IMPACT OF BEHAVIORAL FINANCE ON STOCK INVESTMENT DECISIONS APPLIED STUDY ON A SAMPLE OF INVESTORS AT AMMAN STOCK EXCHANGE

Ahmad Yousef Areiqat, Al-Ahliyya Amman University
Ayman Abu-Rumman, Al-Ahliyya Amman University
Yousef Satea Al-Alani, Al-Ahliyya Amman University
Alaa Alhorani, Al-Ahliyya Amman University

ABSTRACT

This study aims to explore the impact of a number of prominent behavioral finance variables covered by the financial literature (overconfidence, loss aversion, risk perception and herding) that may affect the stock investment decision-making at Amman Stock Exchange (ASE), as well as determining which of these variables has the relative importance. The importance of this study stems from the fact that local studies focusing on the issue of behavioral finance are rare and therefore, the researchers expect that such study will enrich awareness in this domain.

The study consisted of 165 individual investors who were active in the trading halls at Amman Stock Exchange during the research period. The data were collected through a questionnaire prepared for the purpose of research and were analyzed by applying multiple statistical tests (Multiple regression and Hierarchal regression analysis) and by using statistical software (SPSS) after approving the reliability and validity of the questionnaire.

The results showed that there was an impact of the behavioral finance at Amman Stock Exchange represented by three behavioral factors affecting the investment decisions of the individual investors which were: overconfidence, loss aversion, and herding, the results also showed that the variable overconfidence had the most relative significance. The research provided some recommendations for investors trading at ASE to adopt scientific bases in making stock investment decisions, and suggested to conduct further research to study the impact of behavioral finance on the different types of risks and yields at ASE.

Keywords: Behavioral Finance, Stock Investment Decisions, Loss Aversion.

INTRODUCTION

Over the past several decades, studies of financial theories and research were developed in order to establish a better understanding of the financial markets through using models which describe investors as "*rational*". Such description indicates that there are usually risk and return tradeoff in all types of financial decisions especially the stock investment decisions.

Quite a few financial theories assumed that investors face little difficulty in making decisions in stocks' investment because they are well-informed, careful and consistent. Among the most important financial theories were two theories: Modern Portfolio Theory and Capital Asset Pricing Model (CAPM) which revealed that investors were not confused by the way they get information which was not controlled by their behavioral finance factors. However, the

results of applied studies in the developed global capital markets found that many phenomena regarding the stock investment decisions cannot be explained. Meanwhile, behavioral finance had been growing specifically because of the fact that investors rarely behave according to the assumptions suggested in these financial theories.

The domain of behavioral finance seeks to better understand and explain how stock investment decision-making was influenced by financial behavioral factors, as better understanding of these factors helps the investors to select a better stock investment decision-making policy.

This research main aim is to verify the important factors that may affect stock investment decision-making at Amman Stock Exchange (ASE), where the applied research results had differed in identifying any of those factors as the most influential on stock investment decision-making. Several studies pointed out to the following factors: overconfidence (over-estimate investors' knowledge, under-estimate risks, and overstress their ability to control events), risk perception (individual's assessment of the inherent risk in a given situational problem, herding (following the trend), and loss aversion (avoiding losses is more important than acquiring gains).

Investors in capital asset exchanges, typically take many different and important decisions, the most common are taking investment decisions in order to maximize their wealth; whereas other investors are involved in considering market timing techniques to maximize their wealth. On the contrary, some investors are more risk averters as they follow stocks that have low risk levels; other investors deal with high risk stocks but apply some diversification techniques to control the haphazard risks. Therefore, this research seeks to investigate whether these related variables in investor decision-making process will be affected by behavioral financial factors at ASE.

Statement of the Problem

In the light of conventional financial theory, investors are supposed to be rational, wealth-maximizers and follow modern financial theories' rules. The most important theories in stock investment decision-making are Modern Portfolio Theory and Capital Asset Pricing Theory, and the results of several empirical studies in various financial markets proved that investment decisions were not always based on the fundamentals of modern financial theories; as a result, behavioral finance studies became important in stocks' decision-making. Behavioral finance was developed to explain investor behavior when traditional financial theory provides no sufficient explanations.

Studies in this modern domain did not resolve the problem of determining which of the following factors are most important in stock investment decision- making (overconfidence, loss aversion, risk perception and herding). The target of the research problem is to answer the following main and sub-divided questions:

The first main question is:

"*Is there an impact of behavioral factors on stock investment decision-making in ASE?*"

This question is sub-divided into the following sub-questions:

1. Does overconfidence have impact on stock investment decision-making at ASE?
2. Does loss aversion have an impact on stock investment decision- making at ASE?
3. Does herding have an impact on stock investment decision-making at ASE?
4. Does risk perception have an impact on stock investment decision- making at ASE?

Goals and Objectives of the Study

The research focuses on achieving the following objectives:

1. Identifying which of the behavioral finance factors are the most important factors that affect stock investment decision-making at ASE.
2. Detecting which of the behavioral finance factors have an impact on stock investment decision-making can be attributed to demographic variables at ASE.
3. Setting the backgrounds for further research and studies on behavioral finance.

