

Contextual factors influencing investment decision making: a multi group analysis

Investment
decisions of
individual
investors

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Abstract

Purpose – Stock markets are considered as the largest and most important units for the development and growth of the economy. The present study attempts to provide a comprehensive view of factors influencing investment decision making process of stock market investors. A multi group analysis of gender is also carried out on the proposed model.

Design/methodology/approach – The data of 402 valid responses are collected through structured questionnaires from individual investors of North India. SPSS 23 is used to do the descriptive analysis and AMOS 22 is used to establish the validity of the constructs and for hypotheses testing. For performing multi group analysis, several invariance tests have also been conducted to check the robustness of the model.

Findings – The results reveal that all the factors such as firm image, accounting information, neutral information, advocate recommendation and personal financial needs significantly influence investment decision making concluding image of the firm being the most influential factor and advocate recommendation being the least influential factor for investment decisions. No significant differences between males and females were found.

Research limitations/implications – The current study suffers from the limitation of restricted geographical area of North India. Moreover, there is also a scope to incorporate more demographic factors for predicting investment decisions.

Originality/value – This study incorporates a range of factors which covers all the aspects of investment decision making. This study also highlights the notion of signaling theory, thus contributing to the limited literature in Indian context.

Keywords Behavioral finance, Investment decision making, Signaling theory, Multi group analysis, Indian stock market

Paper type Research paper

1. Introduction

Behavioral finance has rapidly become a topic of interest since the crises and bubbles which have been frequently experienced during the 2000s (Khawaja and Alharbi, 2021). With this increased interest, different theories have been developed and different explanations have been made regarding the determinants of decision making process of individual investors (Naveed *et al.*, 2020). Behavioral finance does not contradict the paradigms of traditional

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finance which claim that investors possess rational behavior, but it proposes the application of psychological decision-making processes in the identification and forecasting of financial markets (Baker *et al.*, 2021; Lee *et al.*, 2019).

The rising and diversifying economic activities lead to the expansion of scope of activities in financial markets (Sachdeva *et al.*, 2022; Rahman and Gan, 2020). Stock markets are considered as the largest and most important units for the development and growth of the economy, where buying and selling of securities take place (Nadeem *et al.*, 2020). For this buying and selling of securities, institutional and individual investors need information with specific content (Morck *et al.*, 2000). In contrast to institutional investors, individual investors have limited access to the information (Naveed *et al.*, 2020). Information acts as a catalyst which enables investors to make rational investment (Ricciardi, 2008). Since stock selection is a decisive issue and individual investors make proper evaluation of the products on the basis of information disclosed by the organization (Emett, 2019) and public information which is accessed by a subgroup of the public and is freely available (Abreu, 2019; Lee and Chou, 2019).

The information required by investors involves a wide range of factors, including economic, social and political effects (Luminita, 2014; Bhimani and Langfield-Smith, 2007). In order to provide a better image of economic status of the organization, it is essential to include the behavioral information as a supplement to the financial information (Bhimani and Langfield-Smith, 2007). Though behavioral information is difficult to measure as it is a non-financial aspect, but it effects the decision making to a great extent (Adil *et al.*, 2021). Economic, political and other market conditions causes fluctuations in the stock markets, therefore it is necessary to take into account these factors in addition to quantitative and rational analyses (Haritha and Uchil, 2020). Considering the factors arising from market expectations and the subsequent behavior of investors toward them is known as behavioral finance (Rahman and Gan, 2020). Behavioral finance is assumed as a part of the contemporary issues of accounting and financial management which investigates the behavior of financial markets with a sociological and psychological approach (Raut, 2020; Rajasekar *et al.*, 2022).

The determinants of investor's behavior can be classified in two segments on basis of recent research. One segment focuses on the biases and overreaction to the markets (Sahi, 2017; Jain *et al.*, 2020). On the other hand, the second segment explores the factors influencing individual investors' behavior (Sachdeva *et al.*, 2022; Khawaja and Alharbi, 2021; Naveed *et al.*, 2020). Segment one is very well researched in Indian context (Baker *et al.*, 2021; Adil *et al.*, 2021; Jain *et al.*, 2020) whereas less attention has been given to the factors influencing investment decisions of investors in India (Sachdeva *et al.*, 2022; Chandra and Kumar, 2012).

