Overconfidence Behavior and Managerial Decisions: Evidence from Pakistan

Irfan Ullah
School of Accounting, Dongbei University of Finance and Economics, Dalian, China

Muhammad Awais
Lecturer, Business & Economics (Finance), Foundation University Islamabad, Pakistan

Khalil Jebran*
School of Accounting, Dongbei University of Finance and Economics, Dalian, China

Muhammad Mohsin Abidy
Mohammad Ali Jinnah University, Islamabad Pakistan

Abstract
The plan of this research is to probe the overconfidence behavior and managerial decisions in the Islamabad Stock Exchange (ISE) and different banks of Rawalpindi & Islamabad. To identify the impact of self-assuredly: future forecasting, analyzing market information, observing market fluctuations, and making decisions on the basis of financial wealth on the outcomes. The information on 61 feedback forms were gathered from the managers of the mutual funds and the branch as well as operation managers of various banks from Islamabad & Rawalpindi about overconfidence behavior & its influence on their decision making ability and judgments according to the future forecasting, available market information, financial wealth, and contrary evidences/market fluctuations were computed from side to side this data. With the help of the model of simple regression, we realize the ratios of all the variables (independent & dependent). Future forecasting, market information, financial wealth, and contrary evidences were found positively associated with overconfidence behavior of the investor. This study exposes the outcome of overconfidence behavior/psychology of human on the poor performance of the market: what kind of dynamics might shape the marketplace that is in attendance in each and every individual. Managers, by some means can predict the future movements of the market and make rational decisions if they carefully analyze the available market information and observe the current market fluctuations.
Keywords: Overconfidence, Managerial decisions, Pakistan

1. Introduction

Over confidence is a state of affair in which, people misjudges/overestimates their expertise, skills, and knowledge on the basis of some limited aspects. The concept of over-confidence is based on the "Probabilistic Mental Model: theory of confidence (PMM Theory)", which was proposed by "Brunswikian". Gigerenzer, Hoffrage and Kleinbolting (1991), detailed the concept of PMM theory of "Brunswikian" which states that the situation in which the level of confidence towards the judgment is very high as compare to the percentage of the correct answer, and the difficulties may arise when the people become overconfident and they make judgments regarding the intricate issues on the basis of probabilistic mode. It transpires only when an individual think that he has all the expertise, skills, and knowledge on the basis of some limited amount of knowledge, skills, and expertise. Such type of individuals underestimates their risks, because they confidently believe that every future outcome will occur in the form of success only. Its occurrence is based on the presence of biased behavior, which is the common element as well as problem that exists mostly in the personality of every person in a different form. In so many cases, the amount of time available for making a decision may also affect the efficiency of decision. According to Synder (1967), people usually can make a better decision in a short period of time.

The people with over-confident behavior judge any situation inaccurately, interpret anything without any logic, and these factors generally shows irrationality. Some people are over-confident on the basis of their perceptions and say that "it can be successful in the near future", means that they can predict results near to the future expected payoffs. Guiso and Parigi (1999) mentioned to the depressing association among future improbability and the decisions of investment. When people make future prophecies on the basis of narrow available data, than a lot of complexities may arise. Some of the managers in the market are extremely over-confident, because they think that future results will be in the favor of his/her side and they can handle the future results but actually they can't do this. People usually make decisions according to their behaviors. Ahlers (1975) states that there is a significant relationship exist between the behavior of a person and a decision made by him. In general, people usually select from the available alternatives on the basis of their concepts and perception toward selected entity, but if the information regarding such entity is available in the market than people must

incorporate such available information with their concepts in order to make better decisions. Sims and Zha (1999) demonstrated that making decisions on the basis of valid information as well as strong logics can minimize the effect of biasness.

Investment is basically putting of money in something to get positive results in the form of earnings. Investment can be related to many of the important factors: security, savings, future expectations, and deferred consumption as well. Doyle and Whited (2001) stated that it would be intricate for a company to adjust/manage their capital or stock when the specific industry has a sky-scraping intensity of financial vacillations. It is difficult to make decisions regarding a company with high level of uncertain variations in their return. Huberts and Fuller (1995) conclude that during high level of uncertainty, people usually make decisions on the basis of assumptions or predictions which can be the cause of biasness.

