the risk to be lower than it actual is. This sentiment based motivation also enables investors to decide which options to choose and which to ignore. Rubaltelli, Pasini, Rumiati, Olsen and Slovic (2010) verified that individuals tend to select those financial investment options which pose a positive attitude. Like in their research, people tend to select those funds which were socially responsible as compared to others. They have an overall positive attitude about them, show a higher degree of confidence and positive reaction to it, price them accordingly.

*Hypothesis 4. The more positive an individual affect towards a financial product, the more perceived risk of that product will be affected.*

**FIGURE 1**  
**Theoretical Framework**



## METHODOLOGY

### Sample and procedure

Sample consisted of individuals investing in various financial products, like cash equivalents, stocks, bonds, property, funds, and insurances. Surveys were distributed to different financial institutions including banks, stock exchange, corporate offices and professional business schools. Over all, from 250 questionnaires distributed, usable were 155 in number representing a response rate of 62% and a sample size of 155. Out of 155 respondents, 94 were males and 61 were females, 67.1% in paid employment, 27.1% were not in paid employment and rest were retired. A large portion of respondents were in early investment experience range of 0-5 years with 52.9%. 27.7% were in 6-10 years and rest was in other ranges with minimal differences. Majority of respondents were investing in property i.e., 25.8% of total sample. 20.6% in fixed income bonds, 19.4% were investing in cash equivalents, 12.3% in life insurance, 8.4% in both equity and commodity, 3.9% in mutual funds and a

minimal of 1.3% in pension funds.

## Measures

The primary data was collected using a 35-item self-reported questionnaire. Except for certain particular items where highest value shows highest value of construct in question, likert scale anchored by 1= strongly disagree and 5= strongly agree was used. Questionnaire for measuring risk perception was adopted by McGregor et al. (1999), containing 19 items. Examples of item include "Overall, how risky is investing in this specific type of investment", "To what degree are financial professionals able to predict the future performance of that type of investment?" The reliability analysis showed a value of 0.770 for this variable. The familiarity bias was measured using a 3 item questionnaire adopted by Wang, Keller and Siegrist (2011), examples of item include "Do you have the feeling, that investment product is easy or difficult to understand?", "Are the risks of this investment

product familiar to experts?". Alpha reliability of this questionnaire was 0.453 which was then adjusted to 0.517 after deleting one item. Home bias was measured by adopting a 3 item questionnaire from Graham, Harvey and Huang (2009). Examples of item include "Investing in domestic financial products is less risky and less costly as compared to foreign alternatives", "Domestic financial products will perform better in future than any comparable foreign substitute?" Alpha reliability of initial analysis showed a value of 0.303 which was increased to 0.627 after deleting one item. Risk aversion was measured by adopting a SOEP 7 item questionnaire from Dohmen et al. (2005) study. Alpha reliability for this variable showed a value of 0.719. Affect of an individual was measured using a 3 item questionnaire by Aspara and Tikkanen (2011). Examples of item include "When you invested in any financial product, on what basis did you make the investment decision?", "What kind of attitude did you have towards any financial product?" Alpha value for this was 0.552.

**TABLE 1**  
**Means, Standard Deviations, Correlation**

		Mean	SD	1	2	3	4	5
1	RP	2.9759	0.53112	1 (0.770)				
2	FAM	3.1	0.89261	.321**	1(0.517)			
3	HB	3.3065	0.99085	.347**	0.134	1(0.627)		
4	GEN	3.1336	0.6958	.506**	.282**	.229**	1(0.719)	
5	AFF	2.8516	0.841	.456**	.210**	.217**	.276**	1(0.552)

*n=155, \*\*p<.01, Alpha values are reports in parentheses.*

Table 1 represents the descriptive statistics and correlation values between the independent and dependent variables. The mean for risk perception is 2.9759 (s.d = 0.53112), for familiarity bias mean value is 3.1000 (s.d = 0.89261). Home bias shows a mean value of 3.3065 (s.d = 0.99085) and Gender mean value is 3.1336 (s.d = 0.69580). The mean for affect is 2.8516 (s.d = 0.84100). The correlation matrix indicates a positive relationship between RP and FAM having the value 0.321\*\*. The correlation values between RP and HB is 0.347\*\* showing HB is positively related to RP. GEN is positively related to RP with a correlation value of 0.506\*\*. The correlation value between RP and AFF is 0.456\*\* showing RP is positively related to AFF.

