Original article

Behavioural, Socio-economic Factors, Financial Literacy and Investment Decisions: Are Men More Rational and Women More Emotional?

The Indian Economic Journal
1–22

DOI: 10.1177/0019466220987023
journals.sagepub.com/home/iej
SAGE

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Abstract

This study covers the gender-wise analysis of how behavioural factors and socio-economic factors along with the level of financial literacy influence investment decisions of Indian retail investors. Equally pertinent is to understand that will it have a different influence and bearing on males and females. Multivariate technique partial least squares-structural equation modelling (PLS-SEM) has been applied to develop the model and analyse the results. The study used a structured questionnaire for collecting data from retail investors. The findings of PLS-SEM show that in both genders, behavioural factors, socio-economic factors and financial literacy factors significantly affect investment decisions. However, the findings demonstrate that for women investors, the model is more effective. This study may be useful for prospective fund managers as, in many earlier studies, women are considered to be risk aversive. The results demonstrate that there is a need to target women, and the scenario today is not similar to the pre-existing ones.
JEL Classification: G110, G4

Keywords

Financial literacy, behavioural factors, socio-economic factor, investment decisions, gender differences,

1. Introduction

This study estimates the gender-wise analysis of behavioural factors, socio-economic factors and financial literacy influencing retail investors' investment decisions. The study designs a model separately for men and for women to highlight the differential. Investment decisions are well grounded in economic theory. Investment decisions are treated as a macroeconomic aggregate. Individuals maximise their

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utility by choosing consumption or investment across time (Merikas et al., 2004). The critical process of investment decisions depends upon many factors that may vary from individual to individual. None of the fewer decisions of the investors are linked to investment factors such as risk, ambiguity and product preference. Increased levels of financial literacy help to make good investment decisions with high confidence to manage risk (Awais et al., 2016, Charness & Gneezy 2007). Investment decisions can be measured by the (a) rate of return, (b) risk level and (c) prior information (Marsis, 2013; Vuthalova, 2015). The present study also uses this for investment decisions' construct, which is the dependent variable. The predictors used in the model are behavioural factors, financial literacy and socio-economic factors.

The following relevant study draws on the work of gender-wise analysis of behavioural factors, socio-economic factors, financial literacy and their influence on investment decisions. Whereas investors agree on the same basic modules of investment decision approach, a lot of behavioural finance researchers also accept that there is dissimilarity in the perception of men and women (Beckmann & Menkhoff (2008). Investment objectives, risk tendency and investment return prospects of both the genders are not similar (Jianakoplos & Bernasek 1998; Nataliya et al., 2009; Tahira & Cazilia, 2008).

Martenson (2008) opined that men are fascinated to invest for a long duration and women desire quick returns in short term. But Burton (1995) found that women tend to differentiate more in comparison to men vis-à-vis investment instruments. Both genders have different perceptions of investment. Men harvest more time for investment decisions (Charness & Gneezy, 2007).

2. Objectives of the Study

The current study is performed in an effort to examine how investor's decisions are influenced by behavioural factors, socio-economic factors and financial literacy. It also attempts to analyse the difference on the basis of gender. Against this backdrop, the present study has been undertaken with the following broad objectives:

O1: To examine the impact of behavioural factors on investment decisions;
O2: To examine the impact of financial literacy on investment decisions;
O3: To examine the impact of socio-economic factors on investment decisions; and
O4: To design a model relating behavioural factors, financial literacy and socio-economic factors with investment decisions separately for men and women.

Theoretical Underpinning

Behavioural finance researchers consider men to be overconfident (Barber & Odean, 2001; Tahira & Cazilia, 2008). Investors consider that investment decision-making influenced by behavioural factors is good to explain feelings and cognitive errors (Waweru et al., 2008, p. 25). Behavioural indicators help investors to realise the stock market fluctuations (Gao & Schmidt, 2005). Therefore, investors cannot ignore the behavioural elements at the time of investment decisions-making. Behavioural models are extensively used by researchers for explaining investment decisions (Caparrelli et al., 2004; Fogel & Berry, 2006). According to Ritter (2003), cognitive illusions influence decisions. Investors evade regret by declining to sell and buy underperforming shares (Fogel & Berry, 2006; Lehenkari & Perttunen, 2004). People are more apprehensive of losses than by equal gain (Barberis & Thaler, 2003). A loss after preceding gain is considered less agonising (Barberis & Huang, 2001). Loss aversion (LA) shows that

investors' experience boosts the negative relation between selling and capital damages due to loss (Lehenkari & Perttunen, 2004). Risk aversion is a common behaviour of retail investors (Odean, 1998). Mental accounting (MA) assists in managing the portfolio (Barberis & Thaler, 2003; Ritter, 2003). Preference for risky investments decreases with age (Lodhi, 2014). Literate investors' intense trading may lead to good results (Anderson et al., 2005). Investment decisions are influenced by herding, overreaction, cognitive bias and irrational thinking. Other determinants include firms' past performance, accounting information, ownership and expected corporate earnings (Shafi, 2014). Certain investors rely on investor-related services (Ranganathan, 2006).

The related hypotheses are:

H1: Behavioural factors influence investment decisions.

H1a: Behavioural factors have a strong influence on investment decisions in the case of men.

