Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.6, No.12, 2015

The Impact of Investors' Perception of Risk on Portfolio Management: Evidence from the Kingdom of Bahrain

Marwan Mohamed Abdeldayem
Faculty of Commerce-Business & Finance Department -Cairo University-Egypt
Applied Science University (ASU)-Kingdom of Bahrain-P.O Box 5055

ABSTRACT
The Study of risk perception and its impact on investors' behavior is well established in the literature of behavioral finance. Plentiful studies have been conducted to explore, investigate and measure this link. However, very few of them attempt to find this link in the context of portfolio management. Therefore, the purpose of this study is to test empirically the impact of investors' perception of risk on portfolio management in the Kingdom of Bahrain. This study draws on 151 questionnaire surveys of investors in Bahrain. Participants were asked to assess one randomly selected portfolio type (from P (A) to P (F)) on a questionnaire consisting of 33 determents of the risk perception which were selected from the surveys of previous studies. Subsequently, a model of determinants of perceived risk and portfolio management was developed and tested. Furthermore, the data were analyzed using linear stepwise regression and factor analysis with varimax rotation. Suitability of the data was checked by calculating the Kaiser-Meyer-Olkin (KMO) value and analyzing the anti-image-covariance-matrix. The results reveal that perceived portfolio risk is not only affected by quantitative aspects of potential losses and gains but also qualitative manifestations evidence to be pertinent. Worry & anxiety, liquidity; and the level of confidence in the economy and/or the stock market load high on the factor representing the perceived risk by investors which is associated with portfolio management in the Kingdom of Bahrain.
KEY WORDS: Portfolio Management- Risk Perception- Behavioral Finance- Investment Decisions- Kingdom of Bahrain.

1. INTRODUCTION

Nowadays, behavioral finance is becoming an integral part of the decision making process, because it greatly affects investors' behavior regarding decision making. Hence, a better understanding of behavioral finance will assist the investors to select a better investment portfolio. In addition, several economic and financial theories assume that investors act rationally; however, they are only human. They act according to market sentiments and some even follow their gut feeling when making financial decisions (Raiz, Hunjra and Azam, 2012 and Abdeldayem b, 2015).

Since the traditional finance theory arises to play a limited role in understanding and interpreting certain issues such as: (1) why do individual investors trade in the stock market, (2) how do they perform the task, (3) how do they choose and build their portfolios to conform their conditions, and (4) why do returns differ so quickly even across stocks and portfolios for reasons other than risk, therefore, the behavioral finance emerged to answer such questions and help to interpret why and how individual investors behave in their choice of investment (Prabhakaran and Karthika, 2011).

Several studies show behavior finance perspective on individual investor, such as Slovic (1986), Lopes(1987), Schubertl et al. (1999), and Abdeldayem and Assran (2015). Those authors argue that individual investor would demonstrate different risk attitude when facing alternative investments. While, the question of what is the impact of investors' perception of risk on portfolio management remains unanswered.

Furthermore, determinants of risk attitudes of individual investors are of great interest in the behavioral finance. Behavioral finance focuses on the individual attributes, Psychological or otherwise, that shape common financial and investment practices. Unlike traditional assumptions of expected utility maximization with rational investors in efficient markets, behavioral finance assumes people are normal. Despite great interest in this area, not much research looks at the underlying factors that may lead to individual differences and play a significant role in determining people's financing and investment strategies in emerging markets

When we look at risk, risk is a complex notion, even in the practical finance community where different measures are utilized such as the Sharpe ratio (or reward-to-variability ratio, Sharpe, 1975), VaR (mean and variance based) (Coombs, 1975), and many other measures of financial risk exist like, for instance, pure risk based on aspiration criterion and probability of failure (see Lopes 1987; Sokolowska & Pohorille, 2000). Even finance theorists are not fully clear what the underlying risk dimensions are, and they usually examine risk

measures for practical application in finance without fundamental connection to the normative decision theories (see Artzner, Delbaen, Eber, & Heath, 1999; Luce, 1980; Sarin, 1987; Szegö 2002 and Valev, Chater and Stewart, 2009)

Risk perception can be managed if the investors are aware of their level of risk perception (Singh and Bhowal, 2008). While making investment decisions, the investors make proper tradeoffs between risks and return (Fischer and Jordan, 2006). In a specific situation, people who are risk- seekers and are concerned about high returns are likely to have low risk perception, whereas those who are risk-averse have high risk perception; consequently affecting the investment behavior (Rana et al, 2011).

Portfolio management concerns the constructions and maintenance of a collection of investment. It is investment of funds in different securities in which the total risk of the portfolio is minimized, while expecting maximum return from it. It mainly involves reducing risk rather than increasing return. Return is obviously important though, and the ultimate objective of portfolio manager is to accomplish a chosen level of return by bearing the least possible risk.

Moreover, risk can be also considered as a deviation of an expected outcome. In investing we can look at risk as a deviation of expected investment returns. This deviation can be either positive or negative. The probability and magnitude of the deviation is what an investor is concerned about. There are many factors that can affect risk and there are portfolio management tools to measure and mitigate the risk factors. Hence, understanding the types of investment risk allows an investor to manage risk and optimize returns. Accordingly, in this research effort we look at the different types of investment risk and how a portfolio management can help to improve the probability of positive outcomes instead of negative outcomes.

Although traditional finance theory always assumes that investors' investment decisions are based on their objective evaluation of risks and expected returns, psychological factors towards risk perception may play vital role in investors' investment decisions. The main idea behind this study is to identify some core factors which affect investors' behavior under risk and uncertainty and to examine and analyze results in meaningful ways that can help the investors in their future investments.
Therefore, the overriding purpose of this study is to examine the impact of investors' perception of risk on portfolio management in the Kingdom of Bahrain. In this study investment decisions of investors (portfolio management decisions) have been taken as a dependent variable because to its importance in stock market; while determinants of risk perception, are taken as independent variables. The study aims also to present and examine a model that evaluates this relationship (the Impact of investors' perception of risk on portfolio management) in the Kingdom of Bahrain.

The Kingdom of Bahrain is situated in the heart of the Gulf. Its strategic geographical position and open market economy, coupled with the government's dynamic economic policy and a well-trained national workforce have all helped Bahrain to achieve this status. The Kingdom of Bahrain also has the advantage of a modern and well-planned infrastructure, together with excellent air, sea and road links. A tax-free environment and the ability to freely remit funds abroad gives Bahrain its unique appeal and considerable advantage in attracting investors from different parties of the world to the country (Abdeldayem, 2015 a).

The present study can have significant contribution in the area of behavioral finance through exploring the relationship between various physiological factors that can affect the overall investment decisions of the investors. Furthermore, if the proposed model of the study is validated, it would enable researchers to use the instrument with increased confidence, perhaps in some other Gulf countries such as Saudi Arabia, UAE, Kuwait, Qatar or Oman, especially for risk perception and portfolio management. Therefore, this study could serve also as an example for instrument validation.

The rest of the paper is organized as follows: Section (2) includes the literature review to show the relation between risk perception and portfolio management; and gives background to the Bahrain Stock Exchange (BSE). The research methodology, data sources and measures of main variables are in section (3). Section (4) presents the empirical analysis and test results of the relation between investors' perception of risk and portfolio management. Section (5) provides a summary and concluding remarks.

2. LITERATURE REVIEW

There are several types of investment risk such as: market risk, or systematic risk, which is associated with market returns (macroeconomic factors). Specific risk, or unsystematic risk, is risk that is not correlated with

market returns. It is the risk that is specific to a particular company or industry. Volatility risk**,** it means that the more volatile the portfolio the lower the total return. Other Types of Investment Risk include: interest rate risk, default Risk, inflation Risk, economic Risk, reinvestment Risk, liquidity Risk and regulatory or political Risk.

