IMPACT OF INVESTORS' BIASES ON DECISION MAKING SKILLS OF WOMEN INVESTORS IN EQUITY SEGMENT

Prof. Anagha Bhope, Associate Professor
Indira School Of Business Studies Pgdm
Anagha1.Bhope@Indiraisbs.Ac.In

ABSTRACT
It is said that Indian investors' investments run on sentiments hence this paper aims to identify the impact of Investors' biases on decision making skills of women pertaining to Equity segment. Equity is supposed to be a long-term investment for mobilization of savings from the investors' pocket to investments in corporates. As equity is a long-term investment it involves elevated risk but also ensures high returns in the form of capital appreciation. In the current times when females are also earning handsome money through their ventures, they are also looking for a long-term investment in the form of Equity. The objective is to analyze the impact of behavioral biases on decision making skills of women when it comes to long term investment in Equity. The opinion of women investors was collected through a 5 pointer Likert Scale on the impact of Investors' biases on Decision Making Skills of Women Investors in Equity Segment. The author used Linear Regression model to build this logical framework. The study revealed that the impact of investors' biases on decision making skills of women investors in Equity segment is statistically significant and it reconfirms that the personality traits are responsible for decision making process be it in general parlance or in case of investment decisions. This study has tried to analyze, the impact of behavioral biases on investment decision making of women investors because this investor segment is risk averse and equity investment comes with an inherent risk and hence investors tend to take support of their investment biases to take a decision. And the result has proved this assumption as statistically significant. The study is unique because the researcher selected the investment segment.
Keywords- Investor bias, Equity segment, Decision making abilities, Women investors, Regression,

Introduction

The Indian economy offers various investment alternatives to the investor to invest their money and reap the benefits out of it. The conventional avenues are Bank deposits, Post office deposits, gold, precious metals, antics etc. and Capital markets and other allied avenues are considered to be the modern one. Every investment opportunity comes with a tradeoff of risk and return, conventional avenues of investment possess less risk compared to the modern avenues, but it also offers a very less return. The problem with the lesser return is that sometimes it does not even cover the rate of inflation and hence the real return is as good as zero. On the contrary modern avenues might be riskier but offers a handsome return to the investor. The investor these days are coming out of the mindset of not taking any risk and they are more inclined towards the modern avenues of investment. Long-term equity investments are more stable in terms of risk variation faced by the investors after investing into stock market and hence this investment is preferred over others. Female population forms a larger part of the investors' population these days and females tend to make investments for long term. Most of the broker have confirmed that they have suggested Equity investments to their female clients as they were looking for a long-term investment and a substantial capital appreciation through their investment. Hence the aim of the paper is to understand the impact investors' bias on decision making skills of women investors in equity segment. Researcher has referred to substantial amount of research work before setting the premise that the decisions an investor takes are influenced by his/her investment bias in larger number of trades. These biases hinder the ability of an investor to take rational decisions while investing, which may lead to losses at times. The idea behind this paper is to confirm the claim of the researcher and help investors through this literature to understand the implication of such biases.

Equity Sector in India

Recently, Equity has grown into an important vehicle to increase the savings manifold eventually. Investors especially who come from earning class and prefer to take risk to have more capital appreciation compared to other avenues choose equity as their investment vehicle. Equity is one of the substantial parts of the capital structure of corporations and hence it also carries a weightage of higher returns. Equity shareholders are considered last in the hierarchy of the returns, but their returns are not decided beforehand and hence it is likely that the retained earning corporates have after paying taxes and preference dividends goes in the pocket of equity shareholders. As per the financial norms the goal of corporates is to maximize the shareholders' wealth that can be achieved by an increase in the returns of equity shareholders. This provides the motivation to the shareholders to move to the equity segment if they wish to sacrifice their current money to earn long-term high returns. NSE started trading in the equities segment (Capital Market segment) on November 3, 1994, and within a short span of a year became the largest stock exchange in India in terms of volumes transacted. NSE is ranked as the third largest stock exchange globally in terms of number of equity trades, as per World Federation of