Investment decisions are usually made by the top management of any organization, in which they decide that when, where, and how much capital is require in each type of investment. All the investment decisions made by the management in any of the well reputed organization are based upon the long-time research of highly experienced research team. Most of the companies diversify their portfolio by making investments in different type of businesses on the basis of the probability of the risk and return of each investment. The decision related to the investment is generally based on the level of competition in the market for a product, level of uncertainty, and the cost of that product. Guiso and Parigi (1999) wind up that high level of uncertainty in the direction of the demand for product and its cost as well may weaken the investor's decision.

On the basis of overconfidence bias, managers can overestimate their skills/abilities/expertise in order to judge their area of investment can hold risky and undiversified portfolios. These type of managers even don't want to listen the opinion of other person as well as they don't want to see the market monopoly. They can make investment in number of products and trade excessively in the market on the basis of their limited knowledge and cannot consider their probability of risk. Malmendier and Tate (2005) declared the overconfidence ability of any CEO to impose the decision of their own choice in the company, than the company will face so many problems in the policies of their corporate investment. Overconfidence bias can also be the cause for market liquidation, which will affect the organizations, individual investors, group investors, and the stock market as well, which will than affect the economic conditions of any country because we can use the stock market as a proxy of economy.

In this paper, the objective is to analyze the overconfidence behavior as well the preferences of investment/operation managers about the portfolio diversification, to analyze their irrational behavior and the expected results, to demonstrate the consequences of overconfidence for holding a risky securities, and to judge the human psychology toward investment as well as managerial decisions.

This study also intends to identify the factors which can be the cause for market liquidation and poor/risky managerial decisions. It will be helpful for the investment managers as well as for the management of the business to make effective decisions by using several techniques, which will be helpful for the elimination of overconfidence. Li (2004) stipulated that the careful analysis of business risk factors, and the factors that involve in the selection of business portfolio, can be helpful in the elimination of irrational and overconfidence decision making.

This study will be very helpful for determining the limitations of cognitions. The finding of this study is to identify the perceptions/judgments of human minds which affect market liquidity and businesses success. The study of optimistic perceptions regarding investment and other managerial decisions will help us to find various powerful factors.

The rest of the paper is organized as follows. The second section reviews brief overview of literature. The third section is about the methodology. The fourth section presents the results. The last section concludes.

2. Literature Review

As most of the people emotional or irrational in the market, and most of the other are over-confident. Overconfidence may leads to emotional behavior and the emotional behavior may also leads to the overconfident decision making. Douglas and Ogloff (2003) concluded that emotional behavior would be at a sky-scraping level and unlikable and caustic ordinary forces may arise where the overconfident behavior may exist.

Most of the companies offered their products on credit in order to increase their sales, but sometime the companies make biased decisions toward some specific entity on the basis of their credit scoring. The operations of those debtors effect disappointingly, who take material on credit from a company and a company make negatively biased decision toward that debtor. Verstraeten and Poel (2005) stated that the negative brunt on the credit scoring recital and success of the debtor can be the result of the sample biasness by the company. Most of the time in the market, the behavior of the investment managers are based on the cash flow efficiency of their organization. Biddle and Hilary (2006) specified the noteworthy alliance along with business cash flows and investment decisions.

Sometime, companies confidently think to reallocate their resources in order to maximize their

efficiency. The reallocation of resources is not beneficial in all the cases, it depends on environment of the market, nature of the business, and the structure of the company as well. Walker (2005) reported negative impact of the resources redistribution on investment effectiveness.

As future is unknown and uncertain, but sometime, some overconfident managers make decisions on the basis of some assumption forecasting. Poitras (2002) suggested that we cannot foretell the future effects of any security on the basis of some restricted data or any other scale. Huberts and Fuller (1995) concluded that inadequately forecast of the future outcomes may leads to abnormal fluctuations in the market. Ehrman and Shugan (1995) terminated that there is no accurate solution to exist for future forecasting, but the carefully pilot testing/market experimentation and the accurate forecast according to the environmental facts can be helpful in the elimination of biased decisions.