Worth mentioning that quantitatively, Beta is the generally accepted measure of systematic risk for a security or portfolio and is defined as the amount of systematic risk present in a particular risky asset relative to that in an average risky asset. particularly what Beta does is compares a particular stock, for example, with an average stock, or more accurately, a benchmark basket of securities or portfolio and it can be calculated as follows:

$$\beta_a = \frac{\mathrm{Cov}(r_a, r_p)}{\mathrm{Var}(r_p)},$$

Where ra measures the return of the asset or portfolio, rp measures the return of a portfolio of risky assets, and Cov (ra, rp) is the covariance of the return. Interpreting Beta is rather simple. 1.0 is the Rubicon so to speak. Betas lower than 1.0 denote that the stock or portfolio in question has a lower level of systematic risk than the market while a Beta of more than 1.0 signalizes a stock or portfolio that has a greater level of systematic risk than the market.

Portfolio management refers to asset allocation and management of stocks and bonds and other securities. The term portfolio is used for a pool of investment instruments, including cash, mutual funds, stocks bonds, and others. The aim of portfolio management is to maximize returns and minimize risks within a specified period of time. Asset allocation requires considerable investment expertise and time. Customers can choose from different types of portfolios, including dividend, balanced, risk-free, and portfolios in foreign currencies.

Investors develop a portfolio based on their objectives, risk tolerance, and time horizon. People with high income requirements often have higher tolerance for risk. Conservative investors are usually individuals who want to have a portfolio that offers a steady source of inflation-adjusted income. They opt for a balanced portfolio that includes no risk and low risk investments. High risk investors, on the other hand, opt for risky asset classes such as sector, small-cap, and growth mutual funds.

Furthermore, people overweight small probabilities, so if a decision is framed in such a way as to indicate a small probability of having losses, then these small probabilities will loom larger, and will also be additionally magnified by loss aversion (Valev, Chater and Stewart, 2009). Furthermore, Valev, Chater and Stewart (2009) claim that Studies of real financial decision making under risk support this view and argue that employees who elect to take charge of their own investment portfolios generally find the task difficult (Benartzi & Thaler, 2002). Indeed, given the complexity of the problem of choosing an appropriate investment portfolio to fit one's own circumstances and personal risk preferences, it is not surprising that people tend to follow simple strategies or heuristics. Hence, Benartzi and Thaler (2002) found that when individuals have three choices ranging from low risk to high risk, they found a significant tendency to pick the middle choice. Hence, people viewing choices A, B, and C, will often find B more attractive than C. Yet, those viewing choices B, C, and D, will often argue that C is more attractive than B (Simonson & Tversky, 1992). This reveals that choices are not rational according to standard economic criteria. When choice problems are hard, people often resort to simple rules of thumb to help them cope.

Other studies have shed light on how people allocate their retirement funds across various investment vehicles (Benartzi & Thaler, 1998, 2001). They find evidence that when an employee is offered a number of funds to choose from in their retirement plan, there is a tendency towards dividing the money evenly among the funds offered. The asset allocation an investor chooses will therefore depend strongly on the array of funds offered in the retirement plan. Hence, in a plan that offered one equity fund and one bond fund, the average allocation is likely to be 50% equities, but if another equity fund were added, the allocation to equities would jump to two thirds. The findings by Benartzi and Thaler (1998, 2001) reveal that investors have ill-formed preferences about their investments, which again is consistent with the idea that preferences are constructed (Slovic, 1995) and Valev, Chater and Stewart (2009)

While there are many different factors that may affect investor's decisions, risk perception and risk propensity are the important variables that play a crucial role in decision-making. Risk perception is a communication

source which can prepare investors to obtain risk according to their understanding and psychological factors (Rana et al, 2011). Propensity to take risk refers to the tendencies of the investors to take or avoid actions that they feel are risky (Sitkin and Pablo, 1992; Hamett and Cummings, 1980; and Kogan and Wallach, 1964). While discussing the impact of risk perception on decision-making, it is necessary to understand how individuals perceive risk. Risk perception plays a subjective role in determining the best alternative among different investment decisions (Slovic, 2000). Most of the studies have emphasized significant impact of framing and other factors on investor's decisions, however there are only few studies regarding the impact of risk perception. The decision-making behavior of an investor is affected by the attitude towards the risk as well as the way in which the investment risk is perceived by the investor. At different levels of perception towards risk, the individual investor thinks differently about their investment and make decisions differently (Hallahan, Faff and McKenzie, 2004). Many researches have concluded that investor decision-making process is greatly affected by the risk perception (for example: Weber and Hsee, 1998; and Chen and Tsai, 2010)

Furthermore, it should be highlighted that the literature review of behavioral finance reveal that investment risk perception can be examined in three main ways. The first approach is to directly ask participants in an open question what comes into their mind when they think about investment risk. Olsen (1997) and Vlaev, Chater, and Stewart (2009) used this method and found that loss of capital, returns below expectation, and economic uncertainty are prevalent associations with investment risk. Other responses are related with perceived knowledge deficits and a feeling of lack of control.

The above mentioned studies shed light into the abstract conceptualization of investment risk and can be used for the design of more structured investigations of investment risk perception. In those more structured studies, risk aspects are evaluated quantitatively by asking participants to rate various types of investment on scales representing different characteristics of risk. This approach is known as psychometric paradigm and is commonly used in risk perception research, mainly in technology and health domains (see Slovic, 2000). The core finding is that perceived risk is a subjective construct which is not only determined by quantitative aspects but also by qualitative characteristics of the situation.

The psychometric approach was also used to investigate investment risk perception. In their studies, MacGregor, Slovic, Berry, and Evensky (1999) and Koonce, McAnally, and Mercer (2005) asked financial experts to rate the risks of various types of investments. Moreover, participants had to assess various other aspects of the investment situation and the investment product, both economic and psychological features. The results of these two studies are comparable and in line with each other: quantitative aspects (probability of loss and volatility) and qualitative aspects (such as worry & anxiety and knowledge) were both significant predictors of perceived risk. In both studies, worry was the predictor with the highest predictive power. These findings are of particular interest since all participants were professionals whose risk judgements were expected to be based on quantitative information only

The second approach includes the studies comparing risk perceptions of experts and ordinary people in the financial domain. Only three studies have raised this question, two of these studies have been undertaken within the psychometric approach and they are the study of Diacon, (2004) and the study of Olsen, (1997). Olsen (1997) applied the results of his qualitative study to construct items for a survey with which he compared risk perceptions of professional and individual investors. Ratings on the risk aspects were used to predict the perceived overall risk. All aspects had significant predictive power in explaining the variance of the risk judgement. The best predictor was control, the second was loss of capital, the third was returns below expectations, and the last one was knowledge.

Furthermore, no differences between professionals and ordinary people were observed, however, this harmony between the risk perceptions of experts and ordinary men can be attributed to the selection of the participants. Olsen (1997) only asked experienced and wealthy private investors and financial risk perception might differ according to the degree of experience that can range from very low to very high. The third study is the study of Sachsea, Jungermanna and Beltingb (2012). They investigated the perceived investment risk of lay investors. In their study, two surveys were conducted to examine the financial risk perception of German individual investors (N = 119 in study 1; N = 171 in study 2). Participants were asked to rate the risk and several aspects of different types of investment products (e.g. shares and bank savings books). Study (1) investigated the specificity of risk perception of various common investment products. Separate regression analyses showed only minor differences in the composition of the risk perception models between the types of investment. A factor analysis revealed two dimensions of perceived investment risk, where one factor consists of aspects of loss and variability (factor risk), while the other comprises aspects of transparency and liquidity (factor manageability). The dimensions were

used to classify the types of investment with regard to perceived risk. Whereas, study (2) examined the effects of individual characteristics on financial risk perception. Only financial literacy evidenced to be relevant in a regression analysis where perceived investment risk was explained by using gender, age, investment experience, and financial literacy as predictors.

The third approach is the experimental approach, which means to ask participants to invest a given amount of hypothetical money into some imaginary investment options which differ from each other regarding their risk features. These options are usually presented with full information about probabilities and volumes of gains and losses. Moreover, participants have to rate the risk of the investment options. Results of studies using this experimental approach consistently reveal that potential losses arise larger than volatility of outcomes both for explaining risk judgements and predicting investment decisions (Duxbury and Summers, 2004, Klos et al., 2005, Nosic and Weber, 2010 and Veld and Veld-Merkoulova, 2008).