Hypotheses of the Research

The first major hypothesis in this research is:

(H0)1: *There is no impact of behavioral financial factors on stock investment decision-making at ASE.*

The major hypothesis is sub-divided into the following sub-hypotheses:

(H0)1-1: *There is no impact of overconfidence on stock investment decision- making at ASE.*

(H0)1-2: *There is no loss aversion on stock investment decision-making at ASE.*

(H0)1-3: *There is no impact of herding on stock investment decision-making at ASE.*

(H0)1-4: *There is no impact of risk perception on stock investment decision- making at ASE.*

The second major hypothesis:

(H0)2: *There is no impact of behavioral finance factors on stock investment decision-making that can be attributed to demographic variables at ASE.*

RESEARCH MODEL

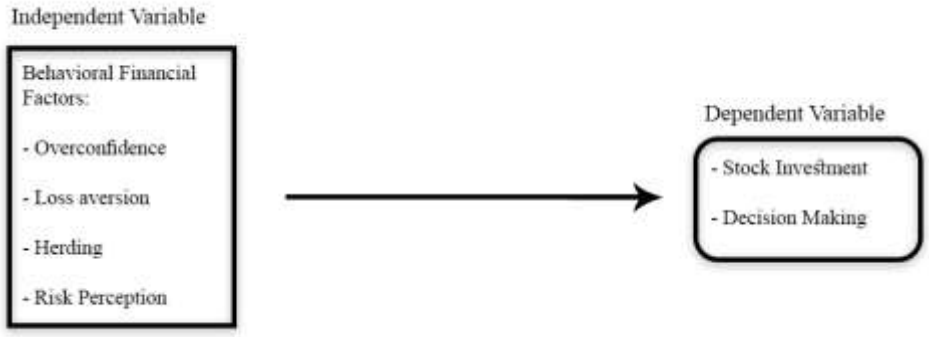

FIGURE 1
RESEARCH MODEL

Research Operational Terminology/Definitions

Behavioral finance: According to Gachter et al. (2010) behavioral finance is the better understanding of investment decisions that affect market prices which are influenced by human and social cognitive and emotional biases. This concept will be measured through this study by overconfidence, loss aversion, risk perception and herding (Figure 1).

Stock investment decision-making: the decision to use allocated resources to increase future production output or income. In other words, it is purchasing an asset or item with the

hope that it will generate income or grow in the future. In finance, stock investment decision is the decision of a monetary asset purchased with the idea that the asset will provide income in the future or rise and be sold at a higher price. Stock investment decision-making will be measured by using these indicators: return rate expectation, the satisfaction of selling and buying decisions, risk diversification, holding stock time period and choosing stock bulks and types (Rachna, 2014).

Significance of the Study

1. The researchers hope that this study will be one of the pioneering studies in the domain of behavioral finance at the local and regional levels.
2. Investors can benefit from understanding the effects of behavioral financial factors on stock investment decision-making.
3. All financial theories assumed their implementation in an efficient financial market, but empirical studies concluded that the best global financial markets were either Semi-Strong Form Efficient or Weak-Form Efficient, Amman Stocks Exchange was considered in its best condition a Weak-Form Efficient market (Rawashdeh & Squalli, 2005). This research will provide an introduction that can be considered more realistic for studying the effective factors in stocks investment decision-making at Amman Stock Exchange.

THEORETICAL FRAMEWORK LITERATURE REVIEW

Behavioral Finance

Behavioral finance was defined as the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets which help to explain why and how markets might be inefficient (Sewell, 2001). The work of Kahneman & Tversky (1974) revealed that people do not employ statistical methods in their decision-making, but they rely on a limited number of heuristic principles in their decision-making.

Kahneman & Tversky are considered the fathers of behavioral finance. Since the 1960s they have published about 200 papers and articles, most of them were related to the concepts of behavioral finance (Anissimov, 2004; Barberis & Thaler, 2002).

Islam (2012) was more specific in defining behavioral finance by underlining the buying and selling decisions regarding stock market investors. According to Gachter et al. (2010) behavioral finance is the better understanding of the investment decisions that affects market prices which relate to human and social cognitive and emotional biases. Ritter (2003) also defined behavioral finance as behavioral factors affecting individuals' decision-making. According to Appiah & McMahon (2002), behavioral finance is the study of how financial practitioners act and interact on financial information and the subsequent effects on markets. Pompain (2006) argued that behavioral finance tackles the behavioral factors that affect financial decisions.

Alrabadi et al., 2017conducted a study that investigates the existence of behavioral biases in Amman Stock Exchange and their effect on investment performance from investor’s point of view. In specific, the effects of overconfidence bias, familiarity bias, loss aversion bias, disposition bias, availability bias, representativeness bias, confirmation bias and herding bias are investigated.

The researcher Al-Abdallah conducted a study titles "*How behavioral biases affect investment decision"?* (Evidence from Amman Stock Exchange, 2017).

This study investigates the effect of behavioral biases on investment decision in Amman Stock Exchange. In specific, the effects of overconfidence bias, familiarity bias, loss aversion bias, disposition bias, availability bias, representativeness bias, confirmation bias and herding bias are investigated.

