“Stock market literacy and investment motivations: Tri-layer market analysis of stock market participation”

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STOCK MARKET LITERACY AND INVESTMENT MOTIVATIONS: TRI-LAYER MARKET ANALYSIS OF STOCK MARKET PARTICIPATION

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Abstract

Bridging the gap between stock market literacy and active participation is the ultimate objective for institutions and policymakers globally, due to its ability to promote inclusive economic growth. In light of this, the study intended to assess the impact of intrinsic and extrinsic motivation on stock market literacy leading to participation. Further, an attempt was made to analyze the intervening role of investment decision and the moderating role of Tri-Layer Market Analysis. With the descriptive design, a survey questionnaire was used to gather data for this investigation, collecting responses from 376 commerce and management students across government, private, and deemed universities between June and July 2024 from the region of Karnataka, India. Following the data collection, statistical techniques, such as regression analysis, one-way Analysis of Variance, and structural equation modelling, were applied to evaluate intrinsic and extrinsic motivation's direct and indirect impacts on students' stock market participation. As per the results, the Intrinsic (β =.361, t = 8.416, p = 0.000) and External Motivations (β =.422, t = 9.816, p = 0.000) substantially impact stock market literacy that ultimately impacts investment decision making (β = .450, t = 9.761, p = 0.000) and stock market participation (β =.207, t = 4.495, p = 0.000). The results also validate the intervening role of investment decision in the relationship between stock market literacy and stock market participation (indirect effect: .131).

Keywords market analysis, financial knowledge, investment behavior, economic awareness, portfolio management

JEL Classification G11, G23, D14

INTRODUCTION

Nowadays, stock market participation has been of prime importance to economic growth and individual financial empowerment, due to the dynamics in the financial markets. But a notable chunk of the populace is still desensitized by the misconceptions, scar of financial loss, or lack of understanding of how the stock market works and the possibilities it presents. For young adults, especially university students, stock market literacy turns out to be a key factor that inspires financial engagement and ultimately affects young adults' future investment behavior. Given the lower financial literacy rates in India, compared to global standards, the stock market is regarded as a very complex, inaccessible domain meant only for the financially elite or those who are willing to take an excessive amount of risk. This perception raises a pressing scientific question: What do intrinsic motivations, such as curiosity and the desire to improve oneself, and extrinsic motivations, such as society, influence university students' stock market literacy? Secondly, how does this literacy influence their participation in finan-

cial markets? Further complicating the issue is how individuals as users of market trend evaluators, predictors of outcomes, and managers of risk use either or at times all different tools, such as technical, fundamental, and sensitivity analyses, to accomplish those objectives. Although important, relatively few empirical analyses exist regarding the degree to which stock market literacy mediates the relationship between motivational factors and actual stock market participation in the context of developing economies like India.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Stock market participation has long been related to financial literacy, investment behavior, and motivational factors. Despite the growing emphasis on financial literacy programs, many investors, especially students, face difficulties in stock market participation because of gaps in education, decision-making frameworks, and analytical tools. The review is to present combined findings of past research associated with the stock market on issues related to its literacy, motivational factors to investment, decision factors, and technical, fundamental, and sentimental analyses that drive the investment behavior in view of the stock market.

Stock market participation among university students in emerging economies is increasingly shaped by a complex interplay of financial literacy, behavioral biases, motivational factors, and analytical competencies. Literacy, or familiarity with financial instruments, budgeting, saving, diversifying risk, and investment guidelines, has been repeatedly demonstrated to be linked to higher stock market involvement (Blay et al., 2024; Kadoya et al., 2017; van Rooij et al., 2011). Those with higher literacy levels tend to make more informed and reasonable investment decisions, and this suggests that knowledge is an immediate facilitator and mediating variable of investment behavior (Sembel et al., 2024).

Demographic variables such as age, gender, and academic background moderate the literacy-participation relationship (Abdul Manaf et al., 2024; Acharya & Hamal, 2022; Syofian et al., 2023). Empirical findings from Ghana, Nepal, Indonesia, and Malaysia suggest that literacy enhances intention and confidence but is subject to contextual factors. Students from emerging markets also tend to encounter structural obstacles such as inadequate access to financial education and institutional mistrust, which hinder active participation (Adil et al., 2023a).