To conclude, although investment risk perception has been examined within different approaches, the results reveal a common pattern: Perceived investment risk is a complex construct consisted of different aspects. In addition, financial parameters (potential losses, volatility) qualitative features (knowledge, worry) play also a vital role when judging the risk of investments, even for financial experts.

As far as the portfolio management is concerned, it is obvious in the literature that the historical roots of the portfolio perspective date to the work of Nobel laureate Harry Markowitz (1952). Markowitz and subsequent researchers, such as Jack, Treynor and Nobel laureate William Sharpe, established the field of modern portfolio theory (MPT) the analysis of rational portfolio choices based on the efficient use of risk. Modern portfolio theory revolutionized investment management. First, professional investment practice began to recognize the importance of the portfolio perspective in achieving investment objectives. Second, MPT helped spread the knowledge and use of quantitative methods in portfolio management. Today, quantitative and qualitative concepts complement each other in investment management practice.

There are three elements in managing any business process: planning, execution, and feedback. The same elements form the basis for the portfolio management process as reported by Maginn, Tuttle, McLeavy and Pinto (2013):

(1) The Planning Step: This step of portfolio management includes: identifying and specifying the investor's objectives and constraints, creating the investment policy statement (IPS), forming capital market expectations; and creating the strategic asset allocation.

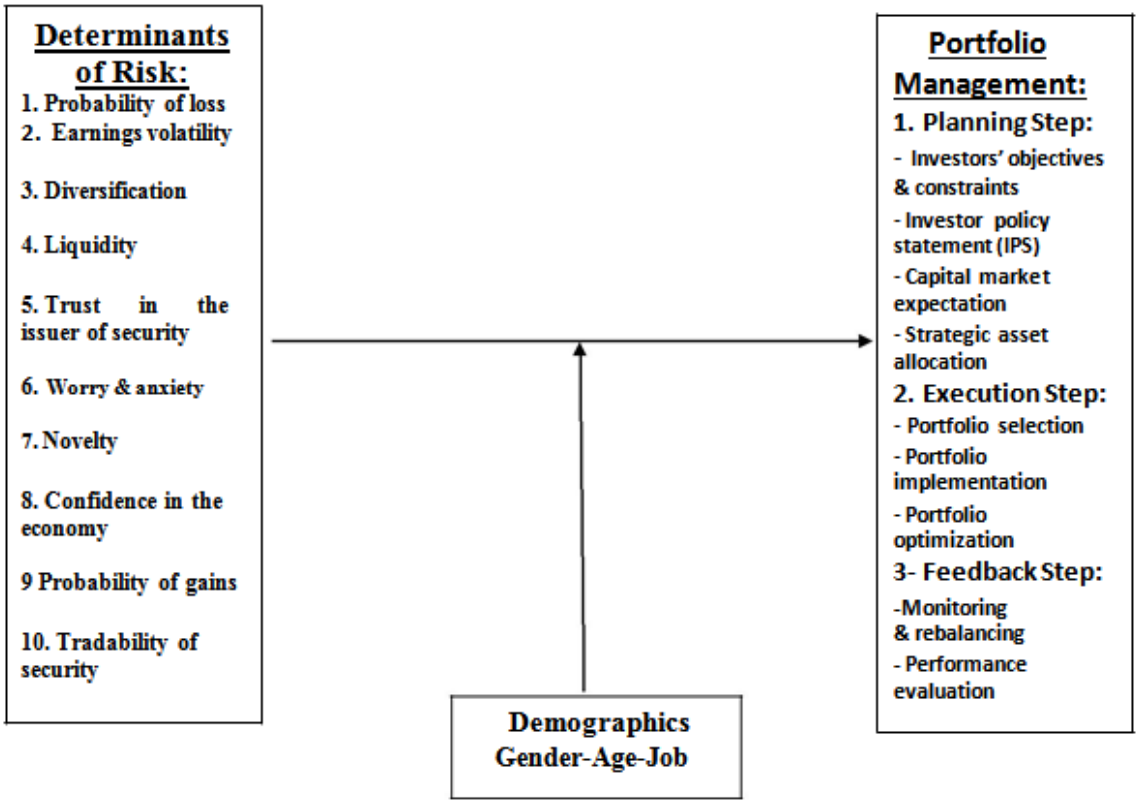
(2) The Execution Step: The execution step is represented by the ''portfolio construction and revision''. In the execution step, the manager integrates investment strategies with capital market expectations to select the specific assets for the portfolio (the portfolio selection/composition decision).

(3) The Feedback Step: In portfolio management, this step has two components: monitoring & rebalancing, and performance evaluation.

Background of the Bahrain Stock Exchange (BSE)

The BSE (or Bahrain Bourse) was established in 1987 by Amiri Decree No. (4) and officially commenced operations on 17 June 1989, with 29 listed companies. Currently, there are seven sectors trading on the BSE by the name of (1) banking sector, (2) investment sector, (3) insurance sector, (4) services sector, (5) industrial sector, (6) hotel & tourism sector; and (7) non- Bahraini companies sector. These sectors nowadays include 50 companies listed on the exchange. The BSE operates as an autonomous institution supervised by an independent Board of Directors, chaired by the Governor of the Central Bank of Bahrain. The BSE has pre-market sessions from 9:15am to 9:30am and normal trading sessions from 9:30am to 1pm, from Sunday to Thursday, except for holidays declared by the Exchange in advance. There are three indices that track the BSE: (1) the Bahrain All Share Index, (2) the Dow Jones Bahrain Index and (3) the Estirad Index. The Bahrain Stock Market (Bahrain All Share) increased to 1428.65 Index points in January 2015 from 1426.57 Index points in December of 2014. Stock Market in Bahrain averaged 1664.27 Index points from 2003 until 2015, reaching an all-time high of 2902.68 Index points in June of 2008 and a record low of 1001.76 Index points in April of 2003 (The Bahrain Stock Exchange, 2015 and Abdeldayem, 2015 a)

Figure (1) A Proposed model of the variables included in the study



The Bahrain Bourse All Share Index (BAX) is a major stock market index which tracks the performance of share-holding companies listed on the Bahrain Bourse. It is a capitalization-weighted index. The BAX has a base value of around 1000 as 2004.The BAX is a stock market index which tracks the performance of large companies based in Bahrain. Furthermore, the Bahrain Stock Exchange (BSE) presents investors with the opportunity to raise equity financing, provided that listing conditions are met. The Central Bank of Bahrain (CBB) regulates and supervises

Bahrain's capital markets with its chief priority being to maintain a transparent, fair and orderly market by upholding and enforcing international standards and protecting the investor, thereby protecting Bahrain's integrity and reputation as the region's financial hub. The CBB regulates and supervises all applications for the listing of securities and any other instruments offered to the general public, approving applications on the fulfillment of requirements and disclosures. The CBB also enforces international disclosure standards, in order to enhance the transparency in the marketplace, and supervises the stock exchange, the clearing, settlement, depository and custodial systems, brokerage companies and market makers (The Arab Stock Market Analysis, 2015).

Settlement of sales and purchases of securities

Settlement and transfer of ownership of domestic joint stock securities is undertaken through the Exchange in accordance with simple and straightforward procedures. The sale and purchase of a security creates a binding contract on the part of the seller to deliver the security and on the part of the purchaser to make payment on the settlement date, i.e. within two days after the trading date, (T + 2). The BSE management is continuously monitoring and reviewing the Exchange's existing laws and procedures in an effort to further develop and enhance its contribution to the economy of Bahrain. The BSE is continually upgrading the facilities it offers and in recent years has relaxed the rules for foreign investors, thereby opening up the market to all. It aims to enhance the services it offers to investors and monitor standards in accordance with international norms that aim to improve efficiency and maintain integrity in the market (see Abdeldayem, 2015 a).

