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The Impact of Behavioral Biases on the Palestinian Investors; Portfolio Investment Decisions and Anomalies Emergence.

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أثر التحيزات السلوكيه على قرارات المحافظ الاستثماريه وظهور الشواذ الماليه في سوق فلسطين المالي

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Dedication

I learned from my Mom, where there's a will, there's a way

I learned from my Dad; always do the best job. Your reputation is worth more than a quick profit.

I learned from my Brothers, when you believe, you will achieve.

Thus, I dedicate this dissertation to my beloved Family,

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To all my friends, thank you for your understanding and encouragement in my many, many moments of crisis. Your friendship makes my life a wonderful experience. I cannot list all the names here, but you are always on my mind.

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This Thesis Is the Second Step of My Journey

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ABSTRACT

This research investigates in the impact of behavioral biases on the Palestinian investors' portfolio investment decisions, and the role of behavioral biases and investment decision strategies in the emergence of market anomalies. Data were primarily collected through a structured questionnaire targeted individual investors who trade in Palestine exchange (PEX). 104 random retrieved responses formalize the research sample, the variables were tested utilizing qualitative and quantitative measures to describe the variables and examine the research hypotheses. The research ended up with emphasizing on the impact of behavioral biases and sentiments on Palestinian investors' Portfolio investment decisions and the influences of the behavioral biases and different investment strategies on anomalies emergence in PEX.

ABSTRACT IN ARABIC

تقوم هذه الاطروحه بالتحقيق في أثر التحيزات السلوكيه على قرارات المستثمرين الفلسطينين المتعلقة بالمحافظ الاستثماريه الخاصه بهم، كما وتقوم بدراسة اثر التحيزات السلوكيه واستراتيجيات الاستثمار المختلفه في ظهور الشذوذ الماليه في سوق فلسطين المالي. لقد تم جمع البيانات من خلال استبيان منظم يستهدف المستثمرين الأفراد الذين يقومون بالاستثمار في بورصة فلسطين. حيث تم جمع عينة عشوائية مكونه من 104 استبيان اختيرت بشكل عشوائي, من خلال هذه الدراسه قد تم اختبار المتغيرات باستخدام المقاييس النوعية والكمية لوصف المتغيرات ودراسة فرضيات البحث. وانتهى البحث بالتأكيد على تأثير التحيزات السلوكية والمشاعر على قرارات المستثمرين الاستثمارية في مجال الاستثمار، بالاضافه الى تأثير التحيزات السلوكية واستراتيجيات الاستثمار المختلفة على ظهور حالات الشذوذ الماليه في بورصة فلسطين.

CHAPTER ONE
INTRODUCTION

1.1   **INTRODUCTION**

Behavioral finance theory is a new financial and economic area of study that had been raised during 19th century, in this thesis we are going to examine the impact of this theory on Palestinian stock market knowing that Palestinian stock market is an important sector in the Palestinian economy. The Palestinian economy consists of different economic sectors in addition to the financial sector which are; agricultural, industrial, health sector, etc. all these sectors generated a gross domestic product (GDP) around 13 million dollar in 2015, and GDP per capita in the same year was 2,863.9 dollar, these numbers indicate that Palestinian economy is a developing economy (PCBS, 2017). As for the financial sector in Palestine the Palestine Capital Market Authority (PCMA) supervises, organizes and monitors all the financial activities excluding banking activities in the Palestinian economy. PCMA was established in 2005 based on law number 13, with board of directors composed of seven members (PCMA, 2017). On the other hand, Palestine exchange (PEX) is publically, full-automated traded platform owned by private sector, operates under the supervision of the Palestinian Capital Market Authority. It was founded as private shareholding company in 1995, later on, due to governance and transparency issues PEX turn into public holding company in 2010. PEX have 49 listed companies with $3,322 billion market capitalization, while most of these companies traded in Jordanian Dinar the other companies use US dollar. (PEX, 2017).

Generally speaking, the Palestinian market is a growing market, in terms of investment opportunities. It can be described as a market of both risks and opportunities. Both companies and investors are incapable of employing the stock market efficiently, from these points this research begins. Graph below shows how PEX grow from 2000 till now,

Figure 1- source; PEX website (2017)

Behavioral finance theory is study of how psychology and sentiments influence the market through the behavior of financial market practitioners (Barber and Terry, 2001). Researches about behavioral finance science and its implications on financial markets arise during the last decade, as researchers started to focus their attention on this field, they studied the Behavioral Finance Theory with respect to other theories like; Expected Utility, Arbitrage assumptions, and Efficient Market Hypothesis (EMH) that decayed when it failed to interpret why investors make irrational decisions when they invest in stock markets. During 1990s the researchers become aware to the influences of Behavioral Finance Theory on the stock market; they consider behavioral finance theory as the supportive solution that explains inability of traditional theories to understand stock market well. The essence of behavioral finance theory lies in interpreting the market inefficiency, so it can be defined as the science that study market inefficiency according to individual cognitive psychology that influence stock market (Jay, 2003).

Thus, behavioral established based on two main building blocks; cognitive psychology and limits to arbitrage. As (Barber and Terry,2001) and (Jay, 2003) argued, Cognitive refers to "how people think". Many literatures studied the systematic errors exist in people's way of thinking, such as; when they tend to be overconfident during decision making process, or they depend heavily on recent experience, or even relate their choices to what they hear from other, which known better as a rule of thumb. Although, people preferences may create distortions, many individuals based their investment decisions on their preferences. On the other hand, limits to arbitrage refer to "the forecasting developed to examine in what situations arbitrage forces will be effective, and when they won't be" (Barber, and Terry, 2001). This thesis concentrates more on cognitive psychology than limits to arbitrage to explain the impact of behavioral finance – anomalies and sentiments- on the Palestinian's stock exchange (PEX).

Tversky and Kahneman (1973), argued that behavioral finance theory used to explain why people may make irrational decisions while picking their investments. Behavioral finance theory is a comprehensive topic that distinguishes from all other traditional theories and assumptions exist in stock markets, it uses models that assume some agents are not fully rational, either because of preferences or because of mistaken beliefs (Jay, 2003). Contrary to the efficient market theory that assumes rationality of the market. While utility theory assumes rationality of investor as he/she willing to maximize his/her utility by choosing the most preferable outcome. To include the concept of outcomes' uncertainty the Expected Utility Theory has been germinate. As an example of an assumption about preferences is that people are loss averse - a $5 gain might make people feel better by as much as a $2 loss makes them feel worse. This bad Bayesians by people arise the mistaken beliefs (Jay, 2003)

Based on the irrational decisions concept and the fact that investors can beat the market through achieving abnormal returns market anomalies notion surfaced. Anomalies are known as deviations from Efficient Market Theory basics; these deviations could recur more than one time or appear once then disappear. (Thaler, 1987). Moreover, researchers classified the financial markets anomalies into three main categories: calendar anomalies, technical anomalies, and fundamental anomalies (Arshad and Latif, 2011). Anomalies appear in the financial markets because of the anomalous behaviors of investors around the world that generated from how they react to the information about particular security. As for (Boudoukh et al, 1994), investors are divided into three groups: revisionists; consider market is efficient and studied the EMH with the time varying economic risk premium. Loyalists; also thought markets are efficient and problems are due to measurement errors. Heretics; they make decisions based on psychological factors and they believe that market is not rational. Furthermore, (Wouter, 2006), classified these investors only to two groups, revisionists and loyalists as rationalists because they believe in market efficiency. And heretics as behaviorists because they make their decisions based on sentiments. Therefore, through this thesis we are going to clarify to what extent investors in PEX depend on their sentiments when picking their investments and the impact of these behaviors on their portfolios and market anomalies.

This study will initially highlight the main differences between behavioral finance theory, and traditional theories like; Efficient Market Hypothesis (EMH), and Utility theory. Then the researcher is going to illustrate the presence of the modern behavioral finance theories such as; prospect theory, heuristic.

Moreover, the researcher going to investigate in PEX investor's existed behavioral biases and sentiments, to illustrate how these behavioral biases and sentiments affected the investors' portfolio investment decisions. Furthermore, to capture a full image about behavioral finance theory and its influences, the researcher going to test how the anomalous behaviors of investors not only affect their portfolio investment decisions but also contribute in the creation of market anomalies in PEX, which enable the investors to achieve abnormal returns and beat the market. Accordingly, this thesis will provide a comprehensive analysis of behavioral finance theory based on PEX investor's sentiments and psychological factors that contribute in manifest the behavioral biases, then illustrate the influence of these biases on PEX investor's portfolio investment decisions, and originate market anomalies along with some major themes and concepts.

1.2   <u>THE IMPORTANCE OF THE STUDY</u>

This thesis aims to examine the nature of stock market and how it is influenced by investor's portfolio investment decision through behavioral biases and sentiments, under the umbrella of Behavioral finance theory. This study divided into two important parts, the first one examines how behavioral finance theory concepts affect investor's portfolio investment decisions through investor sentiments and anomalous behaviors. The second part illustrates the influence of different investor's portfolio investment decisions, on anomalies emersion. While this study makes no generalizations, it's importance lies in that it provides recommendations to PEX practitioners, in shaping their future investment strategies.

Regardless to the simplified way behavioral finance theory look like in exegesis the individual's behaviors, it has multi interpolated branches that clustered around the original theory. These branches can be described as a sub-theories descended from the general theory "Behavioral Finance". This research excogitates the existence of these sub-theories in PEX and investigates in the effect of most of these sub-theories on Palestinian investor's portfolio investment decisions, and how the variety of investment decisions contribute in the outcrop of market anomalies in PEX.

Therefore, this thesis will focus on the cognitive psychology side of behavioral finance theory, through investigating in cognitive dissonance, cognitive errors, regret theory, anchoring effect, framing effect, heuristic, panic, disposition effect, loss aversion, overconfidence, mental accounting, irrationality, irrational exuberance, herding behavior, and prospect theory. These different biases going to be tested through a structured questionnaire that distributed over PEX practitioners randomly. So the study importance lies in excretion the ambiguity of behavioral biases that associated with PEX.

1.3   PROBLEM STATEMENT

During last decade, Market efficiency attracted many researchers' attention. Whereas, stock markets become an essential investment platform for trading securities, researchers examined markets deficiency from different aspects. Through this thesis the researcher going to experience the anomalous behaviors of PEX investors, using behavioral finance concepts to explain why investors in PEX are relying on their psychological traits and sentiments during the investment decisions process. Furthermore, the researcher going to check if the assumption of the behavioral finance theory about investors rationality applicable on PEX investors or not, whereas behavioral finance theory assumes that investors are not fully rational, and to what extent they make decisions depending on different psychological factors. Moreover, the researcher going to choose the dominants anomalous behaviors in PEX then utilize them to demonstrate the consequences of behavioral biases on anomalies appearance in PEX.

Finally, after eliminating the ambiguity of these questioned the researcher expects to obtain answers about; PEX practitioners rationality, sentiments influence on investor's portfolio investment decisions, How anomalous behaviors contribute in achieving abnormal returns? How abnormal return explained by market anomalies? What the role of knowledge illusion and prospect theory, etc, in PEX investor's portfolio investment decisions?. Therefore, this thesis addresses the following key question:

What are the impacts, if any; does the anomalous behavior of PEX investors have on their portfolio investment decisions? And how these anomalous behaviors and sentiments contribute in anomalies outcrop in PEX?

1.4   RESEARCH OBJECTIVES

This study will highlight the following objectives;

1. Check if the average individual investor in PEX is rational most of the time

2. Examine whether the cognitive psychology of behavioral finance theory brings changes on PEX investors decisions making process.

3. Interpret how behavioral biases affect investors' portfolio investment decisions.

4. Investigate the role of behavioral biases in anomalies emergence in PEX.

1.5   LIMITATION OF THE STUDY

The main weaknesses of the study summarized in the following;

1. This study uses questionnaire as a source of data rather than lab experiments which is more accurate than questionnaire in measuring investor behavior as these behaviors change from time to time, and at the same time in different investment decisions, based on their feelings at that moments. In addition to the difficulties in the frame of investor mind when answering the questionnaire, and the extent they will admit the mistakes they have made in the past.

2. This study cannot be considered an evaluation of the average Palestinian investor. The sample collected is mainly from Ramallah city, which accounts a small percentage of the Palestinian population. The location was chosen mainly because it was the researcher's home city thus making data collection convenient.

3. The scarcity of investment choices in PEX, derive PEX investors to make biased investment decisions influenced by their psychological characteristics.

1.6   <u>DEFENITION OF KEY TERMS & ACRONYMS</u>

- **Behavioral finance**: a way to explain abnormal event that deviate from efficient market theory through analyzing the psychological behavior of investors.

- **Efficient market theory (EMH)**: prices reflect all available information in the market and according to this people behave rationally.

- **Heuristics**: enabling investors to make complex decisions based on some parts of the available information, which may lead to making wrong decisions.

- **Stock market anomaly**: irregular or unusual events that occur to the market and causes inefficiency of the market or inadequacies in the pricing model.

- **Investor Sentiments:** attitude of investor toward particular security according to this security movement.

- **Investor rationality;** is type of decision making process based on making choices that achieve highest utility for the decision maker, the utility could be from monetary return or it could be purely emotional.

- **Market Capitalization:** (Market CAP) is measure of certain security value calculated by multiplying stock price of that security by the number of shares outstanding.

- **Palestine Exchange (PEX):** is publically, full-automated traded platform owned by private sector, operates under the supervision of the Palestinian Capital Market Authority.

- **Listed companies:** PEX has 49 listed companies divided among 5 economic sectors; banking and financial services, insurance, investments, industry, and services.

- **Palestinian Capital Market Authority (PCMA**): organizing, supervisions and controlling authority over all the non-banking financial activities in Palestine.

- **Practitioners:** investors deal with PEX including individual investor, brokers, dealers and market specialists.

- **CAPM:** Capital Assets Pricing Model

- **SPSS:** Statistical Package for Social Sciences, IBM

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

Gustave le Bon (1896), wrote The Crowd: A Study of the Popular Mind, one of the incredible books of social psychology ever written. Selden in (1912) wrote Psychology of the Stock Market, they argued that; mental attitudes of investors affect the prices of the securities in the market in a significant way. Moreover, the US psychologist Leon Festinger in (1956) offered a new concept in social psychology: the theory of cognitive dissonance, he defined it as; "when two simultaneously held cognitions are inconsistent, this will produce a state of cognitive dissonance. Because the experience of dissonance is unpleasant, the person will strive to reduce it by changing their beliefs". (Festinger, Riecken and Schachter 1956)

Pratt (1964) talked about utility functions, risk aversion and he considered risk as a part of total assets. While Tversky and Kahneman (1973) discussed the availability heuristic: "a judgmental heuristic in which a person evaluates the frequency of the probability of events by availability, meaning, the ease with which relevant instances come to mind. While systematic biases; are resulted from the availability heuristic". Furthermore, the two intelligent psychologists, Tversky and Kahneman(1974), described three heuristics that appear when making judgments under uncertainty; representativeness, availability, and anchoring and adjustment. For example, the representativeness heuristic explained in this scenario, when people were asked to judge the probability that an object or event A belongs to class or process B, probabilities are evaluated by the degree to which A is representative of B, that is, by the degree to which A resembles B availability.

When people were asked to assess the frequency of a class or the probability of an event, they do so by the ease with which instances or occurrences can be brought to mind. (Ackert, and Deaves, 2010).

Behavioral finance theory discusses some financial phenomena that can be logically understood using models in which some agents are not fully rational. Cunningham (2002) in Behavioral Finance and Investor Governance stated that; the efficient market hypothesis is a special case in finance that explains only a small fraction of the recent observed events. Efficient market hypothesis is closer to an ideal market world rather than realistic world. However, the efficient market hypothesis should remain alive even if we do not use it, because it has important roles in the investing environment.

Lo, (2008) compared Efficient Markets hypothesis and Behavioral Finance Theory. The paper shows that there is little unanimity as to which side is outweighing the balance, since the war between supporters of the Efficient Markets Hypothesis and champions of behavioral finance has never been more ostracized. Moreover, the researcher claimed that the traditional models and modern financial economics can co-exist together with behavioral models in a consistent way. The Adaptive Markets Hypothesis also argued that "the degree of market efficiency is related to environmental factors characterizing market ecology such as; the number of competitors in the market, the magnitude of profit opportunities available, and the adaptability of the market participants".

On the other hand, behavioralists provide examples of rationality violations that are disagreed with market efficiency such as; loss aversion, overconfidence, overreaction, mental accounting, and other behavioral biases. The researcher stated that these factors "in fact are consistent with an evolutionary model of individuals adapting to a changing environment via simple heuristics". Lo, (2008)

According to Fama (1998), Market efficiency persist the challenge from the literature on long-term return anomalies. The anomalies defined according to efficient market hypothesis as; "the chance resulted from overreaction to information is about as common as under reaction and post-event continuation of pre-event abnormal returns is about as frequent as post-event reversal".

Fama findings were consistent with the market efficiency prediction that "apparent anomaly can be due to methodology; most long-term return anomalies tend to disappear with reasonable changes in technique". Moreover, this article provides a brief introduction to behavioral finance. Behavioral finance encompasses research that dropped most of the traditional assumptions like; expected utility maximization with rational investors in efficient markets. He also argued the two main building blocks of behavioral finance which are cognitive psychology "how people think" and the limits to arbitrage "when markets will be inefficient". The growth of behavioral finance research has been nourished by the inability of the traditional theories to explain many empirical patterns, including stock market bubbles in many countries.

2.2 EFFICIENT MARKET HYPOTHESIS

Efficient market hypothesis is a theory about participants knowing all the available information, and the prices reflecting these information, thus investors can make rational decisions when they exercise stocks trading. Consequently, abnormal returns become hard to be achieved. This idea has been applied to models such as theoretical studies and empirical ones of financial securities prices. Also, it was adopted independently by Eugene F. Fama and Paul A. Samuelson (1965).

Fama (1965) defined an efficient market as: "a market where there are large numbers of rational profit maximizers actively competing, with each trying to predict future market values of individual securities, and where current information is almost freely available to all participants".

Fama (1998) and other before him stated that, there are three forms of market efficiency:

- **Weak form**; in which all available information is reflected in price from historical return data.
- **Semi-Strong form**; all available information is reflected in price from past and present forecasted earnings.
- **Strong form**: all available information is reflected from insider information.

In reality this is not true; there are psychological factors that contradict with the efficient market theory; behavioral finance theory which is a modified theory that explains the abnormal event and irregularities (anomalies) in the market based on studying the psychological factors that control the investors' decisions. This theory has stated that not all investors are well-informed in making investment decisions; there are many sources of heuristics, according to Fama (1998) such as:

- Limitation in human cognitive circuitry.
- Emotions.
- Insufficient investors and potential investor's knowledge.

Efficient market hypothesis (EMH) is a theory in which stock prices reflect all available information to the public, as defined earlier. Gilman (2009) defined EMH as "economically rational buyers and sellers use their assessment of an assets risk and return to determine its value. To a buyer the asset value represents the maximum price that the buyer would pay to acquire it; for a seller's perspective the asset value represents the minimum price that the seller would sell at.

In a market with competitive participants the interactions of the buyers and sellers result in an equilibrium market price for each security. This price reflects the actions of sellers and buyers that are built on the basis of available information. They are assumed to digest new information immediately so that they create a new equilibrium price."

The logic behind this theory is; if anyone could think that he\she had found a certain pattern or trend going on with the stock prices, they are wrong because if there is a simple way to make money then someone already would have found it. No one can beat the market in the efficient market hypothesis because no one has access to any kind of special information. Investors under the efficient market hypothesis expect a normal return, there is no extra profit, because the news is fully reflected on prices and the prices are immediately adjusted before the investor has time to trade on it; as for firms they receive the value for their securities only at a fair value because investors already know all the available information and act based on it. Shleifer (2000).

Shleifer (2000) view three of the conditions that may lead to efficiency:

1. **Rationality**: all investors deal with the new information rationality and adjust their prices accordingly.
2. **Independent deviations from rationality**: optimism and pessimism play role in making irrational decisions.
3. **Arbitrage:** making a profit from simultaneous purchase and sale of different but substitute securities.

The market act immediately based on the available information but in reality some of the information may affect the prices faster than other information, researchers classified three different types of information into different forms of efficiency; weak form, semi-strong form, strong form which discussed earlier.

Efficient market theory is tied up with the term random walk according to Malkiel (2003) "a random walk is a term loosely used in the finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices." In other words, a random walk is that information about tomorrow's change which only reflected on tomorrow's price and will not depend on today's news. When there is a forecast that the future price of a stock will boost this information will have an immediate price increase. Eventually any good news about the future will lead to good news to the current time.

Some other implications of the EMH are technical analysis and fundamental analysis. Technical analysis is a periodic and expected pattern in stock prices, this analysis has argued by Bodie, Kane and Macrus (2010). They primarily focus on past performance for predicting future prices and it depends on the slow response of the stock prices to give time to the analyst to identify a trend to forecast future prices. Sometimes the analysts are called chartists because they look back at the past charts and find a certain trend to exploit it and make gains, or in other words to beat the market, this contradicts with the efficient market theory. They find any information concerning the future prospects unimportant and unnecessary.

Pompain (2006) called a technical analysis anomaly happening when there is inconsistency in the efficient market hypothesis. Of course the weak form of efficient market hypothesis finds that technical analysis is useless because the new information on stock prices quickly are reflected on the prices so the technical analysis is no good to the market.

Fundamental analysis as defined by Bodie, Kane and Marcus (2010) depends on earnings and forecasted dividends, risk evaluation and future interest rates of the firm to predict the appropriate stock price. Fundamental anomalies are irregularities that come from stock performance under fundamental analysis. Investors have the tendency to overestimate good companies and underestimate unfavorable companies. The analysts use past earnings and the company's balance sheets in addition to economic analysis and the firm's quality management. Fundamental analysis contradicts with efficient market hypothesis; as the analysts rely only on stock performance rather than depending on available information about the stock, they expected to have better evaluation than the rivalry analysts. To be able to conduct a good fundamental analysis an analysts should have a special insight.

Pompian (2006) finds that there is another type of market anomalies which is; calendar anomaly such as; January effect. Generally speaking, according to January effect it had been observed that return on stocks is high in January. Even though it is known that when an anomaly is identified, people are attempting to exploit it to earn return and thus the effect disappears. This effect hasn't disappeared, and repeated every year. But this effect hasn't disappeared, and repeated every year.

Gitman (2009) and other researchers studied one of the frameworks to assess risk utilizing Capital Assets Pricing Model (CAPM) which is considered an appropriate mathematical tool to study the impact of risk on expected returns. In addition to, test if the available information are enough to determine the volatility and risk concerning prices according to the efficient theory of rational investors.

The CAPM can be used to estimate the required return on the stock as follow;

$$R_s = R_f + \beta\ (R_m - R_f)$$

In which the R_f is the risk free rate, $(R_m - R_f)$ is the difference between the expected return on the market portfolio and the riskless rate, β stands for beta as a risk measure.

The CAPM contradicts with behavioral finance theory, because CAPM does not take into consideration the effect of people behaviors on stock returns and market anomalies. Statman (1995) "CAPM are assumed to agree on expected return of all assets. Of course, nobody believes that this assumption comes even close to a description of human behavior." Accordingly, debates about the efficient market hypothesis had surfaced to clarify whether the financial markets are really efficient or not. There are three factors implying that this debate will never end according to the researchers' opinions:

- The magnitude issue: this issue implies that managers with large portfolios have the access to gain from minor mispricing in the market.
- The selection bias: the ability of an investor to find out that there is a strategy to abnormal returns, he/she might use it to be famous by spreading the word among the public or keep it to themselves and earn high returns.
- The lucky event issue: sometimes the portfolio managers get lucky in their trading to really assess their performance it has to be by studying their performance on the long run.

Fama (1998) clarified that; Efficient Market Hypothesis was helpful in explaining a lot of different anomalies in the market, but eventually there was anomalies that could not be explained any longer by this hypothesis, thus researchers began to study the market from different aspects. They came to a conclusion that people behaviors have got to do with the changing anomalies in the market based on their psychology.

2.3   BEHAVIORAL FINANCE THEORY.

Sewell (2007), state that; *"Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets."*

Behavioral finance explains many irregularities that happen to the market, the conventional theories such as efficient market theory cannot explain. Considering that investors are always rational is certainly not realistic or true, people are driven by their emotions most of the time, which is mean that investors make irrational decisions. Thus, making the wrong choice to avoid the complexity of the financial calculations related to their needs; this process called heuristics. The stock volatility and uncertainty of the potential future stock prices are better to be explained by behavioral finance theory.

Tversky and Kahneman, (1981). Identified the influence of human heuristics on the decision making process. Heuristic; is the process by which the investors find things out for themselves, usually by trial and error, which lead to the appearance of the rules of thumb. In other words, humans use to made decisions in complex, uncertain environments (Brabazon, 2000). Individual is not capable to process all the information that presented on a daily basis, while accumulating experience gives an impression of how things works. This process also creates rules of thumb that can be used when a similar situation is encountered. This phenomenon is called the use of heuristics. Traditional financial models assume the exclusion of heuristics, and assume all decisions being based on rational statistical tools (Shefrin, 2000).

Moreover**, Prospect theory** is a theory in which Kahneman and Tversky (1979) argued that people feel uncomfortable or unsafe to make a decision when the focus is how much they could lose than what they could gain. The decision making is weighted based on probabilities. The people tendency to underweight results that are attached to probability not to certainty, compare these to results that are most likely to happen in what is called the certainty effect. There is also the isolation effect in which Kahneman and Tversky (1979) conclude that this effect appears when people overlook the components shared by prospects under consideration. The prospects theory was developed to replace the Utility Theory because the utility theory failed to explain many incidents.

The utility theory considers people as risk averse, prices are set by rational investors and a rational market is accomplished. It explains the behaviors of rational investors but it's not applicable to reality. It also relates the risk aversion to the concavity of the utility function. In addition, this theory supports the efficient market theory. An important foundation to prospect theory as Hede (2012) described it's the value function; it is different from the utility function in the expected utility theory in its reference point. It's determined by people subjective to impression. The reference point is determined according to each individual as a point of reference, if we take wealth as an example, then people under the reference point are risk seekers and for those who are above the reference point are risk averse. Loss aversion is a phenomena used to help the prospect theory in which people are risk takers when it comes to losses but risk averse when it is about gains. Loss aversion explains the disposition effect. According to Shearing (2000) the disposition effect is tendency to sell stocks that are up in their value and buy the stocks that are declining.