The importance of studying such topic comes from the consequences that these behavioral biases could have on the investors' gains and losses and on the stock market as a whole.

This study investigates the effect of behavioral biases on investment decision for 236 investors in Amman Stock Exchange. In fact we focus on eight well-known behavioral biases that are found to affect investment decisions in other developed and emerging stock markets. These biases are overconfidence bias, familiarity bias, loss aversion bias, disposition bias, availability bias, representativeness bias, herding bias and confirmation bias. To the best of author's knowledge, this is the first study in Jordan that tackles such important topic.

Overconfidence

Investors tend to have too much confidence in the accuracy of their own judgments. So, researchers focused on detecting the accuracy of investors' judgments and its relation with their confidences.

The concept of overconfidence was tackled by many cognitive behavioral experiments and surveys in which subjects overestimate their own predictive abilities and the precision of the information they've been given.

Nevins (2004) defined overconfidence as people who overestimate their own abilities. He found that investors and analysts were particularly overconfident in the domains where they have some knowledge. They approved that one effect of overconfidence is overtrading, which leads to poor investment decisions (Nevins, 2004). At the same time, overconfidence is the tendency of people to overestimate their knowledge, abilities and the precision of their information (Bhandari & Deaves, 2006).

Chuang & Lee (2006) found that overconfidence makes investors overweigh their own private information at the expense of ignoring publicly available information, and they justified their research by studying other academic' research and studies to prove that overconfident investors mistakenly attribute market gains to their own ability to pick winning stocks.

The view of Phung (2004) was that, overconfident individuals overestimate or exaggerate their ability to successfully perform a particular task.

Many researchers studied overconfidence and analyzed the detrimental effects of overconfidence by investors; these studies revealed that investors were overconfident in their investing abilities and such will result in making investment mistakes.

Therefore, according to previous researchers the overconfidence factor is one of the most detrimental biases that an investor can show, and this is because investors behavioral are naturally underestimating downside risk, trading too frequently, and holding under diversified portfolio.

Those studies measured overconfidence by dividing its concept into several dimensions: Chaffai (2014) measured the overconfidence by using two dimensions (stock retained periods, amount of information to be collected).

Chuang & Lee (2007) measured overconfidence by (accumulated experience, colleagues benchmarking, brokerage firms' consultancy, certainty of answers for random questions).

Loss Aversion

According to Barberis & Huang, (2001) loss aversion refers to the difference level of mental consequence that people may have from a similar size loss or gain.

A number of studies on loss aversion argued that the possibility of a loss is on average twice as a powerful motivator as the possibility of making a gain of equal magnitude.

Loss aversion is a bias that simply cannot be tolerated in financial decision- making. It instigates the exact opposite of what investors want: increased risk, with lower returns. Investors should take risk to increase gains, not to mitigate losses (Pompain, 2006).

Hassan et al. (2014) questioned the respondents about the type of investment stocks that they decided to invest in (fixed saving (no losses) or forex stocks). In addition, they depended on the same attitude that was applied by Kahneman & Tversky to measure loss aversion and the percentage of loss amount.

Chun & Ming (2009) measured loss aversion by using the following indicators:

1. Focus on large loss in stock than missing a substantial gain (profits).
2. Nervous feelings when large price drops have in invested stocks.
3. Refuse increasing investment when the market performance is poor.
4. When it comes to investment, no loss of capital (invested money) is more important than returns (profits).
5. Avoid selling shares that have decreased in value and sell shares that have increased in value.

Risk Perception

Since the 1960s, the topic of risk perception was employed to explain investors' behaviors. In effect, within the framework of investor behavior, risk perception is the risk an investor believes exists in the stocks trading, whether or not a risk actually exists. The concept of risk perception has a strong foundation in the area of investor behavior that is rather analogous to the discipline of behavioral finance.

Perception is the process by which an individual is in search of preeminent clarification of sensory information so that investor can make a final judgment based on their level of expertise and past experience.

Risk perception is the subjective decision-making process that individuals employ concerning the assessment of risk and the degree of uncertainty.

The notion of risk perception is best utilized with an approach that is interdisciplinary and multidimensional in nature for a given decision, situation, activity or event as pointed out in Ricciardi (2004). When an individual makes judgments relating to a financial instrument, the process incorporates the collection of financial risk measurements and behavioral risk indicators (Ricciardi, 2004).

Researchers defined risk perception as a belief held by an individual, group, or society about the chance of occurrence of a risk or about the extent, magnitude, and timing of its effect(s), and as a behavioral study researcher defines it is the way people "*see*" or "*feel*" toward a potential danger or hazard.

Risk perception is a communication source which can prepare investors to obtain risk according to their understanding (Rana et al., 2011). So we dare say that the concept of risk perception attempts to explain the evaluation of a risky situation (event) on the basis of

instinctive and complex decision-making, personal knowledge, and acquired information from the outside environment.
Researchers used the following indicators to measure risk perception:

1. Fears to invest in stocks that don't have a certain gain.
2. Vigilant about stocks which show sudden changes in price or trading activity.
3. Worries of investing in stocks that had a past negative performance in trading.
4. Feelings about participating in a buy/sell at the stock market.
5. Investment knowledge, experiences and education.