3. METHODOLOGY

The main purpose of this section is to provide an outline of the research methods used and procedures employed

to collect and analyze data. Hence, it includes pilot study, sample structure, reliability of the study and the statistical analysis.

Pilot study

In order to identify relevant risk aspects for the investigation of investors' perception of risk and portfolio management in the Kingdom of Bahrain, the researcher conducted a pilot study where six types of portfolio (i.e. P (A) portfolio contains stocks only, P (B) portfolio contains bonds only, P (C) portfolio contains T-bills only, P (D) portfolio contains bank deposits only, P (E) portfolio contains real assets only; and P (F) portfolio contains more than one product) were presented to 56 participants (64% male, 36% female, mean age 34). The researcher tried to reach a sample consisting of individuals with different investment experiences in Bahrain. Hence, participants were not only professional/ technical from the Bahrain stock Exchange (BSE) but also employees, managers, university students, self-employed and retired people. Participants were asked to assess one randomly selected portfolio type (from P (A) to P (F) mentioned above) on a paper-questionnaire consisting of 33 determents of the risk perception which were selected from the surveys of Farrelly et al (1985), Firer et al (1986), Yates and Firer (1997), MacGregor et al. (1999), Koonce et al. (2005) and Sachsea, Jungermanne and Beltingb (2012). These items measure, for instance, different aspects of gains and losses, and the employed questionnaire covers both quantitative and qualitative aspects of the investment portfolio along with some psychological aspects. It measures several items such as liquidity, leverage, volatility of cash flow, knowledge and worry & anxiety. For each item a five-point Likert scale with defined endpoints was developed. The 33 items of the questionnaire along with their ranked mean rating of the respondents are presented in Table (1).

Table (1) Ranking of Determinants of Risk Perception

Rank	Determinants of Risk Perception	Rating
1	Probability of loss	4.92
2	Degree of earnings volatility	4.79
3	Probability of gains	4.73
4	Company size	4.51
5	Degree of diversification	4.35
6	Lack of trust in a particular issuer of security (private company, government, etc)	4.33
7	Lack of confidence in the economy and/or the stock market	4.12
8	The worry and anxiety about the investment	4.09
9	The liquidity of the investment (the ability to sell quickly)	3.79
10	Level of dividend payout	3.51
11	Novelty of investment	3.50
12	Time horizon (short term vs long term)	3.34
13	Profitability	3.25
14	The unsuitability of particular type of investment	3.17
15	Tradability of securities	3.10

16	Level of disclosure of the available information	3.08
17	Willingness to invest in a particular investment	2.88
18	Amount of gains	2.82
19	Probability of status quo	2.76
20	Lack of knowledge about the investment	2.54
21	The possibility that the investment does not increase in value over time	2.43
22	The probability of increasing the cost of life because of inflation	2.31
23	Level of financial leverage (gearing)	2.27
24	Forecasting growth of earnings	2.20
25	Volatility of cash flows	2.16
26	Lack of trust in the financial adviser	2.04
27	Predictability of the expected return	1.96
28	Transparency and understanding the performance of the invested money	1.85
29	Attention given by investors to their money	1.74
30	Lack of trust in a particular industry	1.51
31	Feeling of loss of control over the course of investment	1.43
32	Market value: book value	1.32
33	Intensity of competition faced	1.28

The ratings were standardized by calculating Z-scores within each type of portfolio to eliminate influences resulting from special features of the particular portfolio product. Interrelations between the risk rating and the other ratings could therefore be attributed to the perception of the participants in the pilot study. Risk ratings were significantly correlated with probability of loss (r =0.54**), degree of earnings volatility (r = 0.44**), degree of diversification (r = 0.53**) and liquidity (r = 0.39**). On the contrary, items such as intensity of competition (r = 0.03), volatility of cash flows (r = 0.11) and gearing (r= -0.07) were not correlated with risk. There were also some creditable correlations between risk and qualitative aspects such as lack of trust in the issuer of security (r = 0.42**), worry and anxiety (r = 0.51**), novelty (r = 0.29**), and lack of confidence in the economy (r = 0.35**). In addition, the correlations between risk rating and the other variables were not significant for example, willingness to invest in a particular investment (r = 0.09), market value: book value (r = 0.15), attention (r = –0.04), lack of trust in the financial adviser (r= -0.12), time horizon of investment (r = 0.14), transparency (r = 0.02), and knowledge (r = 0.04).

Design

The results of the pilot study were used to re-design the questionnaire of this research effort. Mainly eight items were selected which had proven to be significant to risk judgement, they are: (1) probability of loss, (2) earnings volatility, (3) diversification, (4) liquidity, (5) level of trust in the issuer of security, (6) worry & anxiety, (7) novelty, and (8) level of confidence in the economy or the stock market. Despite probability of gains and

tradability of security were not correlated to risk ratings in the pilot study, this two items were also added to test if these features might indicate a willingness to invest in a particular portfolio. Hence, ten items were included in the final questionnaire as potential determinants of risk perception. In order to avoid misconceptions, the components of each portfolio type was presented together with a short description of its major characteristics. Consequently, a proposed model was formed which includes the main variables of the study (i.e. determinants of risk perception and portfolio management along with their components) (Refer to figure (1))

Procedure and sample

In this research effort, participants were contacted via online mailing lists and announcements on several homepages, and invited and motivated to take part in an internet based survey on risk perception and portfolio management. Worth mentioning that we made sure that none of the participants in the final survey had taken part in the pilot study. They were asked to rate six different types of portfolios (i.e. P (A), P (B), P (C). P (D), P (E) and P (F) described earlier) presented in a random order. In order to reduce the time needed for completing the whole survey, the six portfolio types were not presented one by one. Rather, the participants had to rate all portfolio types on one risk scale before going onto the next. This procedure was expected to decrease reading efforts and to promote differentiation between the various portfolio types.

182 persons, from the kingdom of Bahrain, participated in this study. 31 of them were excluded from analysis due to incomplete answers or time deviations according to the rule of Sachsea, Jungermanna and Beltingb (2012): Participants were excluded who completed the survey obviously fast or slow. “Fast” was defined by more than one standard deviation (SD) below the mean handling time. “Slow” was defined by more than two SD2 above mean. This procedure should ensure that only participants who perseveringly answered the questions were included in the final sample, while those who rushed through the questionnaire, or possibly were distracted by other activities, were excluded. The resulting sample consisted of 151 participants, ranging in age from 23 to 65 (mean = 33, SD = 12.88) with 61% males and 39% females. Table (2) below displays the sample structu

Table (2) Sample structure

Item	Category	No.	%		
1. Gender	Male	92	61		
	Female	59	39		
2. Age	Under 30 years old	37	24.5	33	21.8
	Above 30 and under 50	81	53.6	52	34.4
	50 and above	33	21.9	27	17.8
3. Job	Professional/ Technical	33	21.8		
	Managers	52	34.4		
	Self employed	27	17.8		
	Retired	11	7.2		
	Others	28	18.5		
4. Type of portfolio	P (A) Portfolio contains stocks only	34	22.5		
	P (B) Portfolio contains bonds only	17	11.3		
	P (C) Portfolio contains T-bills only	9	6		

	P (D) Portfolio contains bank deposits only	27	17.8
	P (E) Portfolio contains real assets only	23	15.2
	P (F) Portfolio contains more than one product (e.g. stocks and bonds or deposits and real estate, etc)	41	27.1
5. Formal training in investment	Yes	52	34.4
	No	99	65.6
6. Stock market experience	Less than 6 months	24	15.9
	6 months to less than 2 years	65	43
	2 to 5 years	58	38.4
	More than 5 years	4	2.6

The questionnaire consisted of three main parts. In the first part, items covering general information about the participants in this research effort such as their gender, age, job, type of portfolio they prefer, stock market experience and their formal training in investment. The second part included 10 items measuring risk perception (that were resulted from the pilot study) and 9 items measuring portfolio management. Responses for risk perception and portfolio management were described in a five-point Likert-type scale as self-reported agreement towards a statement, in which 5 was 'Strongly Agree' (SA) and 1 was 'Strongly Disagree' (SD). In the third part of the questionnaire, the respondents were given a chance to assess the portfolio management process (i.e. planning, execution and feedback) and to give their comments and recommendations in this regard.