The Theory of Planned Behavior (Ajzen, 1991) has been widely applied to explain how investment intention is affected by attitudes, subjective norms, and perceived behavioral control. Perceived control is supported by financial literacy and promotes proactive investment behavior (Kumari et al., 2023). At the same time, behavioral finance research highlights that psychological biases – overconfidence, herding, anchoring, and the disposition effect – tend to undermine rational decision-making (Chaudhary, 2013; Shefrin & Statman, 1985). Early sale of successful stocks or holding onto failing stocks is prevalent among novice investors. Such biases can be managed through formal financial education and awareness programs (Vuković & Pivac, 2024).

Both extrinsic and intrinsic motivation are important determinants of investment behavior. Intrinsic drivers such as curiosity, cognitive interest, and long-term orientation are more sustainable than extrinsic motivators such as peer influence or social media (Deci & Ryan, 1985a; Picasso et al., 2019). Extrinsic motivation, however, is typically mediated by institutional constraints, such as perceived risk and distrust of financial institutions, in developing contexts (Adil et al., 2023b).

Analytical skills also influence stock market participation. Technical, fundamental, and sentiment analysis are cognitive enablers that facilitate investors to make decisions based on market trends, company performance, and psychological sentiment (Day & Lee, 2016; Logambal & Kanagasabapathy, 2024; Rahman & Hassan, 2013). Students applying these enablers are more confident, exhibit improved risk management, and are more capable of handling volatile markets (Picasso

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Source: Constructed from Study Framework.

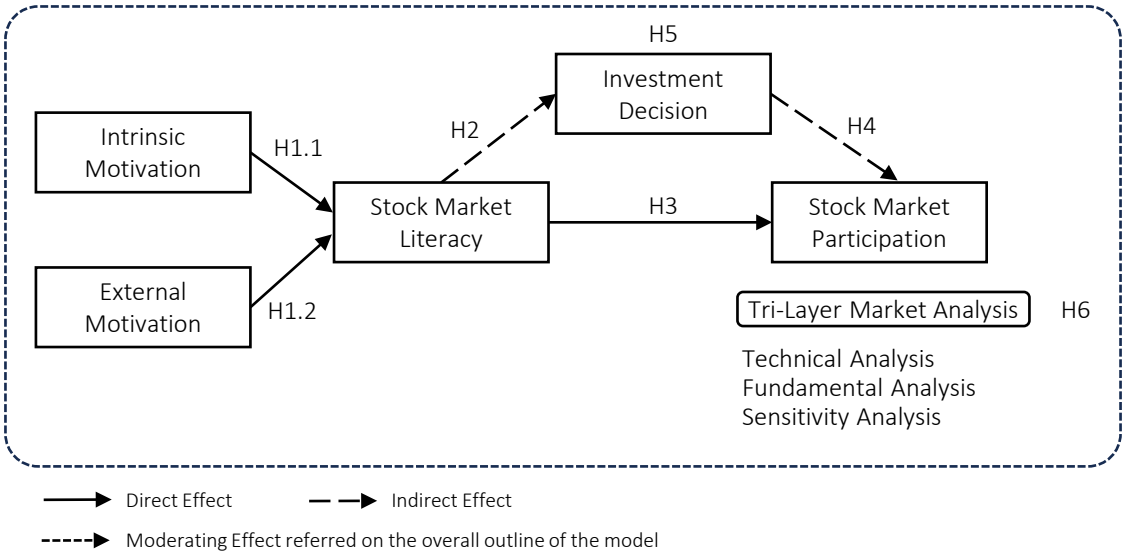

Figure 1. Conceptual model

et al., 2019). In the digital world of finance, sentiment analysis is more crucial than ever before, giving near-real-time insights from social media and media sources.

Greater demand from emerging markets for formal financial education has been highlighted through studies carried out in Russia and Brazil, where students favor curriculum-integrated financial literacy courses that are intended to address the dynamics of the real marketplace (Sabitova, 2014; Silva et al., 2022). These courses aim to bridge knowledge and practice and prepare students to participate responsibly and become more economically included.