The availability of perfect market information is not the true indicator of success, but the strong analysis and evaluation ability can increase the probability of success. Lurie and Mason (2007) concluded that the people, who have almost all of the available market information and also have the strong evaluation and analyzing skills, can estimate the market fluctuations in rational manner and make decisions with less probability of risk and high probability of return.

Generally, the rational managers/investors make the socially responsible investment decisions, but it is not necessary that they can make guaranteed profits on the basis of these decisions, because future is unknown and market can fluctuate at anytime. Benson, Brailsford and Humphrey (2006) stipulated that not all of the managers efficiently managing the risk they face. Sometime, the individual can make a good decision on the basis of some specific information, but by revolving the same information time-by-time in the market confuses the investor toward the investment. DeMarzo, Vayanos and Zwiebel (2003) indicated that investors sometime cannot absorb the repetitive information which they already have, and this can also be the cause for poor decision making. Investment managers sometime over-confidently predict the future fluctuations optimistically, and at that moment, they ignore so many risk factors that can be very much harmful for them and the economy as a whole.

There are so many factors that can be the cause of overconfidence. Sometime, the prices of the stock in the market reflect all the market information, in such case it would be easy for the decision maker to make decision in a rational way. However, the prices of the stock does not reflect the market information, in such case the market is said to be uncertain and it would be difficult for the investor to make efficient, sound, and rational decision at that time. Iqbal et al (2015) empirically found that overconfidence bias partially mediates the relationship between self-attribution bias and perceived market efficiency. Further Bloom, Bond and Reenen (2007) identified high level of fluctuations in the stock prices leads to uncertainty, and the uncertainty leads to make an overconfident decision on the basis of assumed judgments that can be dangerous for the investment managers and the whole market as well.

The decision level and the investment choice of each business are different from one another on the basis of their structures. Some businesses perform on the domestic level and some on the foreign level. Generally, a company with a big structure is able to operate at a foreign level, and their decision making requires a perceptions and opinions of top executives toward the investment. When there are lots of opinions toward a specific action, than there would be a chance to make a biased decision by a competent authority. Boddewyn (1983) revealed that a foreign investment decisions can be more biased than the decisions at domestic level because there are so many variables to consider and a complex analysis of these variables can make it difficult to make a sound decision in a relax environment. Dai, Jo and Kassicieh (2012) indicated that people feels prickly when making foreign investment decision. A good investment decisions must be based on scale of the investment, maturity period, and the profit's percentage.

As the financial wealth increases, the satisfaction of the people and their level of confident would also be increase toward the investment decision. Hansen, Slagsvold and Moum (2008) declared that the level of satisfaction of the people increase by the level of financial soundness. At the time of financial soundness in the market, majority of the people feel relax toward investment decisions and usually make rational decisions in order to minimize their probability of loss. Sometime, the wealthy as well as lower level investor in the market not feel confident toward the investment. Fox and Dayan (2004) declared that most of the time, investment managers in the market feel confuse even if the environment is stable or unstable toward their investment decisions.

Most of the investment managers make a long term plans in order to boost their profits in an efficient way. Some of the managers make rational decisions on the basis of facts and figures and some overconfidently make optimistically assumption based plan. The probability of success of both of the managers would be significantly different from each other. Papadakis, Lioukas and Chambers (1998) mentioned that in order to carefully realize the depth of long-term decision making policies, manager must cautiously examine the internal and external environment of the organization. The risk of the investment decision in the market is generally based upon the individual's perception toward analyzing the environment, because majority of the people in the

market feel optimistic about the decision making skills/ability. Kuvaas and Selart (2004) mentioned that people in the market generally influence by the positive situations/environment rather than the negative.

3. Methodology

The research is basically concerning the "over confidence and managerial decisions" in the environment of the banks and mutual funds of Pakistan. So, we seize "over confidence" as a reliant and "future forecasting, market information, contrary evidence, and financial wealth" as a self-governing variables.

In the primary data-base study, researchers generally use diverse arithmetical calculations: reliability, standard deviation, mean, variance, mode, & median to test and classify their data measurements.