The demographics of the respondents are shown in Table (2). It can be seen that 39% of the respondents were females, and 61% were male. The majority (53.6%) of the respondents were above 30 and under 50 years old, whereas 24.5% were under 30 and 21.9% were 50 years old and above. Further, 34.4% of respondents were managers, 21.8% working as professional or technical, 17.8% were self-employed, 7.2% were retired and 18.5% working in different jobs. In terms of formal training in investment, only 34.4 % of respondents attended formal training in investment, while a significant number of respondents (65.6%) did not participate in this type of training. 41% of respondents considered themselves to be experienced in the stock market, whereas only 15.9% did not consider themselves to be experienced.

4. ANALYSIS AND EMPIRICAL FINDINGS

To determine whether the proposed model of the study is a valid and reliable measure for assessing the impact of investors' perception of risk on portfolio management in the kingdom of Bahrain, LISREL 7.34 was used to test the research model. First, a confirmatory factor analysis was run on the measurement model. The measurement model was one with ten identified dimensions as first-order factors (i.e., probability of loss, earnings volatility, diversification, liquidity, trust in the issuer of security, worry & anxiety, novelty, confidence in the economy, probability of gains and tradability of security). The ten factors were correlated with each other. The observed variables (i.e., the items) were indicators of the ten factors and had non-zero loading for corresponding factors and zero loadings for other factors. All error terms for the measured items were uncorrelated.

The first-order measurement model showed a reasonable model fit. The measurement properties are listed in Table (3). When assessing a model, there are several measures of fit that can be used. Since χ^2 is sensitive to the sample size and is normally significant when the sample size is large, it is not suitable for testing the construct validity (Bentler and Bonett, 1980; Homburg and Rudolph, 2001; Tan, 2001). In light of the limitation of χ^2, the ratio of χ^2 to Degrees of Freedom (df) can be utilized. The value of 3.30 (χ^2= 92.56, df = 28) in this study indicates a marginal fit because a ratio between 2 and 5 indicates a reasonable fit (Liu and Guo, 2008; Marsh and Hocevar, 1985). The overall fit of a model can also be assessed by the NFI, GFI, AGFI and RMSR (Doll and

Torkzadeh, 1988). A well-fitted model should have an NFI greater than 0.90 (0.96 in this study); the GFI and AGFI should be greater than 0.80 (0.93 and 0.88 in this study, respectively); the RMSR should be smaller than 0.05 (0.021 in this study). In addition, the Comparison Fit Index (CFI) was 0.82 and the Root Mean Square of Error Approximation (RMSEA) had a value of 0.09 in this research effort. On the basis of these criteria, the goodness-of-fit measures of the proposed model were satisfactory (Liu and Guo, 2008; Lai and Li, 2005).

Table (3) Measurement properties

Variables	Mean	SD	Loading*	t-value
Determinants of Risk Perception: (Cronbach's Alpha = 0.73, AVE = 0.65)				
1. Probability of loss	4.51	0.66	0.64	14.48
2. Earnings volatility	3.98	0.43	0.71	14.33
3. Diversification	3.62	0.70	0.61	12.76
4. Liquidity	4.23	0.51	0.75	13.12
5. Trust in the issuer of security	4.22	0.64	0.75	13.45
6. Worry & anxiety	3.96	0.59	0.81	13.89
7. Novelty	3.77	0.48	0.66	14.67
8. Confidence in the economy	3.80	0.65	0.77	14.09
9 Probability of gains	4.19	0.56	0.67	14.78
10. Tradability of security	3.88	0.68	0.74	13.76
Portfolio Management: (Cronbach's Alpha = 0.76, AVE = 0.58)				
1. Planning Step:				
- Investors' objectives & constraints	4.62	0.54	0.81	13.35
- Investor policy statement (IPS)	3.78	0.73	0.65	13.23
- Capital market expectation	4.22	0.67	0.80	14.46
- Strategic asset allocation	3.85	0.45	0.77	14.76
2. Execution Step:				
- Portfolio selection	3.77	0.66	0.72	14.11

- Portfolio implementation	4.45	0.56	0.64	13.94
- Portfolio optimization	4.55	0.41	0.71	14.06
3- Feedback Step:				
-Monitoring & rebalancing	3.81	0.44	0.82	14.55
- Performance evaluation	4.22	0.57	0.66	14.68

*Standardised loadings estimated by LISREL 7.34. AVE: Average Variance

Reliability and validity

The Cronbach's alphas for each factor are listed in Table (3). They were 0.73 and 0.76 for determinants of risk perception and portfolio management, respectively. The reliability of all 10 items of risk and 9 items of portfolio management was 0.82. All values were above the acceptable level of reliability of 0.70. (Liu and Guo, 2008; Nunnally and Bernstein, 1994).

Next, the researcher examined construct validity of the instrument from two aspects: convergent and discriminatory validity. First, to assure convergent validity, all item loadings for corresponding factors should be significant (*t* value should be greater than1.96) and above 0.60 (Bagozzi and Yi, 1988), whereas the Average Variance Extracted (AVE) estimates should be greater than 0.50 (Fornell and Larcker, 1981). The AVE is the percentage of variance in the items as explained by the constructs and indicates the extent of convergence among the items measuring the same construct. As shown in Table (3), the *t* values of the items ranged from 12.76 to 14.78, and the standardized loadings ranged from 0.61 to 0.82. In this research effort, the AVE of determinants of risk perception was 0.65, and that of portfolio management was 0.58. All values were greater than 0.50. Hence, the convergent validity was supported.

Second, the researcher assessed the discriminatory validity of the proposed model, which means that one construct can be empirically differentiated from other similar constructs. A series of confirmatory factor analyses was performed on the constrained model. The unconstrained model is the first-order measurement order without setting values for correlations among factors. A constrained model is one with a correlation between a pair of factors fixed at one. Such a model has one more degree of freedom than the unconstrained model, assuming there is no discriminatory validity between the two factors with a correlation of one. The difference in χ^2 was calculated between each constrained model and the unconstrained model. The minimum difference in χ^2 between a constrained model and the unconstrained model was 13, which was greater than χ^2 (0.999, 1) = 11.65. This demonstrated that discriminatory validity had been achieved.

Statistical analysis

Having tested the reliability and validity of the proposed model for this study, further analysis was then conducted to shed more light on the impact of investors' perception of risk and portfolio management in the Kingdom of Bahrain. Thus, the main statistical techniques employed are discussed in the following section. The individual ratings on the risk questionnaire were used for data analysis. Linear stepwise regression analyses were conducted for each type of portfolio separately, to assess which aspects of risk were important for perceived risk. The resulting models are presented in Table (4).

Table (4) Results of the Regression Analyses.