Exchange (WFE) Report – 2019 (source- https://www.world-exchanges.org).Equity segment consist of Equity shares and Preference shares and there are 1867 equity shares are available for trading in the equity shares as on date (13/04/2023, source- https://www.nseindia.com)

Equity sector in India has shown enormous growth over a period of time, and the reasons are several, to name a few- a. Investors have started SIP plans in equity, b. Various mutual funds also invest heavily in the equity area, c. Equity offers different classes of companies like small cap, mid cap and large cap and that helps the investor to decide his area of investment etc.
This trend of investing in equity has increased the trading volume in the equity segment resulting in its expansive growth. This paper has tried to capture this segment considering the growing importance of this sector in Indian Economy.

Review of existing literature
Shefrin (2003) frame dependence indicates that an investor makes decisions that are influenced by the information being accessed. It also indicates that how the information is presented is more important than what information is presented. Desigan, Kalaiselvi, and Anusaya (2006) have highlighted several reasons for women investors not investing in MFs as they are not aware of investment options and procedures, risk involved, and grievance procedures. Women lack the understanding of the technicalities of the market procedures that act as a hindrance for them to invest in Mutual Funds.

Mittal, Vyas and Verma (2008, 2009) indicated that Indian investors are prone to behavioral biases when it comes to investing for the long term. Long term decision making is essentially done after thinking through considering all the parameters that is where the bias comes in picture. Thaler (2008) mental accounting is one of the processes whereby individuals code, categorize, and measure financial outcomes, but this accounting lacks the infrastructural support hence may not be practical while it comes to the allocation. Luong, Thi Hua Ha, Masomi and Ghayekhloo (2011) have found out that factors such as overconfidence, loss aversion and mental accounting and herding were found to be the factors affecting investment decisions. These factors essentially tweak the decision of an investor.

Rick (2011) The aversive response replicates the critical role of negative emotions to loss such as fear and anxiety .Gino, Sharek and Moore (2011) reported that when people possess a great deal of illusion of control, and they underestimate things or hints suggested or provided by the investment experts or analysts they may not achieve the desired results. Kahneman (2011) In overconfidence bias there lies a situation where investors' feel that they understand all the nuances of the market and possess expertise in all aspects of investment. These individuals are called the overconfident professionals. These people feel that their investment can never go wrong.

Sreedevi, Chitra (2012) have demonstrated that personality traits of investors influence the individuals while making the decisions and these traits also strongly influence them to decide the method of investing. Vyas, Moonat (2012) The MF companies should design their schemes after the careful study of investors' decision making and switching behavior. Singh (2012) has observed that investors' attitude towards investment is affected by their gender, income, qualification, and personality traits. Lim, Qadri, Shabbir, Qureshi Rehman and Hunjra (2012, 2014) Investors' decision making has been found positively affected by psychological factors.

Lingesiya, Kengatharan (2014) explained the herding effect in financial markets identified as the tendency of the investors to follow others' actions. Steele, Stefansson (2015) loss aversion indicates people's tendency to strongly prefer avoiding losses to acquiring gains. Aversion to loss is an extraordinarily strong emotion. George, Chandran (2016) observed that satisfaction on returns was significantly related to the period of investment. Sindhu, Rama Krishna and Reddy (2017) demonstrated in their study that demographic variable age was significantly related with the safety of investment. Vijayalakshmi (2017) has found out that there is a meaningful relationship between risk and return for individual and portfolio investment.

Objectives of the study
1. To analyze the impact of Investors' biases on decision making ability of women investors in equity segment.
2. To understand the framework behind Investors' biases.

Hypothesis of the study
H0- There is no significant effect of investors' biases variables on the decision-making skills of women investors pertaining to equity segment.

H1- There is a significant effect of investors' biases variables on the decision-making skills of women investors pertaining to equity segment.

Research Design

Data- The data was collected through a structured questionnaire to gather information from 300 working females from Pune City. The working females mostly belong to the IT Sector and a part of the respondents is a class of self-employed women. The category of financial dependent women avoided to confirm the validity of the data. Hair, Anderson, Tatham and Black (1998) proposed that with quantitative research a minimum of 100 respondents should be considered to conduct the statistical analysis. Data is collected in the academic year of 2022-23.