The present study attempts to give a comprehensive view on factors covering all the dimensions like financial factors such as accounting information of the concern, expected earnings from the investment, past performance of the investment, marketability of the investment, etc. as well as the non-financial concerns such as image and reputation of the firm, ethics followed by the firm, influence of social interactions on investors, etc. The factors considered are suggested by various financial experts, practitioners and are contextual in nature (Chandra and Kumar, 2012). These can be classified under five major heads such as accounting information including financial data of the concern, neutral information including information which is free from any bias and obtained from an outside source of the organization, advocate recommendations including recommendations from family, friends and financial advisors, personal financial needs such as risk minimization and diversification needs, firm image including reputation of the concern (Al-Tamimi, 2006; Merikas *et al.*, 2004; Chandra and Kumar, 2012; Naveed *et al.*, 2020; Sachdeva *et al.*, 2022). All the above papers try to explore investors' behavior from different perspectives. However, very few studies attempt to estimate the effect of determinants of Indian investor behavior. Our paper attempts to fulfill this gap by investigating determinants of Indian investors' decision making.

This study provides empirical evidence on how individual investors perceive and react to changes in fundamentals of investment, changes in economic and market conditions, image and ethical concerns of the firm and their own personal financial needs thus contributing to the emerging literature of behavioral and personal finance. The study relating determinants of investor behavior in stock market is significant for several reasons. *Firstly*, as stated above, it holds significance for practitioners in the area of capital markets and personal finance industry, introducing a new scope of study for financial and accounting researchers. *Secondly*, an understanding of investor behavior enables the cross-sectional mechanism of asset allocation puzzle and hence throwing light on asset pricing from investors' point of view as investors are considered as marginal price setters (Ahmad, 2020). *Thirdly*, it devotes efforts toward economic, political and psychological indices of the market to understand investor behavior, though a plethora of empirical research has been done on investor behavior covering various markets and economies, but majority of the studies use financial market data. This study attempts to understand investor behavior using primary investigation approach such as survey and experimental methods by providing comprehensive view on investor behavior. *Finally*, the outcome and innovation of this study is knowledge creation among the audience regarding determinants of investment in stock exchange in an emerging economy such as India. The current study also holds vital importance to enhance the understanding of investment patterns among gender in an increasingly developing and competitive economy (Sachdeva and Lehal, 2023). By considering the above significance, the study attempts to answer the following research questions:

RQ1. What are the various factors influencing individual investors' decision making process?

RQ2. What is the impact of these factors on individual investors' decision making process?

After introducing the blueprint of the study in the first section, the remainder of the study is organized as follows: Section 2 includes the theoretical background of the study covering the development of hypothesis based on the previous literature. Section 3 includes research methodology covering research design, scope of the study and measurement of the variables. In the subsequent section 4, analysis of the data is presented with hypothesis testing and discussion of findings. Section 5 of the study includes various theoretical and practical implications proposed by the study and the last section 6 concludes the study with limitations and future scope.

2. Theoretical background and hypothesis development

Classical theories of finance such as efficient market hypothesis (EMH) hold the notion that investors are rational possessing all the information and their trading behavior is a tradeoff between immediate consumption and deferred consumption (Bose et al., 2017). But in reality, this notion does not hold due to market imperfections and presence of information asymmetries (Kishan and Alfian, 2019). These imperfections give rise to the emergence of the field of behavioral finance that attempts to predict investment decision making of investors under uncertainty (Lee et al., 2019). Thus, behavioral finance provides the framework for the present study. In addition to this, the present study also incorporates some non-financial indicators such as investors' perception toward image and reputation of the concern thus highlighting the concept of signaling theory. Signaling theory attempts to mitigate the uncertainty by taking into consideration projected organizational signals thus reducing the information asymmetries between two parties (Sethuraman, 2018). Individual investors judge the credibility of the organization through these signals whereas firms listed on stock

exchanges attract prospective investors by using various signals such as disclosing their financial and non-financial information to build corporate reputation (Sadeh and Kacker, 2018). Now the way individual investors incorporate these signals into their decision making processes becomes a vital point.

There is plethora of research related to the determinants of investment decision making of individual investors (Merikas *et al.*, 2004; Nagy and Obenberger, 1994; Iqbal and Usmani, 2009; Al-Tamimi, 2006; Sultana and Pardhasaradhi, 2012; Sachdeva *et al.*, 2022). The evidence of relationships between various factors and investment decisions is described as follows.