Two aspects of the prospect theory explained this effect, the first one is valuing gains and losses to a reference point and the second one is seeking risk in losses and avoiding risk in gains. Kahneman and Tversky (1979) discussed what should be in the weighting function, they finished their work in "cumulative prospect theory ". Their work is a revised version of their prospect theory in which it fixes some of the problems faced with the prospect theory.
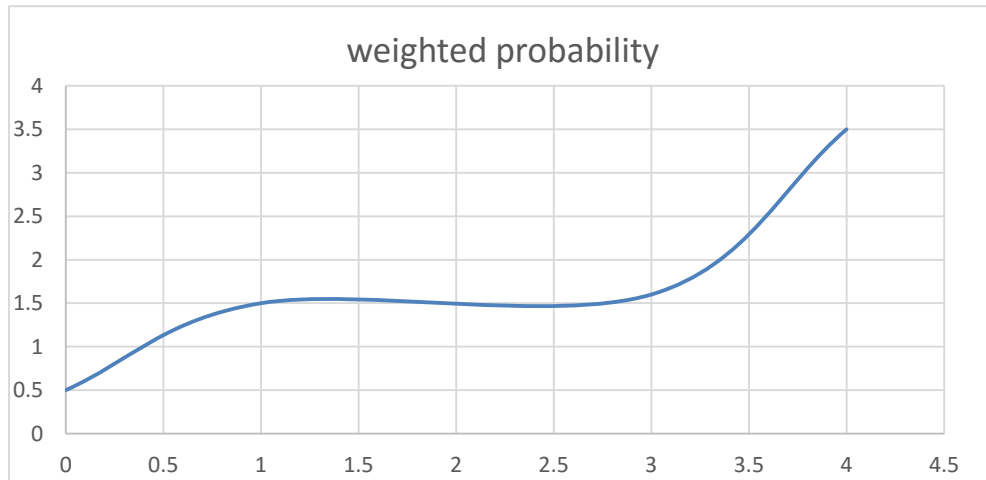
Figure 2- source: Kahneman and Tevrsky (1979)

A self- regulation theory can explain the irrational decisions made by investors in which investors seek for techniques that help them to control their actions to avoid losses in the long run. Pompian (2006) discussed two topics that rely under the umbrella of behavioral finance theory in his book; Behavioral Finance Micro (BFMI): which is studying the difference between rational investors and irrational investor's behaviors and biases. While, Behavioral Finance Macro (BFMA) describes the anomalies and irregularities that efficient market theory couldn't explain. Furthermore, many theories were developed to explain market irregularities such as regret theory, prospect theory, heuristics and mental accounting.

However, investors may incurred cognitive errors by making non optimal choices that based on prediction when they faced with an uncertain situation in the decision making process because of heuristic simplification. Chen et al, (2007). Brilliant researcher seeks to categorize the biases according to some kind of meaningful framework. Some researchers refer to biases as heuristics -rules of thumb-, while other authors call them beliefs, judgments, or preferences; still other scholars classify biases along cognitive or emotional lines. Pompain, (2006).

Estelami (2006) defined heuristics enabling investors to make complex decisions based on some parts of the available information, which may lead to making wrong decisions. There are many sources that cause heuristics to happen, classified into three categories:

1. Limitations in human Cognitive Circuitry: people cannot process all the information they are given regarding their investment so they make mistakes in processing the given information and thus making wrong decisions, such as;

   ➢ Anchoring and Adjustment, Tversky and Kahneman (1973) showed that for investor to deal with the given inflation they focus their attention only on one attribute and forming an initial judgment. Sometimes people depend on irrelevant information and end up with unsatisfying result. It's a frustration to investors. Ritter (2003) argued that people have a slow reaction to new information, so they either overreact or underestimate the change. According to Pomipian (2006) anchoring is a point at which people normally adjust their perceptions based on this point and of course people are biased their own reference point.

➢ Forecasting Errors, Kahnemen and Tversky made many experiments on how investors give much weight on their latest incidents than to previous experiences when making forecasts. This kind of behavior will eventually lead to disastrous and huge mistakes. It's also known as cognitive dissonance, when people modify their behaviors to be consistent with the reality and maintain psychological stability.

➢ Asymmetric Discounting, Estelami (2006) related this pattern to the time value of money in which the investors become eager to gain cash immediately rather than save it for the future and accumulate this cash. So they are willing to invest in a fund that generates cash tomorrow rather than a fund that generates cash after one month with higher return, because they are thirsty for money.

➢ Sample size neglect and representativeness, this is a common error, when people do not consider the size of the sample and look at it as representative measure. This behavior may cause trends occurrence. Then based on a small proportion of the population causing an anomaly to happen.

2. Emotions; this category studies the effect of how investors understand the relationship between risk and return, and how they irrationally react. Such as:

➢ Mental Budgeting, Esteban (2006) explained that when investors categorize different forms of spending into different types of budgets in their mind. As to Bodies, Kane and Marcus (2010) they find that mental budgeting as a segregating of certain decisions, in which one may bear more risk in an investment account but is less tolerant to taking risk when it comes to college education fund.

➢ Shifting Risk Preferences, investors tend to be risk averse to gains and risk takers in the case of losing money; they always choose the less risky option when there is a gain scenario. Formlet (2001).

➢ Regret Avoidance, the psychologist's studies show that investors who made bad decision which resulted in a loss have more regret on unconventional decisions than on regular ones. De Bonds and Thaler (1987) see that regret Avoidance is in coherence with the size and the book-to-market effect. Higher book-to-market firms have low stock prices and are more likely to be financially unstable; usually they are the smaller firms. Making an investment in such firms need the courage to do it, the loss of the investment opportunity is more painful to the investor than a regular gain/loss probability. Bell (1982) described regret as the emotion caused by comparing a given outcome or state of events with the state of a foregone choice. Also Loughran and Jay, (2002) discuss that , "when choosing between an unfamiliar brand and a familiar brand, a consumer might consider the regret of finding that the unfamiliar brand performs more poorly than the familiar brand and thus be less likely to select the unfamiliar brand"

3. Insufficient Knowledge: people do not know all the information about the market and most of them need help in making investment decisions. Such biases are:

➢ Decision Arrogance; when one's self confidence gets in the way of making financial decisions such as optimism, or believing so much in their abilities and not allowing a professional to help them to make the right decision. This pattern is also known as overconfidence according to Schiller (2003) overconfident investors' trade more than other investors.

This means higher turnover, because they believe that they have the information needed but in reality they don't. Moreover, this pattern focuses on men more than woman because they believe they have all the information and more control and access to the market than women.

➢ Proxy decision making; in which someone may let another person to make the decision instead of him/her, because they have inadequate knowledge but the problem is when the individual holding the task of making the decision is uninformed. Schiler (2003)

A complementary to the previous mentioned behavioral biases are the following as argued by Fromlet (2001) and Pompeian (2006):

➢ Home bias; in this bias people prefer to invest in their domestic markets rather than investing in international markets. Although there may have been better returns from international markets. In this situation investors forgone good investment opportunities.

➢ Following the herd, is a behavioral bias defined by psychologists as the tendency to imitate the actions of the majority, because they possibly could not be wrong. People are encouraged to copy the actions of others especially when a good performance is resulted more than once.

➢ Varying availability of information, in the efficient market theory it's guaranteed that every investor knows all the new information that arise in the market. In contrast, in reality there are many investors whom do not know even the needed information about the securities they intend to trade, nor they know the appropriate way to deal with the available information rationally.

➢ Differences in interpretation, there is always a way to interpret the received information, but it's better to analyze them and beat the market. However, not all the analysts end up with the same conclusions, therefore, there are different ways to react to the received information, thus anomalies appear in the market.

➢ Gamblers Fallacy, believing that a random event will less likely to occur because of a series of past events, depending on short data sets. This of course leads investor to make wrong decisions.

➢ Availability bias, it's a mental shortcut in which people try to estimate the probability of something happening based on previous events occurred in their lives. People assume that existing ideas or thoughts reflect non-biased factors of probabilities.

➢ Self-attribution bias, the tendency to attribute success in making decisions to themselves and their talent but when it comes to failures they blame the other things and relate it to bad luck. This pattern can be divided into two types; one of which is self-enhancing bias in which people tend to put a lot and exaggerated credit to them if they succeed.

And the other type is self-protecting bias the tendency of people to deny their failures and attribute it to something or someone else.

➢ Illusion of control, Langer (1975) defined this bias as people's desire to believe they can affect their returns when in fact they cannot. They are driven by similarity in tasks and competition.

➢ Ambiguity aversion bias, Knight (1921) find that people tend to hesitate in their choices when the chances are uncertain, because the dislike ambiguity more than risk.

2.4   ANOMALIES & SENTIMENTS

Fama and French (2009) investigated in the effect of luck and skill on the mutual fund returns; the stimulation results they found elucidate that manager is skilled when returns are measured before the costs in expense ratios. Another clinical study; of day-traders which explained the fear and greed in the financial markets by Lo, Repin, Steenbarger. (2005) which resulted in, in realistic world when investors make decision the importance of emotion decline. However, in previous study to Lo and Repin (2002) they found that emotions are significant and can influence the trading decision. So we are expected to find what the reasons behind these differences are.

Jay (2003) discussed, one of the major criticisms of behavioral finance which is; one can predict either under reaction or overreaction of the outcome that will occurs by choosing which bias to emphasize.

He named the criticism of behavioral finance "model dredging." In other words, he said, "one can find a story to fit the facts to ex-post explain some puzzling situations. But how does one make ex ante predictions about which biases will dominate?". Moreover, there are two articles that address the same issue that Jay discussed: Barberis and Thaler (2002), and Hirshliefer (2001). For example, Hirshliefer discussed the case of investors expectation that one behavioral basis will dominate on other biases.

He also explained that there is "a tendency for people to excessively rely on the strength of information signals and under-rely on the weight of information signals". This called salience effect. Hirshliefer (p. 1547). Could the market be driven by emotions? An old saying on Wall Street stated that the market is driven by two emotions: greed and fear. Regardless to the simplicity of this statement, it could be true. Since there is no book or defined source to learn how to control our fear and greed while investing in stock markets many researchers began to study this issue. When investors become conscious about the influence of greed and fear on stock market they should know how to establish a strong investment strategy, thru the two fundamental strategies growth investing and value investing. Which enable investors to minimize the impact of greed and fear on their investment decisions.

According to Brownlee (2016), when investor becomes overwhelmed with greed and fear emotions, his/her get-rich-quick mentality makes it hard to maintain gains and keep to a strict investment plan over the long term. A great lesson could be learned from Warrren Buffett who stuck to his strategy in most ticklish time. Buffett was once heavily criticized for refusing to invest in tech stocks which have a continuous increase in its prices. But once the tech bubble burst, his critics were silenced.

Buffett stuck with his comfort zone: his long-term plan. By avoiding the dominant market emotion of the time - greed - he was able to avoid the losses felt by those hit by the bust. As greed prevails during the dotcom boom, the same can be said of about fear domination following its bust. Since investors started to search for less risky stocks to buy to stop their losses they moved out of equity. Money poured into money market securities, stable value funds and principal-protected funds - all low-risk and low-return securities.

The ignorance of long term investment plan based on fundamentals by stock market investors, Resulted in a huge egression of the market. Investors threw their plans out the window because they were scared, and lose a significant amount of their portfolio's worth. Instead of scrapping your investment plan which may damage your portfolio, or even getting along with the dominant fear in the market, it's better to switch to low risk and low return investments.

Moreover, Investopedia staff, (2015) clarified that; when markets lose their stability and volatility inherent in the stock markets, investors become uncomfortable and more vulnerable to emotions like fear and greed. To avoid getting swept up in the dominant market sentiment, investors should stick to the basic fundamentals and choose a suitable asset allocation mix. thus risk seekers investor become more susceptible to equity securities than risk averse investor. Buffett was quoted, "Unless you can watch your stock holding decline by 50% without becoming panic-stricken, you should not be in the stock market." All this doesn't mean that investors must be bounded all the time with specific strategy. They should be re-evaluating their strategy and remain rational when making decisions to change their plans, because there is a thin line between controlling your sentiments and being just plain stubborn. Each investor is responsible for any decision he/ she takes whether it's resulted in gain or loss.

But as investors you should be beware that never wavering from an investment strategy during times of high emotions in the market can also spell disaster. It's a balancing act that requires you to keep your wits about you. Buffett describe the wise investor to be "Fearful when others are greedy and greedy when others are fearful, when others are greedy, prices typically boil over, and one should be cautious lest they overpay for an asset which subsequently leads to anemic returns. When others are fearful, it may present a good value buying opportunity. "

There is a phrase called infectious greed which has been arise in July 2002 testimony before the Committee on Banking, Housing and Urban Affairs by former Federal Reserve Board chairman Alan Greenspan to describe the breakdown of corporate governance checks and balances. Mr. Greenspan spoke of this while focusing on reforms of corporate governance to help protect investors. Infectious greed, as Mr. Greenspan (2002), put it in this testimony, "[gripped] most of [the] business community. Our historical guardians of financial information were overwhelmed. Too many corporate executives sought ways to 'harvest' some of those stock market gains. As a result, the highly desirable spread of shareholding and options among business managers perversely created incentives to artificially inflate reported earnings in order to keep stock prices high and rising."

According to Cable News Network (CNN) money which is developed an index to measure the primary emotions that derive investor's Greed and Fear. Greed and fear index (GFI) based on seven indicators:

1. Stock Price Momentum; as measured by the S&P 500 versus its 125-day moving average.
2. Stock Price Strength; based on the number of stocks hitting 52-week highs versus those hitting 52-week lows on the NYSE.

3. Stock Price Breadth; as measured by trading volumes in rising stocks against declining stocks.

4. Put and Call Options; based on the Put/Call ratio.

5. Junk Bond Demand; as measured by the spread between yields on investment grade bonds and junk bonds.

6. Market Volatility; as measured by the CBOE Volatility Index or VIX

7. Safe Haven Demand based on the difference in returns for stocks versus Treasuries

Each of these seven indicators is measured on a scale from 0 to 100, with 50 denoting a neutral reading, and a higher reading signaling more greed. The index is then computed by taking an equal-weighted average of the seven indicators.

A famous statement quoted from Wall Street movie "greed is good", while Boesky (1985) said that "I think greed is healthy, you can be greedy and still feel good about yourself" at the university of California Berkeley school of Business Administration. Investors in stock markets adopted these statements as a way to survive in the cutthroat culture of investment finances. "It is only when you combine sound intellect with emotional discipline that you get rational behavior" Parikh, (2011). Investors looking for enhancing their effectiveness through educate themselves about the various biases they are likely to exhibit, to avoid common mistakes such as; selling too soon while booking profits, holding too long while facing losses, buying overpriced stocks based on market sentiments and positive evaluation by all and sundry. According to Parikh, in the words of Warren Buffet; the key of success for an investor is understand the emotional indiscipline he/she has exposed, and deal with it therefore, it is not repeated.

Latif et al (2011), studied stock market anomalies in general and classify these anomalies into three major categories; technical anomalies, fundamental anomalies, and calendar anomalies. There is more than one definition of anomaly in the financial market based on the variety of researcher's opinions. A simple definition could be that; irregularities or deviations in stock market that occur repeatedly or occur once then disappear. Kuhn (1977) stated that anomalies manifest when some people with which everything was going right then they have to face the crisis and consistently going wrong.

Kuhn also discussed an important issue which is anomalies did not resulted from newly events or discovery but from break an existing paradigm. On the other hand, Gentry (1975) said anomalies are resulted from the difference between the market data and the assumption on which theories are made. While Watt (1978) argues that anomalies appear because of market inefficiencies not due to asset pricing model deficiencies. As abnormal returns appear in stock markets, and investors got the ability to beat the market the credibility of EMH become questionable. And the trading techniques cause market inefficiencies named anomaly in 1978.

Kuhn (1977). The random walk hypothesis which is part of weak form efficiency is not hold, as future prices are become predictable using fundamental analysis and insider trading. Thus abnormal returns are achievable. While in semi strong efficiency the market could be beaten only via insider trading only. However, in strong form efficiency no one can achieve abnormal returns and beat the market in any way. Brealy et al, (1999).

Anomalies might be a good indicator of market inefficiency. Silver (2011), discussed that anomalies are movements and events cannot be demonstrated using efficient market hypothesis.

Therefore, calendar anomalies are defined as movements in stock prices related to particular time period; weekend effect, turn of the month effect, turn of the year effect, January effect, Monday effect, and seasonal effect. These are contradicting with weak form efficiency because stated that future prices cannot be predicted on the bases of market is efficient in the past prices. Boudreaux (1995).

While fundamental anomalies defined as strategies used to outperform the market like; price to earnings ratio anomaly, value versus growth anomaly, dividend yield anomaly, overreaction anomaly, ex- dividend date anomaly, low price to sale, and neglected stocks. Karz (2011). On the other hand, technical anomalies surface when using technical analysis to predict future prices from relevant past information and past stock prices. It is important to know that in weak form efficiency technical anomalies cannot be used by investor to beat the market by earning abnormal returns. Technical anomalies are like; moving averaged, trading range break, and momentum effect. Bodie et al (2007).

3.5   EXPERIENCE OF PALESTINIAN MARKET

Palestine exchange is a developing market with respect to other markets worldwide, researches about PEX and PEX practitioners are limited especially with regard to the behavioral finance theory, which is considered a new area of finance that needs more researcher's attention. One research about usefulness of information for investment decisions discussed the PEX inefficiency in the weak form, and refers it to the lack and uselessness of available information to investor in PEX. Shaheen, Y (2010).

Abu Nada (2013), studied the impact of behavioral biases on investor's investment decisions in PEX - Gaza Strip – the researcher found that investors in PEX are highly influenced by the overconfidence bias. While differences in age, culture, and education do not have any effect on investor's investment decisions. Moreover, loss aversion had no influence on investor's decisions.

Furthermore, self-control bias is moderately not affected investor's investment decisions. On the other hand, representativeness, anchoring bias, gambler's fallacy, availability bias, mental accounting, and regret aversion, had a moderate effect on investor investment decisions.

Abu-Rub (2011) also analyzed and investigated in the calendar effect in PEX and concluded that PEX investors react positively to the day before holidays, they feel happy and optimistic thus stock prices are going up. While during holidays investor face lack of information, but the day after holidays PEX investor deal with the market in conservatism, because of inadequate information, this situation lead investors to pessimistic mood therefore, stock prices going down. In other words, this conclusion can lead us to investigate in the role of feelings and behavioral biases of investors in the emergence of anomalies in PEX. Abu-Shammala (2011), testing the weak form efficiency of PEX, the researcher found that in the weak form efficiency PEX is an inefficient market. Which mean that investors can achieve abnormal return using technical analysis and insider information to predict future prices from stock's past performance. Using these data we can start our research.

2.6   <u>CONCLUSION</u>

It is very difficult to find trading strategies that reliably make money. This does not imply that financial markets are informationally efficient, however. Low frequency misevaluations may be large, without presenting any opportunity to reliably make money. So, Behavioral finance relatively speaking is in its infancy. It is not a separate discipline, but instead will increasingly be part of mainstream finance. Behavioral finance and its irregularities is no longer as controversial a subject as it once was. As financial economists become accustomed to thinking about the role of human behavior in driving stock prices, therefore, people should look back at the behavioral finance at the beginning of each investment decision they make to hopefully minimize the influence of the behavioral biases on their portfolios.

CHAPTER THREE
METHODOLOGY

3.1   INTRODUCTION

The researcher in this thesis uses the qualitative and quantitative method to analyze the data collected from a structured questionnaire. The research is conducted with a minimal intervention of the studying events, using different measurement units. The researcher formulated a questionnaire, and personal interviews to gather data that is essential for identifying the practitioners' broad opinions about behavioral finance, and to collect needed data about their sentiments when making their investment decisions and the impact of these decisions on the emergence of market anomalies in Palestine Exchange.

Quantitative research is research that "relies on developing numbers that can be used to describe the phenomena (objects and relationship) under study (Cornford &Smith, 1996, P. 40). While qualitative research tells us how often or how many people act in a certain way, but it does not answer the question "why".

This is a cross sectional study with a judgmental sampling design consisting some of PEX investors in Ramallah city who invest in different economic sectors in PEX listed securities. Data collected in qualitative research and is typically performed using statistical techniques to produce results which can then be utilize to prove or disapprove the hypothesis underpinning the research. Furthermore, Descriptive research analysis method had been chosen because it enables the researcher to understand human experiences to reveal both the process by which people construct meaning about their worlds and to report what those meanings are.

Thereby, as there is no artificial setting or experimental studies this research used the descriptive methodology to explain the relationships existed between variables. Moreover, the sample participants were randomly selected from the trading hall existed in many brokerage firms which were conducted, to increase sample efficiency.

3.2 SOURCES OF DATA

- **Secondary Data:** from literature review the researcher will get the definition of behavioral finance and its main applications. (Books, websites, magazines, journals and publications, research papers, and already published reports).

- **Primary Data:** the data were primary collected through closed end questions using questionnaires which were filled during the working hours of the brokerage firms and other investment institutions that deal with PEX and located in Ramallah. The questionnaire designed to acquire the necessary information to analyze data needed to successfully fulfill the objectives of the study.

3.3 POPULATION & SAMPLE OF THE STUDY

- **Population**: the population of the study is the practitioners who deal with Palestine exchange. (Exist in Ramallah).
- **Sample**: the researcher selected sample consists of number of investors who invest in different economic sectors in PEX. In addition to, brokers and member from security exchange commission, taking into consideration that those professional practitioners are treated as dependent individual investor, in addition to, individual investors from the financial and investment institutions.

120 candidates were expected to be conducted. Only 110 questionnaires were distributed, 6 questionnaires were excluded because 4 of them were incomplete and 2 were missing. Therefore, only 104 questionnaires were completed and analyzed.

➤ **Selection Method:** the researcher followed the convenient sampling method in selecting the sample members.

3.4 <u>STATISTICAL ANALYSIS OF DATA</u>

The data collected, entered, analyzed, and reviewed initially via SPSS for creating statistical tables, and generate related graphs. Reliability tests and validity test used to examine the suitability of the collected data to the research objectives. Then the researcher should test the normality of the collected data to determine what are the appropriate measures or tests to be used. Data normality test done by Kolmogorov-Smirnov test and the data were not normally distributed. Therefore, the researcher must use nonparametric tests to analyze the data.

Kendall's Tau-b correlation was used instead of person correlation because it is a non-parametric correlation that provides accurate results when dealing with small sample. Moreover, Kruskal Wallis test is the non-parametric alternative of variance test (on way - ANOVA), which is appropriate when we have to compare between data that have more than two groups to determine if there is a significant difference between the tested groups or not, we should apply a post-hoc test to measure the difference or divided the value of chi-square resulted from Kruskal Wallis test by two to measure the size of difference between groups to figure data significance level, the higher the number resulted from the division of chi-square the bigger the difference.

Mann Whitney U used as a non-parametric test measure instead of independent T-test, to examine the differences of variables that consist of two groups, the higher U value the lower the overlap between groups. And as p-value is less that $\alpha= 0.05$ the null hypothesis rejected because there is a difference between groups. Finally, the researcher utilized the ordinal regression that fits categorical ordinal and rank data, to test the research hypothesis by employing the interaction option on independent variables and intervening variable to deduct their influence on the dependent variable.

3.5 THEORITICAL FRAMEWORK

Based on previous studies and articles the researcher developed this model in order to investigate in the nature of relationship between these variables. This framework assumes that market anomalies are affected by investor's sentiments and anomalous behaviors through investor's portfolio investment decisions made in PEX. Moreover, practitioner's sentiments and anomalous behaviors are expected to be explained through several behavioral concepts listed below.

```
┌──────────────┐                  ╱──────────╲              ┌──────────────┐
│  Anomalous   │─────────────▶   ╱  Portfolio  ╲            │  Anomalies   │
│  behaviors   │                ╱  investment    ╲  ───────▶│  Emergence   │
└──────────────┘               ╱   decisions      ╱         └──────────────┘
                              ╲                   ╱
┌──────────────┐              ╲                 ╱              ┌─────┐
│  Sentiments  │─────────────▶ ╲───────────────╱              │ DV  │
└──────────────┘                                              └─────┘
    ┌────┐                      ┌────────────┐
    │ IV │                      │ Intervening│
    └────┘                      │  variable  │
                                └────────────┘
```
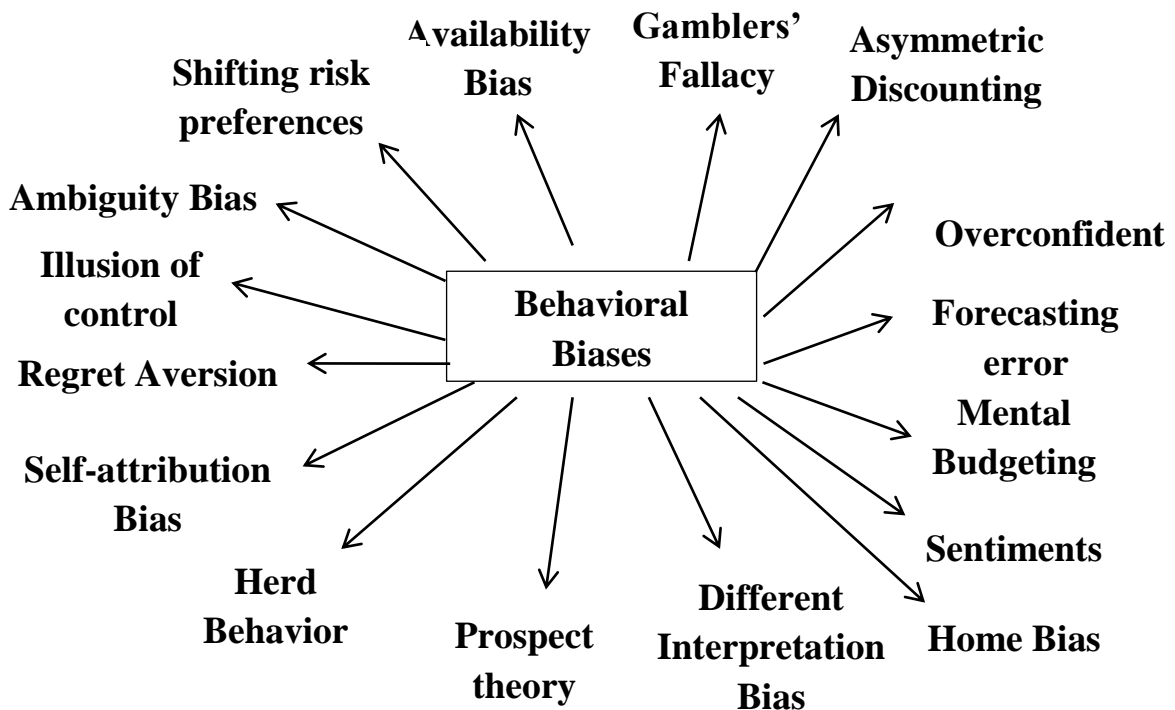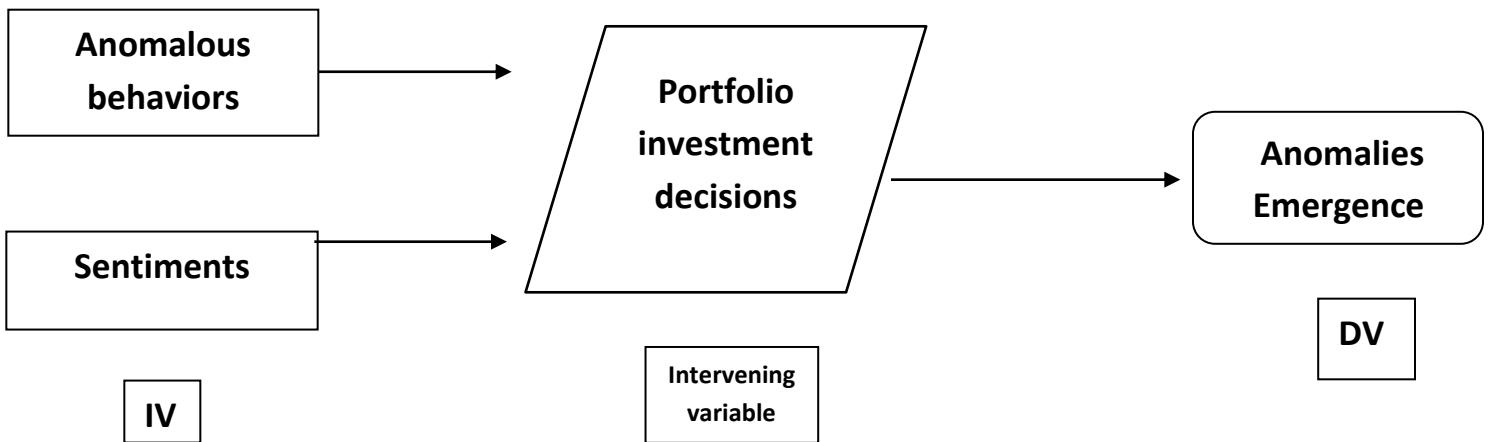
3.6 <u>HYPOTHESES</u>

This thesis investigates in several hypotheses to reveal whether there is any relationship or any impact of the independent variables on the dependent variable including the hidden influence of the intervening variable, which explains the correlation between the dependent and independent variables. Therefore, these are the research hypotheses:

> H_0: Practitioners in PEX are behaving anomalously.
>
> H_1: Practitioners in PEX are rational.