Sampling- Convenience sampling and Snowball sampling techniques used to select the respondents from the population of Working women of Pune City. As the researcher wanted to pursue the study related to Equity segment, it was necessary for researcher to choose the respondents from the frame of investors who knows about this segment and trade in this segment and hence convenience and snowball sampling was considered for data collection.

Data Sources- The research is exploratory in nature and the data collected is primary in nature. The data is collected through a structured questionnaire which is formal and unconcealed in nature. The questionnaire consists of three sections- Demographics, Investment Biases, Decision making factors of women investors.

Statistical Tools- Researcher has used SPSS as the primary software for statistical analysis. The analysis is done two parts- 1. Reliability analysis with the help of Cronbach's alpha test 2. Regression analysis to find out the impact bias variables on decision making attributes.

Research Framework - The conceptual framework of this study is displayed in the figure appended. The figure ascertains the impact of the investors' biases on women investors' decision-making skills pertaining to equity segment. The author has considered seven (7) investors' biases which are: Confirmation Bias, Frame Dependence, Herding, Over Confidence, Illusion of Control, Mental Accounting, and Loss Aversion. All these investors' biases variables found to have played important roles in determining women investors' investment decision-making attributes such as achievement, deliberate decisions, emotional Involvement, Risk Bearing, Routine, Long term benefits. The decision-making attributes are considered after considering the studies by previous researchers.

The investors' biases variables are considered based on numerous studies. Confirmation bias was proposed by Peter Wason which indicates that investors have their own opinions or pre-conceived notions. Seeking information or opinions that supports their ideas or pre-conceived notions and ignoring information that is contrary to their pre-conceived notions is confirmation bias (source-https://www.miraeassetmf.co.in).

Frame dependence indicates that an investor makes decisions that are influenced the information is accessed (Shefrin, 2003). While making investment decisions, investors are likely to be more influenced by how the information is brought to their notice than what is the content of the information. Lingesiya, Kengatharan (2014) explained the herding effect in financial markets is identified as the tendency of the investors to follow others' actions. These are the kind of investors who believe that some people have more expertise in the market and trading strategies and hence they should be followed while taking investment decisions. Then comes the next bias, which is exactly opposite of herding, in this situation investors' feel that they are the 'Know it all' persons and they have expertise in all aspects of investment. These individuals are called as the overconfident professionals (Kahneman 2011).