Herding

Herding occurs when individuals' private information is overwhelmed by the influence of public information about the decisions of a herd or group. Evidence of group influence in many financial decisions is consistent with bounded rationality. In an uncertain world, if we realize that our own judgment is fallible then it may be rational to assume that others are better informed and follow them (Hirshleifer & Teoh, 2003) Defined herding as a mutual imitation leading to a convergence of action, and Sias defined herding as investors' tendency to follow each other into and out of the same stocks so we can say that the herd behavior is the tendency individuals have to mimic the actions of a large group (Sias, 2004).

Kengatharan (2013) measured herding factor by using the following indicators:

1. Buying and selling decisions of other investors (Other investors' decisions of buying and selling stocks have impact on your investment decisions).
2. Choice of stock to trade of other investors (Other investors' decisions of choosing stock types have impact on your investment decisions).
3. Volume of stock to trade of other investors (Other investors' decisions of the stock volume have impact on your investment decisions).
4. Speed of herding (You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market).

A study titled: "*Cross-Sectional Absolute Deviation Approach for Testing the Herd Behavior Theory: The Case of the ASE Index"*, was conducted by Dr. Imad Zeyad Ramadan, Associate Prof., Department of Finance, Applied Science University, Amman, Jordan (2015.) This study aimed to test whether the herd behavior appears in the Amman Stock Exchange (ASE). Using data on a daily basis for a sample of companies in the Free Float Share Weighted Index during the study period from the beginning of the, 2000 to the end of August 2014 and using the Cross-Sectional Absolute Deviation (CSAD) Approach.

The results found that the non-linear relationship between the cross sectional absolute deviation of the stock returns and the return of the market portfolio is an inverse relationship ($\gamma 3$=-0.179), so that the dispersion decreases with the increase in market rate of return, which means that investors during the study period were emulating the performance of the market without paying attention to the stock's characteristics regarding risk and return, which suggests that investors are taking the herd behavior.

Sample of the Study

The researchers used the random sampling and the study population included all individual investors at Amman Stock Exchange (ASE). 165 questionnaires were distributed among participants in trading halls of ASE, The researchers aimed to make his study

distinguished by generalizing its results. So thy selected the random sampling approach but when the researchers started to distribute the questionnaires, the found that there was a lack of cooperation from the investors, while observing the trading process at the halls in the Housing Bank Complex. Thus, they selected a more convenient sampling technique although some studies do not recommend this technique which depends on applying a probability sampling technique.

The distributed (165) questionnaires were retrieved, (15) questionnaires had been eliminated to show the research lack of ability to analyze, so the rate of retrieved questionnaires was (83.3%). The researcher thought that one reason for such lower rate was that investors were using new technologies in stock trading on the internet and applying smart analysis for each stock that they already trade in.

RESEARCH METHODOLOGY

The researchers adopted quantitative approach to collect data and answer the research questions using statistical analysis, such as means, standard deviation, and inferential statistical models to test hypotheses.

Instrumentation and Measures

Selecting the tool of the data collection depends on many factors like the availability of facilities, the researcher expertise, the degree of needed accuracy, the time frame for the study, and the availability of costs and resources to conduct the data collection process. The researchers developed a questionnaire that was distributed among the investors at ASE to measure the behavioral finance factors that affect stock investment decision- making process.

The survey consisted of (33) items, representing the research variables, all items of the questionnaire were measured by a 5-point Likert scale with anchors ranging from 1=strongly disagree to 5=strongly agree.

Then the choices were identified along the five Likert scale (lower and upper limits) as follows:

1. Arithmetic mean was considered normal (default) if the answer was (3) and represented a "*neutral*."
2. The range was calculated according to the following equation: highest weight minus the lowest weight=(5-1=4)
3. The division mean for answers to five degrees represented a degree of agreement (strongly disagree, disagree, neutral, agree and strongly agree).
4. The length of the cell was calculated according to the following equation: Range ÷ number of levels=length of the cell 4÷3=1.33.
5. Added value of the length of the cell (1.33) to the beginning of the scale (the lowest value in the scale, namely, (1)) to determine the upper limit for the first cell (Valerie Hall, 2007), and thus became the length of the cells as shown in Table 1.

Table 1
THE LENGTH OF THE CELLS FIVE LIKERT SCALE

Categories	Relative Importance
From (1.00) to less than (2.33)	Low
From (2.33) to less than (3.66)	Moderate
From (3.66) to (5.00)	High

RESULTS AND DISCUSSION

Reliability Tests

Reliability comes at the forefront when variables developed from summated scales are used as predictor components in objective models. Since summated scales are an assembly of interrelated items designed to measure underlying constructs. Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the "*underlying construct*".

Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (that is, questions with two possible answers) and/or multi-point formatted questionnaires or scales (i.e., rating scale: 1=poor, 5=excellent). The higher the score, the more reliable the generated scale will be. Cronbach's Alpha was used revealed that Cronbach's alpha coefficient was (0.871) for all items, and values of (α) range 0.821 to 0.915, which indicates that the questionnaire was reliable. The values of (α) of the study variables of were as illustrated in Table 2.