> H_0: behavioral biases of investors (sentiments and anomalous behaviors) do not appear in PEX
>
> H_1: behavioral biases of investors (sentiments and anomalous behaviors) appear in PEX.

> H_0: behavioral biases of investors in PEX do not affect their portfolio investment decisions.
>
> H_1: behavioral biases of investors in PEX affect their portfolio investment decisions

> H_0: behavioral biases of investors do not contribute in create market anomalies in PEX through their portfolio investment decisions.
>
> H_1: behavioral biases of investors contribute in create market anomalies in PEX through their portfolio investment decisions

These are the main hypotheses for this thesis, although there are many other sub-hypotheses going to be examined through the data analysis.

3.7   <u>QUESTIONNAIRE ANALYSIS</u>

The questionnaire is divided into five parts; demographic questions, scenarios questions, ranking questions, yes or no questions, and likert scale questions, each part of these aims to achieve specific purposes. For example, demographic questions seek to illustrate each participant's characteristics to relate them with his/her way of thinking when investing in stock market. While scenario questions manifest how investors behave in different situations to measure their anomalous behavior and rationality. Moreover, ranking questions have been used to represent the investing strategies that investors rely on when making their investment decisions. Furthermore, yes, no questions and likert scale questions used to clarify the positive or negative response of respondants in order to relate their answers to the strategy they use in making their portfolio investment decisions and finally state if their investment decisions contribute in producing market anomalies or not.

The researcher wants to examine each of these sections validity, reliability and normality using the following tests;

1. Kolmogorov-Smirnov test of Normality

2. Cronbach's Alpha for Reliability.

3. Pearson correlation coefficient for Internal Validity.

Table (1) below shows the Kolmogorov- Smirnov test of normality, clarifies that variables are not normally distributed. Whereas, the significance of each field is less than 0.05 consequently, the researcher must use nonparametric tests for data statistical analysis. For further confirmation the researcher did other tests emphasize that data are not normally distributed. Tests are available in the second appendix tables 23 and 24. The reasons behind these results may refer to the small sample size we have, and the biased responds when the respondents were trying to show something contradict with what they really behave during the investment decision process.

Table 1: Kolmogorov- Smirnov test

Field	Kolmogorov-Smirnov[a]	
	Statistic	Sig.
AV. Mean For Rationality	.167	.000
AV. Mean For Anchoring & Adjustment	.144	.000
AV. Mean For Forecasting Error	.169	.000
AV. Mean For Asymmetric Discounting	.205	.000
AV. Mean For Mental Budgeting	.174	.000
AV. Mean For Shifting Risk Preferences	.180	.000
AV. Mean For Regret Aversion	.176	.000
AV. Mean For Overconfident	.112	.003
AV. Mean For Proxy Decision	.208	.000
AV. Mean For Home Bias	.185	.000
AV. Mean For Herding Behavior	.278	.000
AV. Mean For Different Interpretation	.328	.000
AV. Mean For Gambler Fallacy	.226	.000
AV. Mean For Availability Bias	.161	.000
AV. Mean For Illusion of Control	.193	.000
AV. Mean For Ambiguity Bias	.238	.014
AV. Mean For Sentiments	.380	.000
AV. Mean For Self-Attribution Bias	.192	.000
AV. Mean For Prospect Theory	.227	.000

Moreover, to check data reliability the researcher utilizes two statistical tools; Cronbach's Alpha and Split Half Method. The reliability tools consider as consistency measures that argue if the test was repeated twice with the same respondents the results essentially would be the same.

Table (2) below illustrates the Cronbach's Coefficient Alpha equal to 0.739 which indicates that the entire questionnaire has a high level of consistency thus, high level of reliability. Where the higher the value of Cronbach's Alpha coefficient the higher the reliability within the normal range of 0 and +1.

Table 2: Reliability Statistics-Cronbach's alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.739	.745	77

Furthermore, table (3) below of Split-Half test clarifies that Spearman-Brown Coefficient statistically significant at $\alpha = 0.05$ equals and the p-value of the test $= 0.565$ which confirms that the utilized questionnaire is reliable.

Table 3: Reliability Statistics- Split-Half

Cronbach's Alpha	Part 1	Value	.449
		N of Items	39[a]
	Part 2	Value	.711
		N of Items	38[b]
	Total N of Items		77
Correlation Between Forms			.394
Spearman-Brown Coefficient	Equal Length		.565
	Unequal Length		.565
Guttman Split-Half Coefficient			.460

To test the questionnaire validity the researcher inspects the correlation coefficients of each dimension to ensure the internal validity of the questionnaire. The researcher hires spearman correlation coefficient as a nonparametric correlation coefficient to test the internal validity. The tables that illustrate the validity of this study are shown in the first appendix below.

Table (A1) illustrates the correlation coefficient for each question of the Anchoring bias with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A2) illustrates the correlation coefficient for each question of the Forecasting Error with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A3) illustrates the correlation coefficient for each question of the asymmetric Discounting with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A4) illustrates the correlation coefficient for each question of the Mental Budgeting with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A5) illustrates the correlation coefficient for each question of the shifting Risk preferences with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A6) illustrates the correlation coefficient for each question of the Regret Aversion with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A7) illustrates the correlation coefficient for each question of the overconfident with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A8) illustrates the correlation coefficient for each question of the Proxy Decision Making with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A9) illustrates the correlation coefficient for each question of the Home Bias with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A10) illustrates the correlation coefficient for each question of the Herding Behavior with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at $\alpha = 0.05$, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A11) illustrates the correlation coefficient for each question of the Different Interpretation BIas with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A12) illustrates the correlation coefficient for each question of the Gamblers' Fallacy with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficient of this fields is significant at α = 0.05, thus all the question of this dimension are consistent and valid to measure the studied biases.

Table (A13) illustrates the correlation coefficient for each question of the Availability Bias with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A14) illustrates the correlation coefficient for each question of the Illusion of Control with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A15) illustrates the correlation coefficient for each question of the Ambiguity Bias with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A16) illustrates the correlation coefficient for each question of the Self-attribution Bias with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A17) illustrates the correlation coefficient for each question of the Prospect Theory with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A18) illustrates the correlation coefficient for each question of the Investors' Sentiments with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A19) illustrates the correlation coefficient for each question of the Investors' Rationality with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Table (A20) illustrates the correlation coefficient for each question of the Anomalies Emergence with the overall dimension. To determine the significance of each sentence the p-value should be less than 0.05, therefore, correlation coefficients of these fields are significant at α = 0.05, thus all the questions of this dimension are consistent and valid to measure the studied biases.

Thereby, the researcher has proved that the questionnaire was valid, reliable, and ready for further analysis to reflect what it constructed for.

CHAPTER FOUR:
FINDINGS OF THE STUDY

4.1   <u>INTRODUCTION</u>

In this chapter the researcher is going to present the results of the tested variables, whereas SPSS software used to analyze these data, and manifest the nature of the relationships between the tested variables. In addition to clarify the significance of each existed relationship among the tested variables.

Thus, after we examined the validity, reliability, normality tests of data, statistical nonparametric tests which include; descriptive analysis of the demographic factors and other behavioral biases, utilize to investigate in the existence and the strength of variables' relationships. Moreover, an ordinal regression runs for testing the main hypothesis of this research.

4.2   <u>DESCRIPTIVE ANALYSIS OF THE SAMPLE</u>

Through the questionnaire the researcher looked at certain demographical characteristics to relate them with the investors' behavioral biases to determine any relationship between these demographic factors and individual behavioral biases.

Figure (F3) below shows that 51% of respondents aged between 31-50 years old, while 30.8% of them are less than 30 years old, and only 18.3% aged more than 51 years old.

Figure 3: Age
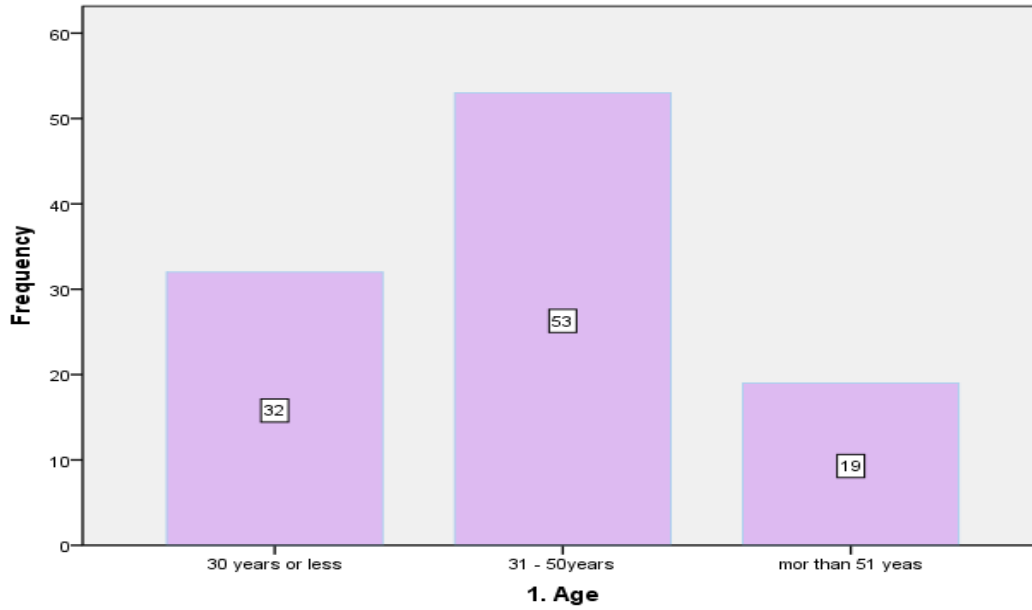
Figure (F4) below illustrates that majority of 83.7% was male and 16.3% was Female.

Figure 4: Gender
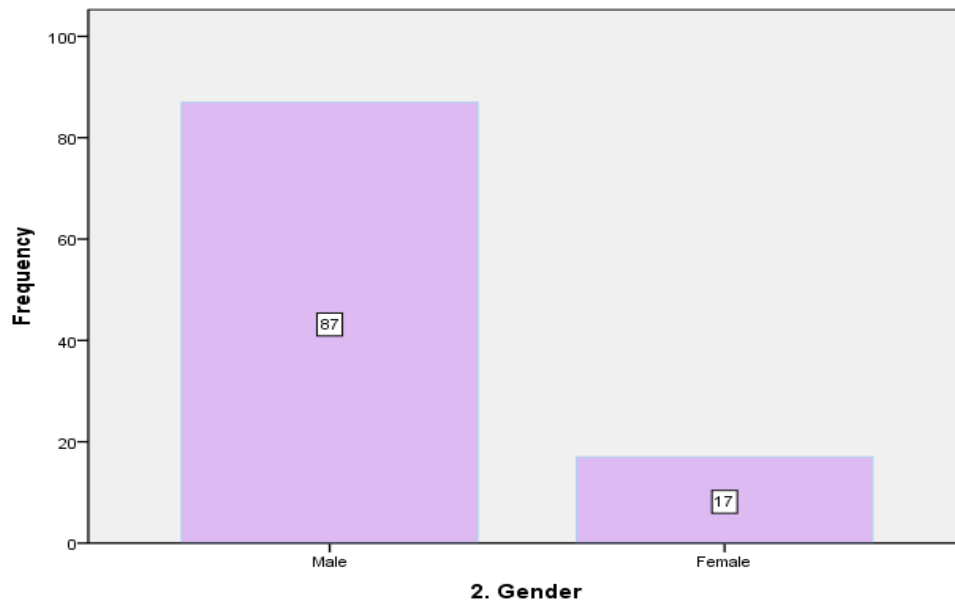
Figure (F5) shows that 69.2% of respondents are married and 28.8% are single.

Figure 5: Marital Status
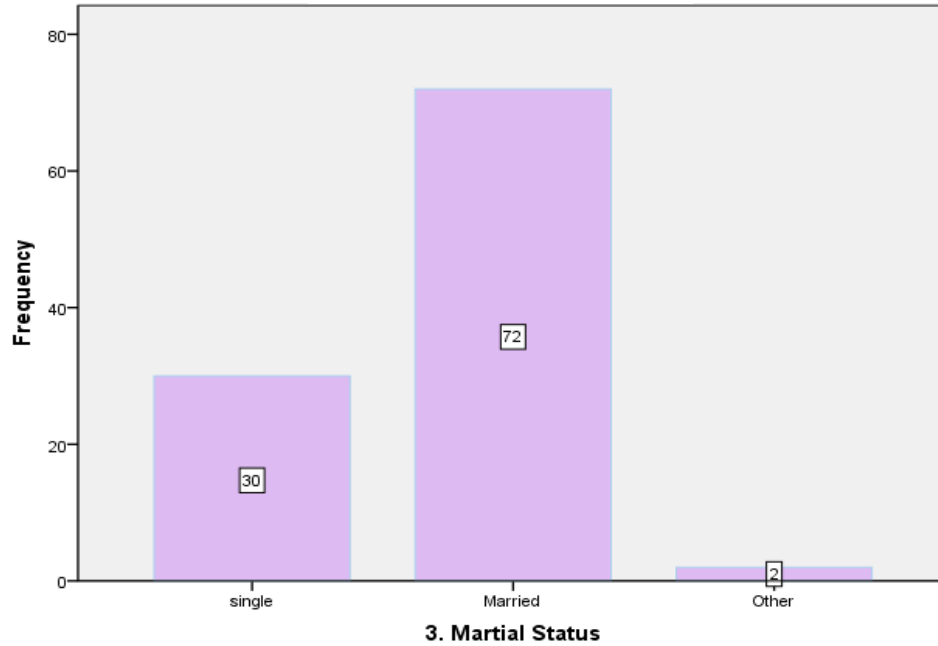
Figure (F6) illustrates that 51.9% of the sample participants had a bachelor degree, while 35.6% of them had higher study certificate and only around 11% of the respondents studied until high school or less.

Figure 6: levels of Education
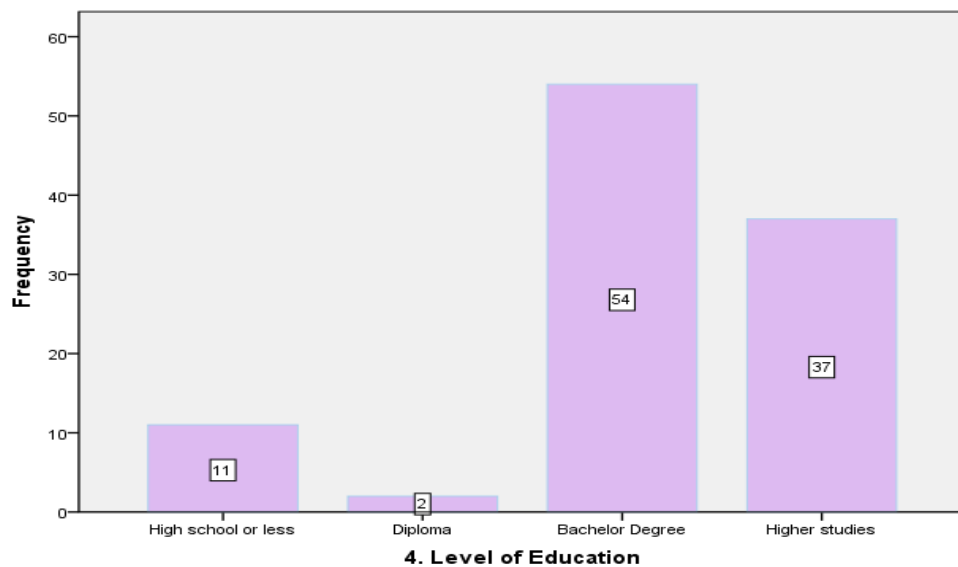
Figure (F7) clarifies that most of respondent's income per month exceed 1000 JOD and they approximately are 41% of the tested sample. Roughly 24% of the respondent's monthly income between 800- 1000 JOD. While just 8.7% of the respondents have a monthly income less than 500 JOD.

Figure 7: Income per Month
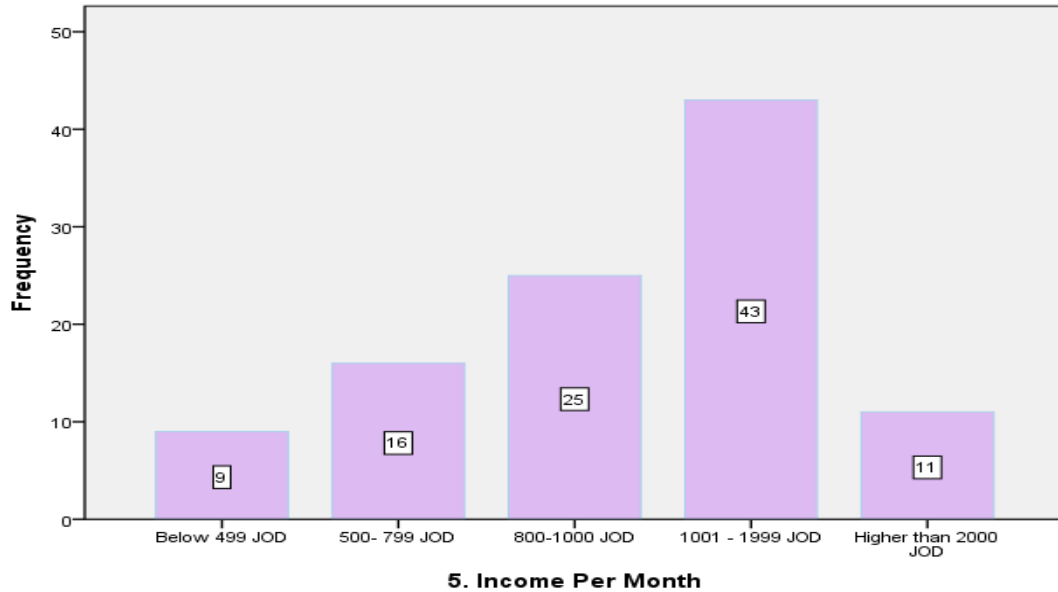
Figure (F8) shows the years of experience that sample respondents had in PEX, the results were 50% had been dealing with PEX between 2-10 years, around 43% from 11-25 years, 12% had less than 1 year of experience, and 3% more than 26 years.

Figure 8: Years of Experience
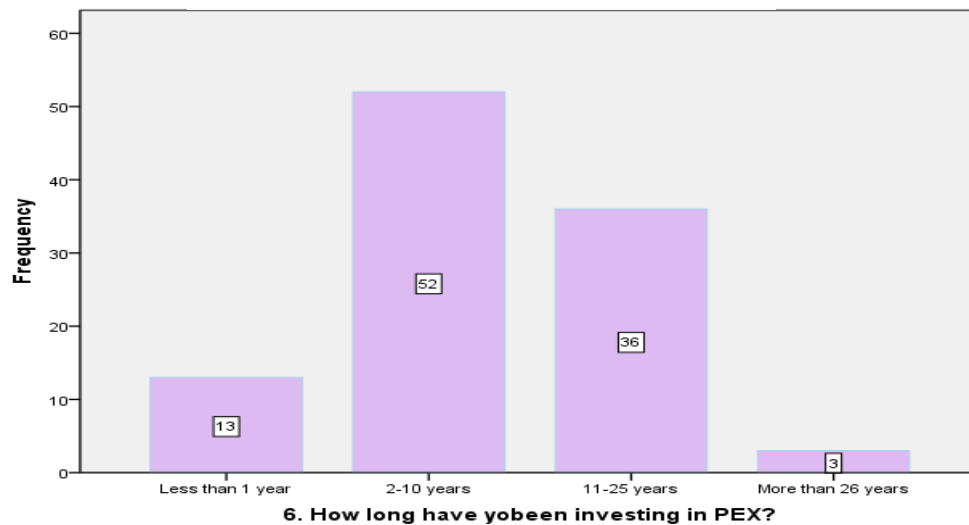
Figure (F9) illustrates that 70% of the sample respondents attended at least 1 course about stock exchange. On the other hand 30% of them did not attend any courses of stock exchange.

Figure 9: Course Attended
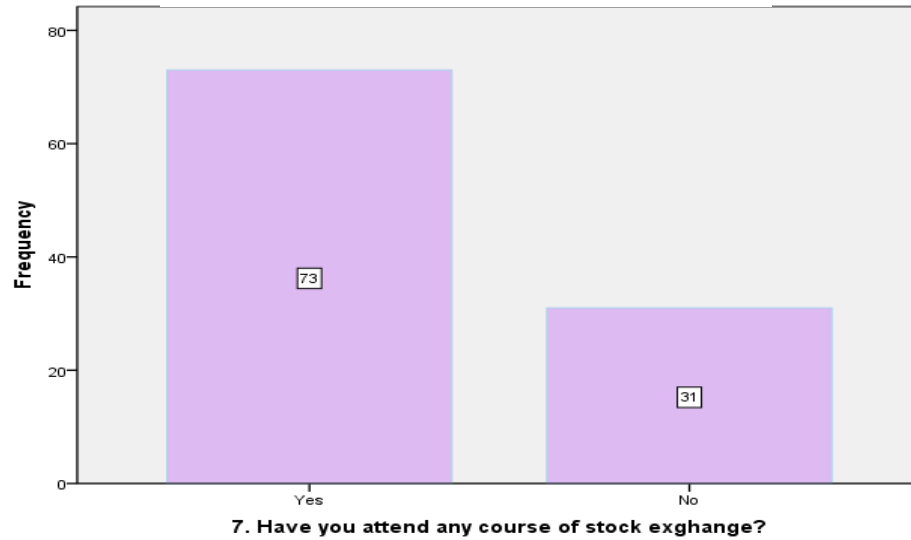
Figure (F10) clarifies that 55.8% of the respondents devoted only less than half of their invested fund in PEX. However, 26% of them invested 100% of their fund in PEX. And roughly 18% of the respondents invested between 51- 99% of their portfolios in PEX.

Figure 10: PEX Portfolio Proportion
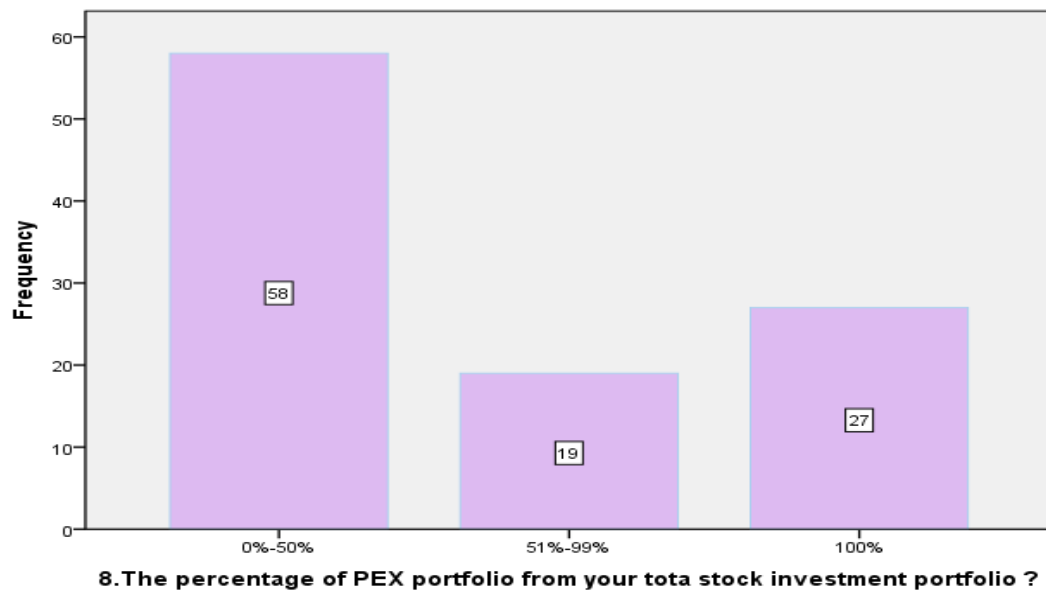
Figure (F11) shows 41.3% of the sample respondents incurred less than 10% loss of their portfolio investments during the last 5 years. While 28.8% of them lose from 30-50% of their portfolios, 17.3% lose more than 50%, despite of 12.5% of the sample respondents stated that they did not incurred any losses during the last 5 years.