2.1 Firm image (FI)

Firm image involves concerns like feelings for products and services of a firm, firm status or reputation, perceived ethics of firm and firm's involvement in solving community problems. Though financial information is beneficial for making investment decisions but investors also focus on beyond the numbers for robust stock analysis (Sultana *et al.*, 2018). Studies document that non-financial information about the company is better to predict the future stock value (Khemir, 2019; Abreu, 2019). Companies that focus on environmental and social concerns remain ethical toward the obligations of their shareholders (Cohen *et al.*, 2015). Investors also prefer to invest in an organization which is socially sound (Helm, 2007). The perceived image of the firm remains crucial to signify trust in the financial markets (Stalnacke, 2019). Firm image and identity remain the most valuable assets which provide basis to gain competitive advantage in the market (Naveed *et al.*, 2020; Sethuraman, 2018). Corporate reputation becomes a primary concern as it leads to mitigate the information risk and signal the assurance to reduce the uncertainty (Vismara, 2018; Helm, 2007). Corporate reputation is the external perception of the organization, which exists only in the eyes of key stakeholders (Gotsi and Wilson, 2001; Van Gils *et al.*, 2019). Investors also prefer to invest in an organization which is socially sound and reputed (Helm, 2007).

H1. Firm Image positively influences investment decision making.

2.2 Accounting information (AI)

Accounting information incorporates information about financial statements of the concern, marketability and affordability of the investment, expected earnings from the investment and past performance of the investment. Literature documents that AI is the most influential factor for making investment decisions (Al-Tamimi, 2006; Hodge, 2003; Das, 2012; Al-Razeen and Karbhari (2004). Financial information is required to be published by the companies which are listed on stock exchange (Nagar *et al.*, 2019). Financial statements appear to be the most objective and reliable source of information for investors to estimate the prosperity of a business entity (Chandler and Ku Ismail, 2005). Individual investors are concerned about the earning per share, dividend payout ratio, yield and return on investment (Sastry and Thompson, 2019). Past returns from the investment act an influencing factor in making investments (Kadiyala and Rau, 2004). Annual reports reflects the financial position of the concern and shows the degree of efficiency of the organization to manage its resources effectively (Chang and Cheng, 2015). Shareholders interpret the cues provided by financial statements and make their economic choices (Drover *et al.*, 2018; Guay *et al.*, 2016).

H2. Accounting information positively influences investment decision making.

2.3 Neutral information (NI)

Neutral information signifies the information which is unbiased and provided by independent sources outside the concern (Nagy and Obenberger, 1994). It includes sub dimensions such as

recent price movements or volatility in investments market, economic indicators, government holdings in the firm, information covered by Internet and media (Sachdeva *et al.*, 2022). Majority of the individual investors do not use valuation models while valuing stocks but they relied on current economic indicators such as GDP, inflation rates and other market forces (Iqbal and Usmani, 2009). Media also plays a vital role in influencing financial markets as excessive oppression by the media leads to decline in price of stocks (Tetlock, 2007). Recent price movement in the stock has been so much emphasized as an influential factor for investment decisions (Joshi *et al.*, 2011; Chong and Lai, 2011). Studies documented that media influences the emotions related to stock markets (Haritha and Uchil, 2020; Zhang *et al.*, 2018). Hunton *et al.* (2001) also examined that market, economic and political factors affect the investor's decision making process concluding that news and rumors possess a great influence on the decision-making of investors. Investors also react to corporate event announcements while making investment decisions (Kadiyala and Rau, 2004).

H3. Neutral information positively influences investment decision making.

2.4 Advocate recommendations (AR)

Advocate recommendations includes recommendations from family, friends and financial advisors. Sometimes financial reports and information from the media only is not enough for making right investment choices, thus to reduce uncertainty social interactions for seeking advice and knowledge become necessary (Hoffmann *et al.*, 2006). Investors are also able to generate above average returns with the recommendations of stock brokers and brokerage houses (Brijlal, 2007) and possibility of losses is also reduced with analysts' recommendations (Krishnan and Booker, 2002). Many studies investigate the influence of factors on investment decisions concluded that investors pay little attention to opinions of family members and advocates recommendations as compared to the financial information provided by the financial reports and other sources (Al-Tamimi, 2006; Sultana and Pardhasaradhi, 2012; Chong and Lai, 2011; Merikas *et al.*, 2004; Nagy and Obenberger, 1994).

H4. Advocate recommendation positively influences investment decision making.