Financial literacy acquires an important place in investment decision-making regarding risky investment avenues. Prior studies support that financial literacy is influenced by income and education. Highly qualified and banking professionals or financial advisors are financially literate than others (Al-Tamimi & Kalli., 2009). Financial behaviour (FLB) covers the ability to manage expenditures, namely pay bills on time, manage savings and borrowing. It enables individuals to choose investment tools and financial products (Janor et al., 2016) and helps in improving investment decision-making. Robb and Woodyard (2011) found that attitude of a retail investor influences his decision-making. Financial attitude (FLA) deals with feelings about individual financial difficulties, as measured by reactions to a statement or opinion (Marsh, 2006).

Gender influences financial literacy. Chijwani and Vidyapeeth (2014) revealed that most of the Indian women have certain financial knowledge, but they are not financially literate. Kabra et al. (2010) also supported this and opined that investors' risk-taking capacity depends upon age, gender, income, education and occupation (Geetha & Vimala, 2014; Lewellen et al., 1977; Marinelli et al., 2017; Parashar, 2010). Most researchers reported that gender influences financial literacy. Chijwani and Vidyapeeth (2014) revealed that most of the Indian women have certain financial knowledge, but they are not financially literate.

Men have a higher level of financial literacy than women (Caroline et al., 2017). Single women are risk-friendly (Aren & Zengin, 2016; Dwyer et al., 2002; Faff et al., 2008; Felton et al., 2003; Neelakantan, 2010). As opined by Olsen and Cox (2001), women are cautious in the investment decision. Men focus on higher returns. Financial literacy programmes in India have many deviations across socio-economic (Hood et al., 2014) and demographics groups. Thus, they intend to gather additional information related to risk tolerance, investment preferences, investment goals, etc. (Agarwal et al., 2015). Financial literacy will assist in right decisions and restricts borrowing from predatory lenders charging exorbitant interest rates (Karsidi et al., 2015). Level of financial literacy influences investment preferences. Low literacy is reflected by investing in foreign currency (Seay et al, 2016). Higher levels of literacy induce purchasing of equity (Aren & Zengin, 2016; Calcagno & Monticone, 2015).

Financial websites provide a wide variety of financial information that affects retail investors' behaviour (Lee et al., 2008). Middle-income investors prefer to buy from a new issue market and do not rely on brokers (Gupta, 1991). Company reputation, earnings per share (EPS), price per earing (PPE) and preceding stock price unpredictability influence investment decisions (Heshmat, 2012). Low-literate respondents invest on the basis of perceptions. They never accept the financial advice of experts (Anderson et al., 2017). So without basic knowledge of financial information and skills or a proper knowledge level of financial literacy, they cannot use different investment alternatives, financial services and efficient management. People having higher financial literacy vigorously invest in stocks (Fedorova et al., 2015). They take all decisions with the help of financial advisors and take family members, friends and colleagues into confidence (Lin et al., 2017).

A high level of financial literacy induces overconfidence and leads to prejudiced decision-making. They avoid making undisciplined decisions in investment (Takeda et al., 2013). A high level of financial literacy has an important role to motivate retail investors to invest in derivatives markets. However, high financial literacy also helps to lower the entry barriers to purchase complex derivatives products (Lin et al., 2017). Contribution of financial literacy not only helps in investment decisions but also assists individuals to protect themselves against shocks (Klapper et al., 2013).

Islamoglu (2015) reported that investors making an investment plan are affected by prior investment knowledge, experts' opinions and financial stability. Chandra et al. (2012) believed that the income level also influences investment decision-making. Investors have high self-esteem and always try to reduce risk through alternative plans for their investment. Portfolio preferences and intentions affect retail investors (Jagongo & Mutswenje, 2014; Kaur et al., 2012). The risk-taking capacity of retired retail investors and upper-middle-aged people is relatively low (Al-Ajmi, 2008). The investment decision is influenced by risk, returns and prior information. For instance, real estate is an important financial instrument. However, buying a home is a difficult and risky investment decision. Most of the people take mortgage or home loans for buying a home. But it is a difficult and complex financial instrument for people having low financial literacy. They are not able to estimate loan duration, interest compounding and amortisation. This restricts many people from becoming homeowners (Gathergood & Weber, 2017). The earlier literature on financial literacy induces us to examine the difference vis-à-vis gender perspective.

The related hypotheses are:

H2: Financial literacy is positively related to investment decisions.

H2a: Financial literacy has a strong influence on investment decisions in the case of men.

Socio-economic factors influence investment decisions. According to Nagy and Obenberger (1994), factors that influence individual investors' behaviour include accounting information, classical wealth maximisation criteria and social relevance (Dawar & Wadhwa, 2011). Capital investment decisions are vital for firms (Northcott, 1995). Capital investment decisions of the firm have a vital influence on persistence, success and development. According to the free cash flow theory (Fazzari et al., 1988, 1998), internal finances predominantly influence cash flows and investment decisions. A firm's financial position has an impact on investment decisions (Farinha & Prego, 2013; Gertler & Gilchrist, 1994). New equity issues are influenced by the prospects of a firm (Myers & Majluf, 1984). Lewellen and Lewellen (2016) opined that cash flow positively influences investment. Market-related factors like market information and past trends influence investment decisions. Fluctuations in stock prices and media coverage bear an impact on investment decisions (Al-Tamimi & Kalli, 2009; Shafi, 2014).

Customer preferences in stocks and their reactions to price changes in stocks also have an impact on investment decisions. Government policies, economic stability in the market, innovations in banking and financial services and increase in income levels are all socio-economic factors. Family structure and social environment, age, and religious and political views influence investment decisions. Religious reasons were the least affecting factor in investment decisions (Al-Tamimi & Kalli, 2009). These factors are challenging for all investors (Awais et al., 2016). Kabra et al. (2010) opined that investors' risk-taking capacity depends upon age, gender, income, education and occupation (Geetha & Vimala, 2014; Lewellen et al., 1977; Marinelli et al., 2017; Parashar, 2010).