Table 2
RELIABILITY TESTS OF THE MODEL VARIABLES

Variable	No. of Items	Reliability Coefficient (α)
Loss Aversion	5	0.881
Overconfidence	5	0.834
Herding	4	0.821
Risk Perception	6	0.915
Behavioral Investment Factor	20	0.856
Stock Investment Decision	13	0.847
General rate	33	0.871

Validity

Two methods were used to confirm the content validity: First, multiple sources of data (literatures and arbitrators) were used to develop and refine the model and measures. The researcher arbitrated the questionnaire by asking researchers, professors and PhD degree holders with different specialties such as finance, business administrator and statistical analysis then took their notes and views to develop the questionnaire. The second method of Pearson's Principal Component factor analysis was applied for all items included in the questionnaire. According to Vallejo factor analysis helps to establish construct validity of what you are measuring. Moreover, factor loading value below 0.4 should be removed. Table 3 shows that all variables and variable items were valid, since their factor loading values were more than 0.4.

Table 3
FACTORS LOADING FOR DEPENDENT AND INDEPENDENT VARIABLES AS A MEASURE FOR INSTRUMENT VALIDITY

Variables	Factor	Extraction
Loss Aversion	0.717	0.555
Overconfidence	0.719	0.635
Herding	0.654	0.428
Risk Perception	0.746	0.566
Stock Investment Decision	0.846	0.756

Multi-Colleniority Tests

To test the existence of multi-colleniority phenomena between model variables, Pearson correlation coefficients calculated between independent (predictor) variables, the results of testing multi-colleniority between independents variables were explained by correlation matrices and VIF test as follows.

Table 4
MULTI-COLLENIORITY TEST FOR PREDICTOR VARIABLES

Variable	Loss Aversion	Overconfidence	Herding	Risk Perception
Loss Aversion	1.000			
Overconfidence	0.144	1.000		
Herding	0.169*	0.147	1.000	
Risk Perception	0.355**	0.106	0.312**	1.000

Note: (**) Significant at 0.01; (*) Significant at 0.05.

Table 4 shows that the maximum value of correlation coefficient was between (loss aversion) and (Risk Perception), otherwise the values were less than or equals (0.355), which means there were no perfect relationship between variables. In the statistical literature the value (0.80) and more considered as an indicator of multi-colleniority existence (Gujarati 2004).

To ensure the above result, the Variance Inflation Factor (VIF) was calculated, the results are illustrated in the following Table 5.

Table 5
VIF FOR INDEPENDENT VARIABLES

Variable	VIF	Tolerance
Loss Aversion	1.163	0.860
Overconfidence	1.038	0.963
Herding	1.128	0.887
Risk Perception	1.238	0.808

Table 5, shows that all VIF values were greater than (1) and less than (5). This indicates that there was no multi-colleniority between independent variables.

Normality Test

Many studies especially those concentrating on the emerging stock markets and least developed economies reported that these markets were at a very high level of data non-normality.

Normality test investigates if the sample observations are normally distributed. The test compared the values of observations distributed with normal distribution mean and standard deviation, and showed that the sample was free of outliers. The null hypothesis was that "*sample distribution was normal".* If the test was significant, the distribution was non-normal. The main tests for the assessment of normality were Kolmogrov-Semernov (K-S) test and Shapiro-Wilk test. Table 6 shows the results of normality test.

Table 6
DISTRIBUTED SAMPLE NORMALITY TEST

Variable	Kolmogrov-Semirnov	Shapiro-Wilk

	Statistic	df	Sig.	Statistic	df	Sig.
Loss Aversion	0.069	150	0.200	0.981	150	0.122
Overconfidence	0.073	150	0.150	0.977	150	0.061
Herding	0.060	150	0.200	0.988	150	0.200
Risk Perception	0.070	150	0.165	0.983	150	0.141
Stock Investment Decision	0.075	150	0.095	0.978	150	0.064

Table 6 reveals that all values of the test were not significant (Sig>0.05). This means that there were no outliers, and that the sample followed normal distribution.

Statistical Treatment

The study analyzed the collected data via Statistical Package for the Social Sciences (SPSS V.17) to achieve the objectives of this study:

- Frequencies and percentages: to describe the demographic features for the study sample of respondents.
- Arithmetic average and standard deviation: to detect the response of the study sample on the variables.
- Cronbach Alpha reliability coefficient and factor analysis to verify the reliability and validity of the research tool.
- Multi-colleniority test and normality test to verify the model fitting.
- Simple regression method: to measure the impact of the relationship between each independent variable on the dependent variable.
- Multiple regression method: to measure the impact of the relationship between more than one independent variable and the dependent variable.
- Hierarchal regression analysis: to measure the impact of behavioral finance factors on stock investment decision-making attributed to demographic variables.

In order to achieve the desired objectives of this study, the researcher adopted and developed a questionnaire distributed to individual investors at ASE to measure the impact of behavioral finance on stock investment decision. The researcher used means standard deviations and relative importance to describe the respondents of question. The researcher gathered all variable items each variable separately.