Most of the researchers in the key data-base study, exercise the regression model which was foremost projected by "Sir Francis Galton (founder of statistical tools)".

The uniform regression expression is:

$$\tilde{Y} = \beta_0 + \beta_1 (FF) + \beta_2 (MI) + \beta_3 (CE) + \beta_4 (FW) + \varepsilon \qquad (1)$$

In equation 1, the FF represents future forecasting, MI represents market information, CE represents contrary evidence and FW represents financial wealth.

We circulated seventy questionnaires in the banks and sixty-eight in the mutual funds of Rawalpindi and Islamabad in order to get data from the investment/operation managers. We are able to collect sixty-one feedback forms from different mutual funds and banks of Rawalpindi and Islamabad. With the help of this data, we can identify the factors that can be the cause for over-confidence, and how over-confidence decisions inadequately influence the condition. The thought of feedback form was commenced by "Sir Francis Galton" in order to take the most important/primary data.

Feedback form was self originated and the outcomes of the pilot testing showed the soundness and the consistency of the mechanism.

4. Results

In the preliminary analyses, we checked the reliability of the information to prove that either the data is practicable for our research or not. The next step is to assess the frequency of the primarily collected information to check the variations and directions of the facts. The third step is to assess the relationship (correlation) between variables to discover that how strong is their associations. And the last thing is to assess the regression among variables in order to classify that how a change in one variable can affect the results of other.

4.1 Reliability

The results of the reliability analyses are reported in Table 1. The results shows that 73.4% of the managers in the market have almost the same point of view regarding the overconfidence behavior, which shows a high level of reliability in the direction of this section. Furthermore, 63.4% of the people have same opinion regarding the market information toward overconfidence behavior which also shows reliability in the direction of this section. Moreover the results shows that 48.2% of the people have similar thinking regarding the future forecasting toward the overconfidence behavior, which doesn't shows the as much good reliability level in the direction of this section. The results also shows that 40% of the people have the same view regarding the contrary evidences/available market environment toward the overconfidence behavior which shows the lower average level of reliability in the direction of this section. Finally, 35.8% of the people have same estimation regarding the financial wealth of the investor toward the overconfidence behavior which shows the below the average level of reliability in the direction of this section.

Table 1: Consistency of variables

Variables	Reliability
OC	.734**
FF	.482
MI	.634*
CE	.400
FW	.358

Notes: * and ** significance at 5% and 1% respectively. FF represents future forecasting, MI represents market information, CE represents contrary evidence and FW represents financial wealth.

4.2 Frequency

It demonstrates the number of incidents of any of the reiterating event for each unit of time.

The frequency of the information is used to categorize the range of the available data, their dispersion from the mean, and some of the other statistical purposes. It has been found that most of the variables have mean value between 2 and 3 except MI which is greater than 3. Furthermore, the FW has highest while CE has lowest standard deviation.

Table 2: Summary statistics of the variables

Variables	Mean	Median	Mode	St.dev	Variance	Skewness	Kurtosis
OC	2.4672	2.2500	2.25	.92587	.857	.758	.547
FF	2.9754	3.0000	3.00	.87762	.770	-.534	-.118
MI	3.3361	3.5000	3.50	.91616	.839	-.487	-.480
CE	2.5984	2.5000	2.50	.86516	.748	.225	-.043
FW	2.8770	3.0000	2.00	.94276	.889	.106	-.498

Notes: FF represents future forecasting, MI represents market information, CE represents contrary evidence and FW represents financial wealth.

To judge the human tendency to make an investment decision at the time of weak environment, we posed a question: *I can make decision even when I don't have necessary knowledge about the market.* In respond to this query, 38.2% of the managers strongly disagree from this statement while 38.2% of the managers disagree from this statement. So, we can say that majority of the managers don't want to invest when the market information is not available, but few managers are emotional toward investment and want to make decision in any situation.

In order to judge the confidence level of the investor, we posed a question: *I can confidently make decision on the basis of my perception.* In respond to this query, 36.1% of the managers disagree from this statement while 31.1% of the managers agree from this statement. So, we can say that some of the managers in the market behave overconfidently toward their decision making ability and they don't want to incorporate any information with their perception and belief, while some of the managers in the market behave rationally toward their decision making ability and want to make the investment decision on the basis of facts and figures.