Figure 11: Loss Incurred

Figure (F12) illustrates that the majority of the sample respondents classify themselves as risk neutral by a percentage of 51%. In contrast 25% of them stated that they are risk takers and 24% of them said that they are risk averse.

Figure 12: Risk Appetite
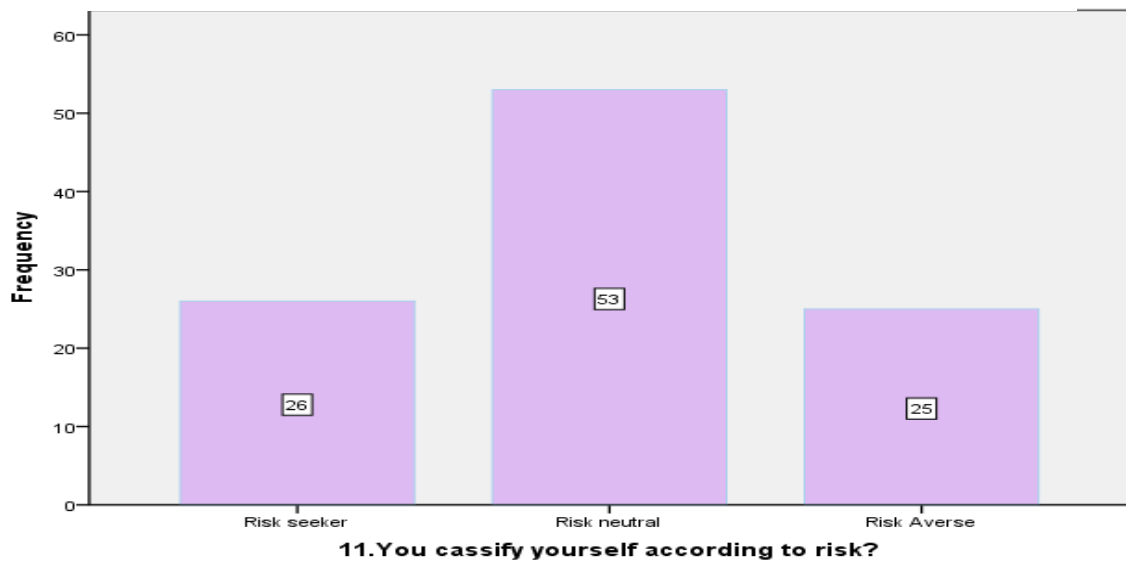
4.3   <u>Behavioral Biases Impact on Portfolio Investment Decisions</u>

To test the research hypotheses, the researcher tested each dimension with its related questions, for likert scale questions the researcher hired Kruskal Wallis test and Friedman test to investigate in group's differences. For yes, no questions the researcher utilized Mann Whitney test to examine the differences between two groups. These non-parametric tests are used instead of t-test and ANOVA test, because our data are not normally distributed. Furthermore, these tests enable us to investigate in the existence of each bias and its influence on the Palestinian investors' Portfolio investment decisions.

4.3.1 Anchoring Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: anchoring has no impact on the Palestinian Investors portfolio investment decisions

H_a: anchoring has an impact on the Palestinian Investors portfolio investment decisions

Table 4: Mean & Test value for "Anchoring"

#	Likert- Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig
1	I use the stock purchase price as a reference point for trade.	2.18	2.63		23.059	.000
2	I compare the current stock prices with their recent year high and low price to justify my stock purchase.	2.20	2.75		23.414	.000
3	I am likely to sell my stock after the price hits recent year high	2.21	2.56		23.420	.000
4	I am unlikely to buy a stock if it was more expensive than last year	3.13	3.81		51.774	.000
	Total value of all Fields – Friedman Test	2.43	3.25		60.726	.000
#	Yes. No - **Statement**	Mean	Mean Rank		Test –Value Mann Whitney	Sig
5	Would you invest portion of your money in PEX because of brand loyalty or reputation	0.44	yes	29.50	.000	.000
			No	81.50		

The table above illustrates that the Palestinian investors are suffering from anchoring bias; as they made their investments decisions based on some reference points as shown when we asked them 'if they use the stock purchase price as a reference point for trade' the mean value was 2.18 which means that most of the sample respondents agree and strongly agree on this sentence. Also when they were asked if they ''compare current stock prices with the recent year high and low price, to justify stock purchase'' The mean was significant and indicates that most of the sample respondents answers were agree and strongly agree, since strongly agree=1 and agree=2. However, through the sample results we can say that PEX investors do not heavily rely on irrelevant information while making their investment decisions.

The mean for ' I am unlikely to buy a stock if it was more expensive than last year' was 3.13 which reflects that most of respondents have a neutral answers on this question, because the actual price of a stock does not mean a lot. there are many expensive stocks with poor performance and many cheap stocks with good performance.

 Moreover, the mean rank of Mann Whitney U test for those who answered yes on 'Would you invest portion of your money in PEX   because of brand loyalty or reputation' is much less than who answered no they do not depend on loyalty or reputation of the stock when they make their investment decisions, which mean they do not have anchoring behavior BUT the significance of Mann Whitney U test is less than $\alpha=0.05$ therefore, we should reject the null hypothesis of this test which state that these 2 groups are the same and accept the null which reflects that these two groups are different.

 Thereby, we can conclude that anchoring behavior is existed among PEX investors as overall score of Friedman test equals 2.43 and its significance level equals to 0.000. So we reject H_0: anchoring has no impact on the Palestinian Investors portfolio investment decisions. And accept the alternative hypothesis that anchoring has an impact on Palestine investors' portfolio investment decisions.

4.3.2 Forecasting Error Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Forecasting Error has no impact on the Palestinian Investors portfolio investment decisions

H_a: Forecasting Error has an impact on the Palestinian Investors portfolio investment decisions

Table 5: Mean & Test value for "Forecasting Error"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I depend only on current information before making any investment in PEX	2.98	3.09	60.542	.000
2	I rely on near past performance to buy stocks because I believe that good performance will continue	2.33	2.13	41.699	.000
3	Good stocks are firms with consistent earnings growth in the last 3 years	2.32	2.11	35.430	.000
	Total value of all Fields – Friedman Test	2.541	2.67	57.042	.000

The table above clarifies that PEX investors have Forecasting Error as an overall Mean score of Friedman test that equals 2.531 which is in between agree and neutral responds. All the fields above reflect a significant impact of Forecasting Error bias on the Palestinian Investors' Portfolio investment Decisions, whereas most of the sample respondents focus on the latest news or incidents rather than focusing on previous or past events which is considered a big mistake.

Such a behavior may result in disastrous influences on the investors' portfolio by which buying or selling an investment based on recent news released neglecting all the analysis and other related information about the stock might produce a negative return to that investor, while any positive gain appears produced by chance or luck.

4.3.3 Asymmetric Discounting Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Asymmetric Discounting has no impact on the Palestinian Investors portfolio investment decisions

H_a: Asymmetric Discounting has an impact on the Palestinian Investors portfolio investment decisions

Table 6: Mean & Test value for "Asymmetric Discounting"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I am a long term investor in PEX	3.01	3.23	54.693	.000
2	I prefer immediate gains over future gains	2.43	2.74	20.843	.000
3	You invest in PEX financial instruments for return	.40	1.03	103.000	.004
	Total value of all Fields – Friedman Test	2.72	3.00	209.419	.000

Regarding to the table above Friedman mean result for all fields is 2.72 which accounted as a moderate result of asymmetric discounting bias. Respondents' dominant answer was yes on 'You invest in PEX financial instruments for return' with mean less than 0.5 as return=0 and wealth creation equals 1, which indicates that investors prefer immediate gain over long term gain because people are thirsty for money. So they choose to invest for return rather than investing to accumulate wealth.

The result above confirmed when our sample participants were asked 'I prefer immediate gains over future gains' the mean of answers is 2.43 this leads us to think that PEX are speculators not real investors in PEX. Furthermore, to ensure that researcher do not judge subjectively on the results, respondents answers on whether they classified themselves as long term or short term investors 'I am a long term investor in PEX' the mean of this question equals 3.01 close to neutral and disagreement, which is again confirms that PEX investors have Asymmetric discounting bias.

Moreover, all the fields above show significant p-values thereby, significant impact on portfolio investment decisions. Therefore, we reject the null hypothesis and accept the alternative hypothesis that asymmetric discounting has a moderate impact on portfolio investment decisions.

This bias does not consider harmful solely on the investors' portfolio but it's also harm all the market because its affect stock volatility and market liquidity, as this behavior keep market away from equilibrium when investors used to invest once and leave for a while and back.

4.3.4 Mental Budgeting Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Mental Budgeting has no impact on the Palestinian Investors portfolio investment decisions

H_a: Mental Budgeting has an impact on the Palestinian Investors portfolio investment decisions

Table 7: Mean & Test value for "Mental Budgeting"

#	Likert- Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	I tend to treat each element of my investment portfolio separately	2.15	1.78		72.134	.000
2	I care about spending on my daily obligations more than caring about saving for the future	2.45	2.22		79.678	.000
	Total value of all Fields – Friedman Test	2.30	2.00		17.344	.000
#	Yes. No - Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
3	Do you devote part of your income savings for investing in the share market?	0.55	Yes	24.00	.000	.000
			No	76.00		

In this section the outcomes clearly show that mental budgeting has a significant impact on the Palestinian investors' portfolio investment decisions as all fields show significance level < 0.05.

Moreover, whether the respondents' answers were positive or negative on these questions the researcher can end up with the same conclusion that mental accounting behavior does really affect investors' portfolio investment decisions. In other words, if investors devote part of his money to invest in stock market or not he/she still act within mental accounting bias boarders, as this investor categorized different form of spending into different types of budgets in his/her mind he/she still do mental accounting. Therefore, mental budgeting appears in each decision made by the investors but it varies with its influences on each decision made, based on different investors' characteristics, and different ways of thinking for each individual. For further understanding is can be drawn from the result of 'Do you devote part of your income savings for investing in the share market?' the mean rank of those who answered no exceeds the mean rank of those who said yes, but mental accounting still exists and has a significant impact on portfolio investment decisions because both of them did mental accounting based on his/her own standards.

Furthermore, the actual results of the survey were correspondence with the desired outcomes from this bias, as table above illustrates that Friedman mean value = 2.30 which indicates that people do mental accounting and do not pick their investments randomly or without the minimum level of thinking. Thus, we reject H_0 and accept the alternative hypothesis.

4.3.5 Shifting Risk Preferences Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Shifting Risk Preferences has no impact on the Palestinian Investors portfolio investment decisions

H_a: Shifting Risk Preferences has an impact on the Palestinian Investors portfolio investment decisions

Table 8: Mean & Test value for "Shifting Risk Preferences"

#	Likert - Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I keep stocks that decreased in value for long time	3.76	4.49	24.746	.000
2	I sell the stocks that increased in value faster	1.93	2.59	36.115	.000
3	I am more concerned about a large loss in my stock than missing a substantial gain	1.86	2.32	32.460	.000
4	When it comes to investment, no loss of capital (invested money) is more important than returns (profits)	1.67	2.07	39.512	.000
	Total value of all Fields – Friedman Test	2.30	3.53	199.715	.000

Regarding to this bias the researcher tries to examine whether the Palestinian investors in PEX behave in a risk averse manner when there is a loss and in risk taking manner when there is a gain, as this bias assumes. Respondents were asked about their behaviors toward different scenarios, first 'I keep stocks that decreased in value for long time' the answers mean = 3.76 which is reflects that most of the responds were disagree and strongly disagree, whereas investors want to get rid of these losing stocks as soon as possible even they will incurred a loss rather than holding them and waiting these stocks to be better. In this scenario investors prefer to lose known proportion of their invested fund and reinvest the remaining in other stock that expected to cover their previous loss, so investors behave in a risk taking manner.

In the opposite scenario the sample respondents were asked 'I sell the stocks that increased in value faster' most of the answers were strongly agree which is reflected I the mean value of this field that equals 1.93 as stock price starts to increase investors anticipates a sudden decrease of this stock price at any moment so they tend to sell these stocks faster as long as they can retrieve their principal investment plus minimum amount of gain, in this scenario the investors behave in a risk averse manner as he/she choose to forgone a possible higher gain for the minimum level of gain to avoid any losses. This aligned with the result of asymmetric discounting bias as investors prefer immediate gains over long terms gains.

Furthermore, the remaining scenarios confirm what the researcher discussed here in which the mean values of both sentences are very close to 1. Which reflect that investors agree and strongly agree that they 'more concerned about a large loss in their stock than missing a substantial gain' and 'When it comes to investment, no loss of capital (invested money) is more important than returns (profits)' this consistent with this bias assumption; investor is more conservative when there is a gain but they able to handle more risks during risky situations hopping to obtain desired goals. Finally we can say that shifting risk preferences bias significantly affected the Palestinian investors' portfolio investment decision and accept the alternative hypothesis since mean value = 2.30 is significant.

4.3.6 Regret Aversion Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Regret Aversion has no impact on the Palestinian Investors portfolio investment decisions

H_a: Regret Aversion has an impact on the Palestinian Investors portfolio investment decisions

Table 9: Mean & Test value for "Regret Aversion"

#	Likert - Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I blame myself hard if I have forgone a profitable security investment	2.70	1.60	45.717	.000
2	I keep the stocks that decreased in value and I don't sell them	3.38	2.40	65.935	.000
	Total value of all Fields – Friedman Test	3.04	2.00	44.100	.000
#	Yes. No - Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
3	If you know that other investors in PEX suffer from loss as you, would you feel better?	.39	Yes	32.00	.000	.000
			No	84.00		

According to the table above the researcher is trying to figure out whether PEX investors felt regretful when they had forgone a profitable security investment or when they lose money through investing in unfamiliar or instable security. The result was; PEX investors do blame themselves for not investing in a particular security that achieved a good performance. The mean value of 'I blame myself hard if I have forgone a profitable security investment' indicates that investors confess; they blame themselves when they do not invest in an affordable profitable stock. Moreover, as the mean value of 'I keep the stocks that decreased in value and I don't sell them' = 3.38 reflects that investors disagreed on keeping stocks that decreased in value because most of them as shown from the outcome do not have the enough courage needed for holding this sock and wait until it better off,

because they afraid of further losses that might be painful and cause a strong feeling of regret if the investors keep these stocks and faced the stock value reduction. Even though, investors may be affected by consolation if he/she finds that; he/she not the only one in the market who suffers from the loss but there are other investors who faced the same situation in the same investment and at the same time. Despite of the mean rank of those who said they feel better if there are other in the market facing the same situation are less than those who said that they are not affected by what happened to other investors at least emotionally, this bias assumes that they would not admit this feeling because of their overconfident as we will see latter on. Consequently, this bias will affect the investors' decisions as he/she thinks deeply when facing unfamiliar situation or when they have to pick between to different investment opportunities that may relatively contain a high level of risk. Therefore, the researcher could reject the null hypothesis and accept the alternative hypothesis that regret aversion bias has a moderate significant impact on the Palestinian investors' Portfolio investment decisions.

4.3.7 Overconfident Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Overconfident has no impact on the Palestinian Investors portfolio investment decisions

H_a: Overconfident has an impact on the Palestinian Investors portfolio investment decisions

Table 10: Mean & Test value for "Overconfident"

#	Likert - Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	On average, I predict future share prices better than other	2.12	3.79		62,644	.000
2	I trust my experience more than PEX efficiency	1.99	3.50		49.468	.000
3	I think that my knowledge exceeds other investors knowledge in PEX	2.12	3.85		53.649	.000
4	I trade stocks excessively	2.21	4.01		50.084	.000
5	your investment decisions proved to be right	0.95	1.90		103.000	.000
	Total value of all Fields – Friedman Test	2.11	3.94		120.172	.000
#	Yes. No - Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
6	Would you invest portion of your money in PEX based only on your experience	.38	Yes	37.43	288.000	.000
			No	77.62		
7	Men have more knowledge and control than women over investment in PEX	.38	Yes	37.43	288.000	,000
			No	77.62		

From the table above the researcher can easily reject null hypothesis as around 80% of the sample respondents showed they have self-confidence when making any investment decisions.

'I think that my knowledge exceeds other investors knowledge in PEX ' and 'On average, I predict future share prices better than other' have the same mean value of 2.12 which reflects that large number of respondents agree on this statements where 23-25 of them answers strongly agree and 45- 47 of them agree on these statements,

the percentage of agreement for those two groups = 67.4% determined that PEX investors have high degree of confident in their knowledge of the market and their ability to predict future prices. While, only 3-7 people from the total sample disagree with these statements, they might be beginner investors or investors who lose their confident in the market because of the successive losses they had incurred.

Moreover, when the sample participants were asked 'I trust my experience more than PEX efficiency' the responds of agreement on this statement were dominants on the disagreement responds, in which PEX investors believe in their experience and knowledge more than believing in the efficiency of PEX this type of overconfident may lead investor to fall in what is called blind choice; the investor become blind to negative information and do not take the right action during the right timing.

Furthermore, Schiller (2003) argued that investors who trade stock excessively more than others in the market or those who have higher turnover, tend to have overconfident because they believe in their information, knowledge and abilities. This behavior called decision arrogance which means that one's self confidence gets in the way of making financial decision such as optimism. This is clearly applied over PEX investors as the mean value of those who trade excessively equals 2.21. On the other hand, the optimism shown in how investors believe in their investment decisions are proved to be right, the mean value = 0.95 close to 1 which is the dominant choice picked by the respondents whereas 50% of the participants think that their investment decisions proved to be right from 50%- 80%. While, 25% of the respondents consider that their investments proved to be right by more than 80%. Such a feeling lead investor to trade more with less analysis and exposed their portfolios to higher risk.

In addition, there is a common belief that men have more overconfident than women in the market, because men think they have more information and control over the market than women. When the sample participants were asked 'Men have more knowledge and control than women over investment in PEX' the mean rank for those who said yes is much less than who said no men do not have more knowledge and control than women in PEX market, it's not absolute dominant scenario, it might be right in some cases and wrong in other cases, whereas the significant value of this test clarifies that there a significant difference between these two groups and men do not necessarily have the knowledge and control over market than women have. This affect investor's investment decisions through the risk tolerance that each of men and women willing to handle, men might bear more risks or less diversified portfolio because of the blindness overconfident they have. Through this behavior PEX investors expose their portfolios to severe losses. Therefore, the researcher accept the alternative hypothesis and reject the null hypothesis.

4.3.8 Proxy Decision Making Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Proxy Decision Making Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Proxy Decision Making Bias has an impact on the Palestinian Investors portfolio investment decisions.

Table 11: Mean & Test value for "Proxy Decision Making"

#	Likert - Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I trust broker analysis more than mine	2.48	2.17	79.786	.000
2	I feel more confident in investment when I took my colleagues or friends opinions	2.28	1.83	64.595	.000
	Total value of all Fields – Friedman Test	2.37	2.00	9.818	.007

As table (11) shows the sample participants responses to the both statements above were close and significant, the mean value of Friedman test equals 2.37, indicates that proxy decision making is shows up in PEX, and since the significant value of the test = 0.007 less than 0.05, the test's null hypothesis should be rejected because the two tested statements are related to tested dimension significantly and each sentence had proved that the tested bias is appear in PEX through the mean and they significantly impacting Investors' portfolio investment decisions..

From the table above, we find that mean results are between neutral and agreement options, because most of the investors will hardly confess they need an advice or consultant from someone else, because they believe in their knowledge of making any good investment decision alone, owing this to their overconfident in their investments abilities.

Consequently, we can argue that neutral answers were relative to investors' overconfident as discussed above while the agreement answers were due to a well know bias called herd bias which individuals in general like to follow the herd. Some respondents were reluctant when answering on these statements, because investors never admitting their need to a broker advice nor confess they might follow other in the market because of inadequate knowledge they faced. Thu, we can say that proxy decision making bias appears among PEX investors, and affecting investors' portfolio investment decisions. Thereby we can reject null hypothesis and accept that Proxy Decision Making bias has an impact on the Palestinian Investors portfolio investment decision; investor investment decisions affected by this bias through the confusion investor fall in when he/she cannot decide whether if he/she should take broker opinion about good investment opportunities and trust him or not. Thus, the influences of hesitation when making any decision could be negative and harmful, because when dealing with stock market individuals should be fast, aware and determined.

4.3.9 Home Bias Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Home Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Home Bias has an impact on the Palestinian Investors portfolio investment decisions.

Table 12: Mean & Test value for "Home Bias"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I prefer to invest in PEX rather than investing in other stock markets	2.86	1.96	81.994	.000
2	Local stock investments are more profitable than other investments	2.66	2.04	74.142	.000
	Total value of all Fields – Friedman Test	2.66	2.00	0.593	.000
#	Yes. No- Statement	Mean	Mean Rank	Test –Value Mann Whitney	Sig
3	Would you invest portion of your money in PEX if you get an extra fund	0.61	Yes 21.00 / No 73.00	.000	.000

Home bias has moderate influence on the Palestinian investors' portfolio investment decisions. Home bias may affect investors' decisions through pushing the PEX investors to invest in domestic market (PEX) although there may have been better returns from investing in the international markets. However, the tendency of PEX investors to invest in PEX is very low as the above table illustrates, this might be relevant to the fact that PEX is an emerging market with very limited opportunities and high risk associated with PEX investments.

In item 3 'Would you invest portion of your money in PEX if you get an extra fund' the mean rank of those who said no is significantly triple the mean rank of those who said yes, they would invest any extra fund in PEX.

This is might be because investors want to obtain good investment returns from international markets. When participants asked about their opinion in 'Local stock investments are more profitable than other investments' and 'I prefer to invest in PEX rather than investing in other stock markets' the mean values of the two sentences are closed to each other and significant, also Friedman test p-value seems to be significant $0.000 < 0.05$ so the null hypothesis of the test should be rejected.

4.3.10 Herding Behavior Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Herding Behavior has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Herding behavior has an impact on the Palestinian Investors portfolio investment decisions.

Table 13: Mean & Test value for "Herd Behavior"

#	Likert- Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	I buy the stocks that a group of investors bought	2.79	-		103.000	.000
#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
2	Would you invest portion of your money in PEX because the majority invests in certain stock?	0.72	Yes	20.52	160.000	.000
			No	64.87		
3	Would you invest portion of your money in PEX because of a role model?	0.51	Yes	29.14	160.000	.000
			No	74.98		
4	You buy a stock if you hear about a great stock tip from your neighbor who is known to have a good stock market sense.	0.93	Yes	40.00	.000	.000
			No	56.00		

From the table above we noticed that herding behavior of the Palestinian investors is not clearly visible in PEX investors behavior, as mean values of the above fields illustrate that mean values are closed to deny the existence of this behavior in their investment actions,

it might be goes back to the fact that this behavior presented in imitating other investors actions or imitating the majority's actions because they possibly could not be wrong as they achieve good performance more than once.

This obviously contradicts with overconfident bias we discussed previously. The blindness overconfident of the Palestinian investors stimulate their self-dependence and keep them away from admitting any herding behavior, even though, PEX investors may be interested in some investors actions as in each market there are a number of investors who had attract other investors attention and they proctor them from a distance to imitate their investment actions, but they will never admit they imitate those investors even to themselves.

Thus, we can conclude the herding behavior is a hidden behavior among PEX investors but it has a significant value in impacting Palestinian Investors portfolio investment decisions. So we reject the null and accept the alternative hypothesis.

4.3.11 Different Interpretation Bias Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Different Interpretation Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Different Interpretation Bias has an impact on the Palestinian Investors portfolio investment decisions

Table 14: Mean & Test value for "Different Interpretation Bias"

#	Likert- Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	Investor profile affect investment decisions	1.93	-		103.000	.000
#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
2	Would you go ahead and invest in a stock if your valuation of a particular stock is different from the valuation that made by a well-known expert	0.12	Yes	49.31	258.500	.001
			No	76.96		
3	Each investor in PEX react differently for the same information or event	0.46	Yes	33.12	258.500	.000
			No	75.11		

From the above table we find that PEX investors are truly believed that each investor profile affect his/her investment decisions, investors react differently to the same information received relying on each investor character and desired portfolio status. Thereby, when the sample participants were asked if 'Investor profile affect investment decisions' the mean value of the answers = 1.93 relied between agree and strongly agree responses which prove that investment decisions affected by each investor profile. In addition to item 3 which confirms that investors react differently to the same information with mean rank of yes responses significantly lower than no responses. Moreover, item 2 clarifies that investors would go ahead and invest in a particular security if their valuation of a particular stock is different from the valuation that made by a well-known expert,

because they believe that each individual analyze the available data from his/her own perspective. This result also consistent with the blindness overconfident exists among PEX investors, who are not going to follow other opinions because they believe in their own information and analysis. Different interpretation bias apparently presents among PEX investors and has a significant impact on Palestinian Investors portfolio investment decisions as they stick to their own thoughts and believes during the investment decision process.

4.3.12 Gamblers' Fallacy Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Gamblers' Fallacy has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Gamblers' Fallacy has an impact on the Palestinian Investors portfolio investment decisions

Table 15: Mean & Test value for "Gamblers' Fallacy"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I can normally expect the end of the market returns whether they are good or bad.	2.41	-	103.000	.000

Regarding to this bias the sample respondents state that they can normally predict whether the market return good or bad, depending on short data set in which random events are less likely to occur because of a series of past events. The mean value of this field = 2.41 and .000 significance level which reflects that most of the investors in PEX agree on their abilities to forecast future returns. This bias aligned with two previous discussed biases which are; anchoring behavior, whereas investors relies on series of past events and ignore the randomness of the market outcome by depending on irrelevant reference point, the other bias is overconfident in which PEX investor think they have the adequate information to make a good investment decisions but this is incorrect. Thus, the researcher accepts the alternative hypothesis.

4.3.13 Availability Bias Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Availability Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Availability Bias has an impact on the Palestinian Investors portfolio investment decisions

Table 16: Mean & Test value for "Availability Bias"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I believe that analysis of share past performance help me in finding its future value	2.03	2.03	12.967	.005
2	I believe that if, i lose in particular security last year i will incurred a loss this year too	3.47	3.84	50.578	.000
3	I prefer to invest in a well-known security rather than a newly issued one	2.83	3.06	45.024	.000
4	If I want to invest in the stocks of a certain company, I will rely on information from the same company	2.85	2.92	36.132	.000
	Total value of all Fields – Friedman Test	2.79	3.15	92.249	.000
#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
5	Would you invest portion of your money in PEX for the next year because you had achieved successive gains the last years	0.43	Yes	30.00	000	.000
			No	82.00		

The total mean value of all fields = 2.79 shows that investors in PEX exposed to a moderate availability bias with significant level of .000 when influencing the investment decisions of these investors. Field 1 'I believe that analysis of share past performance help me in finding its future value' demonstrates that investors in PEX depend on the past performance of the stock to determined what they are going to do.

