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A GENDER-CENTRIC ANALYSIS OF COGNITIVE BIASES IN INVESTMENT

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ABSTRACT
In traditional economic theories, people are viewed as having perfect knowledge, which is a critique of behavioural finance especially on grounds of cognitive biases. The research aims at determining gender-related cognitive biases in relation to investment among people of Manipur. The research establishes that there are quite noticeable gender-related biases like overconfidence, loss aversion, and anchoring. The research shall adopt a quantitative research design with the target population of 75 participants and the t-tests used in the analysis of the data. According to the research, it was evident that there is evidence of gender differences in overconfidence, loss aversion, and anchoring biases. However, herd behaviour, confirmation and availability do not show significant evidence of gender differences. The implications of these results are for the delivery of effective financial literacy and education.
KEYWORDS: *Behavioural finance, Cognitive bias, Gender differences, Investment decisions*

INTRODUCTION
One of the largest sub-discipline that exists in behavioural finance is investment behaviour, which refers to how people make their assets allocation decision procedures. Traditional models of economic rationality often times ignorantly make the assumption that there are only rational economic individuals who make decisions purely based on information that is available to them and the rationality of this information. On the other hand, behavioural finance questioned such assumptions more especially due to the impact of psychological factors, particularly cognitive prejudices on investment decisions **(Kahneman & Tversky, 1979; Barberis & Thaler, 2003).**

Cognitive biases are defined as systematic distortions in assessment and decision-making that lead relatively often to adverse financial consequences **(Tversky & Kahneman, 1986)**. Some of these biases are: confirmation bias, which involves people disregarding evidence that goes against their existing beliefs and accepting only the information that supports the existing beliefs; loss aversion, which involves people having a distaste for loss more than they have a taste for equivalent gain; and overconfidence, which involves people estimating that they are far more knowledgeable and skilled than they actually are **(Barber & Odean, 2001; Shefrin, 2007).**

The study of cognitive biases is equally important when it comes to the difference in the investment behaviour between genders. Several researchers have pointed out that the various traits like risk taking propensity, confidence, and socialisation might act in a way that would mean that men and women are likely to approach financial decision making in a different manner **(Bajtelsmit & Bernasek, 1996; Powell & Ansic, 1997)**. **Barber and Odean (2001)** have pointed out that women, because of their risk-adept approach, tend to opt for more careful trading strategies while men are characteristically over-optimistic and hence tend to trade more frequently.

LITERATURE REVIEW
Research on cognitive biases in the context of investment shows that gender differences are most pronounced for some bias such as herding behaviour, overconfidence and risk aversion. **Barber and Odean (2001)** discovered that men are more overconfident than women and they trade 45% more, which is an illustration of the overconfidence bias recognized in the literature. Due to getting involved in more transactions, higher transaction costs as well as poor timing, the net return of male investors is normally low. Recent research has supported the claims of this paper by providing evidence of overconfidence differences across the genders. For instance, **Lundeberg, Fox and Punccohar (2021)** pointed out that investors are overconfident among the biases; it also showed that males are more overconfident rather than female in the use of investment. This paper established that this overconfidence leads to high risk taking, trading frequently resulting into worst position in terms of low net return and high transaction cost and impacts on inferior decision making. Gender differences with respect to loss aversion is the other crucial dimension. Although being conservative will lead to the less reward, women take less risky assets as compared to men for more safe, non-volatile types of very low risk investments **(Croson & Gneezy 2009).** It notably may results in lower overall returns from a reluctance to adopt increasingly risky though higher return assets; but at least yield steadier long-run financial outcomes. More specific studies have also been done on the gender factor giving more light on loss aversion. **Nofsinger and Varma (2022)** confirmed

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that women remain more loss-averse than men in the present economy. These gender differences affect their investments and make them more incline to risk-free investments. Their research also looks at ways on how this aspect of risk avoidance among women leads to a more stable, but possible lower rate of income generation. Systematic reviews and meta-analyses, like **Chong et al. (2020)**, have investigated gender differences in financial risk-taking and provided more insights into how gender shapes risk preferences when it comes to investment decisions. Likewise, Research on gender-based differences in herding behaviour has also been carried out. Based on the research of **Baker and Nofsinger (2022)**, women are better to follow trend than men. Women tend to exhibit this behaviour because they are more risk-averse and more prone to herd mentality, wanting simply not be wrong all by themselves risking their financial future. **Baker, Kumar and Singh (2021)** investigated how availability bias influences the investment decisions by male and female investors alike. Their study determined that males are more likely than females to be influenced by recent market highs or lows, especially when it comes to investing in individual stocks. This was associated with more access to financial news and a greater tendency for day trading. By contrast, women were increasingly using the long game and diversified investing traits that counteract availability bias's side-effects over shorter time-horizons.