Stock market participation among students in developing economies is influenced by an interconnected network of financial literacy, behavioral control, motivational forces, and analytical preparedness. While existing literature has explored each of these dimensions individually, their combined influence, especially within the socioeconomic realities of emerging markets, remains underexplored.

This study examines the joint impact of financial literacy, behavioral biases, motivational forces, and analytical ability on stock market participation among students at universities within emerging markets. Using an integrated theoretical framework, the study contributes to theoretical and practical efforts aimed at enhancing financial participation among youth in areas of limited access and increasing economic aspiration.

Based on the literature review, the following hypotheses are proposed:

H1.1: Intrinsic motivations substantially impact stock market literacy among students.

H1.2: Extrinsic motivations substantially impact stock market literacy among students.

H2: Stock market literacy among student investors significantly influences their investment decision-making.

H3: Stock market literacy among student investors significantly influences their stock market participation.

H4: Investment decisions among student investors significantly influence their stock market participation.

H5: Investment decisions among student investors play a significant intervening role between stock market literacy and stock market participation.

H6: Tri-Layer Market Analysis significantly strengthens the overall stock market participation model.

By testing these hypotheses, this study contributes to behavioral finance research and provides insights for financial education and policy development to enhance stock market literacy and participation.

Based on the above concept, theory, and review, the following conceptual model has been proposed (see Figure 1).

2. RESEARCH METHODOLOGY

The defined research hypotheses and objectives are carefully investigated in this study with the help of a quantitative research method.

2.1. Sample description

400 students from BBA/B.Com and MBA/M. Com programs from different universities were randomly given questionnaires, out of which 376 gave adequate responses, which is 94% of the total response rate. Table 1 presents gender, age, university, educational qualification, and the year of investment started. As shown in Table 1, most of the respondents (63.3%) were Male, where 45.2% were aged between 21-24 years, while 39.9% of the respondents were between 17-20 years old. Similarly, the majority (45.5%) of the students studied in Government universities, and 30.3% in private universities. Moreover, the majority of students (56.4%) continued their studies in the Undergraduate program.

Table 1. Demographic characteristics of respondents

Source: Primary survey.

Characteristic	Classification	Percentage (%)
Gender	Male	63.3
	Female	36.7
Age	17-20 yrs	39.9
	21-24 yrs	45.2
	25-28 yrs	14.1
	29 yrs and above	0.8
University	Deemed to be university	24.2
	Private university	30.3
	Government university	45.5
Educational Qualification	Postgraduate	43.6
	Undergraduate	56.4
Year of investment started in the stock market	Before 2012	0.3
	2013–2015	5.3
	2016–2018	14.1
	2019–2021	32.4
	2022–2024	47.9

2.2. Research instrument

This study analyzes factors influencing stock market participation among Karnataka students using primary data (questionnaire on demographics, motivation, literacy, analysis, and decisions) and secondary data with a descriptive-analytical approach. Section A consisted of students' agreement towards the various factors, such as Intrinsic and External motivation behind investments, encompassing 8 and 7 items, respectively, using Balloch et al. (2015), Karki et al. (2024), Khan et al. (2022), and Kuvaas and Dysvik (2009). Similarly, Section B, Stock Market Literacy, contains 13 items. This is followed by factors such as Technical analysis, Fundamental analysis, and Sentiment analysis, including 21 items (Biswas, 2020; Chen et al., 2017; Hoffmann & Shefrin, 2014), aiming at technical analysis methods for well-informed trading decisions like, moving averages, Fibonacci Retracement, RSI, support and resistance levels, Bollinger Bands, and MACD. This is followed by Fundamental analysis, which focuses on students' knowledge of evaluating a company's long-term goals, financial health, dividends, management, market position, and social responsibility. Similarly, student sentiment analysis involved items with respect to news headlines, market rumors, public opinion, internet culture, celebrity perspectives, economic situations, and information from financial influencers. Furthermore, students' investment decisions were assessed using 10 items considering Hirshleifer (1958)'s work, and Stock Market Participation encompassed 11 items considering Kaustia et al. (2023)'s work, emphasizing a person's interest, frequency of investments, risk assessment, self-assurance, financial planning and finally, dependence on informational and social information in making investing decisions. Students' viewpoints were gauged on a five-point Likert scale, ranging from 1 to 5, 1 indicating strongly disagree (SD) and 5 denoting strongly agree (SA).