Table 7
BEHAVIORAL FINANCE FACTORS

Item No.	Item	Mean	Standard Deviation	Relative Important	Rank
1	I am more concerned about a large loss in my stock than missing a substantial gain (profits).	3.240	1.202	Moderate	3
2	I feel nervous when large price drops have in my invested stocks.	3.100	1.151	Moderate	4
3	I will not increase my investment when the market performance is poor.	3.607	0.955	Moderate	2
4	When it comes to investment, no loss of capital (invested money) is more important than returns (profits).	4.040	0.940	High	1
5	I avoid selling shares that have decreased in value and readily sell shares that have increased in value.	2.940	1.094	Moderate	5
General average for loss aversion		**3.385**	**0.612**	**Moderate**	
6	I think that I am an experienced investor.	3.787	1.053	High	1

Table 7 BEHAVIORAL FINANCE FACTORS					
7	I feel more confident in my own investment opinions over opinions of my colleagues or friends	3.313	0.837	Moderate	5
8	I don't consult others (family, friends or colleagues) before making stock investment decisions	3.460	0.800	Moderate	2
9	I believe that my skills and knowledge of stock market can help me to outperform the market.	3.340	1.009	Moderate	4
10	I am successful entrepreneur in an environment where many businesses fail	3.347	0.777	Moderate	3
General average for overconfidence		**3.449**	**0.471**	**Moderate**	
11	Other investors' decisions of choosing stock types have impact on my investment decisions.	3.120	0.843	Moderate	1
12	Other investors' decisions of the stock volume don't have impact on my investment decisions.	3.000	0.955	Moderate	2
13	Other investors' decisions of buying and selling stocks have impact on my investment decisions.	2.747	0.943	Moderate	4
14	I usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	2.940	0.936	Moderate	3
General average for herding		**2.952**	**0.556**	**Moderate**	
Item No.	**Item**	**Mean**	**Standard Deviation**	**Relative Important**	**Rank**
11	Other investors' decisions of choosing stock types have impact on my investment decisions.	3.120	0.843	Moderate	1
12	Other investors' decisions of the stock volume don't have impact on my investment decisions.	3.000	0.955	Moderate	2
13	Other investors' decisions of buying and selling stocks have impact on my investment decisions.	2.747	0.943	Moderate	4
14	I usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	2.940	0.936	Moderate	3
General average for herding		**2.952**	**0.556**	**Moderate**	
Item No.	**Item**	**Mean**	**Standard Deviation**	**Relative Important**	**Rank**
15	I usually don't have a fear to invest in stocks that have a sure gain.	2.920	0.959	Moderate	5
16	I am cautious about stocks which show sudden changes in price or trading activity.	2.887	1.053	Moderate	6
17	I usually have worry investing in stocks that have had a past negative performance in trading	3.720	0.984	High	1
18	I don't feel that the idea of participating in a buy/sell on the stock market is appealing	3.567	1.019	Moderate	2
19	My investment in stocks is largely based on investment knowledge, experiences and education.	2.527	1.060	Moderate	3
20	I am hopeful when undertaking investment in stocks that have exhibited a sure loss.	3.513	0.841	Moderate	4
General average for risk perception		**3.189**	**0.534**	**Moderate**	

Table 7 (Item No.11-15) indicates that the general average of loss aversion was (3.385) with standard deviation (0.612) and moderate relative importance. The item "*When it comes to investment, no loss of capital (invested money) is more important than returns (profits)*" was first with mean (4.040), and high relative importance, while item "*I avoid selling shares that have decreased in value and readily sell shares that have increased in value*." was last with mean (2.940) and moderate relative importance.

Table 7 (Item No.6-10) indicates that the general average of overconfidence was (3.449) with standard deviation (0.471) and moderate relative importance. The item "*I think that I am an experienced investor*" was first with mean (3.787), and high relative importance, while item "*I feel more confident in my own investment opinions over opinions of my colleagues or friends*" was last with mean (3.313) and moderate relative importance.

Table 7 (Item No.11-15) indicates that the general average of herding was (2.952) with standard deviation (0.556) and moderate relative importance. The item "*Other investors' decisions of choosing stock types have impact on my investment decisions*" was first with mean (3.120), and moderate relative importance, while item "*Other investors' decisions of buying and selling stocks have impact on my investment decisions*" was last with mean (2.747) and moderate relative importance. This means that the sample relies on their own personal opinions or the information necessary to take investment decisions with no denials being affected by investment decisions resulting of other investors.

Table 7 (Item 15-20) indicates that the general average of risk perception was (3.189) with a standard deviation (0.534) and moderate relative importance. The item "*I usually have worry investing in stocks that have had a past negative performance in trading*" was first with mean (3.720), and high relative importance, while item "*I am cautious about stocks which show sudden changes in price or trading activity*" was last with mean (2.887) and moderate relative importance. And this referring to the interest of the sample on the risks arising of investment in the financial market and at the same time is this realization impediment the investment operations.