The related hypotheses are:

H3: Socio-economic factors are related to investment decisions.

H3a: Socio-economic factors have a strong impact on investment decisions in the case of men.

This was primarily the reason the researchers have chosen this area to throw more light on the relation amid financial literacy and investment decisions, especially in relation to gender. As evident, though

there is literature examining the relationship amid financial literacy and investment decisions, there are wide variations in results. In many studies, the factors influencing financial literacy and investment decisions have been identified and narrowed down to exploratory factor analysis only. In other cases, an in-depth analysis of both behavioural and social factors is missing. This study is a step towards designing a model relating behavioural and socio-economic factors with investment decisions through PLS-SEM to throw more insight into the influence of behavioural factors on investment decisions from a gender perspective. Similarly, it also examines how socio-economic factors influence investment decisions. The current study designs two different models for men and women to exude the influence separately.

Table 1. Determinants of Behavioural Factors.

Behavioural Factors (BF)	Items	Authors (year)
Personal factors	Personal income influences investment decisions.	Asaad (2015)
	Lifestyle influences investment decisions.	Klapper et al. (2013)
	Family income affects investment decisions.	Faulkner (2015)
	Family expenditure affects investment decisions.	Lusardi (2015)
	Income from other sources (rent from house property, interest, royalty, etc.) influence Investment decisions.	Agarwal et al. (2015)
	Future plan affects investment decisions.	Cutler (2013)
Herding factors	Peer stock selection criteria significantly influence investor's decisions.	Mandell and Klein(2009)
	Other investors' decisions on the stock volume have impact on investment decisions.	Asaad (2015) and Faulkner (2015)
	Other investors' decisions of buying and selling stocks have impact on investment decisions.	Jayaraj (2013) and Musundi (2014)
	Usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	Aren and Zengin (2016)
Overconfidence	Believe that knowledge of stock market can help to outperform the market.	Klapper et al. (2013)
	Normally able to anticipate the end of good or poor.	Worthington (2006)
	Optimistic when the market goes up, assuming it will continue to do so.	Almenberg (2015)
	Consistently time the market.	Asaad (2015)
Ability bias	Forecast the changes in stock prices in the future based on the recent stock prices.	Mandell and Klein (2009)
	Prefer to buy local stocks than international stocks because the information on local stocks is easily available.	Cutler (2013)
	Capable of ability to gauge market changes accurately.	Asaad (2015)

Table 1 Continued

Table 1 Continued

Behavioural Factors (BF)	Items	Authors (year)
Loss aversion	More stressed by prospective losses.	Lusardi (2015)
	Avoid selling shares that have decreased in value.	Asaad (2015)
	Willingly remain in a risky stock position, hoping the price will bounce back.	Faulkner (2015)
	After a prior loss, become more risk averse.	Almenberg (2015)
	Believe that today's losers may soon outperform today's winners.	Jayaraj (2013)
Regret bias	While selling a stock, become emotionally affected by the price of the purchased stock.	Agarwal et al. (2015)
	Avoid selling a stock to avoid the regret of having made a bad investment.	Klapper et al. (2013)
	Regret not buying stock that went up in value.	Musundi (2014)
	Conventional wisdom and buy only stocks that everyone else is buying.	Cutler (2013)
Mental accounting	Hesitate to sell an investment that once had monstrous gains and now has a modest gain.	Klapper et al. (2013)
	During an economic boom and bullish market, get accustomed to healthy gains.	Faulkner (2015)
	When the market correction deflates investor's net worth, hesitant to sell at the smaller profit margin.	Aren and Zengin (2016)
	Wait for the return of the gainful period to sell your stock.	Musundi (2014)

Source: The authors.

Table 2. Determinants of Financial Literacy.

Financial Literacy (FL)	Authors (year)
Capable of handling financial future (e.g., buying insurance or investments.	Worthington (2006)
A high-risk and high-return investment strategy.	Agarwal et. al. (2015)
Finances are a significant source of worry or 'hassle'.	Klapper et al. (2013)
Control of financial situation.	Almenberg (2015)
You are able to avoid being victimised by financial scams.	Van Rooij et al. (2011)
You buy the right kind of insurance to protect yourself from catastrophic risk.	Klapper et al. (2013)
A financially secure life through forming healthy spending habits.	Cutler (2013)
Maintain adequate financial records.	Mandell and Klein (2009)

Table 2 Continued

Table 2 Continued

Financial Literacy (FL)	Authors (year)
Keeping records of income and expenditures.	Almenberg (2015)
Buy insurance products for investment.	Jappelli and Padula (2013)
Sufficient information regarding investment alternatives.	Cutler (2013)
Investment alternatives help in tax planning.	Asaad (2015)
According to bullish and bearish trends, investor reacts in the market by purchasing or selling.	Faulkner (2015)
The ability to judge the market trends while investing in stock market.	Musundi (2014)

Source: The authors.

Table 3. Determinants of Socio-economic Factors.