Type of portfolio (P)	Adjusted R2	Significant proxies	Beta	ANOVA
P (A) stocks only	0.395	Worry & anxiety Probability of loss	0.390** 0. 256**	dfReg = 2 dfRes = 133 F = 36.28 P = 00
P (B) bonds only	0.541	Probability of loss Earnings volatility	0.398** 0.291**	dfReg = 2 dfRes = 131 F = 28.76 P = 00
P (C) T-bills only	0.512	Worry & anxiety Trust in the issuer of security Liquidity	0.338** 0.305** -0.227**	dfReg = 3 dfRes = 132 F = 41.55 P = 00
P (D) bank deposits only	0.441	Liquidity Worry & anxiety Diversification	0.411** 0.401** 0.192**	dfReg = 3 dfRes = 132 F = 33.59 P = 00
P (E) real assets only	0.465	Earnings volatility Worry & anxiety Novelty Probability of loss	0.286** 0.219** 0.184** -0.168**	dfReg = 4 dfRes = 133 F = 19.12 P = 00
P (F) more than one product	0.612	Liquidity Confidence in the economy Earnings volatility Probability of loss	0.342** 0.229** 0.191** -0.183**	dfReg = 4 dfRes = 133 F = 43.65 P = 00

dfReg: Degrees of freedom of the regression.
dfRes: Degrees of freedom of the residuals
**** denotes statistical significance at the 5% level.**

All models show a genuine portion of variance with adjusted R-squares ranging from 0.395 for P (A) (i.e. portfolio contains stocks only) and 0.612 for P (F) (i.e. portfolio contains more than one product). Worry & anxiety; and probability of loss turn out to be the most prominent predictors of perceived risk, being significant predictors in four out of six regression models. Worry & anxiety is the best predictor in those models explaining perceived risk for two types of portfolio (portfolio contains stocks only, and portfolio contains T-bills only), while probability of loss has the highest explanatory power in the model for investment form with fixed return (portfolio contains bonds only). Other aspects proving relevant for the explanation of perceived investment risk are earnings volatility, level of trust in the issuer of security, liquidity, diversification, novelty and level of confidence in the economy and/or the stock market. Although the anatomy of the resulting models vary, the similarities seem to be larger than the variations. To analyze where the various types of portfolio investment are located in the mental model of investment risk, a principal component factor analysis with varimax rotation was conducted. Suitability of the data was checked by calculating the Kaiser-Meyer-Olkin (KMO) value and analyzing the anti-image-covariance-matrix. Worth mentioning that the (KMO) statistics, was used for measuring the sampling adequacy, since it predicts if data are likely to factor well, based on correlation and partial correlation to assess which variables to drop from the model because they are too multicollinear. There is a KMO statistic for each individual variable, and their sum is the KMO overall statistic. KMO varies from 0 to 1.0 and KMO overall should be 0.60 or higher to proceed with factor analysis. If it is not, we should drop the indicator variables with the lowest individual KMO statistic values, until KMO overall rises above 0.60. In this study, the KMO value was 0.875. Hence, both procedures indicate suitability of the data used in this research effort. Factors with eigenvalues larger than 1 were extracted, resulting in a two-factors-solution. The factors are presented in Table (5).

Table (5) Results of the factor analysis.

	Factor (1) **Explained variance: 71.25%**	**Factor (1)** **Explained variance: 12.96%**
Worry & anxiety	0.905	
Probability of loss	0.882	
Diversification	0.864	
	0.844	
Earnings volatility	0.823	
Liquidity	0.796	
Confidence in the economy	-0.854	
Trust in the issuer of security	0.611	
Novelty	-0.586	
Tradability of security		0.794
Probability of gains		0.618
Extraction method: Principal component analysis. **Rotation method: Varimax with Kaiser normalization.** **Rotation converged in three iterations.**		

Table (5) reveals that, only variables with factor loadings more than 0.5 were considered. On the first factor we

find aspects of worry & anxiety, probability of loss, diversification, earnings volatility and liquidity. In addition, the overall perceived risk loads high on this factor. Hence, this factor can be explained as a factor that integrates risk-relevant elements and can therefore be classified as factor risk. The second factor comprises of two aspects: tradability of security and probability of gains, both of which are elements of the individual handling or control of portfolio investments. An investment is transparent if the investor can easily observe and understand the development of his portfolio. Tradability means, that the investor can easily sell any product from his portfolio with a minimum amount of time and effort and without achieving a significant loss. While, probability of gains means how likely is it to gain money with this type of portfolio investment.

Furthermore, a regression analysis was performed to test if the two factors are related to the willingness to invest in the different types of portfolio. The mean factor scores for each type of portfolio that were used to locate them in the factor space were used as predictors here. The value for the standard was calculated by averaging the willingness-to-invest-rating over individuals within the six portfolio types. Thus, the dataset for the regression analysis consisted of six observations, each representing one type of portfolio (i.e. P (A), P (B), P (C), P (D), P (E) and P (F)). A major part of variance is explained by the resulting regression model (adj. R2 = 0.91, F = 42.15, dfReg = 2, dfRes = 4, p = 0.00). Only the first factor contributes to the explanation of variance (Beta = −0.88, p = 0.00), while the second factor as predictor does not become significant (Beta = 0.18, p = 0.05).

The results reveal that perceived portfolio risk is not only affected by quantitative aspects of potential losses and gains. Qualitative aspects prove to be pertinent, as well. Worry & anxiety, liquidity; and the level of confidence in the economy and/or the stock market load high on the factor representing the perceived risk. Another qualitative aspect (tradability of security) builds a separate factor which, however, adds no explanatory power to the prediction of the willingness to invest in a particular type of portfolio. This suggests that not only monetary aspects of the investment portfolio play a role when investors rate the risk and manage their portfolios, but also qualitative aspects should be taken into consideration when investigating the portfolio management.

5. CONCLUSIONS

The current study had some limitations. This study was primarily limited to its small sample size. A larger sample with a greater number of participants would have benefited our results and enhanced the generalizability of the study. Another possible improvement could have been interviewing some investors and professionals from the BSE. Personal interviews could elicit greater information regarding investors' behavior in Bahrain. This method could have added important qualitative data and greater insight into the investors' thoughts and opinions, so that better understanding and interpretation of the relation between risk perception and portfolio management in the Kingdom of Bahrain would have achieved.

Moreover, regarding the type of sample that used in the study, we used a convenience sample whose composition may not map the composition of individual investors in the Kingdom of Bahrain. However, our results fit with those of other researchers. Further, the psychometric paradigm is widespread in behavioral risk research, but not free of criticism. One disadvantage can be highlighted in the fact that oftentimes aggregated data are used, ignoring individual differences. Despite of this limitation, the method is usually used in studies of investment risk perception and findings can be therefore compared. Using raw data in the study, however, our results and findings are in line with those studies utilizing aggregated data (such as Koonce et al., 2005 and MacGregor et al., 1999; Siegrist et al. 2005, and Sachse, Jungermann and Belting, 2012).

Although investors' perception of risk and portfolio management has been established in the finance literature, to the author's knowledge, this paper is the first of its kind to examine this issue in the Middle East and particularly in the Kingdom of Bahrain. The findings of this study are confined to a sample of 151 investors in Bahrain, and this may limit the generalizability of the results. Hence, future research may incorporate the perception and experience of a much larger and diversified sample of investors in some other countries in the Middle East. A greater understanding could then be obtained of investors' perception of risk and portfolio management in these countries.

The study examined how perceived risk and its aspects differ with regard to different types of portfolio. By using the classic psychometric approach, the underlying dimensions of perceived investment risk were explored and common consumer investment portfolios were classified into six types (i.e. P (A), P (B), P (C), P (D), P

(E) and P (F)). To analyze where the various types of portfolio investment are located in the mental model of investment risk, a principal component factor analysis with varimax rotation was conducted. Factors with eigenvalues larger than 1 were extracted, resulting in a two-factors-solution. On the first factor we find aspects of

worry & anxiety, probability of loss, diversification, earnings volatility and liquidity. In addition, the overall perceived risk loads high on this factor. Hence, this factor can be interpreted as a factor that combines risk-relevant components and can therefore be labelled as factor risk. The second factor consists of two aspects: tradability of security and probability of gains, both of which are elements of the individual handling or control of portfolio investments. Therefore, the results reveal that perceived portfolio risk is not only affected by quantitative aspects of potential losses and gains. Qualitative aspects prove to be pertinent, as well. Worry & anxiety, liquidity; and the level of confidence in the economy and/or the stock market load high on the factor representing the perceived risk. Another qualitative aspect (tradability of security) builds a separate factor which, however, adds no explanatory power to the prediction of the willingness to invest in a particular type of portfolio. This suggests that not only monetary aspects of the investment product play a role when investors in Bahrain rate the risk and manage their portfolios, but also qualitative aspects should be taken into consideration when investigating the portfolio management. This finding supports the results of MacGregor et al. (1999) ; and Koonce et al. (2005), who argued that financial experts' risk perception can be best predicted by a combination of economic and situational aspects. Moreover, the pattern of our factor analysis is in line with the analysis of Diacon (2004) and Sachse, Jungermann and Belting (2012) who also found a two-factors solution when analyzing risk perception of financial experts. In both studies, not only is the number of the resulting factors the same, but the composition of these factors is also very similar. Furthermore, the results reveal that investors in Bahrain produce a ranking of the portfolio types on the risk dimension which fits well with the risk classification used for financial advisory (Krumnow, Gramlich, Lange, & Dewner, 2002). Here the investment portfolios are grouped with regard to their risks into six levels. On the lowest risk level is P (F) (diversified portfolio or portfolio contains more than one product), while P (A) (portfolio contains stocks only) is on the highest level. This classification is used to match recommendations for different types of portfolio with the risk propensity of the clients. Therefore, it can be argued that the ranking produced by professionals would be analogical.