To estimate the human judgment tendency toward making an investment decision, we posed a question: *I can confidently make decision in the weak form of efficiency.* In respond to this query, 29.5% of the managers disagree from this statement while 18% of the managers agree from this statement. So, we can say that majority of the managers don't want to make decision when the current stock price just incorporated their past prices and don't incorporated the any other market information.

To evaluate the investor's tendency to make an investment decision regarding the environment of the market, we posed a question: *I can make investment decision even when trading volume is too low in the market.*. In respond to this query, 29.5% of the managers disagree from this statement while 19.7% of the managers think neutrally toward this statement. So, we can say that majority of the managers can influence from the stock market environment and don't want to analyze the situation carefully in order to identify the opportunity for success.

To judge the individual forecasting ability, we posed a question: *I can make decision even when market fluctuations are very high.* In respond to this query, 36.1% of the managers disagree from this statement while 23% of the managers think neutrally and also 23% of the managers agree from this statement. So, we can say that some of the managers in the market don't feel hesitate to make an investment decision in any kind of risky environment while some of the managers think rationally and don't want to make decision in a high risk environment.

To judge the individual level of confidence toward their estimation ability, we posed question: *I can estimate the future fluctuations on the basis of past and current data.* In respond to this query, only 13.1% of the managers disagree from this statement while 50.8% of the managers agree from this statement. So, we can say that majority of the managers in the market think that they can make a profitable decision on the basis of past & current market data which is not possible without their careful analysis.

To assess the investor's analysis ability, we posed a question: *I can make decision on the basis of previously available data.* In respond to this query, only 9.8% of the managers disagree from this statement while 50.8% of the managers agree from this statement. So, we can say that majority of the managers in the market feel very much confident to make decision on the basis of past data which is not the true indicator of success.

To evaluate the human self-confidence, we posed a question: *I can make decision on the basis of third party comments/experienced a person.* In respond to this query, 27.9% of the managers disagree from this statement while 34.4% of the managers agree from this statement. So, we can say that some of the people in the market can be easily framed toward the comments of other managers and don't want to configure the facts before making a decision while some of the managers are rational and want to make decision through facts and figures by incorporating the experience of senior investors.

To judge the level of individual decision making ability, we posed a question: *I can make decision even when the market's environment is totally uncertain.* In respond to this query, 39.3% of the managers disagree from this statement while 21.3% of the managers agree from this statement. So, we can say that most of the managers in the market are sensitive toward the risky situation and they are risk-averse while some of the managers want to invest in a risky situation with the belief that stock market is totally a by chance game, and no

one can estimate its future fluctuation.

To evaluate the investor's consciousness toward the investment decision, we posed a question: *I can make decision on the basis of company's reputation but not on its performance.* In respond to this query, 29.5% of the managers disagree from this statement while 26.2% of the managers agree from this statement. So, we can say that some of the managers in the market are very much status/brand conscious and they don't want to alter their decision regarding their specific brand and confidently invest in that company.

To estimate the human allocation ability in the market, we posed a question: *I can diversify my investment portfolio even when I don't have large amount of investment.* In respond to this query, 39.3% of the managers disagree from this statement while 19.7% of the managers agree from this statement. So, we can say that majority of the managers are showing rational attitude, but some of the managers in the market don't have asset allocation ability and the logics behind for the investment as well and also showing their irrational behavior.

To judge the investor's confidence level at the time of financial soundness, we posed a question: *I often don't feel relax and comfortable toward the decision when I have large amount of investment.* . In respond to this query, 36.1% of the managers disagree from this statement while 24.6% of the managers agree from this statement. So, we can say that the attitude of majority of the managers is normal and they fell relax and comfortable with financial soundness, but some of the managers are emotional and they don't feel very much happy at the time of financial soundness toward making an investment decision.