Table 8
MEANS, STANDARD DEVIATION AND RELATIVE IMPORTANCE FOR BEHAVIORAL VARIABLES

No.	Factor	Mean	Standard Deviation	Relative Important	Rank
1	Loss Aversion	3.385	0.612	Moderate	2
2	Overconfidence	3.449	0.471	Moderate	1
3	Herding	2.952	0.556	Moderate	4
4	Risk Perception	3.189	0.534	Moderate	3
General average for behavioral finance factors		**3.244**	**0.307**	**Moderate**	

Table 8 indicates that the general average of behavioral finance factors was (3.244) with standard deviation (0.307) and moderate relative importance. The factor "*Overconfidence*" was first with a mean of (3.449) with standard deviation (0.471), and moderate relative importance, while factor "*Herding*" was last with mean (2.952) with standard deviation (0.556) and moderate relative importance.

It also shows that the behavioral finance factors of investors' at ASE were generally moderate without the presence of a particular factor in the behavior of investors in general, and this may be due to the nature of ASE, which is characterized by weak efficiency and also indicates that many investors rely on brokerage firms consultations.

This study agrees with a study titled "*Do Behavioral Finance Factors Influence Stock Investment Decisions of Individual Investors?*" (Evidences from Saudi Stock Market) conducted by (Alquraan et al., 2016). The main objective of this study was exploring the behavioral finance factors influencing the stock investment decision of individual investors at Saudi Stock Market (SSM) as one of the vital emerging markets in the Middle East. To conduct the study, a questionnaire has been built to measure the effect of behavioral finance factors on stock

investment decision. (140) questionnaires have been distributed to the participants on randomly basis. Cronbach's Alpha was used to test the validity of the tool.

CONCLUSIONS

The researchers concluded that there was a significant impact of overconfidence, loss aversion, herding risk perception, behavioral finance factors on stock investment decision-making at ASE. The findings showed that overconfidence has impacts on the investment decisions. Therefore, individual investors at the ASE should be overconfident at an acceptable level to utilize their skills and knowledge in certain circumstances to improve the investment results. In the uncertainty, the overconfidence can be useful for the investors to do difficult tasks and help them to forecast the future trends. The investors at ASE are very reactive and tend to be under-confident in some cases

The results also showed that there was no significant impact of risk perception on stock investment decision. This may refer to risk type in ASE, where changes in Amman stock exchange usually have no suddenly shock, and trading movement, in general, cover some common stocks belong to company considered as stable company, so investors may believe that there is no significant risk may cause sudden large loss. Furthermore, there was no effect of behavioral factors (overconfidence, loss aversion, risk perception and herding) attributed to social status and age on investment decisions.

The results indicated that, behavioral finance factors (LossAverse, Overconfidence, and Risk Perception) have significant effect on the stock decision of individual investors in (SSM), while Herd has insignificant effect.

Moreover, the researchers studied the impact of the following behavioral finance factors on stock investment decisions: Loss aversion (avoiding losses is more important than acquiring gains), Overconfidence (overestimate investors knowledge, underestimate risks, and exaggerate their ability to control events), Herding (following the trend), Risk Perception (individual's assessment of the inherent risk in a given situational problem).

They recommended for future studies to take in consideration the effects of others behavioral finance factors which are not included in this research and to take larger sample to confirm the current finding of this research. In addition, it is advisable to take other economic factors which may affect the decision of investors beside the behavioral finance factors in (SSM)

Limitations of the Study

1. Time limitation: the study is limited to the time of applying this study.
2. Place limitation: the study is limited to Amman Stock Exchange.
3. Human limitation: the study is limited to the study sample, which comprised investors at Amman Stock Exchange.

RECOMMENDATIONS

The following results are obtained based on statistical analysis and hypotheses testing:

1. The attitudes of participants were toward the moderately relative importance of behavioral finance factors. (Overconfidence) was the most relatively important factor, followed by (Loss aversion), then (Risk Perception), while (Herding) was last. Moreover all factors were moderately of relative importance.

2. There was a significant impact of behavioral finance factors on stock investment decision, when study the impact of factors together.
3. There was a significant impact of overconfidence on stock investment decision in ASE. This indicates that overconfident investors are more capable to take stock investment decisions.
4. There was a significant impact of loss aversion on stock investment decision. This means that loss aversion investors can avoid loss by keeping far from investment with high loss probability. This result does not contradict with the previous result of first sub-hypothesis, since investor behavioral finance varies from investor to another, and ensure that both (overconfidence and loss aversion) affect stock investment decision, but as isolated factors.
5. The findings also showed that there was significant impact of herding on stock investment decision. This refers those investors in ASE impacted by other investors' investment decisions.

For Amman Stock Exchange

1. Giving courses to the investors in ASE to adopt scientific bases in making stock investment decisions.

For Investors in Amman Stock Exchange

1. Investors at ASE should view the global and regional variables that may have impact on prices levels and thus effect investment decisions. So, this recommendation seems to be suitable for ASE investors to improve their investment performance. However, overconfident traders tend to underestimate the associated risks of active stock investment, which can affect badly to their investment result. Therefore, an acceptable advice for the investors is that overconfidence is great for their investment if they can use it in the clever and suitable ways.
2. Amman stock market is not mature and lack of reliable information, so that individual investors should choose good investment partners or alliance to consider as references for their investment. They can establish the forums to support each other in finding reliable information of stock market. The cooperation of a crowd of investors can help them limit the risks and increase the chances to have good investment results.
3. Loss aversion investors should not concern with investing in high price share, and avoid deceased in value, because there are factor control price movement, such as market forces and information. The probability of sudden change in price should take into consideration when make stock investment decision, in order to avoid high loss, and maintain capital.