2.5 Personal financial needs (PFN)

Personal financial needs include risk minimization, diversification needs, ease of borrowing funds, attractiveness of non-stock investments and local and international operations. Literature documents that immediate consumption needs of the investors such as getting quick returns and ease of borrowing funds appear to be one of the most influencing factors in investment decisions (Al-Tamimi, 2006). Sindhu *et al.* (2014) proposes a cause-and-effect relationship between risk perception and investment decisions of the individuals. Cohen *et al.* (2015) provides that as investor wealth increases, risk aversion decreases whereas other authors claimed that risk aversion is a function of visceral instead of rational considerations (LeBaron *et al.*, 1992). Barnewall (1987) documents that lifestyle characteristics, risk-aversion, control orientation and occupation predicts behavior of the investors. Diversification needs is considered as an influential factor for investment decisions and their financial outcomes (Aggarwal *et al.*, 2012) whereas some researchers give less emphasis to diversification needs and risk aversion needs of the investors (Al-Tamimi, 2006; Merikas *et al.*, 2004). Personal financial needs are given less importance as compared to accounting and neutral information Hossain and Nasrin (2012) and Nagy and Obenberger (1994).

H5. Personal financial needs positively influence investment decision making.

2.6 Gender as a moderator

Research reveals that males and females differ in their financial decisions on the basis of confidence in their investments, risk appetites and financial knowledge (Glenzer *et al.*, 2014) Dickason-Koekemoer (2019) in their study revealed that men and women differ on the basis of financial well-being. Literature also documents that males are more knowledgeable than females (Lusardi and Mitchell, 2008; Hira and Loibl, 2008) and possess higher levels of confidence in their decisions as compared to females (Graham *et al.*, 2002) thus making more stable and consistent investment decisions (Bucher-Koenen and Lusardi, 2011). Thus, in order to test and to add in the literature, this study posits gender as a moderator in the proposed conceptual model as depicted in Figure 1.

- H6a. Gender of the individual significantly moderates the influence of firm image on investment decision making.
- H6b. Gender of the individual significantly moderates the influence of accounting information on investment decision making.
- H6c. Gender of the individual significantly moderates the influence of neutral information on investment decision making.
- H6d. Gender of the individual significantly moderates the influence of advocate recommendation on investment decision making.
- H6e. Gender of the individual significantly moderates the influence of personal financial needs on investment decision making.

3. Research methodology

3.1 Sampling and data collection

A standardized survey design was used to collect the responses from individual and retail investors included in the study. Data were collected using a combination of convenience and snowball

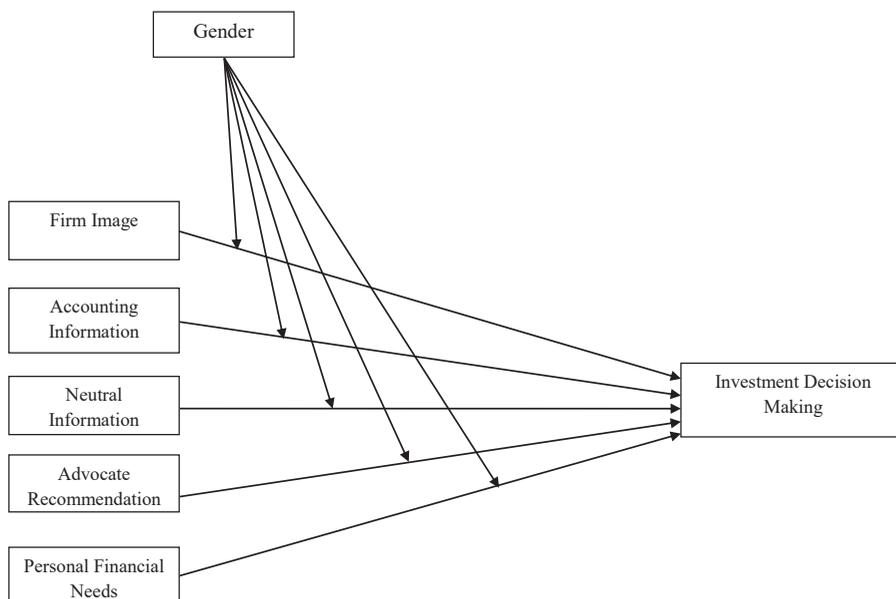


Figure 1. Conceptual model of the study

Source(s): Authors' own work

sampling techniques. For reporting more generalized findings, geographical area of North India covering two major cities, i.e. Delhi and Tricity Chandigarh was captured. To effectively measure the constructs, we considered only those investors who have a minimum of one year investment experience. Initially, 500 questionnaires were distributed, out of which 438 were returned. 36 responses were further eliminated due to incompleteness of the instrument. And a total of 402 responses were considered for further analysis. This sample size is found to be sufficient as per the suggestions given by [Kline \(2011\)](#) stating that there should be at least 10 responses per case/item of questionnaire and in the final questionnaire the items excluding demographics were 37. The sample comprised of the investors with varying age groups, income levels, occupation and gender. The demographic profile of the respondents is summarized in [Table 1](#).