Investors' Bias

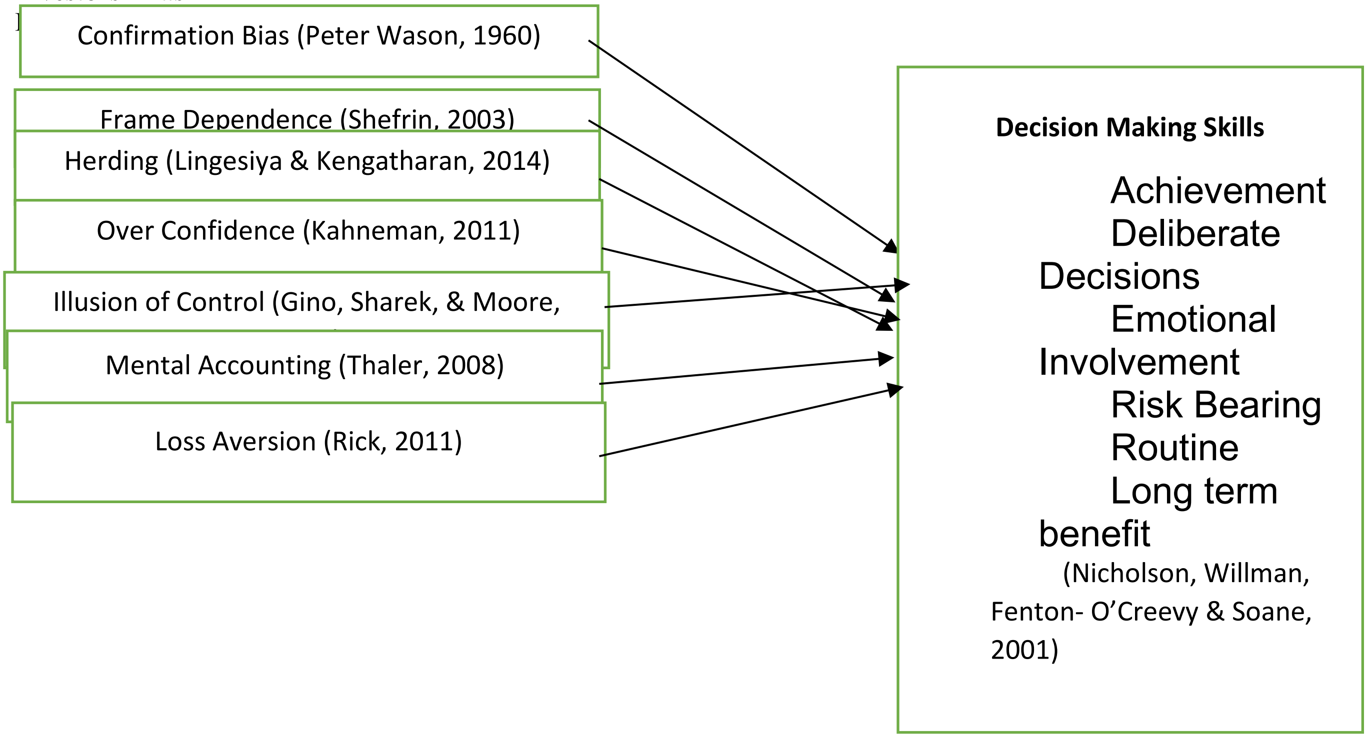

Figure 1- Conceptual Framework (Source- generated by the researcher)

Kahneman in his studies reported that a little amount of knowledge about some investments may lead to higher amount of investment propositions. However, this may not end up in giving desired results or earnings. Kahneman described this overconfidence as 'the most significant of all biases. Gino, Sharek, and Moore (2011) reported that when people possess a great deal of illusion of control, and they underestimate things or hints suggested or provided by the investment experts or analysts they may not achieve the desired results. These investors have the tendency to overestimate their talent to control their actions.

Mental accounting is one of the processes whereby individuals code, categorize, and measure financial outcomes (Thaler, 2008). But this is also an issue as this account lacks the infrastructural support of real-time allocations of funds. In decision theory (Steele, Stefansson, 2015), loss aversion indicates people's tendency to strongly prefer avoiding losses to acquiring gains. Aversion to loss is an extraordinarily strong emotion. The aversive response replicates the critical role of negative emotions to loss such as fear and anxiety (Rick, 2011).

Data Analysis

Descriptive Analysis-

Age	Number of Respondents	% of the respondents
21-30 years	75	25
31-40 years	94	31.33
41-50 years	91	30.33
51-60 years	40	13.33

Table no- 1 Age composition of the respondents

Interpretation

Majority of female respondents comes under the age group of 31-40 years. Around 31.33% of the respondents belong to this age groups while in other 3 categories of age group approximately 68.67% percent females are consolidated.

Education	Number of Respondents	% of the respondents
Graduate	186	62
Post Graduate	86	28.667
Doctoral Candidates	28	9.33

Table no 2- Education composition of the respondents

Interpretation

Majority of female respondents comes under the educational category i.e graduation. Out of total respondents 62% of the respondents are holding a degree. The respondents are either holding an engineering degree or technical diplomas equivalent to technical degree. 28% of the female are post graduate and are required to acquire those degrees essentially because of the appraisal policies of the organization they are working in.

Annual Income Level	Number of Respondents	% of the respondents
<5,00,000	74	24.667
5,00,000-10,00,000	88	29.33
10,00,000-20,00,000	93	31
>20,00,000	45	15

Table no 3- Income composition of the respondents

Interpretation

Above table shows that approximately 85% of the female respondents are earning in the bracket of 4,50,000-20,00,000. While only 15% of the female respondents are earning more than 20,00,000.