Relatively speaking, investors are affected by the previous events occurred in the stock life cycle and also their own lives thereby, their future investments actions affected by this behavior.. The mean value of 2.03 emphasizes on the existence of availability bias and the significance of what just argued above.

Field 2 'I believe that if, i lose in particular security last year i will incurred a loss this year too' the mean value of this field was 3.47 which means that investors in PEX disagree on the context of this statement because what happened in the past is not probable to reoccurred and affect the portfolio position. This value is significant according to Kurskal Wallis test.

Field 3 'I prefer to invest in a well-known security rather than a newly issued one' the mean value of this field locates between agreement and neutral options equals 2.83 p-value = 0.000 which illustrates the significant impact of availability bias on the portfolio investment decisions. Since newly issued securities do not have history or any image reflected the investors' minds he/she is going to choose the well-known stock because it has past performance investors refer to when make the investment decision

Regarding to field 4 'If I want to invest in the stocks of a certain company, I will rely on information from the same company' the mean value was significant and equal to 2.85 which confirm what argued before. However, the effect of this scenario on the investment decisions dwells in investors' interest about the released information by the company that investor intend to invested in. Thus, based on the available information from the company, investors decide whether to sell or buy company's' share.

Furthermore, field 5 'Would you invest portion of your money in PEX for the next year because you had achieved successive gains the last years' the mean rank for those who said yes is significantly less than the mean rank of those who said no.

Which emphasize the result that availability bias appear in PEX and has an impact on the Palestinian Investors Portfolio Investment Decisions. Finally, according to these results the researcher should reject the null hypothesis: Availability Bias has no impact on the Palestinian Investors portfolio investment decisions. And accept the alternative hypothesis: Availability Bias has an impact on the Palestinian Investors portfolio investment decisions

4.3.14 Illusion of Control Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: illusion of Control Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: illusion of Control Bias has an impact on the Palestinian Investors portfolio investment decisions

Table 17: Mean & Test value for "Illusion of Control"

#	Likert- Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	I believe that I have control in picking securities that will outperform the market	2.49	1.94	68.819	.000
2	I wouldn't sell a particular security if most of investors sell it, while my analysis indicate that it is a profitable opportunity.	2.59	2.06	79.045	.000
	Total value of all Fields – Friedman Test	2.53	2.00	1.241	.000

This bias assumes that investors believe they can affect their returns and beat the market when in fact they cannot. According to the fields above the null hypothesis is going to be rejected as the mean value of all fields equal 2.53 which reflects that PEX investors have illusion of control bias that might be considered part of their overconfident bias.

When the investors were asked the following 'I believe that I have control in picking securities that will outperform the market' the mean value indicates; most of the investors agreed and strongly agreed on this statement. Thus, illusion of control has a significant appearance in Palestine Exchange. Also when they were asked to answer on 'I wouldn't sell a particular security if most of investors sell it, while my analysis indicate that it is a profitable opportunity' most of the investors' responses were agree and strongly agree with mean value =2.59 and significant level = 0.000. These actions by PEX investors might affect the portfolio investment decisions through stimulate risky stocks investment, that caused substantial losses in the investors' portfolio, as investors think they made the right decision that enables them to outperform the market in a particular opportunity they fail to achieved their desire, because they depend on blindness overconfident again as they based their investment decisions on a fancy information.

4.3.15 Ambiguity Bias Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Ambiguity Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Ambiguity Bias has an impact on the Palestinian Investors portfolio investment decisions

Table 18: Mean & Test value for "Ambiguity Bias"

#	Likert - Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	When the market performance is poor I will not increase my investment	2.78	-		103.000	.000
#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
2	I prefer real estate investing over investing in stock market	0.57	Yes	31.87	399.000	.000
			No	68.24		
3	I wouldn't invest in PEX if the uncertainty is high	0.40	Yes	37.94	399.00	.000
			No	74.00		

The mean values of this dimension reflects that ambiguity bias reveal in PEX and it has a significant moderate impact on the Palestinian Investors' portfolio investment decisions, subsequently the null hypothesis rejected and the researcher accept the alternative hypothesis.

This bias is surface in PEX among investors as they dislike investing in uncertain opportunities because people dislike ambiguity more than risk. Thus when they were asked 'When the market performance is poor I will not increase my investment' most of the sample respondents agree and strongly agree on this statement because they dislike uncertainty. However, some investors stated about their willing to invest in PEX during uncertain situations, because when the market better off their gains going to be duplicated. The researcher finds correlation between those who love ambiguity situation with their risk appetite the correlation coefficient of Kendall's Tau-B equals -0.392 with significant level = 0.000 which means as investors like ambiguity the risk appetite decreased from 2 to 0 (from risk averse to risk taker) as this variables were coded.

Moreover, when they were asked the following 'I wouldn't invest in PEX if the uncertainty is high' most of the responses were yes because they dislike ambiguity. As ambiguity start to arise it accompanying with disgust feeling that surfaces if the investor incurred a loss because of ambiguity. Such a situation may derive the investor to behave according to regret aversion bias, since the investors going to blame themselves badly if they incurred a loss after investing in highly uncertain investment. Therefore, the result of the second field could be easily expected as investor going to prefer real estate investments over stock market investments because these investmennts associated with less riskiness than riskiness related to stock market investments.

4.3.16 Self-Attribution Bias Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Self-Attribution Bias has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Self-attribution Bias has an impact on the Palestinian Investors portfolio investment decisions

Table 19: Mean & Test value for "Self-Attribution Bias"

#	Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	You refer your gain/ if any, in PEX to good analysis	1.09	2.32	61.294	.000
2	You refer your loss/ if any, in PEX to market instability	1.54	1.68	53.309	.000
	Total value of all Fields – Friedman Test	1.31	2.00	32.507	.000

Loss Scenario	Frequency	Percent	Gain scenario	Frequency	Percent
Lack of luck	28	26.9	luck	22	21.2
Market Instability	45	43.3	Intuition	10	9.6
Your bad analysis	25	24.0	Your deep analysis	66	63.5
other	6	5.8	other	6	5.8
Total	104	100.0	Total	104	100.0

Through the above table (19) the mean values and p-value reflect that self-attribution bias has an impact on the Palestinian Portfolio investment decisions. As mean value of Kruskal Wallis test is not useful with this type of questions we should calculate median value in order to determine which option has the largest frequency. However, the researcher back to descriptive analysis to find each option frequency and valid percent. The results were as follow, when investors were asked 'to what they refer their gain' the majority of 635% of investors answered they refer gains for the deep analysis they did,

While 21% of the sample respondents refer the achieved gain to luck. Moreover, when the participants were asked to what they refer their loss the majority of 43.3% refers loss to market instability and only 24% of them refer it to their bad analysis.

Therefore, we can conclude that PEX investors have self-attribution bias as they attribute success to themselves and relate failure to other things such as bad luck. This behavior affects investment decisions regarding to what investor achieved, if he/she achieved gain he/she become more confident and trade excessively. But, if the investor incurred a loss he/she will exit from the market or attempt to obtain broker advice. Thereby, we accept the alternative hypothesis in which Self-attribution Bias has an impact on the Palestinian Investors portfolio investment decisions, and reject the null hypothesis.

4.3.17 Prospect Theory Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: prospect Theory has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Prospect Theory has an impact on the Palestinian Investors portfolio investment decisions

Table 20: Mean & Test value for "Prospect Theory"

#	Statement	Mean	Mean Rank	Test –Value Kruskal Wallis	Sig.
1	a guaranteed $1000 or play a lottery. if heads comes up, you win $950. If tails come up, you win $1900	0.54	2.25	21.564	.000
2	Which choice do you prefer a sure loss or chance of loss	043	2.04	29.032	.000
3	Suppose an unbiased coin is flipped three times, and each time it lands on 'Heads'. What do you feel would be the outcome of the next flip	1.14	3.17	56.135	.000
	Total value of all Fields – Friedman Test	0.705	2.54	66.483	.000

3	Frequency	Percent
Head	26	25.0
Tail	37	35.6
62.5% Tail, 37.5% Head	41	39.4
Total	104	100.0

2	Frequency	Percent
A sure loss of $2000	59	56.7
Taking the chance of 50% losing $5000 or 50% losing nothing	45	43.3
Total	104	100.0

1	Frequency	Percent
Accept the guaranteed $1000	48	46.2
Play the lottery	56	53.8
Total	104	100.0

According to this theory the Kruskal Wallis test shows a significant difference between tested groups even after the division of chi-square, but the mean values do not indicate that prospect theory has impact on the PEX investor investment decisions.

To determine the existence and the influence of this theory on the investment decisions taking by PEX investors the researcher investigates in the frequency of each option rather than median, and the results were as follow; in question one and two the responses were approximately equal thus we cannot generalized that PEX investor avoiding risk in gains and seeking risk in losses, on the contrary they seek risk in gain and avoid risk in loss. In addition, question three the majority picked the most rational answer rather than picking other options. It seems that investors are rationally answering these questions but we cannot accept null hypothesis because the statistical results were significant thus we accept the alternative hypothesis and reject null hypothesis.

4.3.18 Sentiments Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: sentiments have no impact on the Palestinian Investors portfolio investment decisions.

H_a: Sentiments have an impact on the Palestinian Investors portfolio investment decisions

Table 21: Mean & Test value for "Sentiments"

#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
1	Would you invest portion of your money in PEX relying on your luck only	0.86	Yes	12.17	62.500	.000
			No	59.30		
2	Would you invest portion of your money in PEX based on your feelings	0.66	Yes	19.79	62.500	.000
			No	69.09		
#	Likert- Statement	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
3	After achieving your highest gain/if any, you felt that you want to	0.14	1.39		13.921	.000
4	After incurring your biggest loss/if any, you felt that you want to	0.91	2.61		82.095	.000
	Total value of all Fields – Friedman Test	0.528	2.00		105.840	.000

To examine the impact of sentiments on portfolio investment decisions, the investors were asked if they are willing to invest in PEX based on their luck only, the majority answered no but there is a significant percent of them answered yes. Moreover, they were asked if they invest based on their feelings, the majority also said no but the percentage of them are less than in previous question. According to Mann Whitney U test the differences between groups are existed and significant. To further check the sentiments effect on investor's portfolio decisions more questions about gain and loss were asked, participants were asked what they felt after achieving their highest gain, the dominant answer was 'invests more to achieve more gain' which reflects PEX investors greed in which they prefer more to less. On the other hand they were asked about their feeling when they incurred their biggest loss; the dominant response confirms that PEX investors are greedy but having some conservative behavior in loss situations. Consequently, the researcher rejects the null hypothesis and accepts the alternative hypothesis as sentiments has a n impact on the Palestinian Investors portfolio investment decisions.

Statement 3	Frequency	Percent
Invest more to achieve more gain	89	85.6
leave the market	15	14.4
Total	104	100.0

Statement 4	Frequency	Percent
leave the market to avoid any future losses	29	27.9
Try another time with small portion of money	55	52.9
Invest with larger amount to cover the previous loss	20	19.2
Total	104	100.0

4.3.19 Rationality Impact on the Palestinian Investors' Portfolio Investment Decisions

H_0: Rationality has no impact on the Palestinian Investors portfolio investment decisions.

H_a: Rationality has an impact on the Palestinian Investors portfolio investment decisions

Table 22: Mean & Test value for "Rationality"

#	Likert- Statements	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	I believe in PEX practitioners rationality more than PEX efficiency	2.18	3.22		29.284	.000
2	I rely heavily on fundamental analysis than technical analysis	1.95	2.75		31.261	.000
3	I pick my investments based on my sentiments	3.85	5.46		8.967	.030
4	If I believe that some details about certain stock are not available to me, I don't buy that stock.	1.80	2.54		11.973	.007
5	I prefer to invest in companies with low risks	2.05	2.91		50.478	.000
	Total value of all Fields – Friedman Test	2.36	4.12		208.582	.000
#	Yes. No- Statement	Mean	Mean Rank		Test –Value Mann Whitney	Sig
6	Your trading decisions are mainly based on projections and market studies	0.22	Yes	41.99	80.000	.000
			No	89.52		
7	Do you supervise stock price movements	0.16	Yes	44.92	80.00	.000
			No	91.29		

In this dimension we can easily noticed that Kruskal Wallis values which are chi-square values are significant as the p-value of all fields is less than $\alpha= 0.05$, thus we reject the null hypothesis because there is a difference between tested groups of rationality. Items 1, 2, 4, and5 show that investor responses on these questions ranged between strongly agree and agree on each of these statements leading us to confirm PEX investors' rationality. However, items 3 mean is closed to disagreement on the statement context which 'I pick my investments based on my sentiments'. The mean value also reflects investor's rationality.

From items 6 and 7 the U test values are significant and the smaller the U value the bigger the difference between tested groups. Therefore, in item 7 the overlap between tested groups is smaller and the majority of responses were yes they supervise stock price movements. Moreover, most of the respondents state they based their investment decision on projections and market analysis with mean rank of those who answered yes significantly less than mean rank of those who answered no. consequently, overall items indicates that PEX investors are significantly rational and influence the investment decisions of PEX investors. Thus, we accept the alternative hypothesis and reject the null hypothesis.

4.3.20 Anomalies Emergence Affected by the Palestinian Investors' Different Portfolio Investment Decisions

H_0: Anomalies Emergence is not affected by the Palestinian Investors portfolio investment decisions.

H_a: Anomalies Emergence is affected by the Palestinian Investors portfolio investment decisions.

From the table below its visible that participant's responses were positive on all fields above and reflect; when PEX investors rely on behavioral biases during investment decisions they drifting away from the efficient market hypothesis and start following frequent phenomena that contribute in achieving abnormal returns. Moreover, depending on trading volume and market capitalization while making any investment decisions enable investors to predict anomalies easier, as deviation of these dimensions mainly participate in anomalies emergence. Furthermore, as investor believes that stock prices are changed based on particular pattern this emphasizes anomalies appearance in PEX. Thus we reject null hypothesis and accept the alternative hypothesis.

Table 23: Mean & Test value for "Anomalies Emergence"

#	Likert- Statements	Mean	Mean Rank		Test –Value Kruskal Wallis	Sig.
1	I trade in PEX based on frequent phenomena that ensure abnormal return	2.54	3.90		68.234	.000
2	Trading volume for particular security in PEX increased based on certain phenomena	2.46	3.95		46.068	.000
3	Market Cap for particular security in PEX changed according to investor various strategies	2.41	3.95		27.389	.000
4	Deviation from familiar investment strategy lead to anomalies emergence	1.93	2.75		48.143	.000
5	Anomalous behavior of investor contradicts with efficient market theory	2.00	2.85		49.331	.000
	Total value of all Fields – Friedman Test	2.25	3.60		62.936	.000
#	Yes. No- Statements	Mean	Mean Rank		Test –Value Mann Whitney	Sig
6	Would you invest portion of your money in PEX based on market irregularities	0.11	Yes	48.63	151.500	.000
			No	85.23		
7	Stock prices in PEX are changing due to particular pattern	0.41	Yes	35.84	295.500	.000
			No	76.13		
8	Investor feelings make investor deviate from efficient investment strategy	0.44	Yes	34.78	306.000	.000
			No	74.85		

4.3.21 Gender Differences Influence on Behavioral Biases

Table 24: Nonparametric Mann Whitney U test for Gender

#	Dimension	Test value	Sig.	Mean Rank		Kendall's Tau-b	
				Male	Female	coefficient	Sig.
1	Anchoring and Adjustment Bias	637.000	0.552	52.26	48.59	-0.051	0.552
	Anchoring and Adjustment Bias	608.500	0.181	54.01	44.79	-0.132	0.181
2	Forecasting Error	645.000	0.397	53.59	46.94	-0.074	0.397
	Forecasting Error	650.000	0.336	51.47	57.76	0.095	0.338
3	Asymmetric Discounting	557.500	0.096	54.59	41.79	-0.148	0.096
	Asymmetric Discounting	434.500	0.002	56.01	34.56	-0.311	0.002
4	Mental Budgeting	698.500	0.714	52.97	50.09	-0.032	0.714
	Mental Budgeting	704.000	0.717	52.09	54.58	0.036	0.717
5	Shifting Risk Preferences	622.500	0.294	51.16	59.38	0.091	0.294
6	Regret Aversion	685.000	0.624	53.13	49.29	-0.043	0.624
	Regret Aversion	651.000	0.358	53.52	47.29	-0.091	0.358
7	Overconfident	366.000	0.001	48.21	74.47	0.282	0.001
	Overconfident	735.500	0.007	52.45	52.74	0.004	0.009
	Overconfident	697.000	0.313	53.02	49.82	-0.040	0.667
8	Proxy decision Making	678.500	0.583	51.80	56.09	0.048	0.583
9	Home Bias	726.000	0.904	52.34	53.29	0.010	0.904
	Home Bias	620.000	0.215	53.87	45.47	-0.122	0.215
10	Herd Behavior	675.000	0.547	51.76	56.29	0.055	0.547
	Herd Behavior	595.000	0.172	54.16	44.03	-0.128	0.172
	Herd Behavior	643.000	0.051	53.61	46.82	-0.193	0.051
11	Different Interpretation	613.000	0.219	51.05	59.94	0.115	0.219
	Different Interpretation	598.500	0.151	54.12	44.21	-0.141	0.151
12	Gamblers' Fallacy	545.000	0.071	50.26	63.94	0.165	0.071
13	Availability Bias	689.500	0.657	51.93	55.44	0.038	0.657
	Availability Bias	513.000	0.020	55.10	39.18	-0.229	0.020
14	Illusion of Control	689.000	0.708	52.98	50.06	-0.033	0.708
15	Ambiguity Bias	620.000	0.282	53.87	45.50	-0.096	0.282
	Ambiguity Bias	637.500	0.315	53.67	46.50	-0.094	0.315
16	Sentiments	587.500	0.121	50.75	81.44	0.148	0.121
	Sentiments	519.000	0.033	55.03	39.53	-0.198	0.033
17	Self-Attribution Bias	696.500	0.697	52.01	56.03	0.034	0.697
18	Prospect Theory	471.500	0.013	49.42	68.26	0.223	0.013
19	Rationality	709.000	0.785	52.85	50.71	-0.024	0.785
	Rationality	729.000	0.910	52.38	53.12	0.011	0.910
20	Anomalies	699.000	0.720	52.03	54.88	0.030	0.720
	Anomalies	627.500	0.294	53.79	45.91	-0.097	0.294

As table (24) above illustrates, the differences between investors' gender do not influence the overall investment decisions of PEX investors. However, gender differences affecting some biases that appear in PEX such as; asymmetric discounting, overconfident, availability bias, sentiments and prospect theory.

As Mann Whitney U test the alternative non-parametric test of T- independent test, reflects large U value of each bias which mean smaller interaction or overlapping between tested groups. Moreover, the p-value of Mann Whitney test is less than 0.05 which mean there is a significant difference between the tested groups. Kendall's tau- b test used to determine the correlation of nonparametric variable and because our tested sample is small, it's more accurate to use Kendall's tau-b correlation than Spearman correlation. The results of Kendall's correlation were consistent to Mann Whitney results. Despite Kendall's correlation determine the difference between tested groups more clearly.

As gender change from male to female asymmetric discounting, availability bias, sentiments impact are decline. On the other hand, when gender move from zero to 1 'male to female' overconfident bias and prospect theory impact increase. These results reflect that PEX female investors prefer long-term investments that enable investor to accumulate wealth, have less concern about latest events occur in their lives, attempt to not affected by sentiments while making investment decisions, also female investor in PEX have more confident than male investor and taking risk in loss and avoid risk in gain. The last two results were unfamiliar and contradict with the common image perceived about female trading. To explain these results, the researcher investigates in the correlation between gender and marital status, the correlation coefficient was -0.236 and p-value 0.016 which mean when move from 0 to 1 'male to female' the marital status move from 1 to 0 'married to single'

this can be socially and logically interpreted as female investor in PEX not married they do not have any responsibility, they independent and more confident thus they can easily taking riskiness in loss situation and avoid riskiness in gain. Many researchers studied the impact of gender on behavioral biases, the results reveal on an interesting impact of gender on overconfident. Odean and Barber (2000) the study found men are more overconfident regarding to their skills and knowledge and they trade 45% more than women. Also Felton et al (2003) concluded that men invest in more risky investment than women because they have more overconfident and optimistic.

Table 25 below examines the differences between investors who attended exchange courses, and whether the course attendance affects the behavioral biases and investor's portfolio investment decisions or not. The outcome represent that there is no significant impact of course attendance on the overall investors' investment decisions. Otherwise, course attendance has significant p-value found in Mann Whitney U test and Kendall's correlation with; forecasting error, regret aversion, overconfident, gambler's fallacy, ambiguity bias, sentiments and anomalies emergence.

There are positive significant correlations between course attendance and 'ambiguity bias and sentiments'. When course attendance result change 'decreased' from 1 to 0 'No to Yes' ambiguity bias or investment in uncertain opportunity decreased and sentiments based decisions also decline. On the other hand, investors who not attend exchange course are having less independence on latest incidences, less regret on the forgone investment opportunities, less overconfident because they have less knowledge than investors who attend exchange courses, more trust of event randomness and thus less influences on anomalies emergence.

4.3.22 Course Attendance Influence on Behavioral Biases

Table 25: Nonparametric Mann Whitney test for Course Attendance

#	Dimension	Test value	Sig.	Mean Rank		Kendall's Tau-b	
				Yes	Not yet	coefficient	Sig.
1	Anchoring and Adjustment Bias	1128.000	0.980	52.45	52.61	0.002	0.980
	Anchoring and Adjustment Bias	990.500	0.244	54.43	47.95	-0.115	0.244
2	Forecasting Error	785.500	0.012	57.24	41.34	-0.218	0.012
	Forecasting Error	1057.000	0.518	51.48	54.90	.064	0.518
3	Asymmetric Discounting	1021.000	0.414	54.01	48.94	-0.073	0.414
	Asymmetric Discounting	1052.000	0.509	53.58	49.95	-0.065	0.509
4	Mental Budgeting	924.000	0.133	55.34	45.81	-0.131	0.133
	Mental Budgeting	975.000	0.197	50.36	57.55	0.127	0.197
5	Shifting Risk Preferences	1102.000	0.831	52.10	53.45	0.019	0.831
6	Regret Aversion	764.500	0.008	57.53	40.66	-0.234	0.008
	Regret Aversion	964.000	0.160	54.79	47.10	-0.139	0.160
7	Overconfident	930.000	0.148	55.26	46.00	-0.123	0.148
	Overconfident	1056.000	0.558	53.53	50.06	-0.055	0.558
	Overconfident	811.500	0.015	56.88	42.18	-0.228	0.015
8	Proxy decision Making	972.500	0.247	54.68	47.37	-0.101	0.247
9	Home Bias	1085.000	0.737	53.14	51.00	-0.029	0.737
	Home Bias	1068.000	0.594	51.63	54.55	0.053	0.594
10	Herd Behavior	1070.000	0.624	51.66	54.48	0.042	0.642
	Herd Behavior	989.000	0.271	50.53	57.13	0.103	0.271
	Herd Behavior	1023.000	0.076	51.01	56.00	0.175	0.076
11	Different Interpretation	1002.000	0.309	54.27	48.22	-0.095	0.309
	Different Interpretation	1067.000	0.598	51.62	54.56	0.052	0.598
12	Gamblers' Fallacy	869.000	0.048	56.11	44.00	-0.180	0.048
13	Availability Bias	943.500	0.175	55.09	46.40	-0.116	0.175
	Availability Bias	1006.000	0.299	54,72	48.45	-0.102	0.299
14	Illusion of Control	1017.500	0.406	54.06	48.82	-0.073	0.406
15	Ambiguity Bias	801.000	0.016	47.97	63.16	0.215	0.016
	Ambiguity Bias	1014.000	0.350	54.22	48.45	0.088	0.350
16	Sentiments	1060.500	0.558	53.47	50.21	-0.056	0.558
	Sentiments	879.000	0.049	49.04	60.65	0.183	0.049
17	Self-Attribution Bias	979.000	0.264	54.59	47.58	-0.099	0.264
18	Prospect Theory	1020.000	0.408	50.97	56.10	0.075	0.406
19	Rationality	807.000	0.105	48.42	59.74	0.140	0.105
	Rationality	1105.000	0.817	52.86	51.65	-0.022	0.817
20	Anomalies	1071.000	0.665	51.67	54.45	0.037	0.665
	Anomalies	808.500	0.014	56.92	42.08	-0.226	0.014

4.3.23 Age Differences Influence on Behavioral Biases

Table 26: Nonparametric Kruskal Wallis test for Age

#	Dimension	Test value	Sig.	Mean			Kendall's Tau-b	
				Less than 30	31-50	More than 51	Coefficient	Sig.
1	Anchoring and Adjustment Bias	0.219	0.896	50.98	53.83	51.34	0.014	0.0861
	Anchoring and Adjustment Bias	3.235	0.198	58.75	51.08	45.92	-0.168	0.073
2	Forecasting Error	1.352	0.509	57.53	50.52	49.55	-0.089	0.283
	Forecasting Error	2.158	0.340	47.25	55.28	53.58	0.107	0.253
3	Asymmetric Discounting	2.111	0.348	58.64	49.35	50.95	-0.112	0.185
	Asymmetric Discounting	2.221	0.328	54.25	49.16	58.87	0.026	0.753
4	Mental Budgeting	10.620	0.005	57,80	56.47	32.50	-0.210	0.011
	Mental Budgeting	5.424	0.066	50.00	49.51	65.05	0.155	0.099
5	Shifting Risk Preferences	6.993	0.030	59.79	53.54	37.34	-0.207	0.012
6	Regret Aversion	2.701	0.259	55.86	54.02	42.61	-0117	0.162
	Regret Aversion	3.942	0.174	56.38	53.58	42.95	-0.155	0.098
7	Overconfident	25.294	0.000	66.13	54.79	23.16	-0.374	0.000
	Overconfident	1.451	0.484	56.92	51.54	47.74	-0.107	0.234
	Overconfident	2.351	0.309	46.23	55.72	54.08	0.111	0.211
8	Proxy decision Making	4.274	0.118	45.83	58.33	47.45	0.056	0.501
9	Home Bias	5.684	0.058	51.67	57.65	38.97	-0.091	0.267
	Home Bias	5.213	0.024	45.38	53.38	62.05	0.213	0.023
10	Herd Behavior	0.057	0.972	51.69	53.14	52.08	0.007	0.940
	Herd Behavior	0.588	0.745	49.39	53.64	54.55	0.063	0.482
	Herd Behavior	1.767	0.413	52.13	52.08	56.00	0.109	0.244
11	Different Interpretation	1.721	0.423	57.58	49.58	52.08	-0.086	0.336
	Different Interpretation	2.185	0.335	56.80	48.82	55.53	-0.048	0.604
12	Gamblers' Fallacy	24.163	0.000	51.78	62.72	25.21	-0.182	0.036
13	Availability Bias	5.400	0.067	61.14	46.05	55.95	-0.097	0.233
	Availability Bias	8.428	0.015	43.00	59.43	49.16	0.138	0.041
14	Illusion of Control	2.400	0.301	49.25	56.75	46.11	0.002	0.985
15	Ambiguity Bias	13.503	0.001	39.22	54.25	69.97	0.310	0.000
	Ambiguity Bias	3.078	0.214	49.73	50.67	62.26	0.128	0.154
16	Sentiments	7.093	0.029	58.03	54.14	38.61	-0.214	0.019
	Sentiments	5.809	0.055	51.00	48.55	66.05	0.129	0.146
17	Self-Attribution Bias	5.128	0.077	60.63	51.48	41.66	-0.194	0.029
18	Prospect Theory	13.305	0.001	66.11	42.96	56.18	-0.174	0.043
19	Rationality	5.244	0.037	59.78	45.97	58.45	-0.061	0.462
	Rationality	6.791	0.034	61.80	49.14	46.21	-0.223	0.015
20	Anomalies	4.429	0.049	58.75	53.25	40.43	-0.161	0.046
	Anomalies	5.861	0.053	47.03	58.99	43.61	0.018	0.841

Table 26 investigates in age differences impact on investor's investment decisions. The results show there is a moderate impact of age differences on PEX investor's investment decisions. Age has significant influences on; mental budgeting, shifting risk preferences, overconfident, home bias, gamblers' fallacy, availability bias, ambiguity bias, sentiments, prospect theory and investor rationality. The results were derive from Kurskal Wallis test which is a non-parametric test used when we have more than two groups want to be tested, instead of one way ANOVA test. The significant p-values in Kruskal Wallis test lead us to reject null hypothesis of the test and accept the alternative hypothesis that there are significant differences between tested groups.