OBJECTIVE OF THE STUDY

The study attempts to identify whether there exist significant difference in how cognitive biases(overconfidence, loss aversion, confirmation, availability, herd behaviour, anchoring) demonstrate investment behaviour among males and females of Manipur. The main objective of the study is stated as

1. To analyse the differences of cognitive biases in investment between males and females in Manipur.

HYPOTHESES OF THE STUDY

$H_0$1 : There is no significant difference in the level of overconfidence between males and females in investment decisions.

$H_0$2: There is no significant difference in the level of loss aversion between males and females in investment decisions.

$H_0$3: There is no significant difference in the tendency to follow herd behaviour between males and females in investment decisions.

$H_0$4: There is no significant difference in the influence of anchoring in investment decisions between males and females.

$H_0$5: There is no significant difference in the prevalence of confirmation bias between males and females in investment behaviour.

$H_0$6: There is no significant difference in the impact of availability bias between males and females in investment decisions.

RESEARCH METHODOLOGY

The study employs a quantitative research design based on questionnaire and survey method. A combination of purposive sampling and snowball sampling technique were employed on select individuals who are likely to have made investment decisions. The targeted sample population were from within the state of Manipur. A total of 75 participants were recruited and a questionnaire were employed to obtain demographics like gender, age and education level along with their cognitive bias behaviour towards investment decisions. The collected data were analysed using SPSS. Cronbach's Alpha reliability test was administered on each cognitive bias elements observed in the study. Additionally, a t-test comparing cognitive bias between males and females on their investment decisions was administered. The results were then tabulated to allow for a clear and brief understanding and interpretation.

RESULTS

Variables	Group	Frequency	Percentage (%)
Gender	Male	43	57.3
	Female	32	42.7
	Total	75	100
Age	Below 25	06	8
	25 – 34	39	52
	35 – 44	13	17.4
	45 – 54	10	13.3
	55 – 64	06	8
	65 above	01	1.3
	Total	75	100
Education	Secondary	03	4
	Graduate	40	53.3
	Postgraduate	27	36
	Doctorate	02	2.7
	Others	03	4
	Total	75	100

Table 1: Demographic-Wise Details of Respondents (n = 75)

Source: *Primary Data*

Table 1. shows the demographic sample of 75 individuals out of which 57.3% being male(43 individuals) and 42.7% being female(32), indicating a rather balanced distribution of genders. The age distribution of the respondents reveal a majority(52%)

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of them falling under the age group of 25-34 years(39 individuals), followed by the age group of 35-44 years(17.4%) with 13 individuals. Additionally,13.3% of the respondent belong to the age group of 45-54 years(10 individuals). Smaller portion of the respondents are represented by the age group of below 25 years(8%) and above 65 years(1.3%) with 6 and 1 individuals respectively. The educational level of the respondents show a majority(53.3%) of graduates with 40 individuals followed by postgraduates(36%) with 27 individuals. A smaller group of respondents has a secondary education(4%, i.e. 3 individuals), a doctorate degree(2.7% i.e. 2 individuals) while 4 individuals(3%) is marked under the category of 'others'(professional courses). The sample as a whole is characterised by a slightly higher percentage of men, a large proportion of young to middle-aged adults, and an overall high degree of educational proficiency.

Table 2. t - test of Gender Specific Cognitive Biases in Investment decisions.

Variables	Male		Female		t	p	Equality of Mean	
	Mean	SD	Mean	SD			Mean difference	Std. Error difference
Overconfidence	6.2340	1.86749	7.6429	2.43758	-2.632	.012*	-1.40881	.53517
Loss Aversion	6.4255	2.08248	8.0357	2.44165	-2.915	.005*	-1.61018	.55244
Herd Behaviour	6.8085	2.02847	7.6429	1.68246	-1.921	.059	-.83435	.43433
Anchoring Bias	6.5319	1.96547	7.3571	1.52058	-2.033	.046*	-.82523	.40592
Confirmation bias	6.2766	1.69015	6.1071	1.59488	.435	.665	.16945	.389939
Availability Bias	6.4255	1.87367	6.8929	1.49912	-1.187	.239	-.46733	.39365