Investment Tenure till date (In years)	Number of Respondents	% of the respondents
0-5	84	28
5-10	104	34.667
10-15	79	26.333
15-20	33	11

Table no 4- Investment tenure of the respondents

Interpretation

Above table shows that 28% respondents are investing for last 5 years, while approximately 35% respondents are investing for 10 years. 26% females are investing 10-15 years and 11% female respondents are investing for 15-20 years. This composition is absolutely suitable for the study conducted.

Occupation	No. of respondents	% of respondents
Salaried IT employees	264	88
Self-employed	36	12

Table no 5- Occupation of the respondents

Interpretation-

Above data shows that 88% of the female respondents are salaried employees in IT Company while only 12% of the respondents are elf employed.

Reliability Testing
The author has started reliability analysis with Cronbach's alpha test to establish the validity of the end results. In exploratory studies the end results are based upon the primary data collected, in any case if there is a discrepancy in the primary data it percolates in the results and then the generalization of the results becomes statistically insignificant hence reliability test was conducted first on the data.

Cronbach's Alpha	No. of Items
0.716	37

Table no 6- Reliability Statistics

Interpretation
The reliability coefficient is 0.716 indicates the reliability of the dataset. As per the statistical norms the value of Cronbach's Alpha should be at least in the range of 0.6-0.8. The resultant here lies in the same range that indicates and establishes the reliability of the dataset.

Hypothesis Testing
Multiple regression analysis is used by the researcher to fit a model for each of the variables of decision making skills of women investors, which are, achievement, deliberate decisions, emotional involvement, risk bearing, routine, long term benefits based on women investors' biases- confirmation bias, frame dependence, herding, overconfidence, illusion of control, mental accounting, loss aversion.

Particulars	Variables	Attributes of Decision-Making Skills					
		Achievement	Deliberate Decisions	Emotional Involvement	Risk Bearing	Routine	Long term benefit
Investors' Biases	Conformation Bias	0.112	0.172	0.251	0.119	0.105	-0.189
	Frame Dependence	0.136	0.162	-0.132	0.144	0.125	0.258
	Herding			-0.082	-0.079		
	Overconfidence	0.198	0.190	-0.094	-0.0113	-0.183	0.164
	Illusion Of control	0.173		0.196			
	Mental Accounting	0.156		0.261	-0.125		
	Loss Aversion		-0.179		0.158		0.163
	R Square	0.542	0.669	0.583	0.326	0.432	0.621
	F	28.654	34.309	32.289	16.128	17.281	30.006
	P value	0.000	0.000	0.000	0.000	0.000	0.000

Table no.7- Coefficient Regression Models

Interpretation
As significant correlations were observed among the independent variables, the problem of multicolinearity might have arisen. Hence, researcher decided to go for stepwise regression to avoid the problem. Multiple regression analysis was done on the data through SPSS software to determine the effect of the independent variable (investors' biases variable) on the dependent variables (Decision making skills variables).

Findings
In the above table there are 3 significant values that need to be interpreted for the understanding of the outcome. The value of R Square (Coefficient of Determination), F value and the P value. Coefficient of determination will help to understand, the magnitude of impact of independent variable on dependent variable, F value will help to understand the 'Fit of the model' and lastly, the P value will help to understand whether the hypothesis is accepted or rejected.

The models for all the decision-making attributes are significant at 1% level of significance ($p<0.01$) as all the p values are less than the level of significance considered. The level of significance is 1% for the most accurate model building. Hence, we must reject the null hypothesis which means, there is a significant effect of investors' biases variables on the decision-making skills of women investors pertaining to equity segment.

Now if we look at F value that indicates the 'Fit of the model' indicates the substantial value for every bias having impact on decision making attributes in the appended table. As per the thumb rule if the model needs to be 'Fit' model the F value should at least be more than '4'. Herein the F value is significantly high for each variable considered. This indicates that the regression model is logically explainable.