3.2 Measurement of the variables

The constructs used in this research framework were measured using a well-structured questionnaire and the instrument was adopted from the validated measures of previous studies. The survey questionnaire contained three sections. In the first section, respondents were asked about their demographic information. The next section comprised of items relating to contextual factors. The scale of the contextual factors was taken from the works of [A1 Tamimi \(2006\)](#) consisting of 31 questions based on the five-point Likert scale. The next section comprised of six questions attempted to estimate the individual's investment decisions adapted from the study of [Mayfield et al. \(2008\)](#).

Variables	Category	Respondents	
		Frequency (<i>n</i> = 402)	Percentage
Gender	Male	211	52.49
	Female	191	47.51
Age (In years)	20–30	112	27.86
	30–40	157	39.05
	40–50	81	20.16
	50–60	30	7.46
	60 and Above	22	5.47
Educational Qualification	School	25	6.22
	Graduation	124	30.84
	Post Graduation	182	45.27
	Other Higher/Professional Courses	71	17.67
Occupation	Business	118	29.35
	Salaried	172	42.79
	Professional Practice	52	12.93
	Retired/Others	60	14.93
Annual Individual Income (in Rupees)	Less than 250,000	32	7.96
	250,000 to 500,000	84	20.90
	500,000 to 750,000	162	40.30
	750,000 to 1,000,000	102	25.37
	More than 1,000,000	22	5.47
Experience in Investments	1–3 years	123	30.59
	3–6 years	168	41.79
	6–9 years	90	22.40
	More than 9 years	21	5.22
Received any financial education	Yes	141	39.16
	No	261	64.92

Source(s): Authors' own work

Table 1.
Demographics Profile
of the respondents

4. Analysis and findings

SPSS 23 was used for descriptive analysis and AMOS 22 was used to evaluate the structural equation model. Two step SEM was performed as per the recommendations of [Anderson and Gerbing \(1988\)](#). In the first stage confirmatory factor analysis was performed through measurement model to establish the reliability and validity of the constructs. In the next stage, path analysis was performed through structural model to test the proposed hypotheses. After that multi group analysis was carried out after conducted several invariance tests to examine the moderating effects of gender on the structural model.

4.1 Measurement model

Confirmatory factor analysis was done using AMOS 22 as illustrated in [Table 2](#). All the items possessed factor loadings above 0.60 which is the threshold limit ([Hair et al., 2014](#)). [Table 2](#)

Constructs	Items	Factor Loadings	Cronbach's alpha	CR	AVE	MSV
Firm Image	IM1	0.602	0.909	0.911	0.533	0.365
	IM2	0.691				
	IM3	0.737				
	IM4	0.660				
	IM5	0.779				
	IM6	0.805				
	IM7	0.752				
	IM8	0.757				
	IM9	0.762				
Accounting Information	AC1	0.794	0.931	0.932	0.696	0.329
	AC2	0.859				
	AC3	0.785				
	AC4	0.852				
	AC5	0.861				
	AC6	0.850				
Neutral Information	NEU1	0.711	0.900	0.900	0.563	0.365
	NEU2	0.774				
	NEU3	0.760				
	NEU4	0.675				
	NEU5	0.732				
	NEU6	0.829				
	NEU7	0.763				
Advocate Recommendation	ADV1	0.720	0.850	0.856	0.666	0.324
	ADV2	0.859				
	ADV3	0.861				
Personal Financial Needs	PF1	0.665	0.885	0.882	0.555	0.345
	PF2	0.777				
	PF3	0.758				
	PF4	0.790				
	PF5	0.749				
	PF6	0.725				
Investment Decision Making	IDM1	0.683	0.877	0.871	0.531	0.266
	IDM2	0.763				
	IDM3	0.617				
	IDM4	0.722				
	IDM5	0.802				
	IDM6	0.771				