Socio-economic Factors (SEF)	Items	Authors (year)
Market factors	The price changes in stocks that they intend to invest in.	Klapper et al. (2013)
	Market information is important for stock investment.	Mandell and Klein (2009)
	The past trends of stocks under your consideration for your investment.	Musundi (2014)
	A track of market changes to help you in investment.	Almenberg (2015)
Firm factors	Firm's image before investment.	Mandell and Klein (2009)
	Past investment experiences in firms before investment.	Jappelli and Padula (2013)
	Concerned about security grading before investment.	Faulkner (2015) and Jayaraj (2013)
	Invest in firms which are socially responsible.	Musundi (2014)
	Norms and values of firms influences investment.	Almenberg (2015)
	Firms with environmental and social concerns have a higher implied cost of equity capital.	Cutler (2013)
Social factors	Investment is affected by social structure.	Klapper et al. (2013)
	Investment is affected by religious views.	Lusardi (2015)
	Investment is affected by political views.	Asaad (2015)
	Family structure affects investment behaviour.	Klapper et al. (2013)
	Family financial budget affects investment behaviour.	Musundi (2014)

Source: The authors.

Table 4. Determinants of Investment Decisions.

Investment Decisions (ID)	Items	Authors (year)
Returns	The return rates of recent stock investment meet expectation.	Faulkner (2015)
	Rate of return is recently equal to or higher than the average return rate of the market.	Jayaraj (2013)
	Feel satisfied with Investment decisions in the last year (including selling, buying, choosing stocks and deciding the stock volumes).	Van Rooij et al. (2011)
	The longer the time horizon, the greater are the returns on investment.	Musundi (2014)
Risk	Understanding capacity to take on risk becomes a crucial factor in investment decision-making.	Mandell, and Klein (2009)
	Riskier investments are expected to be more profitable.	Jappelli and Padula (2013)
	Reduce risk through portfolio diversification.	Cutler (2013)
	Invest in stocks having higher β-values.	Faulkner (2015)
Prior information	Information of high rank on listing day influences investment decisions.	Agarwal et al. (2015)
	Active trading information of stocks in the market during past period influences investment decisions.	Asaad (2015) and Cutler (2013)
	Information related to market capitalisation influences investment decisions.	Jayaraj (2013)

Source: The authors.

3. Research Design and Development

Target Population and Sample Size Covered

In the present study, the sample has been drawn from the population of Punjab, Himachal Pradesh and Haryana in India. A total of 20 academicians and 10 practitioners piloted the structured questionnaire. As per the advice received from these experts, some questions were modified. A 5-point Likert scale has been used, and one relates with strongly disagree and 5 with strongly agree. The questionnaire has four sections. The first section covers demographic aspects, the second section focuses on financial literacy, the third section covers factors influencing investment decisions and the fourth and final section deals with investment decisions. There are 89 items in the questionnaire, 14 are related to demographic aspects, 25 are related to measuring financial literacy and items cover behavioural and socio-economic factors influencing retail investors' investment decisions, and items cover investment decisions. Retail investors filled the questionnaires. A list of investors were obtained from the brokerage firms. Executives and managers of these firms were requested to distribute the questionnaires. In all, 600 questionnaires were distributed to investors, out of which 514 filled questionnaires were received where 167 respondents were women respondents and 347 respondents were men. Table 5 presents the demographic profile of the respondents. Out of 514 respondents, 31.71% were from Punjab, 31.91% were from Himachal

Pradesh and 36.68% were from Haryana, with 67.51% of respondents being men and 32.49% women respondents. The private sector was the most dominant group, as 479 respondents were from the private sector. Further, 64.20% of respondents were in 25–35 years age group, 26.65% in 35–45 years and 9.14% in 45 years and above age group. In the case of education, the sample was dominated by postgraduates (60.89%). Graduates constituted 20.82% and the remaining 18.29% were matriculates. A total of 225 respondents had a De-Mat account. Few (20.13%) took the assistance of financial advisors. The study used SEM and PLS modelling.

Table 5. Frequency Distribution for Respondent's Demographics

Demographic CharacteristicsN = 514		Response	Valid Percentage
Location	Punjab	163	31.71
	Himachal Pradesh	164	31.91
	Haryana	187	36.38
Gender	Men	347	67.51
	Women	167	32.49
Age	25–35	330	64.20
	35–45	137	26.65
	45 and above	47	9.14
Marital status	Married	324	63.04
	Unmarried	190	36.96
Educational status	Matriculate	94	18.29
	Undergraduate	107	20.82
	Postgraduate	313	60.89
Occupation	Business	36	7
	Salaried	478	93
Sector	Government	32	6.23
	Private	482	93.77
Annual income	Below ₹500,000	242	47.08
	₹500,000–1,000,000	210	40.86
	Above 1,000,000	62	12.06
Save annually	Below ₹150,000	285	55.45
	₹150,000–300,000	143	27.82
	More than ₹300,000	372	72.37
De-mat a/c	Yes	225	43.77
	No	289	56.23
Financial advisor	Yes	104	20.23
	NO	410	79.77

Source: The authors.

4. Data Analysis and Findings

Behavioural factors covered in the study comprise personal factors (PF), herding factors (HF), overconfidence (O), ability bias (AB), loss aversion (LA), regret bias (RB) and mental accounting (MA), respectively. Socio-economic factors are (a) Market (M), (b) Firm (F) and (c) social (S). After applying factor analysis two factors that emerge for financial literacy are FLA and FLB. The investment decision is the dependent factor and comprises (a) prior information (PI), (b) risk (RI) and (c) returns (RE). The proposed model is depicted in Figure 1.