As investor become older his/her mental budgeting declines because his/her responsibilities decrease as his/her kids become more dependent when they are growing up, also shifting risk preference decline as investor start to behave as risk taker in gain and risk averse in loss situations because when investors get older they start thinking in how they can secure their lives after retirement. PEX investors overconfident decrease because investors become mature and pass through different hard circumstances push them to think twice before make any investment decision. Moreover, as investors are grown up they more likely believe in events randomness, more likely to prefer domestic investments over international investments, and more likely depending and learning from what happened with them in the past. Furthermore, they dislike uncertainty, and attempt to limits the impact of greed, luck and other sentiments on their investment decisions. Thus as the age of investors increase the influence of these investors on increasing the probability of anomalies appearance in PEX is very low. According to Barcalys the age illusion and wealth insight (2011) as investor becomes older they are less stressed, more conservative, and do not exhausted themselves to prevent bad outcome.

Table (27) below shows that the overall differences in investors' marital status has no significant influence on PEX investors' investment decisions. Except for overconfident and illusion of control, overconfident that attached with illusion of control behavior appear more at married male investors 'the dominants participants' than at single investors. These two biases have positive significant correlation with respect to Kendall's correlation and Kruskal Wallis test.

Moreover, according to Kendall's Tau-b correlation it's obvious that there are positive significant correlations between anchoring bias, mental budgeting bias and marital status. These correlations explained as if investors are married they have more dependence on a particular reference point when making any investment decision. Also they exercise mental accounting more than single investors to order their spending priority.

In contrast, there is a negative significant correlation between regret aversion and marital status, in which marital status move from 1 to zero 'married to single' the regret aversion going up, because for single investors who had forgone profitable opportunities the result will be more painful than married investors.

4.3.24 Marital Status Differences Influence on Behavioral Biases

Table 27: Nonparametric Kruskal Wallis test for Martial Status

#	Dimension	Test value	Sig.	Mean			Kendall's Tau-b	
				Single	Married	Other	coefficient	Sig.
1	Anchoring and Adjustment Bias	4.334	0.115	42.96	56.35	56.50	0.173	0.043
	Anchoring and Adjustment Bias	2.815	0.245	48.57	54.78	29.50	0.066	0.499
2	Forecasting Error	3.420	0.181	56.48	49.95	84.50	-0.045	0.559
	Forecasting Error	2.558	0.278	47.47	54.11	70.00	0.145	0.138
3	Asymmetric Discounting	5.421	0.067	59.93	50.40	16.50	-0.173	0.051
	Asymmetric Discounting	3.552	0.169	47.10	55.33	31.50	0.104	0.287
4	Mental Budgeting	0.267	0.875	53.55	52.34	42.50	-0.027	0.765
	Mental Budgeting	4.959	0.084	44.80	55.06	76.00	0.207	0.034
5	Shifting Risk Preferences	0.980	0.613	52.03	52.13	73.00	0.027	0.758
6	Regret Aversion	0.874	0.646	56.73	50.75	52.00	-0.078	0.369
	Regret Aversion	4.356	0.113	59.73	50.06	32.00	-0.196	0.045
7	Overconfident	2.769	0.251	59.13	50.29	32.50	-0.130	0.124
	Overconfident	5.380	0.068	50.42	52.13	97.00	0.090	0.336
	Overconfident	5.048	0.049	45.48	54.34	31.50	0.184	0.047
8	Proxy decision Making	4.205	0.122	48.17	55.29	17.00	0.049	0.570
9	Home Bias	5.820	0.054	46.98	55.94	11.50	0.064	0.456
	Home Bias	2.052	0.358	48.73	53.50	73.00	0.113	0.246
10	Herd Behavior	1.918	0.383	49.62	54.27	29.00	0.030	0.740
	Herd Behavior	2.432	0.296	52.02	51.85	83.00	0.040	0.669
	Herd Behavior	0.806	0.668	50.80	53.11	56.00	0.087	0.374
11	Different Interpretation	1.424	0.491	56.85	50.42	62.00	-0.082	0.378
	Different Interpretation	2.24	0.326	55.62	50.59	74.50	-0.048	0.623
12	Gamblers' Fallacy	4.756	0.093	52.70	53.63	9.00	-0.044	0.630
13	Availability Bias	3.589	0.166	58.75	49.20	77.50	-0.091	0.280
	Availability Bias	4.958	0.084	45.60	56.00	30.00	0.137	0.162
14	Illusion of Control	8.394	0.015	39.38	57.63	57.50	0.243	0.005
15	Ambiguity Bias	5.301	0.071	47.85	53.22	96.50	0.127	0.150
	Ambiguity Bias	0.829	0.661	56.22	50.91	54.00	-0.078	0.403
16	Sentiments	1.330	0.514	53.50	51.53	72.50	0.000	1.000
	Sentiments	5.644	0.059	57.50	49.38	90.00	-0.066	0.474
17	Self-Attribution Bias	0.711	0.791	55.63	50.96	61.00	-0.049	0.573
18	Prospect Theory	4.952	0.084	59.62	48.76	80.50	-0.111	0.215
19	Rationality	5.267	0.072	52.58	54.19	5.50	-0.025	0.773
	Rationality	3.311	0.191	56.67	50.39	36.00	-0.168	0.078
20	Anomalies	0.079	0.961	53.72	52.06	50.00	-0.023	0.786
	Anomalies	5.020	0.081	46.40	54.01	69.50	0.161	0.079

4.3.25 Levels of Education Differences Influence on Behavioral Biases

Table 28: Nonparametric Kruskal Wallis test for Education

#	Dimension	Test value	Sig.	Mean				Kendall's Tau	
				High school or less	Diploma	B.A degree	Higher studies	coefficien	Sig.
1	Anchoring and Adjustment Bias	15.073	0.002	57.05	39.50	42.45	6.51	0.214	0.010
	Anchoring and Adjustment Bias	23.250	0.000	43.68	55.50	42.98	68.85	0.404	0.000
2	Forecasting Error	1.488	0.685	43.23	64.50	53.46	53.20	0.039	0.638
	Forecasting Error	2.359	0.501	46.36	70.00	54.59	50.32	0.244	0.010
3	Asymmetric Discounting	4.660	0.198	40.18	81.75	51.44	56.12	0.098	0.251
	Asymmetric Discounting	19.003	.000	59.86	57.50	42.09	65.23	0.342	0.005
4	Mental Budgeting	8.608	0.035	31.95	42.50	59.14	49.46	0.031	0.708
	Mental Budgeting	5.572	0.134	61.82	24.00	49.04	56.32	0.059	0.531
5	Shifting Risk Preferences	4.609	0.203	45.23	13.75	53.08	55.91	0.109	0.192
6	Regret Aversion	1.532	0.675	44.18	36.50	54.19	53.26	0.057	0.496
	Regret Aversion	3.303	0.347	46.18	32.00	56.07	50.27	-0,003	0.976
7	Overconfident	12.764	0.005	25.27	25.25	58.07	53.93	0.145	0.045
	Overconfident	11.245	0.010	64.82	43.25	44.18	61.49	0.133	0.142
	Overconfident	1.278	0.734	50.00	50.00	51.93	54.22	0.016	0.859
8	Proxy decision Making	2.800	0.424	42.05	50.50	50.98	57.93	0.134	0.111
9	Home Bias	0.671	0.880	47.36	42.50	52.81	54.11	0.055	0.059
	Home Bias	9.695	0.021	68.27	21.00	47.96	56.14	0.025	0.788
10	Herd Behavior	1.081	0.782	51.18	46.50	50.38	56.31	0.080	0.358
	Herd Behavior	6.377	0.095	59.82	25.25	47.55	59.03	0.111	0.216
	Herd Behavior	1.576	0.665	56.00	56.00	51.19	53.19	-0.009	0.920
11	Different Interpretation	2.301	0.512	52.45	62.00	48.91	57.24	0.090	0.317
	Different Interpretation	3.121	0.373	55.77	48.75	48.34	57.80	0.103	0.274
12	Gamblers' Fallacy	20.991	0.000	19.55	23.50	60.53	52.15	0.145	0.097
13	Availability Bias	2.778	0.427	52.09	55.00	48.19	58.78	0.105	0.200
	Availability Bias	11.943	0.008	39.45	56.00	47.33	63.73	0.312	0.011
14	Illusion of Control	4.573	0.206	52.91	43.00	47.33	60.43	-0.148	0.078
15	Ambiguity Bias	4.476	0.214	68.27	68.00	51.39	48.59	-0.143	0.094
	Ambiguity Bias	2.887	0.409	61.14	53.25	54.41	47.11	-0.149	0.098
16	Sentiments	10.889	0.012	38.95	5.50	56.59	53.09	-0.110	0.029
	Sentiments	8.500	0.037	68.73	70.50	54.37	43.97	-0.260	0.003
17	Self-Attribution Bias	8.504	0.090	36.00	32.00	57.95	50.55	0.040	0.641
18	Prospect Theory	5.748	0.125	70.45	44.00	48.21	53.88	-0.047	0.587
19	Rationality	1.963	0.580	55.55	29.50	50.56	55.66	0..057	0.490
	Rationality	1.186	0.756	49.23	36.00	53.08	53.51	0.053	0.566
20	Anomalies	5.404	0.144	32.82	56.00	53.99	55.99	0.132	0.102
	Anomalies	10.110	0.018	57.32	17.50	59.06	43.39	-0.175	0.048

The above table elucidates, there is no significant impact of the different educational levels on the overall PEX investors' portfolio investment decisions, because levels of education affect limited number of tested biases as shown in table (28) above. Thus, the overall result reveal out that there is no significant relationship between levels of education and investors' portfolio investment decision.

However, it is visible that there are positive significant correlations between; anchoring bias, forecasting error bias, asymmetric discounting, and availability bias. While negative significant correlations find between sentiments and anomalies emergence with educational levels of investors. As investors obtains higher level of education they will focus on historical information, last incidences and specific reference point more than investor who had less level of education. Moreover, educated investor prefers to get their gains immediately or as soon as possible to reinvest them again and again to exaggerate their return.

On the other hand, as PEX investors obtain more education the influence of sentiments is decline and the probability of anomalies emergence dropped too. Furthermore, Kruskal Wallis test reflects significant differences between levels of education with gamblers' fallacy, home bias and overconfident. While these significant results are not significant relative to Kendall's Tau- b correlation.

Table 29B below, shows there is no significant impact of income segments differences on the aggregate PEX investors' portfolio investment decisions. Although, there are positive significant correlations between some behavioral biases and income level: As income level increase forecasting error increase, overconfident and mental accounting increases because of fund's availability.

Proxy decision making increases might be relevant investors ability to construct two portfolios one is self-managed and the other managed by broker or fund manager.

Herding behavior also increases when income increase as a result of fund availability, whereas PEX investors start to imitate the investment strategies of wealthy, worldwide well-known investors to obtain what these investors achieved. In addition, rationality expected to be affected as income increases due to Kruskal Wallis test, but Kendall' correlation clarifies that there is no significant correlation between rationality and income level.

4.3.26 Income level Differences Influence on Behavioral Biases

Table 29.A: Nonparametric Kruskal Wallis test for Income per Month (JOD)

#	Dimension	Test value	Sig.	Mean				
				<499	500-799	800-1000	1001-1999	>2000
1	Anchoring and Adjustment Bias	7.192	0.126	57.17	44.19	42.24	59.83	55.45
	Anchoring and Adjustment Bias	8.959	0.062	64.17	45.75	41.98	57.31	57.86
2	Forecasting Error	15.459	0.004	45.50	73.41	48.46	54.28	30.05
	Forecasting Error	18.064	0.001	23.79	50.50	53.36	54.28	70.00
3	Asymmetric Discounting	5.832	0.212	45.44	68.28	49.24	50.56	50.32
	Asymmetric Discounting	4.880	0.300	60.39	41.25	52.30	53.27	59.86
4	Mental Budgeting	10.966	0.027	38.72	60.78	48.14	59.77	33.23
	Mental Budgeting	5.120	0.275	52.89	46.75	59.36	48.19	61.82
5	Shifting Risk Preferences	4.818	0.306	47.89	55.81	52.42	56.59	35.64
6	Regret Aversion	8.294	0.081	62.33	50.84	38.70	58.16	56.09
	Regret Aversion	6.398	0.171	43.56	51.50	50.72	51.35	69.82
7	Overconfident	9.830	0.052	32.67	58.16	45.72	60.30	45.41
	Overconfident	13.877	0.008	79.50	43.25	43.10	54.50	57.41
	Overconfident	8.677	0.070	29.00	56.66	52.94	52.55	64.50
8	Proxy decision Making	11.537	0.021	24.56	52.34	52.22	54.49	68.45
9	Home Bias	7.980	0.092	58.06	46.19	41.58	60.87	49.23
	Home Bias	4.632	0.327	61.44	43.75	56.36	50.02	58.82
10	Herd Behavior	0.859	0.930	49.67	51.50	51.76	55.19	47.45
	Herd Behavior	18.465	0.001	38.44	45.41	72.80	48.51	43.77
	Herd Behavior	6.761	0.149	56.00	52.75	56.00	48.74	56.00
11	Different Interpretation	3.941	0.414	65.17	54.78	50.28	53.03	41.77
	Different Interpretation	6.066	0.194	57.33	42.31	59.20	49.35	60.45
12	Gamblers' Fallacy	18.442	0.001	31.56	61.38	37.20	62.08	54.05
13	Availability Bias	6.082	0.193	48.89	68.44	47.2	49.08	56.50
	Availability Bias	15.474	0.004	53.11	30.00	61.20	55.40	53.64
14	Illusion of Control	7.620	0.107	63.00	39.28	51.84	58.38	41.64
15	Ambiguity Bias	0.388	0.983	50.72	51.25	55.46	51.40	53.36
	Ambiguity Bias	11.326	0.023	30.94	53.44	47.06	55.72	68.55
16	Sentiments	2.033	0.730	47.17	56.56	49.14	52.22	59.68
	Sentiments	7.572	0.109	46.67	58.31	61.40	50.40	36.82
17	Self-Attribution Bias	7.543	0.110	30.44	51.56	54.46	58.20	45.18
18	Prospect Theory	7.377	0.117	58.61	68.31	45.58	48.95	54.09
19	Rationality	4.383	0.357	61.28	48.22	46.74	52.12	66.14
	Rationality	10.776	0.029	57.56	63.34	47.64	46.53	66.95
20	Anomalies	7.645	0.105	40.28	54.81	53.10	58.62	33.86
	Anomalies	7.332	0.119	66.83	52.56	40.66	55.76	54.86

Table 29.B: Nonparametric Kruskal Wallis test for Income per Month (JOD)

#	Dimension	Test value	Sig.	Kendall's Tau	
				Coeff.	Sig,
1	Anchoring and Adjustment Bias	7.192	0.126	0.126	0.109
	Anchoring and Adjustment Bias	8.959	0.062	0.111	0.216
2	Forecasting Error	15.459	0.004	0.165	0.038
	Forecasting Error	18.064	0.001	0.293	0.001
3	Asymmetric Discounting	5.832	0.212	-0.063	0.436
	Asymmetric Discounting	4.880	0.300	0.089	0.322
4	Mental Budgeting	10.966	0.027	-0.003	0.971
	Mental Budgeting	5.120	0.275	0.020	0.821
5	Shifting Risk Preferences	4.818	0.306	-0.043	0.590
6	Regret Aversion	8.294	0.081	0.978	0.331
	Regret Aversion	6.398	0.171	0.156	0.083
7	Overconfident	9.830	0.052	0.89	0.254
	Overconfident	13.877	0.008	0.010	0.908
	Overconfident	8.677	0.070	0.143	0.092
8	Proxy decision Making	11.537	0.021	0.205	0.010
9	Home Bias	7.980	0.092	0.093	0.236
	Home Bias	4.632	0.327	0.010	0.911
10	Herd Behavior	0.859	0.930	0.017	0.836
	Herd Behavior	18.465	0.001	-0.048	0.577
	Herd Behavior	6.761	0.149	-0.100	0.265
11	Different Interpretation	3.941	0.414	-0.116	0.174
	Different Interpretation	6.066	0.194	0.031	0.730
12	Gamblers' Fallacy	18.442	0.001	0.198	0.017
13	Availability Bias	6.082	0.193	-0.054	0.492
	Availability Bias	15.474	0.004	0.145	0.107
14	Illusion of Control	7.620	0.107	0.028	0.728
15	Ambiguity Bias	0.388	0.983	0.005	0.954
	Ambiguity Bias	11.326	0.023	0.237	0.006
16	Sentiments	2.033	0.730	0.052	0.547
	Sentiments	7.572	0.109	-0.142	0.094
17	Self-Attribution Bias	7.543	0.110	0.97	0.233
18	Prospect Theory	7.377	0.117	-0.112	.175
19	Rationality	4.383	0.357	0.063	0.422
	Rationality	10.776	0.029	-0.052	0.556
20	Anomalies	7.645	0.105	-0.003	0.974
	Anomalies	7.332	0.119	0.024	0.777

4.3.27 <u>Years of Experience Differences Influence on Behavioral Biases</u>

Table 30: Nonparametric Kruskal Wallis test for years of Investment Experience

#	Dimension	Test value	Sig.	Mean				Kendall's Tau	
				Less than 1 year	2-10 years	11-25 years	More than 26 years	Coeffic.	Sig.
1	Anchoring and Adjustment Bias	10.361	0.016	47.00	57.17	44.29	94.00	-0.028	0.735
	Anchoring and Adjustment Bias	8.270	0.041	65.50	50.50	48.28	81.50	-0.086	0.358
2	Forecasting Error	4.754	0.191	52.65	57.47	44.26	64.50	-0.109	0.185
	Forecasting Error	11.899	0.008	46.00	50.00	61.33	18.00	0.138	0.140
3	Asymmetric Discounting	1.653	0.647	49.35	53.69	50.38	71.00	0.013	0.878
	Asymmetric Discounting	5.300	0.151	55.50	52.50	48.83	83.50	-0.015	0.870
4	Mental Budgeting	9.393	0.025	55.50	49.57	51.44	103.00	-0.184	0.050
	Mental Budgeting	6.498	0.090	64.00	53.00	50.00	24.00	0.066	0.421
5	Shifting Risk Preferences	7.642	0.054	61.81	53.43	44.96	86.50	-0.091	0.271
6	Regret Aversion	9.180	0.027	49.12	53.86	47.76	100.50	0.031	0.709
	Regret Aversion	2.592	0.459	48.00	54.00	53.67	32.00	-0.002	0.983
7	Overconfident	4.936	0.177	65.58	53.75	45.26	61.00	-0.147	0.070
	Overconfident	9.544	0.023	56.65	52.73	46.96	97.00	-0.022	0.808
	Overconfident	18.093	0.000	37.00	46.32	63.78	91.50	0.361	0.000
8	Proxy decision Making	2.929	0.403	48.08	48.91	58.32	64.00	0.137	0.099
9	Home Bias	3.126	0.373	62.92	52.03	53.13	32.00	0.100	0.221
	Home Bias	4.754	0.191	53.00	54.00	52.78	21.00	-0.076	0.418
10	Herd Behavior	13.331	0.004	62.92	56.60	46.94	3.00	-0.251	0.004
	Herd Behavior	1.442	0.696	46.54	54.61	52.61	40.50	0.005	0.952
	Herd Behavior	1.905	0.592	56.00	51.00	53.11	56.00	0.004	0.966
11	Different Interpretation	7.334	0.062	44.88	52.74	57.82	17.50	0.062	0.448
	Different Interpretation	9.024	0.029	68.85	47.76	51.61	74.50	0.052	0.577
12	Gamblers' Fallacy	9.310	0.025	39.38	48.33	61.31	76.00	0.261	0.003
13	Availability Bias	3.866	0.276	60.58	51.14	53.92	24.00	-0.062	0.442
	Availability Bias	5.065	0.167	50.00	50/00	58.89	30.00	0.089	0.340
14	Illusion of Control	3.981	0.263	58.88	48.52	53.78	78.50	0.044	0559
15	Ambiguity Bias	3.843	0.279	41.73	51.84	58.43	39.50	0.109	0.198
	Ambiguity Bias	4.559	0.207	37.81	53.74	55.89	54.00	0.143	0.110
16	Sentiments	4.918	0.178	61.65	51.60	52.75	25.50	-0.107	0.237
	Sentiments	7.169	0.067	54.00	52.00	56.06	12.00	-0.029	0.743
17	Self-Attribution Bias	11.492	0.009	62.88	57.89	44.17	14.00	-0.252	0.003
18	Prospect Theory	1.054	0.788	58.50	53.01	50.31	44.00	-0.080	0.349
19	Rationality	8.571	0.036	69.12	55.45	43.24	40.50	-.0228	0.005
	Rationality	15.510	0.001	73.31	45.64	56.26	36.00	-0.085	0.350
20	Anomalies	6.061	0.109	53.23	47.03	57.51	84.00	0.145	0.071
	Anomalies	1.147	0.766	49.12	50.50	56.28	56.50	0.091	0.301

According to the table above investor experience in PEX cannot derive investor investment decisions completely. It can partially affect investor investment decisions through some biases. As we conduct from the above table; as investor experience increases his/her mental budgeting bias decrease, because he/she becomes more confident when their experience increased. Also as experience increase investors believe in event randomness decline and thus his/her rationality during investment decision making process will eventually decline.

On the other hand, herding behavior reduced as experience increase. Moreover, self-attribution bias decreased when investor experience increase, in which investor refuse to confess any failure situation, because when they asked 'How much loss did your portfolio incurred in the past 5 years' the majority of 41.3% admit less than 10% loss and 12.4% of the respondents they did not incur any loss. Otherwise, when they were asked 'How often have your investment decisions proved to be right' the majority stated that their investment decisions proved to be right by more than 50%.

Table 31 below shows only the fields that resulted in significant differences relative to the percentage of PEX portfolio from the overall portfolio of each investor. Even though, the different proportional amount invested in PEX relative to the total invested fund has no significant impact on investor's investment decisions, still there is some biases that affected by the proportion invested in PEX. The most interesting result was as the proportion of PEX portfolio increases the decisions based on sentiments decreased. Because when investors increased their investment in PEX their portfolios become less diversified which mean more risk thus they have to make good market and firm analysis rather than depending on investor sentiments.

4.3.28 PEX Proportion of Total Portfolio Influence on Behavioral Biases

Table 31: Nonparametric Kruskal Wallis test for percentage of PEX Portfolio Relative to Total Invested Fund

#	Dimension	Test value	Sig.	Mean			Kendall's Tau	
				0%-50%	51%-99%	100%	coefficient	Sig.
1	Forecasting Error*	9.092	0.011	56.55	37.16	54.59	-0.108	0.253
2	Asymmetric Discounting*	8.609	0.014	51.22	67.08	44.98	-0.214	0.016
3	Mental Budgeting	5.323	0.050	52.76	64.18	43.72	-0.182	0.050
4	Regret Aversion	6.648	0.036	54.44	37.29	50.96	0.072	0.445
5	Overconfident**	6.718	0.035	53.68	38.45	59.85	0.021	0.811
6	Herd Behavior	10.815	0.004	80.09	48.89	38.72	-0.284	0.001
7	Different Interpretation*	8.970	0.011	46.09	65.21	57.33	0.226	0.016
8	Gamblers' Fallacy	5.702	0.051	56.28	38.47	54.26	-0.84	0.334
9	Availability Bias*	14.266	0.001	55.10	65.58	37.70	-0.199	0.035
10	Sentiments	8.215	0.016	54.45	37.55	58.83	-0.008	0.030
	Sentiments	10.233	0.006	44.95	59.21	64.00	-0.289	0.001

4.3.29 Portfolio Losses Influence on Behavioral Biases

Table 32: Nonparametric Kruskal Wallis test for Portfolio Losses

#	Dimension	Test value	Sig.	Mean				Kendall's Tau	
				< 10%	30%-50%	>50%	No losses	Coeff.	Sig.
1	Forecasting Error	12.898	0.005	44.26	68.07	52.86	43.35	0.278	0.011
2	Asymmetric Discounting*	9.523	0.023	60.52	43.63	54.61	43.50	-0.200	0.028
3	Mental Budgeting*	18.874	0.000	40.93	62.13	67.33	48.00	0.269	0.003
4	Overconfident**	22.975	0.000	62.12	54.50	24.67	54.62	-0.278	0.001
5	Home Bias	8.713	0.033	49.66	52.25	69.25	39.27	0.050	0.534
6	Availability Bias*	8.066	0.045	55.40	59.47	41.56	42.00	-0.178	0.050
7	Illusion of Control	9.375	0.025	52.71	56.42	61.31	30.58	-0.078	0.339
8	Self-Attribution Bias	9.871	0.020	42.08	61.73	55.36	61.69	0.210	0.010

The table above illustrates the significant values that resulted from Kruskal Wallis test to examine if the differences between the tested groups, affected investors' investment decisions. It's visible that differences in loss scenarios do not absolutely affect the investors' investment decisions in PEX, it's only have a slight influence on investors' investment decisions.