The R-square value for the model for attribute Achievement is 0.542 that indicates that investors' biases collectively have 54 percent impact on this attribute. It also indicates that investors' bias explains 54% variation for achievement attribute. The investor bias 'Overconfidence' has the highest impact on the variable achievement, followed by illusion of control and mental accounting.

The R-square value for the model for attribute Deliberate Decisions is 0.669 that indicates that investors' biases collectively have approximately 67 percent impact on this attribute. It also indicates that investors' bias explains approximately 67% variation for deliberate decision attribute. The investor bias 'Overconfidence' has the highest impact on the variable achievement, followed by confirmation bias and frame dependence.

The R-square value for the model for attribute Emotional Involvement is 0.583 that indicates that investors' biases collectively have 58 percent impact on this attribute. It also indicates that investors' bias explains 58 % variation for emotional involvement attribute. The investor bias 'Mental Accounting' has the highest impact on the variable achievement, followed by confirmation bias and illusion of control respectively.

The R-square value for the model for attribute Risk Bearing is 0.326 that indicates that investors' biases collectively have 32 percent impact on this attribute. It also indicates that investors' bias explains approximately 32 % variation for risk bearing attribute. The investor bias 'Loss Aversion' has the highest impact on the variable achievement, followed by frame dependence and confirmation bias, respectively. This attribute has less impact on investors' bias.

The R-square value for the model for attribute Routine (mundane decisions) is 0.432 that indicates that investors' biases collectively have 43 percent impact on this attribute. It also indicates that investors' bias explains 43 % variation for routine attribute. The investor bias 'Frame dependence' has highest impact on the variable achievement, followed by confirmation bias.

The R-square value for the model for attribute Long Term benefit is 0.621 that indicates that investors' biases collectively have 62 percent impact on this attribute. It also indicates that investors' bias explains 62 % variation for long term benefit attribute. The investor bias 'Frame dependence' has the highest impact on the variable achievement, followed by overconfidence.

It can be observed from the values in the appended table that Overconfidence and Frame dependence has an overall positive impact on all the attributes barring long term benefit in confirmation bias and emotional involvement in frame dependence case. The rest of the responses have mixed impact positive in some attributes while negative in some attributes.

The overall analysis supports researcher's assumption that the investors' bias has a substantial impact on decision making attributes of women in equity segment.

Limitations of the Study

It was not easy to define the population of the respondents, researcher has considered only financially independent women in this study but later it was found out some financially dependent women also invest in this segment, which leads to the conclusion that the financial positions of women investors are variable in nature. The research is focused on Pune City that too women who are either self-employed or working in IT Sector, hence the findings will have geographical variations in other parts of globe. The questionnaires were sent to more than 500 women investors for inclusivity but only 300 of them have reverted hence this study cannot be generalized for a larger population. Lastly this study is conducted in AY 22-23 and thus the result may vary with change in time.

Conclusion

Researcher in this study has tried to recognize the impact of biases of investors on the decision-making skills of women investors' specific to the investment in equity segment. The study reveals that there is a direct effect of investors' biases on the decision-making process. As they say, "Indian markets are driven by the sentiments," researcher was able to prove it partly here. Biases are nothing but strong emotions which drive you to do a specific thing even it might seem illogical to others. This study can be taken further to do a confirmatory analysis using SEM to ratify the impact of biases on decision making abilities of women. Further focus could also be given on the impact of such biases while making portfolios through equity shares. This study can be done on male as well as female respondents. Also, a comparative study of impact of biases on decision making skills of female respondents and male respondents can also be conducted. These studies would be more effective if conducted in different geographical areas under different financial environments.

Research Implication

The regulatory bodies like SEBI and their ancillaries should make effective provisions to arrange a systematic planned program to sensitize and educate women investors, to reduce the inappropriate investment decisions taken by them based on biases. With proper knowledge and ability to interpret the data available in the market women investors can reach to more fruitful decisions and can reap more benefits through long term investment in equity segment.

If the women investors' get good return in turn, they will be tempted to invest more in the scrips which will enhance their confidence and the liquidity in the market as well. This will certainly act as a multiplier effect (John Maynard Keynes, 1929) for the economy.

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