5. Training and Testing of Data

Before engaging in data analysis, it is necessary to test data with Pareto's 80–20 rule. This rule or principle was observed by Italian economist Vilfredo Pareto in 1906. The 80–20 rule or Pareto's principle says that roughly 80% of results come from 20% of the data (Flegl & Vydrova, 2014). It is also called 'law of the vital few'. In this study, total data that included 514 respondents were further classified into 347 men and 167 women. The data have been categorised as per the 80–20 percentage, with the Training group comprising 411 respondents and the Test group comprising 103 respondents chosen randomly. PLS-SEM) was used for all four models, viz. model 1 consisting of 411 respondents for training, and model 2 consisting of 103 respondents for testing. After analysing results for the Test group from the total sample, two models were created—model 3 for male respondents and model 4 for female respondents. The basic idea was to test the model and then apply it to males and females for investigating the relation among behavioural factors, socio-economic factors, financial literacy and investment decisions. This comprehensive data analysis helped in understanded the relation in greater depth.

Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) have been computed for all constructs for checking reliability and validity. This is presented in Table 6. Cronbach's alpha measures the internal consistency of the survey instrument (Hair et al., 1995; Nunnally, 1978).

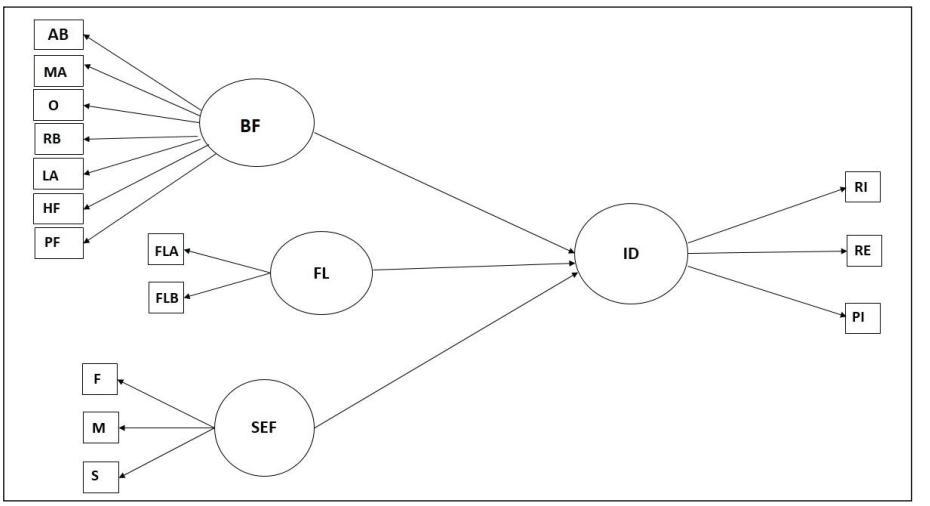

Figure 1. Proposed Model.

Source: The authors.

Table 6. Reliability and Validity Measurement.

	Cronbach's Alpha		CR		AVE		Square Root of AVE	
	80	20	80	20	80	20	80	20
BF	0.845	0.869	0.883	0.900	0.521	0.565	0.722	0.752
FL	0.631	0.573	0.842	0.817	0.728	0.692	0.853	0.832
ID	0.860	0.894	0.915	0.934	0.782	0.825	0.884	0.908
SEF	0.696	0.728	0.832	0.846	0.624	0.648	0.790	0.805

Source: The authors.

Reliability and validity of all exogenous and endogenous variables are checked, viz. behavioural factors (BF), financial literacy (FL), socio-economic factors (SEF) and investment decisions (ID). In the present study, all internal consistencies are greater than 0.70, it meaning all values are in an acceptable range, except the internal consistency of financial literacy (20%), which is less than 0.70, and hence lies in an unacceptable range. According to Hamid et al. (2017), the CR value should be in the threshold limit of 0.70, and the threshold limit for AVE is 0.50. In Table 6, all latent variables have CR and AVE values that are beyond the acceptable level.

In the current study, two criteria have been used to check the discriminant validity recommended by Fornell and Larcker (1981) and by Heterotrait–Monotrait (HTMT). The square root of AVE has been used to check the discriminant validity using Fornell and Larcker (1981) criteria. The square root of AVE should be greater than correlation coefficients for the constructs.

In the present model, the square root of AVE is greater than the correlation of the constructs. The results reflect the unrelatedness of constructs. Table 7 depicts discriminant validity acceding to the Fornell–Larcker criterion. HTMT values close to 1 signify the absence of discriminant validity. Kline (2011) suggests a threshold of 0.85, and Gold et al. (2001) proposed 0.90. According to the HTMT ratio, the condition of discriminant validity is satisfied as only four values are greater than 0.90.

Table 7. Discriminant Validity Fornell–Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT).

Fornell–Larcker Criterion								
	BF		FL		ID		SEF	
	80	20	80	20	80	20	80	20
BF	0.722	0.752						
FL	0.490	0.641	0.853	0.832				
ID	0.542	0.681	0.678	0.742	0.884	0.908		
SEF	0.591	0.619	0.642	0.701	0.623	0.714	0.790	0.805
Heterotrait–Monotrait ratio (HTMT)								
BF								
FL	0.675	0.914						
ID	0.623	0.750	0.904	0.995				
SEF	0.748	0.725	0.955	1.024	0.807	0.865		

Source: The authors.