As the percentage of loss increase overconfident decrease and investor tendency to invest in domestic market is going up because international investment opportunities consider risker to these investors. Also as loss percentage increases self-attribution bias increase as investors relate and blame bad luck or market instability more for their losses. Moreover, as loss percentage increase investor illusion of control decreased.

Table 33 presents the impact of investor risk appetite differences on investors' portfolio investments decisions. We can state that the results is moderately significant as most of the fields below have significant values that reflect how investors' investment decisions affected by risk appetite or risk tolerance.

So we can conclude that as investors turn from being risk taker to risk averse their overconfident, availability bias, ambiguity bias, forecasting error bias, and sentiments based decisions decrease. In contrast, when investors act in risk taking manner they contribute in increase the probability of anomalies emergence,

4.3.30 Risk Appetite Influence on Behavioral Biases

Table 33: Nonparametric Kruskal Wallis test for Risk Appetite

#	Dimension	Test value	Sig.	Mean			Kendall's Tau	
				Taker	Neutral	Averse	Coeff.	Sig.
1	Anchoring and Adjustment Bias	0.375	0.829	51.83	54.10	49.80	-0.019	0.817
	Anchoring and Adjustment Bias	1.302	0.521	57.50	51.08	50.30	-0.094	0.317
2	Forecasting Error	8.175	0.017	60.12	55.54	38.14	-0.211	0.011
	Forecasting Error	8.761	0.013	60.00	45.47	59.60	-0.011	0.910
3	Asymmetric Discounting	6.268	0.044	60.75	45.55	58.66	-0.023	0.788
	Asymmetric Discounting	0.789	0.074	51.50	51.12	56.46	0.064	0.496
4	Mental Budgeting	13.211	0.001	43.42	62.80	40.10	-0.032	0.703
	Mental Budgeting	7.336	0.026	54.00	46.57	63.52	0.118	0.207
5	Shifting Risk Preferences	8.938	0.011	42.15	60.93	45.38	0.039	0.634
6	Regret Aversion	3.178	0.204	53.52	56.22	43.56	-0.095	0.254
	Regret Aversion	13.104	0.001	64.00	43.77	59.04	-0.071	0.448
7	Overconfident	13.752	0.001	34.92	55.28	64.88	-0.279	0.000
	Overconfident	11.934	0.003	37.62	60.39	51.26	0.154	0.085
	Overconfident	5.144	0.076	49.83	48.59	63.56	0.154	0.082
8	Proxy decision Making	0.475	0.789	54.35	53.22	49.06	-0.054	0.518
9	Home Bias	2.215	0.330	47.37	51.71	59.52	0.111	0.175
	Home Bias	8.185	0.017	61.00	45.53	58.44	-0.038	0.681
10	Herd Behavior	1.005	0.605	50.88	50.95	57.46	0.073	0.401
	Herd Behavior	4.065	0.131	61.04	47.68	53.84	-0.083	0.351
	Herd Behavior	4.954	0.084	48.00	53.06	56.00	0.205	0.209
11	Different Interpretation	13.709	0.001	38.04	61.48	48.50	0.124	0.161
	Different Interpretation	2.329	0.312	48.75	51.18	59.20	0.133	0.154
12	Gamblers' Fallacy	14.909	0.001	34.15	60.33	54.98	0.226	0.009
13	Availability Bias	13.000	0.002	70.50	48.01	43.30	-0.263	0.001
	Availability Bias	0.159	0.924	54.00	51.58	52.88	-0.015	0.872
14	Illusion of Control	29.719	0.000	26.62	57.27	69.30	0.454	0.000
15	Ambiguity Bias	23.023	0.000	72.96	51.33	33.70	-0.392	0.000
	Ambiguity Bias	13.227	0.001	67.62	50.64	40.72	-0.321	0.000
16	Sentiments	3.473	0.176	45.15	53.25	58.54	0.168	0.064
	Sentiments	9.921	0.007	67.00	48.79	45.28	-0.256	0.004
17	Self-Attribution Bias	1.195	0.550	48.38	55.50	50.42	0.024	0.778
18	Prospect Theory	5.563	0.062	50.98	58.24	41.92	-0.092	0.283
19	Rationality	2.392	0.302	60.27	50.25	49.20	-0.106	0.197
	Rationality	3.545	0.170	45.33	53.41	58.04	0.170	0.062
20	Anomalies	21.583	0.000	39.56	65.88	37.60	0.955	0.000
	Anomalies	4.188	0.123	44.08	57.63	50.38	0.072	0.409

4.3.31 <u>Rationality Vs. Behavioral Bises</u>

Through this table above, the researcher attempts to determine the nature of the relationship between rationality and behavioral biases that surface in PEX. The outcomes indicate; there are significant relationships between most of the biases and investors' rationality except for forecasting error, shifting risk preferences, herding Behavior, prospect theory and anomalies emergence.

Table 34: Kendalls' Tau Correlation between Investor's Rationality and Behavioral Biases

#	Biases	Test Value	Sig.
1	Anchoring and Adjustment Bias	0.182	0.017
2	Forecasting Error	0.050	0.514
3	Asymmetric Discounting	0.117	0.017
4	Mental Budgeting	0.256	0.003
5	Shifting Risk Preferences	-0.069	0.363
6	Regret Aversion	0.066	0.390
7	Overconfident	-0.154	0.039
8	Proxy decision Making	0.242	0.005
9	Home Bias	0.176	0.020
10	Herd Behavior	-0.054	0.543
11	Different Interpretation	0.272	0.003
12	Gamblers' Fallacy	-0.265	0.001
13	Availability Bias	0.264	0.006
14	Illusion of Control	-0.183	0.017
15	Ambiguity Bias	0.318	0.000
16	Sentiments	-0.054	0.051
17	Self-Attribution Bias	-0.073	0.001
18	Prospect Theory	0.089	0.264
19	Anomalies	-0.013	0.859

There is a positive significant relationship between rationality and anchoring bias. As anchoring behavior increases by 1 unit rationality increased by 0.182 this interpreted as the investors based their investment decisions on a specified reference point or even increases the reference points they based their investment decision on, the rationality of investor going to increase.

Asymmetric discounting has positive significant correlation with investors' rationality; when investors start to prefer short term return over long term return they considered more rational. However investor might prefer long term return over short term return and considered rational, we cannot make a generalization.

Mental budgeting has positive significant relationship with investor rationality, as investor allocates the available fund to spend into separate accounts to determine the priorities of spending he/she consider more rational.

Overconfident has a negative significant relationship with investor rationality. As overconfident increases by 1 unit the rationality decreased by 0.154. This is logically applicable to reality. Since overconfident investor tend to act irrationally because of the exaggerated believe he/she has obtains associated with the successive gains or a good market experience.

Proxy decision making bias has positive significant correlation with investor rationality as investors allow other investors or broker to advise them about a particular investment opportunity because the investors do not have the adequate knowledge about this opportunity. Thus, rationality is assumes to be increased. Home bias has positive significant relationship with investors' rationality, in which investing in domestic stock market enable investor to predict the market conditions better and much easier than predicting international market outcome because investor lives in these market effect it and affected by it.

Different interpretation has positive significant correlation with rationality, because each investor interpret the situation based on his/her own way of thinking and personal characteristics rather than imitate other investors actions, the rationality is going to increase.

Gamblers' fallacy has negative significant relationship with rationality, as investors tendency to trade based on assuming that last incidences are going to be repeated and the random events are less likely to re-exist in the market, therefore the rationality of these investors will fall.

Availability bias has positive significant correlation with investor rationality, since PEX investor depends on the available information about a particular security more and analyze the security past performance more, the rationality of the investor will eventually increase. Illusion of control has negative significant relationship with investor rationality. Whereas rationality is going to increase, if investor stop or reduces his/her mistaken beliefs that he/she is able to predict future market return from the current market condition.

Ambiguity bias has positive significant correlation with investors' rationality. since PEX investors according to this study tend to act as risk averse rather than act as risk taker or risk neutral, which mean investors hate risk more than uncertainty, the result here claimed as hate risk and uncertainty more their rationality will eventually increase.

Sentiments have negative significant correlation with investors' rationality. Thereby, if investor reduces his/her dependence on sentiments such as; luck and greed when making investment decisions his/her rationality assumes to be increased. Also anomalies emergence negatively correlate with investor rationality but this relationship is not significant as investor stimulates anomalies to surface not anomalies stimulate investor to be irrational

Therefore, PEX investor rationality assumption is violated as investor exposed to all these behavioral biases but still we cannot say that PEX investors are irrational, however they are not fully rational.

4.3.32 The Impact of Behavioral Biases on Anomalies Emergence

The table below used to clarify the significant correlation between the existed behavioral biases and anomalies emergence in PEX, without the role of intervening variable '' portfolio investment decisions''.

Table 35: Kendalls' Tau Correlation - The Influence of Behavioral Biases on Anomalies Emergence

#	Biases	Test Value	Sig.
1	Anchoring and Adjustment Bias	0.187	0.012
2	Forecasting Error	-0195	0.035
3	Asymmetric Discounting	-0.109	0.154
4	Mental Budgeting	0.373	0.000
5	Shifting Risk Preferences	0.379	0.000
6	Regret Aversion	0.026	0.730
7	Overconfident	0.254	0.001
8	Proxy decision Making	0.260	0.001
9	Home Bias	0.204	0.006
10	Herd Behavior	0.098	0.210
11	Different Interpretation	0.109	0.173
12	Gamblers' Fallacy	0.250	0.001
13	Availability Bias	-0.038	0.603
14	Illusion of Control	0.061	0.419
15	Ambiguity Bias	0.124	0.103
16	Sentiments	0.093	0.272
17	Self-Attribution Bias	0.269	0.000
18	Prospect Theory	0.229	0.003

As shown above, there are no significant relationships between anomalies emergence and these following bias; asymmetric discounting, regret aversion, herding behavior, different interpretation bias, availability bias, illusion of control, ambiguity bias, and sentiments.

Otherwise, there are positive relationships between anomalies emergence in PEX and the following bias; anchoring bias in which investors depend on a particular reference point when made their investment decisions, this reference point might be a stimulator which motivate anomalies to surface.

Mental Budgeting contributes in anomalies emergence through devoting part of investors' fund to invest in frequent phenomena that rises in the market through the year. Shifting risk preferences and prospect theory are coherence and could be explained in the same way as both of them claimed to sell stocks that are up in value and buy stocks that are declining, such a behavior affect trading volume and market capitalization of the security, thus increase the probability of anomalies emergence. Gamblers' fallacy correlate with anomalies emergence positively as investors insist to depend on last indecencies and believe the random events are less likely to occur then probability of anomalies emergence increase.

Self-attribution bias stated if investor achieves success he/she refer this success to their knowledge, experience and abilities which contributes in stimulating overconfident behavior and thus attribute in increase the probability of anomalies emergence. While if he/she incurred loss the investor blame other. However, proxy decision making bias positively correlated with anomalies emergence, when investor doubt in the adequacy of his/her knowledge to deal with stock market this may affect his/her rationality. Thus, possibility of anomalies emergence increases. Also as home bias increase the probability of anomalies emergence increase because trading volume and market capitalization are affected through pumping money suddenly to the domestic market.

To enable the researcher to test the main research hypothesis the researcher used 3 ranking questions that expected to be a good measure of how investors change their investment strategy based on the behavioral biases appear in the market. These questions are:

Table 36: While making your investment decisions, you depend on which the most:

#	Options	Mean	Rank
1	Fundamental Analysis	1.86	1
2	Technical Analysis	3.98	4
3	Indices	4.32	5
4	News	4.41	6
5	Past Experience	2.83	2
6	Trading Archive	3.49	3

As table 36 illustrates, most of the sample participants picked the fundamental analysis as the first best method to invest in PEX. The second chosen method of investment was past experience which is consistent with the study findings that PEX investors have blindness overconfident when dealing with PEX. The third method is trading archive; this is relevant to the availability bias in which PEX investors associate their future investments with the previous incidents and stock past performance. Fourth method picked was technical analysis, whereas technical analysis is non-common method of analysis in PEX because it is an emerging market and technical analysis is not useful. The fifth method chosen was market indices as it reflect the price changes in average. Then news and rule of thumb as last option because most of the time they considered rumors and had negative influences on investors' portfolio.

Table 37: You will bear more risk in which of the following:

#	Options	Mean	Rank
1	Invest in Real Estate	2.22	2
2	Invest in International Stock Market	2.71	3
3	Invest in PEX	2.19	1
4	Invest in Bank Account	2.88	4

On the other hand, when investor were asked; where they would be able to bear more risk in the table above the options were ranked as follow; investing in PEX, invest in real estate, investing in international stock market, and invest in bank account. The participants argued that PEX is an emerging market that has many profitable investment opportunities if the investor picks the right stock and time to invest, also because PEX investors have home bias thus, investing in PEX picked in the first place, then they choose real estate investment as the associated risk with this type of investment is very limited.

Then in the third place most of the participants choose to invest in international stock markets which have more risks other than the risks associated with the investment in domestic market such as; (exchange rate risk, political risk, inflation rate risk, etc). The last option was bank account investment because the interest rate offered by investing in bank account is immaterial or insignificant in their opinion.

Table 38: In your opinion which of the following enables you to beat the market:

#	Options	Mean	Rank
1	Fundamental Analysis	3.45	3
2	Technical Analysis	3.71	4
3	Experience	3.11	2
4	Sentiments	5.44	6
5	Friends Advice	6.67	8
6	Market Anomalies	5.19	5
7	Insider Information	2.13	1
8	Role Model Investor	6.16	7

Moreover, in table 38 participants were asked which investment tool enables them to outperform PEX return, the options were ranked as follow; first, insider information as PEX in a weak form efficiency it can be beaten through insider information and technical analysis. Second option was investor experience since PEX investors devote too much weight to their experience because of their overconfident bias.

Third, fundamental analysis with respect to the results of rationality conducted from the survey, it's logical to be the third choice by most of the sample participants. Fourth, technical analysis but again it's not useful in PEX case. Fifth: known market anomalies, if investors know when the anomalies are going to appear in the market they attempt to benefit from these anomalies through achieving the highest possible return by investing in the right time. Sixth choice was investor sentiments which are drive from investor overconfident and relevant to investor greed and luck. Seventh and eighth choices were role model investor and friend advice respectively. These options are remaining for the last because they associated with the herding behavior which the researcher argued that is hidden behavior among PEX investors because they aren't going to admit this behavior as a result of their self-confidence.

To include the impact of different investment decisions on the anomalies emergence first we examined the impact of behavioral biases on portfolio investment decisions. Then, we investigated in the correlations between behavioral biases and anomalies emergence in PEX. Also, we checked how investors in PEX make their investment decisions through ranking questions. Now we are going to clarify if the behavioral biases affect investors' portfolio investment decisions to determine how different decision making help us in interpreting the relationship between behavioral biases and anomalies emergence.

Table 39: Behavioral biases are affecting PEX investor's investment decisions?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	99	95.2	95.2	95.2
	No	5	4.8	4.8	100.0
	Total	104	100.0	100.0	

	Anomalies Emergence
Mann-Whitney U	71.000
Wilcoxon W	5021.000
Z	-2.699
Asymp. Sig. (2-tailed)	.007

Regarding to Mann Whitney U test, there is a significant relationship between behavioral biases and investment decisions. Whereas 95.5% of the sample participants agreed on this relationship, Mann Whitney U test used instead of T-test because our data are not normally distributed we used Mann Whitney U as a non-parametric test, the u value =71.000 the higher the value of u the smaller the overlap between tested groups, here we have medium value of u test with medium overlapping and p-value less than α=0.05 thus, we reject the null hypothesis of Mann Whitney u test and state that groups are different.

Therefore, we can move to the final step of this study which is to run an ordinal regression that examines; if there is any significant relationship between behavioral biases and anomalies emergence mediating by portfolio investment decisions in PEX.

4.3.33 The Influence of Behavioral Biases on Anomalies Emergence, intervening by Investment Decisions

Table 40.1: Ordinal Regression for the Impact of Behavioral Biases Affected by Different Investments Strategy on Anomalies Emergence

#	Dimension	Test value	Sig.
1	Anchoring and Adjustment Bias	-225.474	0.024
	Anchoring and Adjustment Bias	263.643	0.012
2	Forecasting Error	209.270	0.010
	Forecasting Error	429.425	0.012
3	Asymmetric Discounting	-88.100	0.005
	Asymmetric Discounting	288.478	0.010
4	Mental Budgeting	273.191	0.013
	Mental Budgeting	-744.058	0.009
5	Shifting Risk Preferences	1.809	0.851
6	Regret Aversion	-171.710	0.008
7	Overconfident	-310.847	0.015
	Overconfident	-96.203	0.026
	Overconfident	202.428	0.002
8	Proxy decision Making	102.654	0.021
9	Home Bias	48.599	0.003
	Home Bias	95.354	0.012
10	Herd Behavior	44.356	0.003
	Herd Behavior	373.806	0.025
	Herd Behavior	-385.441	0.020
11	Different Interpretation	266.772	0.016
12	Gamblers' Fallacy	-181.794	0.012
13	Availability Bias	-324.525	0.016
	Availability Bias	-287.275	0.010
14	Illusion of Control	290.711	0.008
15	Ambiguity Bias	150.776	0.012
	Ambiguity Bias	-180.134	0.021
16	Sentiments	1220.428	0.012
17	Self-Attribution Bias	-23.842	0.013
18	Prospect Theory	-84.576	0.013

As table 40.1 elucidates, introducing the portfolio investment strategies to our model as an intervening variable, clearly influence and strengthen the relationship between dependent and independent variable.

As we run ordinal regression interacting behavioral biases with portfolio investment decisions to figure out what happened to the dependent variable "anomalies Emergence", the results were as shown above, all the behavioral biases are significantly affect anomalies emergence through introducing the impact of investment decisions to the model. The only bias that turn insignificant is shifting risk preferences.

Thus we reject the final null hypothesis that behavioral biases of investors do not contribute in create market anomalies in PEX through their portfolio investment decisions. And accept the alternative hypothesis that behavioral biases of investors contribute in create market anomalies in PEX through their portfolio investment decisions

Table 40.2: Ordinal Regression for the Impact of Different Investments Strategy Affected by Behavioral Biases on Anomalies Emergence

#	Investment Tool	Av. Test value	Av. Sig.
	You depend on		
1	Fundamental Analysis	297.802	0.001
2	Technical Analysis	-62.979	0.177
3	Indices	-396.55	0.041
4	News	-169.466	0.141
5	Past Experience	58.688	0.117
6	Trading Archive	-236.981	0.183
	You bear more risk in		
7	Invest in Real Estate	99.339	0.050
8	Invest in International Stock Market	281.525	0.011
9	Invest in PEX	21.4	0.009
10	Invest in Bank Account	53.426	0.189
	To beat the market you depend on		
11	Fundamental Analysis	226.350	0.012
12	Technical Analysis	305.387	0.012
13	Experience	365.080	0.006
14	Sentiments	171.016	0.018
15	Friends Advice	280.176	0.008
16	Market Anomalies	41.326	0.030
17	Insider Information	338.711	0.000
18	Role Model Investor	13.819	0.341

In this table we clarify the most significant investment decisions methods or tools that stimulate the relationship between the behavioral biases and anomalies emergence in PEX. As we noticed that indices has a negative influence on anomalies that manifest in PEX. However, insider information, Experience, friend's advice, fundamental analysis, technical analysis and previously occurred anomalies, respectively have positive significant impact on anomalies emergence in PEX. These investment methods correlate with the pre-existed behavioral biases in PEX and formulate what is called market anomaly.

Market anomalies are known as deviations from efficient market hypothesis that might be occurred once and disappear or frequently surface in the market. Logically we could correlate experience with overconfident and illusion of control. Friend's advice could be related to the herd behavior bias. Fundamental and technical analysis could be associated with availability bias, different interpretation bias, anchoring bias. Furthermore, sentiments consider the psychological motive that plays a crucial role in influencing anomalies emergence, in addition to the role of existed anomalies in inducing the emersion of new anomalies.

The statistical tests below reflect the degree in which the model fit the tested information; the test value of chi-square was 488.539 and it is statistically significant, to reflect that data significantly fit the model we used. While Pseudo R-square test presents the percentage of explained data with Nagelkerke value = 1.000, which mean that 100% of data are explained. Finally, the test of parallel lines shows that p-value exceeds $\alpha=0.05$ and we should reject the null hypothesis that the tested groups are the same.

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	488.539			
Final	.000	488.539	103	.000

Pseudo R-Square

Cox and Snell	.991
Nagelkerke	1.000
McFadden	1.000

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	15.041	1133	1.000
Deviance	27.160	1133	1.000

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

After interpreted all the research results the researcher is going to summarize the findings and gives recommendations to PEX investor. The researcher ensures that research objectives are achieved and the hypotheses were tested and explained through the previous chapter. Thus we can summarize the findings in the following points;

5.1 FINDINGS SUMMARY

➢ Anchoring bias has a significant impact on Palestinian investors' portfolio investment decisions as mean value of total fields roughly equal 2.5. Thus, the null hypothesis was rejected and the alternative hypothesis was accepted; anchoring bias has a significant impact on Palestinian investors' investment decisions.

➢ Forecasting error has a significant impact on Palestinian investors' portfolio investment decisions as the alternative hypothesis claimed, since mean values of all fields were approximately 2.5.

➢ Asymmetric discounting bias has mean value equals 2.73 which reflect a moderate significant impact of asymmetric discounting bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Mental accounting bias has a significant impact on Palestinian investors' portfolio investment decisions as mean value of total fields roughly equal 2.3. Thus, the null hypothesis was rejected and the alternative hypothesis was accepted.

➢ Shifting risk preferences has a significant impact on Palestinian investors' portfolio investment decisions as the alternative hypothesis claimed, since mean values of all fields were approximately 2.3. Moreover, this the only bias that turns insignificant when we run the ordinal regression to examine the impact of behavioral biases on anomalies emergence include the role of different portfolio investment decisions, this may refer to the fact that PEX investors biased their decisions according to the situation they exposed to. Thus this bias significantly affect investor's portfolio investment decision and anomalies emergence but insignificantly affect anomalies emergence when portfolio investment decision intervene the relationship because PEX investors tend to pretend rationality when they invest in PEX.

➢ Regret aversion bias has mean value equals 3.04 which reflect a moderate significant impact of regret aversion bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Overconfident has a significant impact on Palestinian investors' portfolio investment decisions as the alternative hypothesis claimed, since mean values of all fields were approximately 2.03. PEX investors overconfident described as blindness overconfident that derived from investors' over-optimism.

➢ Proxy decision making bias appears in PEX with mean value equals 2.35 which reflect a significant impact of this bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Home bias is not a dominant bias in PEX among investors. However, the mean value of all fields was roughly equal to 2.63 which reflect a significant impact of this bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Herd behavior bias has a slightly significant impact on Palestinian investors' portfolio investment decisions as mean value of total fields roughly equal 0.71 which is very close to 1 'No'. The researcher describes the herd bias as significant hidden bias. Thus, the null hypothesis was rejected and the alternative hypothesis was accepted.

➢ Different interpretation bias has a significant impact on Palestinian investors' portfolio investment decisions as the alternative hypothesis claimed, and regarding to the majority of sample responses.

➢ Gamblers' fallacy appears among PEX investors behaviors with significant mean value = 2.41 that lead to reject null hypothesis and accept the alternative hypothesis in which gamblers' fallacy has a significant impact on Palestinian investors' portfolio investment decisions.

➢ Availability bias has mean value of 2.79 which reflect a moderate significant impact of this bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Illusion of control bias has a significant impact on Palestinian investors' investment decisions as mean value of all fields equal 2.53. Thus, the null hypothesis was rejected and the alternative hypothesis was accepted; illusion of control bias has a significant impact on Palestinian investors' portfolio investment decisions.

➢ Ambiguity bias has mean value equals 2.78 which reflect a moderate significant impact of ambiguity bias on Palestinian investors' portfolio investment decisions Thus, the null hypothesis rejected and the alternative hypothesis accepted.

➢ Self-attribution bias has a significant impact on Palestinian investors' portfolio investment decisions as the alternative hypothesis claimed. The majority of respondents was attribute success to themselves, and blame other factors for failure.

➢ Prospect theory has a statistical significant impact on Palestinian investors' portfolio investment decisions. While participant's responses were contradict with this theory assumption, as they avoid risk when they face a risky situation and take risk when they exposed to a gain opportunity. Even though, the null hypothesis cannot be accepted as there is a valid statistical significant of the prospect theory impact on investors' investment decisions, this interpreted through coherence of this theory and shifting risk preferences bias that strongly affect the investment decisions of investors.

➢ Sentiments have significant impact on Palestinian investors' portfolio investment decisions, as the alternative hypothesis claimed. The majority of respondents reflect that PEX investors have greed sentiments derived from their overconfident, and devote much weight to their luck while investing in PEX.

➢ Investor Rationality has a significant impact on Palestinian investors' portfolio investment decisions due to respondents' opinions. On the other hand, investors' rationality are affected by the behavioral biases that influence PEX investment behaviors. Therefore PEX cannot nether consider rational nor irrational,

They are rational when they aware to the factors that affecting their investment decisions but not fully rational when it's come to behavioral biases. Thus, the researcher rejects the null hypothesis and accepts the alternative hypothesis.

➤ Differences between gender, marital status, levels of education, income, experience, exchange course attendance and loss incurred have no significant impact on Palestinian investors' portfolio investment decisions. In contrast, age and PEX proportion from the total value of investors' portfolio have slight impact on Palestinian investors' portfolio investment decisions. While risk appetite has a significant impact on Palestinian investors' portfolio investment decisions.