Further Research

This study a leading volunteer research paper which deals with behavioral finance in Jordan with the measurements of 5-point Likert. It is necessary to have further researches to confirm the findings of this research with a larger sample size and the more diversity of respondents.

Further studies are also suggested such as:

1. Different behavioral finance factors such as certainty effect, representativeness, heuristic and regret.
2. The impact of the behavioral finance factors on the different types of risks and returns.
3. Organizations' behavioral finance.

REFERENCES

Al-Horani, A.M., & Haddad, F. (2011). Exploring investor's behavior: Evidence from Amman stock exchange. *Jordan Journal of Business Administration, 7*(3), 481-493.

Alquraan, T., Alqisie, A., & Shorafa, A.A. (2016). Do behavioral finance factors influence stock investment decisions of individual investors? Evidences from Saudi stock market. *Journal of American Science 12*(9), 72-82.

Alrabadi, D.W.H., Al-Abdallah, S.Y., & Aljarayesh, N.I.A. (2017). Behavioral biases and investment performance: Does gender matter? Evidence from Amman Stock Exchange. *Jordon Journal of Economic Science, 5*(1), 77-92.

Appiah, E.N., & McMahon, W.W. (2002). The social outcomes of education and feedbacks on growth in Africa. *Journal of Development Studies, 38*(4), 27-68.

Barberis, N., & Huang, M. (2001). Mental accounting, loss aversion, and individual stock returns. *Journal of Finance, 56*, 1247-1292.

Barberis, N., & Thaler, R. (2003). *A survey of behavioral finance*. Elsevier Science.

Bhandari, G., & Deaves, R. (2010).The demographics of overconfidence. *Journal of Behavioral Finance, 7*(1), 5-11.

Chaffai, M., & Imed, M. (2014). Behavioral finance: An empirical study of the Tunisian stock market. *International Journal of Economics and Financial Issues*, 527-538.

Chuang, W., & Lee, B. (2006). Empirical evaluation of the overconfidence hypothesis. *Journal of Banking & Finance, 30*(9), 2489-515.

Chun, W.W., & Ming, L.M. (2009). *Investor behaviour and decision-making style: A Malaysian perspective.*

Gachter, S., Johnson, E.J., & Herrmann, A. (2010). Individual-level loss aversion in riskless and risky choices. *CeDEx, Discussion Paper Series ISSN 1749-3293.*

Hirshleifer, D., & Hong Teoh, S. (2003). Herd behavior and cascading in capital markets: A Review and Synthesis. *European Financial Management, 9*(1), 25-66.

Islam, S. (2012). Behavioral finance of an inefficient market. *Global Journals of Management and Business Research, 12*(14), 12-34.

Kengatharan, L., & Kengatharan, N. (2013). The influence of behavioral factors in making investment decisions and performance: Study on investors of Colombo stock exchange, Sri Lanka. *Asian Journal of Finance & Accounting, 6*(1), 1-23.

Luong, D. (2011). Behavioral factors influencing individual investors decision making and performance a survey at the Ho Chi Minh Stock Exchange. *Umea School of Business Spring semester, 2011*.

Marais, J. (2007). *The role of behavioral finance in successful financial services SMEs.* Potchefstroom campus of the North-West University.

Nevins, D. (2004).Goals-based investing: Integrating traditional and behavioral finance. *The Journal of Wealth Management, 6*(4), 8-23.

Phung, A. (2008). Behavioral finance, key concepts. Retrieved from http://www.investopedia.com/university/behavioral_finance

Pompain, M.M. (2006). *Behavioral finance and wealth management: How to build optimal portfolios that account for investor biases*. John Wiley and Sons, Inc.

Rachna S. (2014). *National center for financial education*. Virtuous Publications.

Ramadan, I.Z. (2015). *Cross-sectional absolute deviation approach for testing the herd behavior theory: The case of the ASE Index.* Applied Science University, Amman, Jordan.

Rana, H.M., Murtaza, S., Noor, F., Inam-u-din., & Rehman, K. (2011). Effects of demographic factors on risky decision-making behavior. *European Journal of Social Sciences, 26*(1), 69-76.

Rawashdeh, M., & Squalli, J. (2006). A sectoral efficiency analysis of the Amman stock exchange. *Applied Financial Economics Letters*, *2*(6), 407-411.

Ricciardi, V. (2004). A risk perception primer: A narrative research review of the risk perception literature in behavioral accounting and behavioral finance. *SSRN*. Retrieved from https://ssrn.com/abstract=566802 or http://dx.doi.org/10.2139/ssrn.566802

Ritter, J. (2003). Behavioral finance. *Pacific-Basin Finance Journal, 11*(4), 429-437.

Sewell, M. (2001). *Behavioural finance*. Retrieved from http://www.behaviouralfinance.net/

Sias, R. (2004). Institutional herding. *The Review of Financial Studies, 17*(1), 165-206.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *American Association for the Advancement of Science, 185*(4157), 1124-1131.