Table 8 presents the inner and outer variance inflation factor (VIF). This value judges the existence of multi-collinearity between exogenous variables. The VIF values greater than 10 suggest multi-collinearity in the model (Kennedy, 1992; Marquardt, 1970; Neter et al., 1989). Hocking and Pendelton (1983) have suggested that the typical cut-off value for large VIFs is 5. Since no VIF value is greater than 5, there is no problem of multi-collinearity in the inner and outer models on 80% as well as 20% data. Table 8 presents the inner and outer VIFs. This value judges the existence of multi-collinearity between exogenous variables.

Path analysis was performed using PLS-SEM. The results are presented in Figure 2 and Table 9. After the analysis of both models, we found that the 80–20 rule has worked here. The 20% model result is better than 80%. Hence, it was considered appropriate to proceed ahead with the analysis for achieving the main objective. The next step was to design two models separately for men and for women to have deeper insights on gender influence.

In this study, we theorise that behavioural factors, financial literacy and socio-economic factors have a different impact on investment decisions for men and women. Men may possess higher financial literacy and will exert a positive influence on investment decisions. It is also assumed that the relation between behavioural factors and investment decisions may be stronger for men, as they may have greater experience in investing. Men are more socially literate and economically independent, and hence for men, the impact of socio-economic factors on investment decisions may be stronger.

The study has used PLS-SEM for investigating the relation among behavioural factors, socio-economic factors, financial literacy and investment decisions from the gender's perspective.

Table 8. VIF Values.

Inner VIF Values					
			Investment Decisions (ID)		
			80	20	
Behavioural factors (BF)			1.587	0.264	
Financial literacy (FL)			1.758	0.366	
Investment decisions (ID)					
Socio-economic factors (SEF)			2.052	0.294	
Outer VIF Values					
	VIF			VIF	
	80	20	80	20	AB
1.813	2.233	FLA	1.270	1.192	HF
2.109	2.861	FLB	1.270	1.192	LA
1.878	2.405	M	1.446	1.664	RB
1.714	2.913	S	1.250	1.249	MA
1.948	2.924	F	1.625	1.780	O
2.035	3.147	RE	2.310	2.662	PF
1.290	1.319	RI	2.149	2.547	
		PI	2.110	2.861	

Source: The authors.

In the present study, all internal consistencies are greater than 0.70, meaning that all values are in an acceptable range. All the CR values are greater than 0.70, and all AVE values are greater than 0.50. In Table 10, all latent variables having CR and AVE values are beyond the acceptable level.

In the present model, the square root of AVE is greater than the correlation of the constructs. The results reflect the unrelatedness of constructs. Table 11 depicts discriminant validity acceding to the Fornell–Larcker criterion. HTMT values close to 1 signify the absence of discriminant validity. According to the HTMT ratio, the condition of discriminant validity is satisfied, except for only three values.

Table 9. Path Coefficients of Model 80 and 20

	Original Sample (O)		Sample Mean (M)		Standard Error (STERR)		*T*-statistics (|O/STERR|)		*p*-Values	
	80	20	80	20	80	20	80	20	80	20
BF → ID	0.193	0.264	0.194	0.266	0.048	0.066	3.991	3.986	0.000*	0.000*
FL → ID	0.436	0.366	0.436	0.364	0.050	0.083	8.748	4.437	0.000*	0.000*
SEF → ID	0.229	0.294	0.230	0.299	0.053	0.075	4.343	3.926	0.000*	0.000*

	R^2		Adjusted R^2	
	80	20	80	20
ID	0.543	0.661	0.540	0.651

Source: The authors.

Note: *$p < 0.01$.

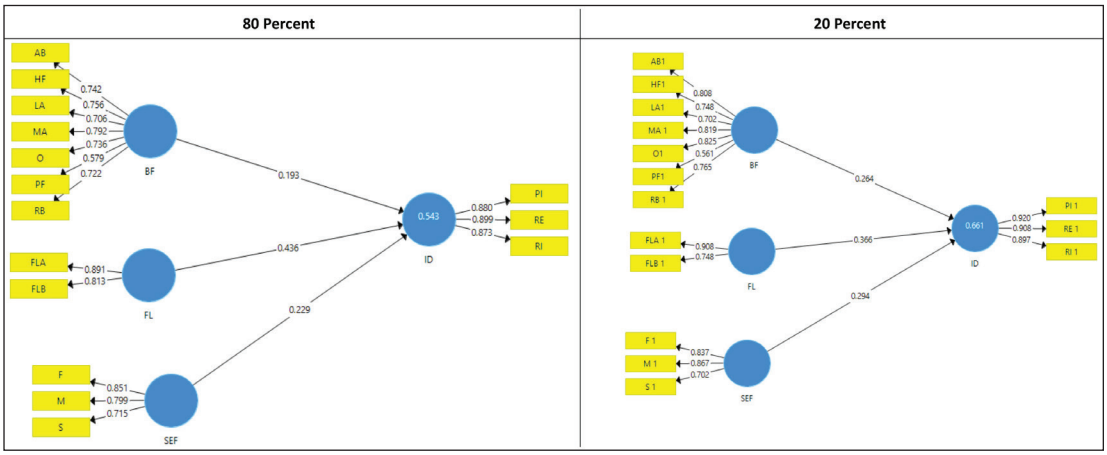

Figure 2. Structural models for 80 percent and 20 percents.

Source: The authors.