➤ Anomalies Emergence; the researcher finds a significant influence of tested behavioral biases on the anomalies emergence through introducing the impact of different portfolio investment decisions as an intervening variable. Therefore, the researcher accepts the alternative hypothesis and rejects the null hypothesis.

5.2 CONCLUSION

From these findings it's obvious that investors in PEX do systematic errors and affected by psychological biases that affect investors' investment decisions and securities prices which resulted in anomalies appearance in PEX.

5.3 <u>Recommendations</u>

1. Investors in PEX should be aware about the impact of behavioral biases on their investment decisions; they should take courses about stock exchange and how to minimize the influences of behavioral biases on the investment decisions.

2. Researches about behavioral biases should be done to clarify the impact of psychological biases on investment decisions, and how to deal with these biases on individual and institutional level.

3. The authorized committees should release periodic information and tips about how to deal with behavioral biases. Through free recorded videos available on the PEX website; show how an investor may invest and affected by behavioral biases while other investor do not affected by behavioral biases, whereas people in general affected by what they see rather than what they hear or read.

4. PCMA should collaborate with PXE to develop some nudge policies that derive individual investor to voluntary change their behaviors, as an attempt to reduce the impact of behavioral biases on portfolio investment decisions. These policies have indirect influence on investors' decision making as it's reinforce or stimulate the compliance and commitment of investors to these policies. Despite of, these policies might have a short term impact on investors behavioral compared to the impact psychological factors that sustain for a long time.

5. Professional investors such as; broker and stock consultants must be trained on how they should avoid behavioral biases if they can, to minimize the impact of these biases on the investors investment decisions.

6. PCMA should work harder to make PEX larger, active, more liquid and more efficient.

7. Diverse the investment instruments or tools that available in PEX to simulate investors to invest in PEX.

8. Establish a fund that specialized in financing the researches that relevant to PEX. Which attract scholars to do research about market and how it could be enhance.

9. Develop a specialized lab at PCMA building, to held all the needed experimental research about PEX, to ease data collection and initiate a primary data base for PEX.

10. Stimulate other researchers to investigate in PEX investor's rationality, the role of trading volume and market capitalization in anomalies emersion. In addition to other research areas that enable us to get a holistic view about the PEX and how we can enhance its efficiency.

11. Avoid the potential for escalation or further emotional investment in faulty decisions engendered by premature "public" commitment; through following unbreakable trading rules that never change.

CHAPTER SIX – APPENDICIES

Appendix 1 - Questionnaire

Dear Respondent,

I'm Jawana Awwad, a graduate student in MBA Program at Birzeit University. I am currently conducting a research study entitled 'Impact of Behavioral Finance Theory on Palestinian Stock Market, under the keen supervision of Dr. Nidal Sabri. This questionnaire is designed to explore the nature and the underlying motives for practitioners – investors and brokers- behaviors in local stock market, behavioral finance can be defined as field of finance that proposes psychology-based theories to explain market deficiencies. We choose Palestine Exchange (PEX) to conduct this thesis. Because you are the one who can give us a correct picture in this regard, I kindly ask you to respond to the questions frankly and honestly.

Please note that data collected will be used exclusively for research purposes and that your response will be kept strictly confidential.

Thank you very much for your time and cooperation. I greatly appreciate the help of your organization and yourself in furthering this research endeavor.

Contact Details:

Name: Jawana Awwad

Mobile: 0598167973

Email: Jawana.h.awwad@gmail.com

Section one: Demographic Questions

Please circle the option that represents the most appropriate response for you in respect of the following items.

1. **Age**

30 years or less	31- 50	More than 51

2. **Gender**

Male	Female

3. **Marital-Status**

Single	Married	Other, specify

4. **Level of Education**

High school or less	Diploma	Bachelor degree	Higher studies

5. **Income** (in Jordanian Dinar) **per month**

Below 499	500 – 799	800 – 1000	1001 – 2000	Higher than 2000

6. **How long have you been investing in PEX?**

Less than 1 year	2 to 10 years	11 to 25 years	More than 26 years

7. **Have you attend any course of stock exchange?**

Yes	No

8. **The percentage of PEX portfolio from your total stock investment portfolio?**

0% - 50%	51% - 99%	100%

9. **How much loss did your portfolio incurred in the past 5 years?**

Less than 10%	30%- 50%	More than 50%	No losses

10. **How often have your investment decisions proved to be right?**

Less than 50%	50% - 80%	More than 80%

11. **You classify yourself according to risk**

Risk seeker	Risk neutral	Risk Averse

Section Two: Multiple Choice Questions

1. **You invest in PEX financial instruments for:**
   a) Return   b) Wealth- creation   c) Other, specify; _____

2. **You refer your gain/ if any, in PEX to?**
   a) Luck   c) Your Deep analysis
   b) Intuition   d) Other, specify_____

3. **You refer your loss/ if any, in PEX to?**
   a) Lack of luck   c) Your bad analysis
   b) Market instability   d) Other, specify_____

4. **After achieving your highest gain/if any, you felt that you want to?**
   a) Invest more to achieve more gain   b) leave the market

5. **After incurring your biggest loss/if any, you felt that you want to?**
   a) Leave the market to avoid any future loss
   b) Try another time with small portion of money
   c) Invest with larger amount to cover the previous loss

6. **What price range of shares so you prefer to invest in?**
   a) Low Cap   c) Large Cap
   b) Mid Cap   d) Combination of low & large Cap

7. **If you have the following choices: you can have a guaranteed $1000 or play a lottery. The outcome of the lottery is determined by the loss of affair coin, if heads comes up, you win $950. If tails come up, you win $1900. Could you**
   a) Accept the guaranteed $1000   b) play the lottery.

8. **Which choice do you prefer?**
   a) A sure loss of $2000
   b) Taking the chance of 50% losing $5000 or 50% losing nothing.

9. **Suppose you have some money to invest and you hear about a great stock tip from your neighbor who is known to have a good stock market sense. He recommends you to purchase shares in X company. What is your response to this situation?**
   a) I will likely buy some shares because my neighbor is usually right about these things.
   b) I will likely take it under advisement and go back to my house and do further research before making decision.

10. **Suppose an unbiased coin is flipped three times, and each time it lands on 'Heads'. What do you feel would be the outcome of the next flip?**
    a) Head   b) Tail   c) 62.5% Tails & 37.5% Heads

Section Three: Yes or No Questions

	Statements	Yes or No
1	Would you invest portion of your money in PEX because of brand loyalty or reputation?	
2	Would you invest portion of your money in PEX if you get an extra fund?	
3	Would you invest portion of your money in PEX because of a role model?	
4	Would you invest portion of your money in PEX because the majority invests in certain stock?	
5	Would you invest portion of your money in PEX based only on your experience?	
6	Would you invest portion of your money in PEX relying on your luck only?	
7	Would you invest portion of your money in PEX based on your feelings?	
8	Would you invest portion of your money in PEX for the next year because you had achieved successive gains the last years?	
9	Would you invest portion of your money in PEX based on market irregularities?	
10	If you know that other investors in PEX suffer from loss as you, would you feel better?	
11	Do you think that current stock prices in PEX reflected from the quality of these stocks?	
12	Do you supervise stock price movements?	
13	Your trading decisions are mainly based on projections and market studies?	
14	Would you go ahead and invest in a stock if your valuation of a particular stock is different from the valuation that made by a well-known expert?	
15	Do you devote part of your income savings for investing in the share market?	
16	Men have more knowledge and control than women over investment in PEX?	
17	I prefer real estate investing over investing in stock market?	
18	Stock prices in PEX are changing due to particular pattern?	
19	I wouldn't invest in PEX if the uncertainty is high?	
20	Behavioral biases are affecting PEX investor's investment decisions?	
21	Each investor in PEX react differently for the same information or event?	
22	Investor feelings make investor deviate from efficient investment strategy?	

Section Four: Likert scale Questions

#	Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I believe in PEX practitioners rationality more than PEX efficiency					
2	I rely heavily on fundamental analysis than technical analysis					
3	I pick my investments based on my sentiments					
4	If I believe that some details about certain stock are not available to me, I don't buy that stock.					
5	I prefer to invest in companies with low risks					
6	I use the stock purchase price as a reference point for trade.					
7	I compare the current stock prices with their recent year high and low price to justify my stock purchase.					
8	I am likely to sell my stock after the price hits recent year high					
9	I am unlikely to buy a stock if it was more expensive than last year					
10	I depend only on current information before making any investment in PEX					
11	I rely on near past performance to buy stocks because I believe that good performance will continue					
12	Good stocks are firms with consistent earnings growth in the last 3 years					
13	I am a long term investor in PEX					
14	I prefer immediate gains over future gains					
15	I tend to treat each element of my investment portfolio separately					
16	I care about spending on my daily obligations more than caring about saving for the future					
17	I keep stocks that decreased in value for long time					

	Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
18	I sell the stocks that increased in value faster					
19	I am more concerned about a large loss in my stock than missing a substantial gain					
20	When it comes to investment, no loss of capital (invested money) is more important than returns (profits)					
21	I blame myself hard if I have forgone a profitable security investment					
22	I keep the stocks that decreased in value and I don't sell them					
23	I invest in companies with low risks					
24	On average, I predict future share prices better than other					
25	I trust my experience more than PEX efficiency					
26	I think that my knowledge exceeds other investors knowledge in PEX					
27	I trade stocks excessively					
28	I trust broker analysis more than mine					
29	I feel more confident in investment when I took my colleagues or friends opinions					
30	I prefer to invest in PEX rather than investing in other stock markets					
31	Local stock investments are more profitable than other investments					
32	I buy the stocks that a group of investors bought					
33	Investor profile affect investment decisions					
34	I can normally expect the end of the market returns whether they are good or bad.					
35	I believe that analysis of share past performance help me in finding its future value					
36	I believe that if, i lose in particular security last year i will incurred a loss this year too					
37	I prefer to invest in a well-known security rather than a newly issued one					

	Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
38	If I want to invest in the stocks of a certain company, I will rely on information from the same company					
39	I believe that I have control in picking securities that will outperform the market					
40	I wouldn't sell a particular security if most of investors sell it, while my analysis indicate that it is a profitable opportunity.					
41	When the market performance is poor I will not increase my investment					
42	I trade in PEX based on frequent phenomena that ensure abnormal return					
43	Trading volume for particular security in PEX increased based on certain phenomena					
44	Market Cap for particular security in PEX changed according to investor various strategies					
45	Deviation from familiar investment strategy lead to anomalies emergence					
46	Anomalous behavior of investor contradicts with efficient market theory					

Section Five: Ranking Questions

1. **While making your investment decisions, you depend on which of the following most: (rank from 1 most important to 6 less importance)**
   - ___Fundamental analysis
   - ___Technical analysis
   - ___Indices
   - ___News and rule of thumb
   - ___Past experience
   - ___Trading archive

2. **You will bear more risk in which of the following: (rank from 1 most important to 4 less importance)**
   - ___Invest in real estate
   - ___Invest in international stock markets
   - ___ Invest in PEX
   - ___ Invest in Bank account

3. **In your opinion which of the following enables you to beat the market : (rank from 1 most important to 8 less importance)**
   - ___Invest based on your experience
   - ___Invest based on your sentiments
   - ___Invest based on Friends advice
   - ___Invest based on your Technical analysis
   - ___Invest based on insider information
   - ___Invest based on market Anomalies
   - ___Invest based on fundamental analysis
   - ___Invest based on role model investor

I sincerely appreciate your time and cooperation. Please check to make sure that you have not skipped any questions inadvertently.

Appendix 2: List of Tables

Table A1: Correlation coefficient of each dimension "Anchoring" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I use the stock purchase price as a reference point for trade.	0.557**	.000
2	I compare the current stock prices with their recent year high and low price to justify my stock purchase.	0.545**	.000
3	I am likely to sell my stock after the price hits recent year high	0.622**	.000
4	I am unlikely to buy a stock if it was more expensive than last year	0.575**	.000
5	Would you invest portion of your money in PEX because of brand loyalty or reputation?	0.404**	.000

Table A2: Correlation coefficient of each dimension "Forecasting Error" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I depend only on current information before making any investment in PEX	0.760**	.000
2	I rely on near past performance to buy stocks because I believe that good performance will continue	0.689**	.000
3	Good stocks are firms with consistent earnings growth in the last 3 years	0.622**	.000
4	Do you think that current stock prices in PEX reflected from the quality of these stocks?	-0.124	.000

Table A3: Correlation coefficient of each dimension "Asymmetric Discounting" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I am a long term investor in PEX	0.723**	.000
2	I prefer immediate gains over future gains	0.486**	.000
3	You invest in PEX financial instruments for return	0.283**	.004

Table A4: Correlation coefficient of each dimension "Mental Budgeting" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I tend to treat each element of my investment portfolio separately	0.806**	.000
2	I care about spending on my daily obligations more than caring about saving for the future	0.867**	.000
3	Do you devote part of your income savings for investing in the share market?	-0.439**	.000

Table A5: Correlation coefficient of each dimension "Shifting Risk Preferences" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I keep stocks that decreased in value for long time	0.449**	.000
2	I sell the stocks that increased in value faster	0.604**	.000
3	I am more concerned about a large loss in my stock than missing a substantial gain	0.621**	.000
4	When it comes to investment, no loss of capital (invested money) is more important than returns (profits)	0.571**	.000

Table A6: Correlation coefficient of each dimension "Regret Aversion" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I blame myself hard if I have forgone a profitable security investment	0.649**	.000
2	I keep the stocks that decreased in value and I don't sell them	0.761**	.000
3	If you know that other investors in PEX suffer from loss as you, would you feel better?	0.619**	.000

Table A7: Correlation coefficient of each dimension "Overconfident" with its related questions

#	Statement	Correlation coefficient	Sig.
1	On average, I predict future share prices better than other	0.766**	.000
2	I trust my experience more than PEX efficiency	0.723**	.000
3	I think that my knowledge exceeds other investors knowledge in PEX	0.708**	.000
4	I trade stocks excessively	0.710**	.000
5	Would you invest portion of your money in PEX based only on your experience	0.708**	.000
6	Men have more knowledge and control than women over investment in PEX	0.708**	,000
7	your investment decisions proved to be right	1.000**	.000

Table A8: Correlation coefficient of each dimension "Proxy Decision Making" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I trust broker analysis more than mine	0.883**	.000
2	I feel more confident in investment when I took my colleagues or friends opinions	0.811**	.000

Table A9: Correlation coefficient of each dimension "Home Bias" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I prefer to invest in PEX rather than investing in other stock markets	0.863**	.000
2	Local stock investments are more profitable than other investments	0.875**	.000
3	Would you invest portion of your money in PEX if you get an extra fund	0.822**	.006

Table A10: Correlation coefficient of each dimension "Herd Behavior" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I buy the stocks that a group of investors bought	1.000**	.000
2	Would you invest portion of your money in PEX because the majority invests in certain stock?	0.748**	.000
3	Would you invest portion of your money in PEX because of a role model?	0.803**	.000
4	You buy a stock if you hear about a great stock tip from your neighbor who is known to have a good stock market sense..	1.000**	.000

Table A11: Correlation coefficient of each dimension "Different Interpretation" with its related questions

#	Statement	Correlation coefficient	Sig.
1	Investor profile affect investment decisions	1.000**	.000
2	Would you go ahead and invest in a stock if your valuation of a particular stock is different from the valuation that made by a well-known expert	0.341**	.000
3	Each investor in PEX react differently for the same information or event	0.808**	.000

Table A12: Correlation coefficient of each dimension "Gambler Fallacy" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I can normally expect the end of the market returns whether they are good or bad.	1.000**	.000

Table A13: Correlation coefficient of each dimension "Availability Bias" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I believe that analysis of share past performance help me in finding its future value	0.281**	.008
2	I believe that if, i lose in particular security last year i will incurred a loss this year too	0.690**	.000
3	I prefer to invest in a well-known security rather than a newly issued one	0.644**	.000
4	If I want to invest in the stocks of a certain company, I will rely on information from the same company	0.571**	.000
5	Would you invest portion of your money in PEX for the next year because you had achieved successive gains the last years	1.000 **	.000

Table A14: Correlation coefficient of each dimension "Illusion of Control" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I believe that I have control in picking securities that will outperform the market	0.833**	.000
2	I wouldn't sell a particular security if most of investors sell it, while my analysis indicate that it is a profitable opportunity.	0.907**	.000

Table A15: Correlation coefficient of each dimension "Ambiguity Bias" with its related questions

#	Statement	Correlation coefficient	Sig.
1	When the market performance is poor I will not increase my investment	1.000**	.000
2	I prefer real estate investing over investing in stock market	0.672**	.000
3	I wouldn't invest in PEX if the uncertainty is high	0.660**	.000

Table A16: Correlation coefficient of each dimension "Self-Attribution Bias" with its related questions

#	Statement	Correlation coefficient	Sig.
1	You refer your gain/ if any, in PEX to good analysis	0.741**	.000
2	You refer your loss/ if any, in PEX to market instability	0.718**	.000

Table A17: Correlation coefficient of each dimension "Prospect Theory" with its related questions

#	Statement	Correlation coefficient	Sig.
1	a guaranteed $1000 or play a lottery. if heads comes up, you win $950. If tails come up, you win $1900	0.457**	.000
2	Which choice do you prefer a sure loss or chance of loss	0.537**	.000
3	Suppose an unbiased coin is flipped three times, and each time it lands on 'Heads'. What do you feel would be the outcome of the next flip	0.738**	.000

Table A18: Correlation coefficient of each dimension "Sentiments" with its related questions

#	Statement	Correlation coefficient	Sig.
1	Would you invest portion of your money in PEX relying on your luck only	0.732**	.000
2	Would you invest portion of your money in PEX based on your feelings	0.862**	.000
3	After achieving your highest gain/if any, you felt that you want to	0.368**	.000
4	After incurring your biggest loss/if any, you felt that you want to	0.891**	.000

Table A19: Correlation coefficient of each dimension "Rationality" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I believe in PEX practitioners rationality more than PEX efficiency	0.535**	.000
2	I rely heavily on fundamental analysis than technical analysis	0.614**	.000
3	I pick my investments based on my sentiments	0.199**	.043
4	If I believe that some details about certain stock are not available to me, I don't buy that stock.	0.591**	.000
5	I prefer to invest in companies with low risks	0.692**	.000
6	Your trading decisions are mainly based on projections and market studies	0.805**	.000
7	Do you supervise stock price movements	0.700**	.000

Table A20: Correlation coefficient of each dimension "Anomalies Emergence" with its related questions

#	Statement	Correlation coefficient	Sig.
1	I trade in PEX based on frequent phenomena that ensure abnormal return	0.810**	.000
2	Trading volume for particular security in PEX increased based on certain phenomena	0.649**	.000
3	Market Cap for particular security in PEX changed according to investor various strategies	0.444**	.043
4	Deviation from familiar investment strategy lead to anomalies emergence	0.676**	.000
5	Anomalous behavior of investor contradicts with efficient market theory	0.684**	.000
6	Would you invest portion of your money in PEX based on market irregularities	0.707**	.000
7	Stock prices in PEX are changing due to particular pattern	0.704**	.000
8	Investor feelings make investor deviate from efficient investment strategy	0.400	.000

Table A21: Ordinal Regression Comparison between Influence of Behavioral Biases on Anomalies Emergence With and Without Impact of Investment Strategy.

#	Dimension	With		Without	
		Test value	Sig.	Test value	Sig.
1	Anchoring and Adjustment Bias	-225.474	0.024	0.370	0.610
	Anchoring and Adjustment Bias	263.643	0.012	-1.603	0.041
2	Forecasting Error	209.270	0.010	2.004	0.001
	Forecasting Error	429.425	0.012	0.588	0.471
3	Asymmetric Discounting	-88.100	0.005	0.307	0.555
	Asymmetric Discounting	288.478	0.010	1.625	0.056
4	Mental Budgeting	273.191	0.013	2.026	0.000
	Mental Budgeting	-744.058	0.009	0.374	0.625
5	Shifting Risk Preferences	1.809	0.851	-0.661	0.417
6	Regret Aversion	-171.710	0.008	0.300	0.515
7	Overconfident	-310.847	0.015	3.745	0.000
	Overconfident	-96.203	0.026	4.874	0.000
	Overconfident	202.428	0.002	-0.806	0.056
8	Proxy decision Making	102.654	0.021	0.955	0.029
9	Home Bias	48.599	0.003	0.106	0.804
	Home Bias	95.354	0.012	-1.675	0.021
10	Herd Behavior	44.356	0.003	0.268	0.472
	Herd Behavior	373.806	0.025	-1.322	0.142
	Herd Behavior	-385.441	0.020	3.126	0.025
11	Different Interpretation	266.772	0.016	1.499	0.004
12	Gamblers' Fallacy	-181.794	0.012	1.645	0.002
13	Availability Bias	-324.525	0.016	-1.822	0.016
	Availability Bias	-287.275	0.010	-0.428	0.614
14	Illusion of Control	290.711	0.008	-0.430	0.437
15	Ambiguity Bias	150.776	0.012	2.146	0.000
	Ambiguity Bias	-180.134	0.021	1.275	0.200
16	Sentiments	1220.428	0.012	4.633	0.000
17	Self-Attribution Bias	-23.842	0.013	-0.786	0.130
18	Prospect Theory	-84.576	0.013	2.840	0.005

Pseudo R-Square

Cox and Snell	.885
Nagelkerke	.893
McFadden	.460

Table A22: Ordinal Regression for the Impact of Different Investments Strategy affected/ not affected by Behavioral Biases on Anomalies Emergence.

#	Statement	With		Without	
		Av. Test value	Av. Sig.	Av. Test value	Av. Sig.
You depend on				
1	Fundamental Analysis	297.802	0.001	- 2312.516	0.266
2	Technical Analysis	-62.979	0.177	-1553.387	0.387
3	Indices	-396.55	0.041	-1876.878	0.312
4	News	-169.466	0.141	-1752.443	0.347
5	Past Experience	58.688	0.117	-1114.532	0.403
6	Trading Archive	-236.981	0.183	594.147	0.417
	You are willing to bear more risk in				
7	in Real Estate	99.339	0.050	324.094	0.518
8	in International Stock Market	281.525	0.011	-352.022	0.332
9	in PEX	21.4	0.009	1289.953	0.232
10	in Bank Account	53.426	0.189	461.809	0.136
	To beat the market you depend on				
11	Fundamental Analysis	226.350	0.012	3320.703	0.104
12	Technical Analysis	305.387	0.012	758.385	0.079
13	Experience	365.080	0.006	-1556.739	0.041
14	Sentiments	-171.016	0.018	528.482	0.049
15	Friends Advice	280.176	0.008	26.921	0.171
16	Market Anomalies	41.326	0.030	-174.469	0.251
17	Insider Information	338.711	0.000	1041.141	0.037
18	Role Model Investor	13.819	0.341	-25.844	0.107

Pseudo R-Square

Cox and Snell	.991
Nagelkerke	1.000
McFadden	1.000

Link function: Logit.

Table A23: test of normality Skewness and Kurtosis

#	Dimension	Skewness	Kurtosis
1	Anchoring and Adjustment Bias	0.648	1.858
	Anchoring and Adjustment Bias	0.236	-1.983
2	Forecasting Error	0.857	1.065
	Forecasting Error	-0.702	-1.537
3	Asymmetric Discounting	0.282	0.308
	Asymmetric Discounting	0.498	-1.878
4	Mental Budgeting	0.103	-1.064
	Mental Budgeting	-0.196	-2.000
5	Shifting Risk Preferences	0.681	1.570
6	Regret Aversion	-0.051	-0.016
	Regret Aversion	0.439	-1.843
7	Overconfident	-0.224	-0.213
	Overconfident	0.379	-0.871
	Overconfident	0.770	-1.164
8	Proxy decision Making	0.625	0.063
9	Home Bias	0.607	-0.227
	Home Bias	-0.439	-1.843
10	Herd Behavior	0.492	-0.693
	Herd Behavior	-0.399	-1.077
	Herd Behavior	-3.505	10.484
11	Different Interpretation	1.623	3.206
	Different Interpretation	-0.099	-1.496
12	Gamblers' Fallacy	0.460	0.154
13	Availability Bias	0.273	-0.719
	Availability Bias	0.276	-1.962
14	Illusion of Control	0.741	0.146
15	Ambiguity Bias	0.225	-1.332
	Ambiguity Bias	0.031	-0.660
16	Sentiments	-1.088	-0.047
	Sentiments	0.933	-0.146
17	Self-Attribution Bias	-0.341	-0.399
18	Prospect Theory	-0.446	-1.978
19	Rationality	0.717	0.154
	Rationality	1.360	0.787

As table A23 above and A24 below elucidate that variable are not normally distributed, the skewness and kurtosis values are close to +1 or -1, more than they are close to 0 to approximate them to normality. Furthermore, Shapiro Wilk test p-values are all less than α= 0.05 which derive us to reject H0 that variable are normally distributed. Also normal Q-Q plot shows that data distributions are deviate from the line that test variable normality. All these tests confirm our result.

Table A24: Test of Normality - Shapiro Wilk Test

#	Dimension	Test Value	Sig.
Likert Scale Questions			
1	Rationality	.932	.000
2	Anchoring	.925	.000
3	Forecasting Error	.921	.000
4	Asymmetric Discounting	.927	.000
5	Mental Budgeting	.924	.000
6	Shifting Risk Preferences	.936	.000
7	Regret Aversion	.950	.001
8	Overconfident	.965	.007
9	Proxy Decision Making Bias	.925	.000
10	Home Bias	.932	.000
11	Herding Behavior	.860	.000
12	Different Interpretation Bias	.737	.000
13	Gamblers' Fallacy	.885	.000
14	Availability Bias	.957	.002
15	Illusion of Control	.917	.000
16	Ambiguity Bias	.868	.000
17	Anomalies Emergence	.977	.066
Yes No Questions			
18	Anchoring	.632	.000
19	Home Bias	.620	.000
20	Herding Behavior	.788	.000
21	Overconfident	.787	.000
22	Sentiments	.691	.000
23	Availability Bias	.630	.000
24	Anomalies Emergence	.841	.000
25	Regret Aversion	.620	.000
26	Forecasting Error	.596	.000
27	Rationality	.638	.000
28	Different Interpretation	.668	.000
29	Mental Budgeting	.633	.000
30	Ambiguity Bias	.794	.000
Multi Response Questions			
31	Overconfident	.809	.000
32	Asymmetric Discounting	.623	.000
33	Herding Behavior	.271	.000
34	Sentiments	.836	.000
35	Self-Attribution Bias	.927	.000
36	Prospect Theory	.886	.000

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