4.3 Correlation
The correlation is used to see the association of variables. According to the results of the Table 3, the coefficient of the correspondence among overconfidence behavior of the managers and their future forecasting ability is 0.491 which shows a far above the ground scale of affiliation between both variables and their link is extremely significant at 1% confidence interval. The coefficient of the correspondence between overconfidence behavior of the managers and the availability of market information is 0.310 which shows a good affiliation between both variables and their link is significant at 5% confidence interval. The coefficient of the correspondence between overconfidence behavior of the managers and the contrary evidences/current fluctuations of the market is 0.451 which also shows a very sturdy affiliation between both variables and their link is extremely significant at 1% confidence interval. The coefficient of the correspondence between overconfidence behavior of the managers and their financial wealth is 0.454 which also shows a sky-scraping scale of affiliation between both variables and their link is extremely significant at 1% confidence interval.

Table 3: Degree of association among variables

Variables	Correlation	P
OC-FF	.491**	.000
OC-MI	.310*	.015
OC-CE	.451**	.000
OC-FW	.454**	.000

Notes: * and ** significance at 5% and 1% respectively. FF represents future forecasting, MI represents market information, CE represents contrary evidence and FW represents financial wealth.

4.4 Regression
The regression analysis is used to make out the brunt of overconfidence behavior of the managers on their decisions making ability. According to the results of the Table 4, the most important value for the purpose of model fitness is F stat, which is 8.675 and significant at 1%. The value of the R square is .383 which demonstrates that the independent variables have the ability to explain the model. We can say on the basis of these results that 38.3% of the manager's overconfidence biasness can be explained by the (FF, MI, CE, & FW) variables.

Table 4: Regression flanked by variables

Multiple R	.619
R-square	.383
Adjusted R-square	.338
Standard error	.75305
Observations	61
F statistics	8.675**

Note. ** indicates significance at 1%.

Table 4.1: Regression results

Variables	Coefficients	Standard error	t-stat	P-value
Constant	.005	.463	.011	.991
FF	.374**	.121	3.084	.003
MI	.039	.123	.319	.751
CE	.165	.143	1.150	.255
FW	.274*	.122	2.258	.028

Notes: * and ** significance at 5% and 1% respectively. FF represents future forecasting, MI represents market information, CE represents contrary evidence and FW represents financial wealth.

According to the results of the Table 4.1, the regression coefficient of the FF (future forecasting) is .374 which is significant at 1% confidence interval. We can take to mean the value of coefficient in term of possibility of the shareholders/investment managers to make an overconfidently biased decision due to their ability to optimistically forecasting the future outcomes. Remaining all further variables unvarying, the people who confidently forecast the future outcomes are 37.4% more probable to make an overconfidently biased investment decisions. The regression coefficient of the FW (financial wealth) is .274 which is significant at 5% confidence interval. We can take to mean the value of coefficient in term of possibility of the managers to make an overconfidently biased decision due to their strong financial power/sound financial wealth. Remaining all further variables unvarying, the people who have a very large amount of investment or those who are very rich are 27.4% more probable to make an overconfidently biased investment decisions. The coefficient of the CE (contrary evidence/market fluctuations) is .165 which is insignificant. The regression coefficient of the MI (market information) is also insignificant.

5. Conclusion

The human decision making is administered by the biased behavior that can be the cause for irrational decisions. For the rationale of the gathering of data for this study, a self-based erected feedback form was used. This study examined the overconfidently biased behavior of people toward investment and its influence on the Islamabad Stock Exchange (ISE). The approximated consequences recommend that there would be around half of the unit (.491) adjust in the overconfidence when the 1 unit alter in FF (future forecasting), there would be around half of the unit (.451) adjust in the overconfidence when the 1 unit alter in CE (contrary evidences), there would be around half of the unit (.454) adjust in the overconfidence when the 1 unit alter in FW (financial wealth), there would be around quarter of the unit (.310) adjust in the overconfidence when the 1 unit alter in MI (market information). These results would be extremely supportive for the people for the intention of decision making at the precise time to make rational decisions to obtain superior returns and these results can also be favorable for stock market. These outcomes demonstrate that the alteration/adjustment in any independent variable can transform the outcomes of the stock market and can also affect the returns of the stock market. Future research can be performed with the help of moderating variables and more wide area for population can be used.