In addition, the study proposed and tested a model of determinants of risk perception and portfolio management that has been developed from the literature review of behavioral finance and portfolio management. A main purpose of the study was to examine and validate that model as a measure of investors' perception of risk and portfolio management. Following the approach in previous studies (such as Raiz, Hunjra and Azam, 2012; Liu and Guo, 2008; Doll et al., 1994; McHaney et al., 1999; Somers et al., 2003 and Abdeldayem and Reda 2013), the researcher examined that model in the context of portfolio management in the Kingdom of Bahrain. The study provided strong evidence that the model is a multifaceted construct consisting of ten determinants of risk perception and three components (including nine items) of portfolio management. Although attention was given to risk perception and portfolio management, the researcher is quite confident that the model of the study can also be applied in future research. For researchers, the major contribution of this study lies in the area of measurement. The model of risk perception and portfolio management was validated, thus enabling researchers to use the instrument with increased confidence, perhaps in some other Gulf countries such as Saudi Arabia, UAE, Kuwait, Qatar or Oman, especially for risk perception and portfolio management. In this respect, this study can serve as an example for instrument validation.

Further research is needed which directly addresses the risk communication in the portfolio investment consultancy and its effects on the decision and satisfaction of the client. To date, there are some investigations of consumer protection institutions, showing that communication in financial consultancy is often unsatisfactory (see for example, Kolbe, 2011; and Sachse, Jungermann and Belting, 2012). Those studies are rather holistic and do not test for effects of special properties or contents of the communication. Hence, controlled evaluation studies are recommended.

Longitudinal studies with real investors could give insights into the causal relations between financial risk perception, portfolio management and investment behavior. Specially, the role of investment experience in portfolio management deserves further examination, since this feature is often used as an indicator in financial consultancy. In addition, studies should show if risk perception decreases when investors get experienced with a specific type of portfolio or if it remains stable. Furthermore, the topic of how individual investors can be better educated in portfolio management should be investigated. To date, a majority of consumers has rather low financial literacy (Center for Economic and Entrepreneurial Literacy, 2009), which may result in suboptimal investments and poor portfolio management.

REFERENCES

Abdeldayem Marwan M. (2015 a). Examining the Relationship between Agency Costs and Stock Mispricing: Evidence from the Bahrain Stock Exchange. International Journal of Economics, Commerce and Management, ISSN: 2348-0386, Vol. (3), Issue (4), April, PP. 1-35

Abdeldayem, Marwan, M. (2015 b). An Empirical Analysis of the Relationship between New Investors and Telecommunications Stocks' Bubble Post the Egyptian
Revolution. Research Journal of Finance and Accounting, ISSN: 2222-1697, Vol. (6), No. (2), PP.178-195
Abdeldayem, Marwan M. and Assran, Mohamed Saleh (2013), Testing the Market Timing Theory of Capital Structure: The Case of Egypt, International Research Journal of Finance and Economics, Issue (113), Aug. pp. 105-123
Abdeldayem, Marwan M. and Reda, Mohamed M. (2013), An Examination into the impact of Trading Motives on the Dynamic relationship between Stock Returns and Trading volume: Evidence from Egypt, Global Advanced Research Journal of Management and Business Studies (GARJMBS) ISSN: 2315-5086, April, Vol. (2), No. (4), pp. 206-221
Artzner, P., Delbaen, F., Eber, J. M., & Heath, D. (1999). Coherent measures of risk. Mathematical Finance, Vol. (9), pp. 203-228
Azwadi, A., (2011). Predicting Individual Investors' Intention to Invest: An Experimental Analysis of Attitude as a Mediator. International Journal of Human and Social Sciences, Vol. (6), No (1)
Batool Asiri, (2008) Testing weak-form efficiency in the Bahrain Stock Market. International Journal of Emerging Markets. Vol. (3), ISS (1), pp.38-53
Bagozzi, R. and Yi, Y. (1988) On the evaluation of structural equation models,
Journal of the Academy of Marketing Science, Vol. (16), No. (1), pp.74–94.
Barnes, S. and Vidgen, R. (2000) Webqual: an exploration of web site quality, Paper presented at the European Conference on Information System, Vienna.
Benartzi, S., & Thaler, R. H. (1998). Illusory diversification and retirement
savings. Working paper. Chicago: University of Chicago.
Benartzi, S., & Thaler, R. H. (2001). Naive diversification strategies in defined
contribution saving plans. American Economic Review, Vol. (91), pp. 79-98
Benartzi, S., & Thaler, R. H. (2002). How much is investor autonomy worth?
Journal of Finance, Vol. (57), pp. 1593-1616
Bennett, P. (2006). Communicating About Risks to Public Health: Pointers to Good Practice. Available at: http://www.dh.gov.uk/assetRoot/04/03/96/ 70/04039670.pdf
Center for Economic and Entrepreneurial Literacy (2009). In The midst of economic crisis, new survey finds majority of Americans confused about personal finance. <http://econ4u.org/blog/2009/03/31/in-the-midst-of-economic-crisis-new-survey-finds-majority-of-americans-confused-about-personal-finance/> Retrieved 4/2/2015
Chen, S. and Tsai, C. (2010). Investment Preference, Risk Perception and Portfolio Choices under Different Socio-Economic Status. Department of Finance, Nan Hua University, Chiayi, Taiwan
Coombs, C. H. (1975). Portfolio theory and the measurement of risk. In:
Kaplan M. F. and Schwartz S. (Eds.), Human judgement and decision processes
pp. 63-86. Academic Press, New York.
Diacon, S. (2004) Investment risk perception. Do consumers and advisers agree? The International Journal of Bank Marketing, Vol. (22), pp. 180–198
Doll, W.J. and Torkzadeh, G. (1988) 'The measurement of end-user computing
satisfaction', MIS Quarterly, Vol. (12), No. (2), pp.259–274
Duxbury, D. and Summers, B. (2004) Financial risk perception. Are individuals variance averse or loss averse? Economics Letters, Vol. (84) pp. 21–28
Farrely, GE, Ferris KR and Reichenstein WR (1985). Perceived Risk, Market Risk, and Accounting Determined Risk Measures. The Accounting Review, April, pp. 276- 288
Firer, C., Oliver MC and Ferrelly GE (1986). Risk Perceptions of Individual Vs. Institutional Investors: A comparison based on the Johannesburg Stock Exchange, Journal of Applied Business Research, Vol. (5), No.(4), pp.5-14
Fischer, D.E. and Jordan, R.J. (2006). Security Analysis and Portfolio Management. (6th Ed.). Prentice Hall of India, pp: 77-102
Fornell, C. and Larcker, D.F. (1981) 'Evaluating structural equation models with
unobservable variables and measurement error', Journal of Marketing Research,
Vol. (18), No. (1), pp.39–50.
Grable, J. & Lytton, R. H. (1999). Financial risk tolerance revisited: the development of a risk assessment instrument. Financial Services Review, Vol. (8), pp. 163-181
Harnett, D.L. and L.L. Cummings, (1980). Bargaining Behavior: An International Study. Dame Publications, Houston.