Table 10. Reliability and Validity Measurement

	Cronbach's Alpha		CR		AVE		Square Root of AVE	
	Men	Women	Men	Women	Men	Women	Men	Women
BF	0.867	0.815	0.898	0.863	0.559	0.485	0.748	0.865
FL	0.582	0.645	0.823	0.848	0.700	0.736	0.837	0.915
ID	0.874	0.807	0.923	0.886	0.799	0.722	0.894	0.946
SEF	0.723	0.674	0.845	0.821	0.646	0.608	0.804	0.897

Source: The authors.

Table 11. Discriminant Validity Fornell–Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT).

Fornell–Larcker Criterion								
	BF		FL		ID		SEF	
	Men	Women	Men	Women	Men	Women	Men	Women
BF	0.747	0.696						
FL	0.586	0.489	0.837	0.858				
ID	0.583	0.516	0.694	0.749	0.894	0.849		
SEF	0.615	0.556	0.664	0.638	0.652	0.622	0.804	0.779
Heterotrait–Monotrait ratio (HTMT)								
BF								
FL	0.832	0.662						
ID	0.653	0.606	0.947	1.027				
SEF	0.746	0.741	0.985	0.953	0.817	0.828		

Source: The authors.

Table 12 reports the inner and outer VIFs. The VIF value is not greater than 5, so there is no problem of multi-collinearity in the inner and outer models for men as well as women. Table 12 presents the inner and outer VIFs. This value judges the existence of multi-collinearity between exogenous variables.

Path analysis was performed using PLS-SEM. The results are presented in Figure 3 and Table 13 for both genders. In both the models, behavioural factors have a significant influence on investment decisions as β-values for men and women were 0.176 and 0.136 obtained from t-statistics values of 3.638 and 2.352, respectively, and p-value ≤ 0.01. In a nutshell, behavioural factors influence investment decisions. Thus, hypothesis H1 (Table 1 and 4): Behavioural factors influence investment decisions is empirically proved. However, hypothesis H1a: Behavioural factors have a stronger influence on investment decisions in the case of men than women is not empirically proved as β-value for women is higher than that of men. It can thus be concluded that women are more influenced by behavioural factors than men. This result is due to earlier researchers suggesting that men are more confident and more informed (Bruce, 1995). Arano et al. (2010) report that women are risk-averse and possess less financial knowledge than men.

Table 12. VIF Values.

Inner VIF Values					
	Investment Decisions (ID)				
	Men		Women		
Behavioural factors (BF)	1.768		1.513		
Financial literacy (FL)	1.967		1.763		
Investment decisions (ID)					
Socio-economic factors (SEF)	2.078		1.942		
Outer VIF Values					
VIF			VIF		
	Men	Women	Men	Women	AB
1.923	2.204	FLA	1.203	1.293	HF
2.019	2.465	FLB	1.203	1.293	LA
2.162	1.266	M	1.603	1.402	RB
2.280	1.715	S	1.260		MA
2.141	1.603	F	1.766	1.668	O
2.308	2.269	RE	2.579	1.724	PF
1.341	1.324	RI	2.226	1.872	
		PI	2.337	1.692	

Source: The authors.

Table 13. Path Coefficients of Models A and B

	Original Sample (O)		Sample Mean (M)		Standard Error (STERR)		T-statistics (|O/STERR|)		*p*-Values	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BF → ID	0.176	0.136	0.173	0.139	0.048	0.058	3.638	2.352	0.000*	0.000*
FL → ID	0.411	0.562	0.412	0.554	0.051	0.080	7.996	7.066	0.000*	0.000*
SEF → ID	0.271	0.188	0.274	0.195	0.055	0.069	4.969	2.719	0.000*	0.000*
	R^2						Adjusted R^2			
	Men		Women				Men		Women	
ID	0.564		0.608				0.561		0.601	

Source: The authors.

Note: *$p < 0.01$.

Table 14. Acceptance and Rejection of Hypotheses.

Hypothesis	Status
H1: Behavioural factors influence investment decisions.	Accepted
H1a: Behavioural factors have a stronger influence on investment decisions in case of men than women.	Accepted

Table 14 Continued

Table 14 Continued

Hypothesis	Status
H2: Financial literacy is positively related with investment decisions.	Accepted
H2a: Financial literacy has a stronger influence on investment decisions in case of men than women.	Accepted
H3: Socio-economic factors are related with investment decisions.	Accepted
H3a: Socio-economic factors have a strong influence on investment decisions in case of men than women.	Accepted

Source: The authors.

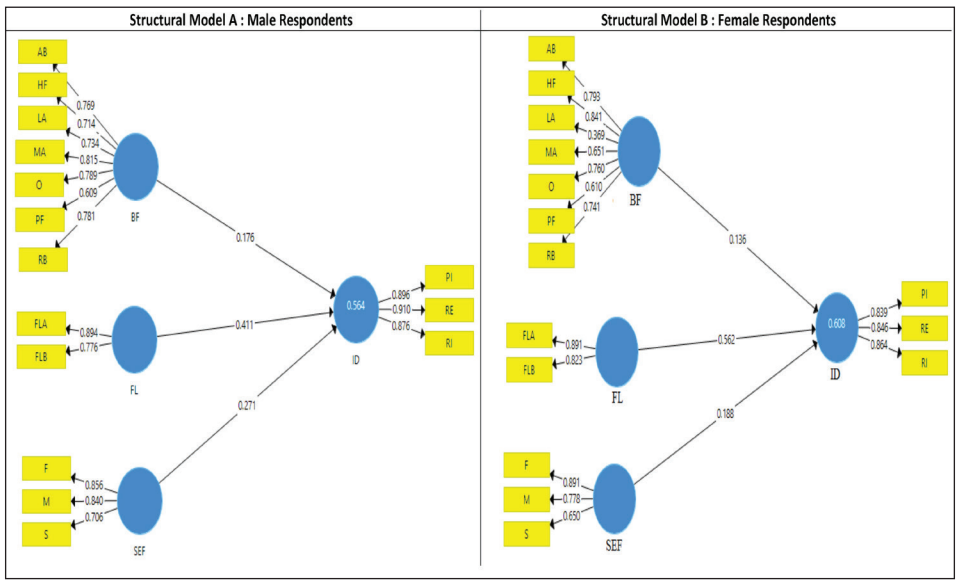

Figure 3. Structural models for Male and Female Respondents.