References

Ahlers, D. M. (1975). An investment decision making system. *Interfaces*, 5(2-Part-2), 72-90.

Benson, K. L., Brailsford, T. J., & Humphrey, J. E. (2006). Do socially responsible fund managers really invest differently? *Journal of Business Ethics*, 65(4), 337-357.

Bloom, N., Bond, S., & Van Reenen, J. (2007). Uncertainty and investment dynamics. *The review of economic studies*, 74(2), 391-415.

Boddewyn, J. (1983). Foreign and domestic divestment and investment decisions: like or unlike? *Journal of International Business Studies*, 14(3), 23-35.

Dai, N., Jo, H., & Kassicieh, S. (2012). Cross-border venture capital investments in Asia: selection and exit performance. *Journal of Business Venturing*, 27(6), 666-684.

DeMarzo, P. M., Vayanos, D., & Zwiebel, J. (2003). Persuasion bias, social influence, and unidimensional opinions. *The Quarterly Journal of Economics*, 118(3), 909-968.

Douglas, K. S., & Ogloff, J. R. (2003). The impact of confidence on the accuracy of structured professional and actuarial violence risk judgments in a sample of forensic psychiatric patients . *Law and human behavior*, 27(6), 573-587.

Doyle, J. M., & Whited, T. M. (2001). Fixed costs of adjustment, coordination, and industry investment. *Review of Economics and Statistics*, 83(4), 628-637.

Ehrman, C. M., & Shugan, S. M. (1995). The forecaster's dilemma. *Marketing Science*, 14(2), 123-147.

Fox, S., & Dayan, K. (2004). Framing and risky choice as influenced by comparison of one's achievements with others: The case of investment in the stock exchange . *Journal of Business and Psychology*, 18(3), 301-321.

Gigerenzer, G., Hoffrage, U., & Kleinbölting, H. (1991). Probabilistic mental models: a Brunswikian theory of

confidence. *Psychological review*, 98(4), 506.

Guiso, L., & Parigi, G. (1999). Investment and demand uncertainty. *The Quarterly Journal of Economics*, 114(1), 185-227.

Hansen, T., Slagsvold, B., & Moum, T. (2008). Financial satisfaction in old age: A satisfaction paradox or a result of accumulated wealth? . *Social Indicators Research*, 89(2), 323-347.

Huberts, L. C., & Fuller, R. J. (1995). Predictability bias in the US equity market. *Financial Analysts Journal*, 12-28.

Iqbal A., & Jebran K, Rao, Z, U. R., Ahsan, T., & Mirza, S. S., (2015). Self-Attribution Bias, Overconfidence Bias, and Perceived Market Efficiency. *International journal of Business insights and transformation*, 8(2).

Kuvaas, B., & Selart, M. (2004). Effects of attribute framing on cognitive processing and evaluation. *Organizational Behavior and Human Decision Processes*, 95(2), 198-207.

Li, K. (2004). Confidence in the familiar: An international perspective. *Journal of Financial and Quantitative Analysis*, 39(1), 47-68.

Lurie, N. H., & Mason, C. H. (2007). Visual representation: Implications for decision making. *Journal of Marketing*, 160-177.

Malmendier, U., & Tate, G. (2005). CEO overconfidence and corporate investment. *The journal of finance*, 60(6), 2661-2700.

Papadakis, V. M., Lioukas, S., & Chambers, D. (1998). Strategic decision-making processes: the role of management and context. *Strategic management journal*, 19(2), 115-147.

Poitras, G. (2002). The philosophy of investment: a Post Keynesian perspective. *Journal of Post Keynesian Economics*, 25(1), 105-121.

Sims, C. A., & Zha, T. (1999). Error bands for impulse responses. *Econometrica*, 67(5), 1113-1155.

Snyder, G. L. (1967). A Look at Options. *Financial Analysts Journal*, 100-103.

Verstraeten, G., & Van den Poel, D. (2004). The impact of sample bias on consumer credit scoring performance and profitability. *Journal of the operational research society*, 56(8), 981-992.

Walker, M. D. (2005). Industrial Groups and Investment Efficiency*. *The Journal of Business*, 78(5), 1973-2002.