Hallahan, T. R., Faff and Mckenzie, M. (2004). An Empirical Investigation of personal Financial Risk Tolerance. Financial Service Review, Vol. (13), No. (57).
Hunjra, A.I., M. Azam, G.S. Niazi, B.Z. Butt, Rehman and R. Azam, 2011. Risk and Return Relationship in Stock Market and Commodity Prices: A Comprehensive Study of Pakistani Markets. World Applied Sciences Journal, 13(3): 470-481.
Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Making Under Risk, Econometrica, Vol. (47), pp. 263-291
Klos, A., Weber, E.U.and Weber, M. (2005) Investment decisions and time horizon: Risk perception and risk behavior in repeated gambles Management Science, Vol. (51), pp. 1777–1790
Kogan, N. and M.A. Wallach, (1964). Risk Taking: A Study in Cognition and Personality. Holt, Rinehart and Winston, New York.
Koonce, L, McAnally, M.L and Mercer (2005). How do investors judge the risk of financial items? The Accounting Review, Vol. (80), pp. 221–241
Lai, V.S. and Li, H. (2005) Technology acceptance model for internet banking: an
invariance analysis, Information and Management, Vol. (42), No. (2), pp.373–386.
Liu, C.T. and Guo, Y.M. (2008) Validating the end-user computing satisfaction
instrument for online shopping systems, Journal of Organizational and End User
Computing, Vol. (20), No. (4), pp.74–96.
Lopes, L. L. (1987). Between hope and fear: the psychology of risk.
Advances in Experimental Social Psychology, Vol. (20), pp. 255-295
Luce, R. D. (1980). Several possible measures of risk. Theory and Decision, Vol. (12), pp. 217-228.
MacGregor, D., Slovic, P., Berry, M. and Evensky H.R. (1999) Perception of financial risk: A survey study of advisors and planners. Journal of Financial Planning, Vol. (12), pp. 68–86
Mahmood, I., H. Ahmad, A.Z. Khan and M. Anjum, (2011). Behavioral Implications of Investors for Investments in the Stock Market. European Journal of Social Sciences, Vol. (20), No. (2).
Marsh, H.W. and Hocevar, D. (1985) Application of confirmatory factory analysis to the study of self-concept: first-and higher-order factor models and their invariance
across groups', Psychological Bulletin, Vol. (97), No. (3), pp.562–582.
Nosic, A. and Weber, M. (2010) How risky do I invest: The role of risk attitudes, risk perceptions, and overconfidence Decision Analysis, Vol. (7), pp. 282–301
Nunnally, J.C. and Bernstein, I.H. (1994) Psychometric Theory, McGraw-Hill, New York.
Olsen, R. A. (1997) Investment risk: The expert's perspective Financial Analysts Journal, Vol. (53), pp. 62–66
Prabhakaran, K. and Karthika, P. (2011). A Study on Risk Perception Management of Equity Investors in Coimbatore City, pp. 1-13.
Raiz, L, Hunjra, A. I., and Azam, R. (2012. Impact of Psychological Factors on Investment Decision Making Mediating by Risk Perception: A conceptual Study. Middle East Journal of Scientific Research, Vol. (12), No. (6), pp; 789-795
Rana, H.M., S. Murtaza, F. Noor, Inam-u-din and K. Rehman, (2011). Effects of Demographic Factors on Risky Decision-Making Behavior. European Journal of Social Sciences, Vol. (25), No. (3), pp. 69-76.
Sachse, K., Jungermann, H. and Belting, J. M. (2012). Investment Risk-The Perspective of Individual Investors, Journal of Economic Psychology, Vol. (33), pp. 437-447
Sarin, R. K. (1987). Some Exyensions of Luce's measures of Risk. Theory and Decision, Vol. (22), pp. 125-141
Schubert, R., Brown, M., Gysler, M., & Brachinger, H. W. (1999). Financial
decision-making: Are women really more risk averse? American Economic
Review, Vol. (89), pp. 381-385.
Sharpe, W. F. (1975). Adjusting for risk in portfolio performance measurement.
Journal of Portfolio Management, Vol. (1), pp. 29-34.
Simonson, I., & Tversky, A. (1992). Choice in context: tradeoff contrast and
extremeness aversion. Journal of Marketing Research, Vol. (29), pp. 281-295.
Singh, R. and A. Bhowal, 2008. Risk Perception. The Theoretical Kaleidoscope. Vanijya, Vol. (18), pp. 54-63.
Singh, R. & Bhowal, A. (2010). Risk Perception of Employees with Respect to Equity Shares. Journal of Behavioral Finance, Vol. (11), No. (3), pp. 177-183.
Sitkin, S.B. and A.L. Pablo, (1992). Reconceptulizing the determinants of Risk Behavior. Academy of Management Review, Vol. (17), pp.9- 39
Slovic, P. (1986), Informing and educating the public about risk Risk Analysis, Vol. (6), pp. 403–415
Slovic, P. (1995). The construction of preference. American Psychologist, Vol. (50), pp. 364-371.

Slovic, P., (2000). The perception of risk. London and Sterling: Earthscan Publications Ltd.
Sokolowska, J., & Pohorille, A. (2000). Models of risk and choice: challenge or danger. Acta Psychologica, Vol. (104), pp. 339-369.
Szegö, G. (2002). Measures of risk. Journal of Banking and Finance, Vol. (26), pp. 1253-1272.
Tan, K.C. (2001) A structural equation model of new product design and development, Decision Sciences, Vol. (32), No. (2), pp.195–226.
Thaler, R. H., Tversky, A., Kahneman, D., & Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: an experimental test. Quarterly Journal of Economics, Vol. (112), pp. 647-661
The Bahrain Stock Exchange Website (WWW.Bahrainbourse.net) accessed on 12/1/2015.
The Arab Stock Market Analysis Website (WWW.asmainfo.com) accessed on 8/1/2015
Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: cumulative representation of uncertainty. Journal of Risk and Uncertainty, Vol. (5), pp. 297-323
Veld, C. and Y.V. Veld-Merkoulova, Y. V. (2008) .The risk perceptions of individual investors. Journal of Economic Psychology, Vol. (29), pp. 226–252
Vlaev, L., Chater, N., & Stewart, N. (2009). Dimensionality of Risk Perception: Factors affecting Consumer understanding the evaluation of Financial Risk. Journal of Behavioral Finance, Vol. (10), pp. 158-181
Weber, E. U. and Hsee, C. (1998). Channel Contract Behavior: The Role of Risk At-attitudes, Risk Perceptions and Channel Members' Market Structures, pp. 44
Yales, A. and Firer, C. (1997). The Determinants of Risk Perceptions of Investord. Investment Analysis Journal, No. (44), pp. 61-69

ABOUT THE AUTHOR: Dr. Marwan Abdeldayem is an Associate Professor of Business & Finance and the research coordinator of the College of Administrative Science at Applied Science University (ASU), Kingdom of Bahrain. Further, he is a Research Fellow of the Asian Accounting, Finance and Business Research Unit (AFBRU) at University of Wales, UK. Before joining the Applied Science University in 2014, Dr. Marwan was an Associate Professor of finance & the DBA program director at Cairo University and an adjunct faculty member at the University of Dubai, College of Business Administration, (AACSB Accredited College), UAE. His research focuses on issues in finance, empirical asset pricing, Islamic finance and behavioral finance. He has published one book and more than 8 refereed articles in journals such as the Business Review, Cambridge Journal; The Journal of American Academy of Business, Cambridge; International Research Journal of Finance and Economics; European Journal of Scientific Research; and Research Journal of Finance and Accounting. He is currently an accredited reviewer at the Business Review, Cambridge Journal. He holds a Ph.D. in Business and Finance from Cardiff Business School, University of Wales-UK, and a B.A. and a MSc. in Business Administration from Cairo University. Moreover, he designed and conducted several training programs and consultancies in most Arab countries such as: the UAE, Saudi Arabia, Qatar, Oman, Sudan, Morocco, Syria, Lebanon, Egypt and Jordon. Dr. Marwan is contactable at: Marawan2000@hotmail.com and Marwan.Abdeldayem@asu.edu.bh

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar