



Impact of Investment Characteristics on Perceived Risk and Return: A Case of Pakistan Stock Exchange

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Abstract

This study investigates the relationship among investment experience, investment information, investment duration, risk propensity, risk perception, expected return and individual investors' financing behaviour in the context of Pakistan stock exchange. The study utilised an adapted questionnaire to collect the data from 421 Pakistani individual investors. Past investment experience, investment information and investment duration have significant impact on risk perception as t-value is greater than 1.96 and p-value less than 0.05. Risk perception has significant impact on risk propensity as t statistics is 19.447 and risk propensity has significant impact on expected return as p-value is less than 0.05. In addition to this, by taking risk propensity and risk perception as mediating variable, the results show that investment

experience, investment information and investment duration have significant impact upon expected return.

Keywords: *Investment characteristics, Risk perception, Risk propensity, Expected return, Pakistan stock exchange, Investor behaviour.*

1. Introduction

This study stems from an interest in understanding the investor behaviour in making investment decisions. Recently, bounded rationality of an individual's behaviour has become the major concern for the research scholars of applied finance & economics (Shefrin, 2002; Barberis and Thaler, 2003; Camerer et al., 2003; Shiller, 2003). Traditional finance theories ignore the psychological (behavioural) side of investors in the decision-making process. The financial model like CAPM argues that the investors are fully rational, and the market is fully efficient as no individual can take the advantage of arbitraging. Fama (1991) suggested that investors are rational and in the frictionless markets, securities' prices give the reflection of all available information. However, there is ample evidence available that contradicts these assumptions. Behavioural finance has confirmed social influences and psychological biases which deviate individual investors from their calculated and predetermined decisions, and reject the hypothesis of individuals being fully rational while taking decisions related to stock markets.

Although, behavioural aspect is very important to understand the investment decisions (Lusardi & Mitchell, 2006), existing work lacks research in this area. Therefore, this research is going to provide a more comprehensive model of investor's investment behaviour. This study has mainly threefold aims (1) to examine the procedure of the expected return of a stock market investor through risk propensity and risk perception, (2) to investigate the factors affecting risk perception during investment decision with respect of expected return and (3) to determine the criteria of investors to make investment decisions in the stock exchange rather than optimised/rational decisions proposed by EMT.

Investment experience is considered as a key factor that influences the behaviour of investors' decisions (Doran and Wright, 2010). According to Corter and Chen (2006), investors having more experience tolerate more risk as compared to investors having less experience. Attitude of investors in perceiving risk and making future investment decisions is also affected by previous positive or negative experience. Successful investment experience raises the

tolerance level of risk as compared to unsuccessful experience that reduces the level of risk tolerance (Kathleen Byrne, 2005). According to Harrison (2003), past experience raises risk awareness which helps investors in better assessment of risk. Therefore, an experienced investor can make investment decision more effectively and efficiently (Barron & Erev, 2003).

The amount, timing and quality of investment information is another factor that influences the perception of risk and investment decisions. Wang et al. (2006) concluded that risk perception is decreased by timely and authenticated information. Lee et al. (2008) determined that when information could easily and rapidly be processed and evaluated, then decision making for the investor is easy. Furthermore, evaluation of information processed by an investor is different according to negative, positive, consecutive and mixed information factors.

When an investor processed information simultaneously rather than consecutively, he provided great concentration on negative information. Moreover, initiate investors use cognitive bias than informed investors. Bondt and Thaler (1985) determined that individuals depend on their own experience in decision making. Hence, due to lack of experience, individual made wrong decisions with limited information (Shefrin & Statman, 1994). Furthermore, affirmative information, bias and overconfidence were leading to losses. Their personal impression possesses them additional expertise on their own assessment capabilities (Kahneman & Riepe, 1998). Wang, Shi & Fan (2006) concluded that risk perception is decreased by in time authenticated information. Moreover, great concentration to recent information is necessary rather than previous information (Bondt & Thaler, 1985).

2. Literature Review

Investment decisions are also influenced by the duration of investments. Investment duration means the maturity period of investment. Different companies issue financial instruments with different maturity periods (ranging from a short period to a long period). Investors change their preference and perception of risk according to investment duration. In addition, investors also expect a different return from different time-period products (Anderson & Settle, 1996). A number of studies have been conducted discussing the significance of the investment duration in constructing an investment portfolio and making investment decisions. Financial experts and advisors suggest new investors to invest in stocks for long term because with the passage of time, the probability of loss decreases more in case of long term investments as compared to short term

investments (Kritzman 1994). Furthermore, Albrecht et al. (2001) argue that investment becomes less risky with longer time horizon that reduces the expected value of loss causing the expected rate of return greater.

Sitkin and Pablo (1992) defined risk perception as risk assessment in uncertainty. Risk perception of investors affects the investment decision making through expected return on investment. None of the investors welcome risk, but they have to bear high risk in order to enjoy a higher rate of return on their investment. Hence, risk and return move towards the same direction and positively correlated. However, risk and return are negatively correlated in the case of unskilled or untrained investors (Byrne, 2005). The propensity to risk and risk perception has a negative degree of correlation. In fact, prospective theory does not give sufficient information about the relation of past investor experience on future investment behavior. Sitkin and Pablo (1992) formulated a model of the determinants of risk behavior. This model composes the important determinants of risk, past experience of investor and also gives social determinants and their effects on risk perception.

Risk propensity is the maximum amount of willingness of an investor to accept risk in making investment decisions. Risk propensity/tolerance is considered as an important element in the investment decision making process. Risk propensity affects the investment choices of investors such as financial products, pension plans and asset allocation in constructing their investment portfolio. The risk propensity of any person has multi propositions, with subjective elements and easily affected motivational and some other elements (Slovic, 1964).

Hourany and Vidmar (1972) elaborate behaviour of risk taking by four major factors through which variation may be observed: monetary risk-taking, ethical risk taking, physical risk taking and social risk taking. This idea with complains to risk tolerance had been explored and evidenced (Hsee and Weber (1999), Zaleskiewicz (2001), Rolison and Scherman (2003), Weber, Blais and Betz (2002), Johnson, Wike and Weber (2004), Corter and Chen (2006). Business owners do not take decisions against their will under any pressure. So, they take riskier investment and increase their investment level compared with salaried investor. Quattlebam (1988), Haliassos & Bertant (1995), declared that risk tolerance is also affected by professional status. Therefore, risk tolerance is greater in executives than lower class professionals. It proves that less risk takers choose jobs with low political and economic risks.

Expected Return is the rate of return on a portfolio that is derived from portfolio period. It is expressed as percentage of total amount of investment. The investor having low experience and high specific return contribution is higher than the investor having high experience and low return (Doran & Wright, 2010). The return is associated with financial product; the investor takes risk for getting some return. Kaufmann, Weber, and Haisley (2012) draw the conclusion that investor has a low risk perception; he will distribute the risk and take greater confidence about risky investment.

2.1 Hypotheses

Based on the discussed literature, we derived the following hypotheses:

H1: Past Investment Experience has significant impact on Risk Perception.

H2: Investment Information has significant impact on Risk Perception.

H3: Investment Duration has significant impact on Risk Perception.

H4: Risk Perception has significant impact on Risk Propensity.

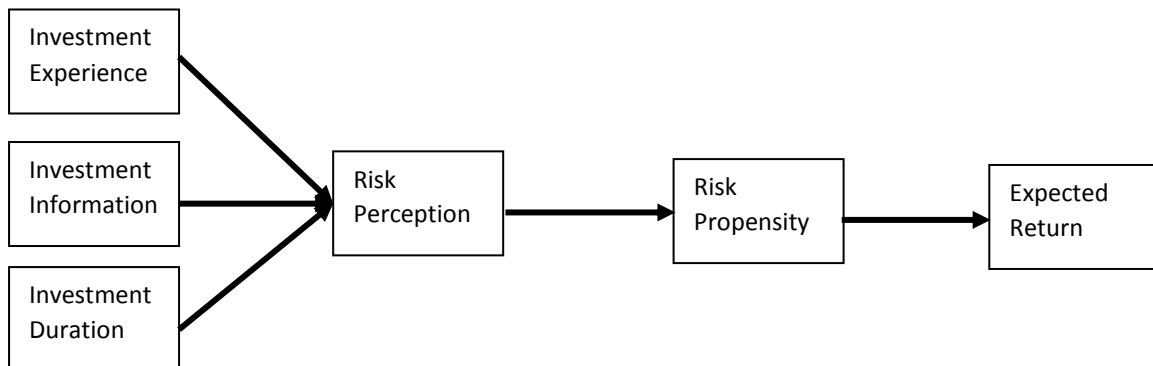
H5: Risk Propensity has significant impact on Expected Return.

H6: Past Investment Experience has significant impact on Expected Return mediated by Risk Perception and Risk Propensity.

H7: Investment Information has significant impact on Expected Return mediated by Risk Perception and Risk Propensity.

H8: Investment Duration has significant impact on Expected Return mediated by Risk Perception and Risk Propensity.

2.2 Conceptual Framework



3. Methodology

The study used primary data to analyse the behaviour of investors. Individuals investing in Pakistan Stock Exchange were contacted for the survey. The questionnaire which was divided into two sections was adapted from previous studies (Charles Schwab 2014, Chou, Huang, & Hsu, 2010 and Byrne, 2005). The first section of the questionnaire contains demographic information of respondents and the second section of the questionnaire contains questions of different dependent and independent variables of the study. The second component was further divided into two sub-sections. The first sub-section contains questions relating to following variables; risk propensity, risk perception and expected return. The second sub-section contains questions relating to following variables; investment information, investment experience, and investment duration. Five Points Likert Scale has been used to measure the responses of individual investors from the Pakistan stock exchange.

4. Results and Discussion

In order to examine for hypothesised relationship among study variables, Partial Least Square Structural Modeling (PLS-SEM) was applied. PLS-SEM technique is applied because study comprises multiple constructs, PLS-SEM is most suitable & prominent, PLS-SEM results are more reliable and it overcomes the problem of uncertainty (Hsu et al., 2006; Hair et al., 2011 & Hair et al., 2014). PLS-SEM comprised two models (1) outer model or measurement model and (2) inner model or structural model. Outer model is assessed by internal consistency, reliability and convergent validity, whereas the inner model is assessed by calculating coefficient of determination, correlation and path coefficient. In this study, Smart PLS software was used to test for PLS-SEM (Ringle et al., 2009).

In order to check for collinearity issue, VIF (Variance inflation factor) score was calculated. Results show that VIF scores of all variables is less than 5.0, it means that data has an acceptable collinearity score (see table-01).

Table 1. Multicollinearity Score (VIF)

First Set		Second Set	
Variables	VIF	Variables	VIF

Investment Experience	1.161	Risk Perception	1.000
Investment Information	2.166	Risk Propensity	1.000
Investment duration	1.693		

Internal consistency of data was measured by cronbach's alpha and composite reliability. Convergent validity was measured by average variance extracted (AVE) score. Cronbach's alpha ≥ 0.6 (Cronbach, 1951; Hair et al. 2011) and composite reliability score ≥ 0.6 (Werts et al, 1971; Nunnally&Burnstien, 1994; Tenehaus et al, 2005) reveal that data is reliable and internally consistent. AVE score of ≥ 0.5 (Anderson &Gerbing, 1988; Bagozzi& Yi, 1988) & ≥ 0.4 (Hensler et al, 2009; Chin, 2010; Hair et al., 2013) shows that data support convergent validity. Study results show that Cronbach's alpha & composite reliability score of all construct exceed 0.6, similarly AVE score of all variables meets the requirement of ≥ 0.4 , all this means that data fulfills the requirement of internal consistency and convergent validity (see table 2)

Table 2. Reliability and Convergent Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Expected Return	0.770	0.852	0.591
Investment Duration	0.682	0.807	0.512
Investment Experience	0.681	0.825	0.612
Investment Information	0.819	0.864	0.443
Risk Perception	0.845	0.877	0.418
Risk Propensity	0.803	0.859	0.506

Discriminant validity explains that various measures of a specific variable should be less highly related to the measure of other variables (Compbell & Fiske, 1959). Cross loading and Fornell-Larcker-values show the discriminant validity of variables (Henseler et al., 2009). Furthermore, highlighted values shown in table 3 shows the loading and cross loading of items of constructs.

Each item shares highest loading to its own construct. Outer loading score of all indicators against their constructs is shaded in gray color.

Table 3. Loading & Cross Loading

	Expected Return	Investment Duration	Investment Experience	Investment Information	Risk Perception	Risk Propensity
ID1	0.313	0.711	0.362	0.448	0.402	0.380
ID2	0.371	0.791	0.343	0.538	0.519	0.454
ID3	0.309	0.633	0.335	0.372	0.365	0.357
ID4	0.306	0.719	0.256	0.443	0.452	0.328
IE1	0.370	0.350	0.794	0.444	0.441	0.370
IE2	0.397	0.409	0.825	0.478	0.482	0.458
IE3	0.445	0.289	0.726	0.516	0.452	0.428
II1	0.421	0.370	0.491	0.676	0.455	0.445
II2	0.498	0.377	0.430	0.730	0.482	0.525
II3	0.414	0.405	0.427	0.715	0.506	0.484
II4	0.359	0.381	0.437	0.612	0.452	0.342
II5	0.337	0.458	0.320	0.666	0.439	0.434
II6	0.374	0.445	0.435	0.636	0.513	0.418
II7	0.355	0.488	0.310	0.627	0.429	0.367
II8	0.404	0.466	0.393	0.652	0.449	0.421
RE1	0.776	0.343	0.420	0.487	0.438	0.598
RE2	0.779	0.349	0.428	0.457	0.461	0.533
RE3	0.787	0.373	0.367	0.504	0.447	0.516
RE4	0.732	0.335	0.369	0.375	0.401	0.480
RP1	0.458	0.358	0.379	0.452	0.423	0.687

RP2	0.522	0.356	0.391	0.495	0.445	0.761
RP3	0.472	0.398	0.394	0.461	0.492	0.771
RP4	0.511	0.426	0.484	0.532	0.591	0.751
RP5	0.465	0.347	0.277	0.334	0.371	0.596
RP6	0.537	0.381	0.343	0.470	0.439	0.687
RPER 1	0.370	0.479	0.360	0.495	0.636	0.413
RPER 10	0.278	0.317	0.385	0.300	0.613	0.372
RPER 2	0.422	0.502	0.378	0.508	0.688	0.429
RPER 3	0.439	0.426	0.428	0.561	0.628	0.479
RPER 4	0.323	0.358	0.274	0.459	0.607	0.423
RPER 5	0.430	0.413	0.421	0.492	0.663	0.496
RPER 6	0.332	0.356	0.369	0.442	0.671	0.425
RPER 7	0.326	0.351	0.357	0.375	0.579	0.331
RPER 8	0.350	0.371	0.369	0.439	0.665	0.408
RPER 9	0.362	0.352	0.439	0.407	0.704	0.407

In order to measure discriminant validity at construct level, Fornell-Larcker criterion is used (Henseler et al., 2009). According to Fornell-Larcker (1981) criterion, each construct should

share higher values to its own construct. In table 4, highlighted values shows the Fornell-Larcker values while other values show the correlation between particular construct to other constructs. The correlation values varies between 0 to 0.703.

Table 4. Fornell-Larcker& Correlation Results

	Expected Return	Investment Duration	Investment Experience	Investment Information	Risk Perception	Risk Propensity
Expected Return	0.769					
Investment Duration	0.455	0.716				
Investment Experience	0.517	0.448	0.782			
Investment Information	0.596	0.635	0.613	0.665		
Risk Perception	0.569	0.614	0.587	0.703	0.646	
Risk Propensity	0.695	0.533	0.537	0.648	0.653	0.711

Structural modeling was used to analyse the hypothesised relationships between constructs. Figure 1 shows the output of structural modeling. In order to measure the variance explained by independent constructs in dependent construct, R-square values is used. While beta-values (β) shows the intensity of the relationship between variables. These values are known to be significant if t-values are greater than the threshold value (i.e. $t > 1.98$) (Chin & Newsted, 1999).

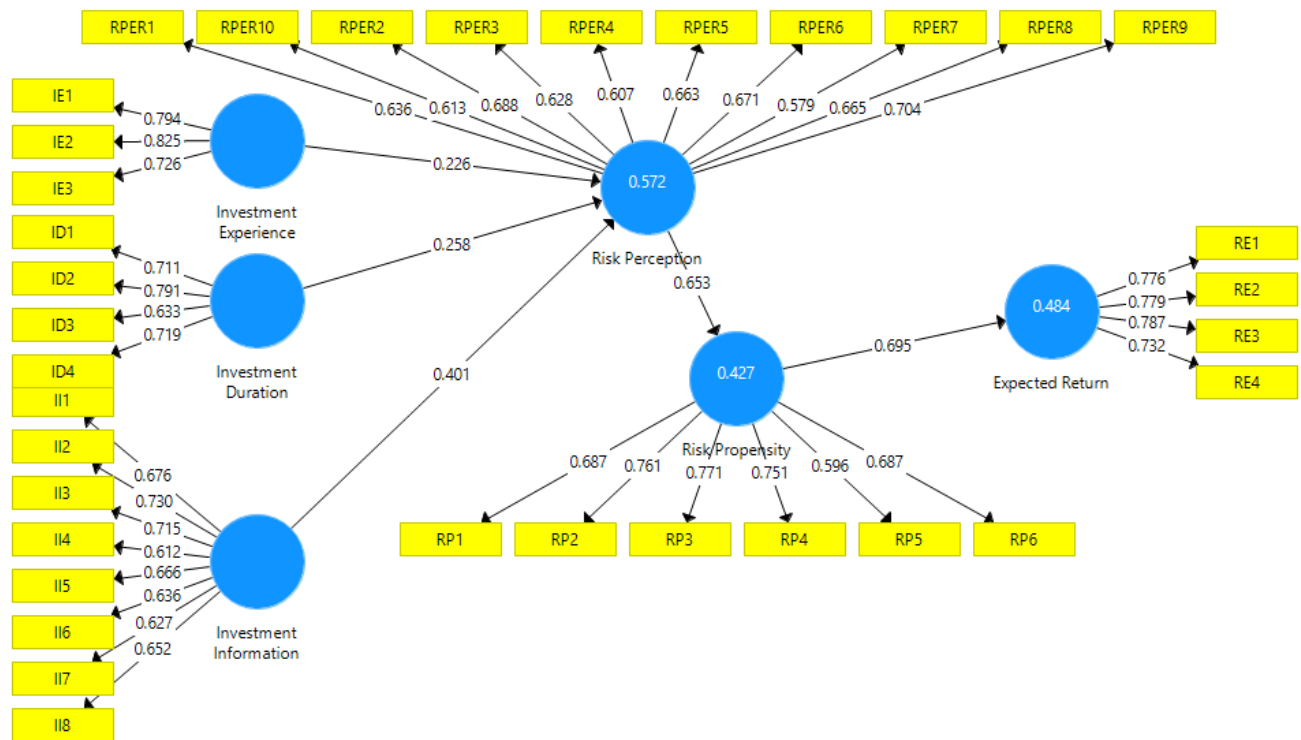


Figure 1. Structural Model

The values of R-square describe the explanatory power of overall model (Hair et al., 2014). It determines the predictive power of the relational model. The values of R-square can vary between 0 to 1 and interpreted as 0.75= substantial, 0.50= moderate, and 0.25= weak (Hair et al., 2016). Study results about R2 and adjusted R2 are given in Table 5

Table 5. R-square values

Construct	R ²	Adj. R ²
Expected Return	0.484	0.482
Risk Perception	0.572	0.569
Risk Propensity	0.427	0.425

Table 6 shows the beta-values, standard deviation, t-values and p-values of hypothesised relationships. The study results disclose that all relationships (H1, H2, H3, H4 & H5) are significant as their t-value is greater than the threshold value (i.e. $t > 1.98$) (Chin & Newsted,

1999). Furthermore, beta coefficient values vary from 0.226(Investment Exp→ Risk Perception) to 0.659 (Risk Propensity → Expected Return).

Table 6. Path Coefficients

Variable	Beta coefficient	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Investment Duration → Risk Perception	0.258	0.047	5.465	0.000
Investment Experience → Risk Perception	0.226	0.043	5.228	0.000
Investment Information → Risk Perception	0.401	0.054	7.383	0.000
Risk Perception → Risk Propensity	0.653	0.034	19.447	0.000
Risk Propensity → Expected Return	0.695	0.024	28.732	0.000

In order to check for mediatory role of risk perception and risk propensity, Sobel test was applied. Sobel t-values >1.96 and $p < 0.05$ show that both risk perception and risk propensity play a significant mediatory role as hypothesised in this study. It means that exogenous variables (investment experience, investment duration and investment information) affect risk propensity both directly and through risk perception. Similarly, risk perception also has direct impact on expected return (risk perception → expected return) as well as indirect impact through risk propensity (Risk Perception → risk propensity → expected return), see table 7.

Table 7. Mediation Analysis

	Sobel-t value	Significance	Result
Investment Duration → Risk Perception → Risk Propensity	5.2780	<0.01	Accepted
Investment Experience → Risk Perception → Risk Propensity	5.069	<0.01	Accepted
Investment Information → Risk Perception → Risk Propensity	6.926	<0.01	Accepted

The results proved the relationship between Investment Experience and Risk Perception (H1), Investment Information and Risk Perception (H2), Investment Duration and Risk Perception (H3), Risk Perception and Risk Propensity (H4) Risk Propensity and Expected Return (H5). There is a close relation between risk understanding and risk propensity. A greater risk propensity shows high risk than the one who faces lower propensity of risk. Market information is significantly obvious in term of perception of investors. Different people take differently, the information approached. The decision making process also takes serious effect of prevailing conditions. So, recession news makes the investor's behaviour more careful. These perceptions and preferences may change accordingly. Higher returns and low risk are considered in the market, when there is an atmosphere of a boom in the market and the economy (Kang, Chungb, and Lee, 2008).

Similarly, market efficiency reports have their own impact. Even, the information is kept aside and investment is increased and continued on the receipt of market efficiency (Hsu, Huang, and Chou, 2010). The information is not thought considerable, as its reflection is obvious of the price, where an inefficiency report of the market and analysis for better gains are reviewed (Wright and Doran, 2010). Big amount and huge intentions of the investors pave the way to big investment decisions. Investors mind should therefore be a necessary read in order to present better products to get profits. This sort of theoretical study opens the way to judge the investor's mind work under certain variables.

A few of them are discussed here. Investors are seen in many ways through behaviour finance study. Reaction of investors is not always correlated with traditional finance theory, he prefers his own experiences regarding future decisions about investments. Information also changes investor's mind. The whole scenario is influenced by various methods of investment, such as risk propensity, investment information, return expectation, risk perception, investment experience and investment duration. A number of people have shown their works about investor's behaviour. The number is not very great of such works.

Although our study contributes towards behavioural finance literature in Pakistan, it has some limitations. It considers only stocks and focuses on Pakistan stock exchange. Also, some other factors, e.g. investment satisfaction and planning) which may impact investor decisions are not taken into consideration. Future research can address these limitations by including other factors. It is also expected for the future researchers to include the stock markets of other Asian countries as well.

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