## Regression analysis

Linear regression was performed to finally test the hypotheses. The hypotheses predicted that familiarity

bias, home bias, gender and affect would have a positive impact on risk perception of individuals. To test these predictions, risk perception was regressed on these variables, (with no control variables). Regression analysis showed that familiarity bias has a beta value of 0.082 at  $p<0.05$ , explaining that familiarity bias has the significant positive relationship with risk perception. The beta value between home bias and risk perception was 0.1 at  $p<0.05$  showing that home bias has the significant positive relationship with risk perception. The beta value for gender was 0.262 at  $p<0.001$  depicting a significant positive relation with risk perception. Beta value for affect was 0.184 at  $p<0.001$  showing that affect is significantly and positively related to risk perception. So according to results, hypotheses H1, H2, H3, H4 are accepted. Overall a good support for model was obtained with a significant value of  $R^2=0.416$ . The value of  $R^2$  showed that the model has 41.6% predictive power of explaining variation in risk perception due to the Familiarity bias, Home bias, Gender and Affect.

**TABLE 2**  
**Regression analysis for outcomes**

Predictors	RP	
	$\beta$	R <sup>2</sup>
FAM	0.082*	
HB	0.100*	
GEN	0.262***	
AFF	0.184***	0.416

## DISCUSSION

Previously risk and uncertainty were considered to be a statistical or mathematical concept, but now it's been proved that it has also a psychological construct. Risk perception is a multi dimensional construct and decisions on this base are also affected in the process. However, as compared to professionals, lay investors are more sensitive to potential losses. Risk perception was treated as cognitive process earlier, but now the psychological component of investors is also taken into account while measuring. Literature of previous studies showed mixed views regarding whether risk perception is dependent on psychological biases or not. The present survey also focuses on identifying if these psychological components affect the investors in Pakistan.

The results of this survey show a full support for the hypothesized relationships between the biases and the risk perception. The familiarity bias which means that investors have a sweet tooth for the known and familiar products have a direct and significant positive effect on risk perception. The greater the familiarity, the greater it affects the risk perception. The major reason for this can be that people develop positive feelings or emotions for the familiar ones and tend to prefer them over non-familiar ones, and as a result affect the investment choices of the individuals. The results of present study are also in line with the findings of Toshino and Suto (2004) that people tend to fall for the familiar assets, and as a consequence their perceived risk is changed and they forego the benefit of diversification by incorporating the benefits of having multiple assets of multiple risks and returns, and have their portfolios undiversified (Huberman, 2001).

As shown by present survey, the risk perception is also affected by home bias and gender. As explained by different psychologists people tend to prefer familiar ones over unknown, the fear of unknown and dread is a common factor in identifying risk. This might be because the current situation of Pakistan is very crucial economically as well as politically. Investors too are very sensitive on how to secure their investments. Due to volatile nature of the country, it is a major goal of every investor to save their investments from losses.

The main reason for this can be derived from Hofstede's cultural dimensions theory. Society as a whole tries to minimize the risk to cope up with anxiety and potential losses. That is why investor's perceived risk is subject to a number of factors like familiarity, home bias etc; thus, results are in line with the study of Barber and Odean (2011). Taking gender as a determinant, it is also an important factor for perceiving any level of risk. It has been in finance literature that men and women do not respond similar to financial decisions. This can be because the structure of society has a major effect on how much they liberalize their women in their decision making. Pakistan, being a male dominating society, does not allow women to be independent in their decisions. Even if some of them are able to secure a safe and independent spot for themselves still they are subject to different criteria thus affecting their performance. How people perceive risk is also dependent on their gender. Men and women perceive risk in different ways, since women and men have different roles in economies and societies, thus confirming the results of Bayyurt, Karışık and Coşkun (2013). The last hypothesis of the survey is also confirmed by the results; thus suggesting that when investors are undergoing the risk perception process, emotional component sometimes deviates the decision maker from path of rationality, and they make the financial decisions under the influence of feelings and emotions. If an investor feels a positive attitude towards a financial product, it is very much obvious that he will invest in that due to extra motivation caused by this affect. This extra motivation does not only influence him to perceive risk differently, but also to invest over and beyond the expectations of risk and return for that product, (Aspara & Tikkanen, 2011). In general, it is concluded that traditional finance theory no more holds a sacred spot in finance. Now individuals are not rational all the time, they become a victim of these biases in the process. Their perceived risk is affected by certain factors which were not taken into consideration before. Eventually, sometimes they tend to take those decisions which are not in their favor. In Pakistani context, this study opens a new gate for research. Present study has provided a platform by exploring that the stated variables can affect the perceived risk of financial products.

## Limitations and future direction

There were certain limitations in the present study. First the survey was intended to get a general notion if the mentioned variables affect risk perception or not, it does not show how these variables affect perceived risk. Secondly, data collected was very limited and sample size was very small. Data was collected only from Rawalpindi and Islamabad. Moreover these relationships



can be further probed by using advanced techniques.

Future researchers can further extend this study by finding out how familiarity bias, home bias, gender and affect, effect risk perception of financial products. For example, if an individual is prone to familiarity or home bias and affect, research should be to find out whether he will overstate its benefits and understate the risks or not. Similarly, research should be to find out if women are more risk averse than men or not. Further research can be done by collecting a large sample data and from various areas of the country. Other variables as independent, mediator and moderator can also be used to expand the relationship to get the exact picture of process.

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