Table 2.
Convergent validity statistics

Note(s): CR: Composite reliability; AVE: Average Variance Extracted; MSV: Maximum Shared Variance)
Source(s): Authors' own work

revealed that average variance extracted (AVE) for all the constructs was more than 0.50 confirming the convergent validity (Fornell and Larcker, 1981) and composite reliability of all the constructs was more than 0.70 representing that set of items consistently indicated the latent construct (Hair *et al.*, 2014). Furthermore, discriminant validity of the constructs was examined as suggested by Fornell and Larcker (1981). The square roots of the AVE values as illustrated in Table 3 were greater than the construct's correlation coefficients with other constructs, therefore supporting the discriminant validity of the constructs (Hair *et al.*, 2014). In addition to this, values of Cronbach's alpha for all the constructs were more than 0.70 confirming the internal reliability of the constructs (Nunnally, 1975). Our hypothesized model showed an acceptable goodness of fit to the observed data ($\chi^2 = 1184.864$, $df = 612$, $p < 0.001$; $\chi^2/df = 1.936$; SRMR = 0.0422, TLI = 0.932, CFI = 0.938, RMSEA = 0.048), as illustrated in Table 4. Overall, the results revealed a satisfactory support for the model, which further permitted us to examine the structural model and testing of hypotheses.

Means, standard deviation and correlation coefficients of the constructs are illustrated in Table 5. The results revealed that the constructs are significantly correlated with one another with correlation coefficients ranging from 0.466 to 0.654, suggesting there is no multicollinearity between the constructs as all the values are less than 0.90 (Tabachnick and Fidell, 2012).

	PFN	FI	AI	NI	AR	IDM
PFN	0.745					
FI	0.538	0.730				
AI	0.521	0.574	0.834			
NI	0.587	0.604	0.495	0.751		
AR	0.507	0.475	0.424	0.569	0.816	
IDM	0.506	0.493	0.470	0.516	0.485	0.729

Note(s): PFN: Personal Financial Needs, FI: Firm Image, AI: Accounting Information, NI: Neutral Information, AR: Advocate Recommendation, IDM: Investment Decision Making

Source(s): Authors' own work

Table 3.
Discriminant validity
statistics

Model-fit statistics	χ^2	Df	χ^2/df	CFI	TLI	RMSEA	SRMR
Values	1184.864	612	1.936	0.938	0.932	0.048	0.0422

Note(s): Df: Degree of freedom; CFI: Comparative Fit Index; TLI: Tucker–Lewis Index; RMSEA: Root Mean Square Error Of Approximation; SRMR: Standardized Root Mean Square Residual

Source(s): Authors' own work

Table 4.
Goodness of
fit statistics

	IDM	PFN	AR	NI	AI	FI	Mean	S.D
IDM	1	0.568**	0.546**	0.572**	0.515**	0.545**	3.2082	0.70654
PFN	0.568**	1	0.569**	0.647**	0.569**	0.592**	3.4524	0.80471
AR	0.546**	0.569**	1	0.628**	0.466**	0.525**	3.5951	0.95920
NI	0.572**	0.647**	0.628**	1	0.534**	0.654**	3.4723	0.80705
AI	0.515**	0.569**	0.466**	0.534**	1	0.615**	3.6100	0.89521
FI	0.545**	0.592**	0.525**	0.654**	0.615**	1	3.4761	0.84776

Note(s): PFN: Personal Financial Needs, FI: Firm Image, AI: Accounting Information, NI: Neutral Information, AR: Advocate Recommendation, IDM: Investment Decision Making

Source(s): Authors' own work

Table 5.
Correlations, mean and
standard deviation

4.2 Common method bias (CMB)

As the research design was cross sectional, so there could be a possibility of Common Method Bias (Podsakof *et al.*, 2003). CMB was tested by performing Harman’s single-factor test using SPSS through principal component analysis as an extraction method. The output of the analysis revealed six factors with Eigen values greater than 1, whereas the first factor explained only 14.12% variation of total variance explained and it was far less than 50%. Thus, confirming no threat of CMB affecting the statistical results.

4.3 Hypothesis testing

A structural equation model using AMOS version 22 was performed to test the hypothesis. The model possessed adequate goodness of fit with values for CFI = 0.925, TLI = 0.918, RMSEA = 0.053, SRMR = 0.0422 and $\chi^2/df = 2.132$ (Hair *et al.*, 2014). The results showed that all the factors, i.e. firm image ($\beta = 0.138^*$), accounting information ($\beta = 0.127^{**}$), neutral information ($\beta = 0.129^*$), advocate recommendations ($\beta = 0.124^{**}$) and personal financial needs ($\beta = 0.127^*$) significantly impacted investment decision making of individual investors. Thus, hypotheses H1, H2, H3, H4 and H5 were accepted (Table 6).

Subsequently, several invariance tests were performed as a condition for performing multigroup analysis of gender (Sachdeva and Lehal, 2023). The results for each invariance test were explained by the χ^2 difference test, an indication of bad fit and ΔCFI value as suggested by Cheung and Rensvold (2002). Prior to performing the invariance tests, the model fit was tested for the pooled sample as well as for the separate samples of males and females as depicted in Table 7. The following sections revealed the results of several invariance tests performed.

Test of configural invariance: A baseline model is created in the first step for conducting multigroup analysis of invariance, it is also known as configural or unconstrained model which enables all the comparisons made at the next stage (Hair *et al.*, 2014). As shown in

Hypothesis	Parameters	Estimates	S.E	C.R	p-value	Decision
H1	FI → IDM	0.138	0.057	2.43	0.015	Supported
H2	AI → IDM	0.127	0.049	2.618	0.009	Supported
H3	NI → IDM	0.129	0.062	2.078	0.038	Supported
H4	AR → IDM	0.124	0.046	2.719	0.007	Supported
H5	PFN → IDM	0.127	0.053	2.388	0.017	Supported

Table 6. Results of structural model

Note(s): PFN: Personal Financial Needs, FI: Firm Image, AI: Accounting Information, NI: Neutral Information, AR: Advocate Recommendation, IDM: Investment Decision Making
Source(s): Authors’ own work

Fit indices	χ^2	Df	χ^2/df	CFI	TLI	RMSEA
Pooled Sample	1184.864	612	1.936	0.938	0.932	0.048
Male Sample	1065.783	612	1.74	0.906	0.901	0.060
Female Sample	958.795	612	1.567	0.927	0.921	0.055
Configural Model	2081.917	1,224	1.701	0.910	0.903	0.042
Metric Model	2116.893	1,255	1.687	0.910	0.905	0.041
Scalar Model	2154.730	1,286	1.676	0.909	0.906	0.041

Table 7. Fit indices for invariance tests

Note(s): Df: Degree of freedom; CFI: Comparative Fit Index; TLI: Tucker–Lewis Index; RMSEA: Root Mean Square Error Of Approximation
Source(s): Authors’ own work

Table 7, model produced a χ^2 value of 2081.917 ($\chi^2/\text{df} = 1.701$), CFI of 0.910, TLI of 0.903, and an RMSEA value of 0.042 indicating a good fit, thus establishing configural invariance.

Test of metric invariance: In the next step, the factor loadings of all the items were constrained to be equal in order to confirm the metric invariance. This resultant model was then compared with the results of configural model. Table 7 and Table 8 illustrated that the applied constraints increased from 2081.917 to 2116.893 for χ^2 value, freeing 31 degrees of freedom. The χ^2 -difference test was not statistically significant ($p > 0.05$) and the suggested value of ΔCFI being not more than 0.01 as an indicator of invariance (Steenkamp and Baumgartner, 1998) was also established, supporting full metric invariance.

Test of Scalar Invariance: To confirm the scalar invariance, the intercepts of all the items were constrained to be equal across both male as well as female groups. Then, this constrained model was compared with the metric model. The χ^2 value difference of 37.837 with 31 degrees of freedom was not found statistically significant ($p > 0.05$) and value of ΔCFI was also less than 0.01, supporting the scalar invariance as illustrated in Table 8.

Table 9 present the results of hypothesis testing for moderation effects of gender (H6a-H6e). Based upon the z-score or z-test, results indicate that no significant differences exist among males and females for any of the above relationships. Thus hypotheses H6a, H6b, H6c, H6d and H6e are not accepted.

4.4 Discussion of findings

The study attempts to give a comprehensive review on investment decision making of individual investors by covering various dimensions such as economic factors like current economic indicators, movements in the price of investments, political factors such as government holdings in the investment, firm related factors such as reputation of the firm, ethics followed by the firm, etc. financial factors such as accounting information of the concern, social factors such as recommendation of friends, family and financial advisors and personal factors such as need to minimize the risk, diversify the funds and so on.

The results are in line with the previous studies showing image of the firm as the most influential factor as supported by (Hossain and Nasrin, 2012; Bose *et al.*, 2017). As image of the concern portrays the non-financial information of the concern, there is a low probability of manipulations which is likely to exist in financial data (Cohen *et al.*, 2015). It acts as a window to predict the stock returns and performance of the firm (Sadeh and Kacker, 2018) better than

Model comparison	Δdf	$\Delta\chi^2$	p -value	ΔCFI	Invariant
Test of full metric invariance	31	34.976	0.285	0	Yes
Test of full scalar invariance	31	37.837	0.185	0.001	Yes

Source(s): Authors' own work

Table 8.
Results of χ^2
difference tests

Hypothesis	Relationships	z-score	Decision
H6a	FI←Gender→ IDM	-1.803	Not Supported
H6b	AI←Gender→ IDM	0.668	Not Supported
H6c	NI←Gender→ IDM	1.493	Not Supported
H6d	AR←Gender→ IDM	-0.412	Not Supported
H6e	PFN←Gender→ IDM	-0.835	Not Supported

Note(s): PFN: Personal Financial Needs, FI: Firm Image, AI: Accounting Information, NI: Neutral Information, AR: Advocate Recommendation, IDM: Investment Decision Making

Source(s): Authors' own work

Table 9.
Multi group
moderation analysis

the financial data and it is a precursor to informed decision making (Khemir, 2019). Neutral information also proves to be a significant determinant of investor behavior in line with the past literature Iqbal and Usmani (2009) and Sampath *et al.* (2018). The possible reason behind this is neutral information is unbiased and their source levies outside the organization therefore it is given more significance by the investors. As majority of the investors pay attention to GDP rates and inflation rates before investing (Iqbal and Usmani, 2009). And News and rumors in the media possess the significant potential to influence the stock markets (Hunton *et al.*, 2001; Yahyazadehfar *et al.*, 2009). Accounting information also plays a significant role in investment decisions (Chong and Lai, 2011; Nagy and Obenberger, 1994). Signaling theory also holds the view that financial prospect of a firm can be better determined by the individual investor on the basis of financial disclosure which in turn enables the investors to make sound economic decisions (Sampath *et al.*, 2018). Thus individual investor remains concerned about earning per share and return on investment (Bamiatziet *al.*, 2016; Sastry and Thompson, 2019). Recommendations from brokers, family and friends also hold significant importance in investment decisions but less than image of the concern and financial and neutral information in conjunction with the literature (Sachdeva *et al.*, 2022; Khawaja and Alharbi, 2021) as these social interactions help in reducing the uncertainty (Hoffmann *et al.*, 2006) but investors in the study are found to be self-reliant and possess confidence bias, whereas personal financial needs of the individuals also impacts the decision making processes as risk aversion and the need to diversify the funds predicts the investors' behavior (Sindhu *et al.*, 2014; Aggarwal *et al.*, 2012). The insignificant differences between males and females are also in line with the previous studies (Khawaja and Alharbi, 2021) revealing that both the groups try to increase their financial well-being and want to make the best possible decisions for their investments.

5. Theoretical and practical implications

This study contributes to the literature of behavioral finance positing the investors' perception toward the financial information of the concern, information obtained from the media, current price movements, social interactions with friends and family, reputation of the concern, non-financial aspects such as ethics followed by the firm and contribution of firm toward solving societal issues. This study supports behavioral finance literature accounting for "these observable, systematic and very human departures from rationality" in the analysis of investment decision making (Barber and Odean, 1999). The findings also authenticate signaling theory perspective in the context of a developing economy. The information disclosed through various inside and outside resources provides signals to the investors regarding the credibility of the concern and assists them in taking investment decisions. Thus, the study attempts to contribute to both information disclosure literature and behavioral finance literature.

This study also contributes to various advisors, investors and firms who influence shareholder perception through detailed financial disclosure. Firms should understand investors' demand for information disclosures and should also integrate information about their environmental and social activities in these disclosures. Investors should also predict the prospect of business based on these financial and non-financial disclosures of the firms. The study also possesses certain implications to investment advisors that they should present the information in a well-tailored and understandable form to the investors. In addition to this, projected returns should also be provided so the investors could evaluate perceived returns on their investments. Investment advisors should understand various factors which affect price volatility of assets and ask for specific needs and preferences of the investors for building their portfolios. The study is also significant for individual investors in understanding various determinants so as to make informed and rational decisions.

6. Limitations and future scope

Besides providing various theoretical contributions to the literature and practical implications to various parties trading in stock markets, this study suffers from various limitations also. Firstly, the study covers a limited geographical area of North India which limits the generalization of findings. Secondly, the research is cross sectional while the responses of the investors can change with the changing market conditions. Thirdly, though the study attempts to give a comprehensive view of determinants of investment decisions still there is a scope to incorporate more behavioral factors and demographic variables in the future studies. In order to provide a more generalized view of the findings, the future studies should also try to cover a wider geographical area. There is also a scope for future studies to compare the behavior of individual investors and institutional investors for further understanding of readers regarding the decision making process.

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