Source: *Computed from Primary Data;* * Significant at 5% Level of Significance

To analyse and compare cognitive biases in investments among genders t-test was conducted (table 3). The results shows that the mean overconfidence of females (mean = 7.6429) is higher than that of males (mean = 6.2340) while t = -2.632 and p = .012, which indicates a statistically significant difference in the overconfidence of female compared to males on investment decisions. Thus, the null hypothesis H_01 is rejected. The analysis of loss aversion also shows a higher mean score for females (mean = 8.0357) compared to males (mean = - 6.4255); t = - 2.915 and p = .005 indicating a significant difference where females are more weary of loss averse than males. Therefore, H_02 is also rejected. The herding behaviour among genders shows no significant difference with the p value of .059 just above the significant level of 0.05 although mean score of females(7.6429) was slightly higher than males(6.5319). The null hypothesis H_03 is accepted indicating there is no strong evidence of differences in herd behaviour between the gender. Anchoring bias showed a higher mean for females (7.3571) than males (6.5319) where t = - 2.033 and p = 0.46. this implies a significant difference where females tend to be influenced by anchoring bias in investment decision. So the null hypothesis H_04 is rejected. Additionally, confirmation bias does not show a significant difference between males and females with a mean score of 6.2766 for males and 6.1071 for females where t = .435 and p = .665. A high p value indicates no significant differences in the confirmation bias among males and females, and so H_05 is accepted. Finally, availability bias showed a slightly higher mean value for females (6.8929) than males (6.4255) where t = - 1.187 and p = .239. The higher p value indicates no significant difference between males and females in availability bias. The null hypothesis H_06 is accepted. In summary, the t-test reveals a significant difference between males and females with regards to overconfidence, loss aversion and anchoring bias in investment decisions. It also suggested that no significant difference between males and females were found in herd behaviour, confirmation bias and availability bias in investment decisions. According to this findings the null hypothesis H_01, H_02 and H_04 is rejected whereas the null hypothesis H_03, H_05 and H_06 are accepted.

DISCUSSIONS

The present study contributes substantial knowledge towards gender-specific cognitive preferences in investment among the people of Manipur. The outcomes also show significant variations in males and females in terms of overconfidence, loss aversion, and anchoring bias. Females are significantly more overconfident than males, though this is opposite to what is prevalent in the literature which attributes overconfidence to the male investors particularly in the market **(Barber & Odean, 2001)**. This variation might be specific to the social-cultural and economic periphery of Manipur where the strategizing capabilities of females in financial matters are slowly emerging. Additionally, female investors exhibit stronger loss aversion which supports the research finding that women tend to be more risk-averse than men **(Croson & Gneezy,2009)**. It stands to reason that as women are more loss averse, this will see them gravitating towards conservative options and away from the racy opportunities offering more significant upside even at the expense of broad market return offerings. This study also showed a statistically significant difference in anchoring bias, for female participants were more affected by this type of bias as compared to male participants to make their financial decisions based on the preliminary data or references. This means that women base or act on early impression or facts which may increase their cautious financial behaviour. Conversely, the study yields similar results with regards to gender differences in herding behaviour, confirmation bias, and availability bias. These findings suggest that both men and women investors in Manipur may be similarly influenced to identify with the herd, seek to corroborate their own beliefs or be influenced by the information that is easily accessible while investing. The fairly small differences in these biases may also suggest that there are not large gender differences in investment behaviour in the region, presumably because both genders are likely to be exposed to similar levels of financial information

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and financial education. The study is inclined to state that investors cannot afford to ignore gender-sensitive cognitive biases affecting their investment decisions. These biases are not separately exert their influence on individual returns but they together play significant role in affecting the financial markets which is a collective sum of many investors' actions.

CONCLUSION

This study gives a breakthrough into the effects of cognitive biases in investment decision making among male and female investors in Manipur. The study also found that there was a significant gender differences on overconfidence, loss aversion and anchoring biases with females scoring higher. These findings are crucial in an oversaturated financial decision making environment to both politicians and investors as well as to the Financial Counsellors. Knowledge of these biases makes it possible for us to develop specific financial education programs that will involve the use of teaching techniques that directly disregard this particular cognitive bias among both male and female. Therefore, increasing female investors' awareness of overconfidence and anchoring bias should contribute to a more effective investment plan. In the same way, women may also be better investors if their loss aversion tendencies is also given attention by educators. While a number of biases like herd behaviour, confirmation bias or aversion to risk do not differ much according to gender they are nonetheless important variables in investment decisions. Educational and advisory financial services must continue turning the tide against such biases so that people will be more likely to make investing decisions based on what is reasonable and sensible. The ability to recognize and address their own cognitive biases in investment decisions, are the key elements of making more sound financial decisions for men and women equally. Customising financial advice and education strategies to counter this bias, of course will lead better informed investors not just in Manipur but everywhere. There is scope for further work to extend our knowledge on cross-country differences relating to gender heterogeneity in financial behaviour, allowing the identification of any cultural and economic distinctions that could help inform future research.

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