Source: The authors.

Financial literacy is also an important factor influencing investment decisions for both men and women. The *t*-statistics of these factors for men and women are 7.996 & 7.066, respectively, and *p*-value < 0.01. Thus, hypothesis H2 (Table 2 and 4): Financial literacy influences investment decisions is empirically proved. Hypotheses H2a: Financial literacy has a stronger influence on investment decisions in the case of men than in the case of women is empirically proved as β-value for men is higher than that of the fairer sex. As opined by Caroline et al. (2017), men have higher levels of financial literacy.

Socio-economic factors emerged as an important factor influencing investment decisions for both men and women. The *t*-statistics of these factors of men and women are 4.969 and 2.719, respectively, and *p*-value < 0.01. Thus, hypothesis H3 (Table 3 and 4): Socio-economic factors that influence investment decisions are empirically proved. However, socio-economic factors emerged to have a stronger influence on men than women as the β-value for women is 0.188 and that of men is 0.271. Earlier research suggests that men are more than women. The status of the acceptance empirically proved (Table 14).

In the present model, the value of *R*-squared for men is 0.564 and 0.608 for women. It means that behavioural factors, financial literacy and socio-economic factors explain 56.4% of the variation of

investment decisions for men. Model 2 results highlight that behavioural factors, financial literacy and socio-economic factors explain 60.8% of the variation of investment decisions for women. The adjusted *R*-squared for women (0.601) is again higher than men (0.516). Thus, explanatory power is higher for women when compared to men.

6. Conclusion and Discussion

The present study has been carried out on Indian investors. The questionnaire deals with various aspects related to investment decisions, viz. behavioural factors, socio-economic factors and financial literacy. The study tries to investigate gender-wise relation of how behavioural factors, financial literacy and socio-economic factors influence investment decisions. The behavioural factors include personal factors, herding factors, overconfidence, ability bias, loss aversion, regret bias and mental accounting. The socio-economic factors include market, firm and social factors influencing retail investors. Returns, risk and prior information are the main constituents of investment decisions, while financial literacy includes FLB and FLA. Financial literacy, behavioural factors and socio-economic factors show a significant positive impact on investment decisions as revealed from their associated *t*-statistics in the PLS-SEM model for both the genders. Gender-wise associated *R*-squared and adjusted *R*-squared for investment decisions is good at 0.564 and 0.608, 0.561 and 0.601, respectively. It shows that gender-wise behavioural factors, socio-economic factors and financial literacy directly explain 56.4% and 60.8% of the variance, respectively. The value of R^2 and adjusted R^2 of investment decisions is greater for men in comparison to women.

The results presented in the table highlight that gender-wise investment decisions are influenced by investment decisions measured by risk analytics, prior information and return analytics. The results are corroborated by Heshmat (2012) who reports that company reputation, EPS, PPE and stock price strongly influenced investment decisions.

Socio-economic factors have a significant impact on investment decisions. This is corroborated by Nagy and Obenberger (1994) and Dew and Xiao (2011) who reported that individual investor behaviour is influenced by socio-economic factors. This is also supported by Suman (2012) as they opine that level of annual income and savings influences investment decisions.

Lodhi (2014) reported that financial literacy and accounting information helped investors invest in risky instruments. The results of the present study highlight that broad overview and technical knowledge also influence financial literacy. Maditinos et al. (2007) also indicated that they were more concerned with fundamental and technical analysis. The empirical evidence of the present study supports this.

Behavioural factors included overconfidence, herd behaviour, optimism, cognitive bias and fear of loss. Mental accounting and regret bias also influence investment decisions (Oprean, 2014; Ritter, 2003; Shefrin, 2001; Wood & Zaichkowsky, 2004). However, the value of socio-economic factors is high, and thus in models for both genders, it emerges as a strong predictor.

6. Implications of the Study

This study may be useful for prospective men and women investors to assist them in maximising the value of their investment by paying due attention to factors found significant in the present study. Banks and financial institutions may be benefitted to know the influence of financial literacy, behavioural and socio-economic factors, and accordingly can lure investors towards different financial alternatives. The

results highlight that socio-economic factors emerge as a stronger predictor for both men and women. Hence, there is a need to focus more on these indicators. Financial literacy is an important predictor for both men and women. This result highlights the importance of literacy as a strong predictor for investment decisions, especially for women. This study suggests that the government and other authorities should take adequate steps to increase the financial literacy of individual investors' growth and development. The results also support the notion that the influence of behavioural factors on investment decisions is different for men and women. However, the β-value for women is lower than that for men. This is a strong indication that behavioural factors may be considered more important by the fairer sex. Women may be less induced by behavioural factors. Thus, the results of this study are very important and can play a vital role in the literature of factors inducing investment decisions, especially by the differences indicative in the models vis-à-vis predictors of investment decisions.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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