2.3. Method

Students with a basic understanding or interest in financial markets were selected to examine factors influencing stock market participation.

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A pilot study ensured questionnaire reliability. Stratified sampling yielded 376 valid responses, coded in Excel and analyzed in SPSS 26. Statistical tests like SEM, t-test, ANOVA, and descriptive statistics identified significant factors and investment decisions' mediating role. This rigorous approach ensures reliable, insightful findings on students' stock market literacy and participation.

2.4. Construct validity

To ensure validity and reliability, Hair et al. (2010)'s recommendations were followed. Factor loadings exceeded 0.60 (Table 1), confirming item validity (Table A1 in Appendix A). Goodness-of-fit indices (SRMR = 0.051, GFI = 0.911, AGFI = 0.913, CFI = 0.903, NFI = 0.903, RMSEA = 0.065) supported the model (Hair et al., 1998; Hu & Bentler, 1999; Byrne, 2013). Construct validity was assessed, including convergent and discriminant validity (Sireci, 1998; Strauss & Smith, 2009). Composite Reliability values exceeded 0.70, while AVE values surpassed 0.50, establishing convergent validity (Carlson et al., 2009; Shrestha, 2021). This rigorous validation process confirmed alignment between the collected data and the study's objectives, ensuring reliability and validity (Segars & Grover, 1998) (Table A1 in Appendix A).

2.5. Discriminant validity

Discriminant validity ensures a measurement instrument effectively distinguishes between constructs (Henseler et al., 2015). Using the Fornell-Larcker criterion, all Average Variance Extracted (AVE) values exceeded the 0.50 threshold (Fornell & Larcker, 1981). Additionally, Maximum Shared Variance values were lower than AVE values, supporting discriminant validity. Significant inter-construct correlations were moderate to high but remained below the square roots of AVEs, confirming validity. Table 2 highlights that diagonal values (in bold) are higher than inter-construct correlations, indicating no discriminant validity issues. This evaluation confirms that the constructs are reliable and valid for measuring their respective categories.

Table 2. Discriminant validity assessment (Fornell & Larcker criterion)

Source: Computed using AMOS.

	MV	SML	TA	FA	SA	ID	SMP
MV	**0.755**						
SML	0.651	**0.782**					
TA	0.544	0.412	**0.776**				
FA	0.481	0.378	0.533	**0.748**			
SA	0.333	0.777	0.657	0.696	**0.769**		
ID	0.698	0.697	0.477	0.711	0.577	**0.788**	
SMP	0.601	0.611	0.759	0.550	0.469	0.711	**0.791**

Note: MV = Motivation; SML = Stock Market Literacy, TA = Technical Analysis, FA = Fundamental analysis, SA = Sentiment analysis, ID = Investment decision, SMP = Stock Market Participation.

2.6. Normality assumption

The data assumed normality, as confirmed by Shapiro-Wilk and Kolmogorov-Smirnov tests ($p > 0.05$), which allows parametric tests for hypothesis investigation.

3. RESULTS

One-way ANOVA was employed to consider the variation in intrinsic motivations, external motivations, stock market literacy, investment decisions, and participation across technical analysis usage levels. Following that, direct effects were estimated along with the moderating effect of the analysis and the mediating effects of investment decisions in the following section.

3.1. Disparity among different demographic factors

Moreover, through One-Way ANOVA and independent sample t-test, the variation between different age groups, gender, educational qualification, occupation, annual income, geographical location, and marital status has been examined for intrinsic motivation, external motivation, stock market literacy, investment decision, and stock market participation. Without any doubt, investors aged 17-20 years proved to be better in Sentimental Analysis (M = 3.8286). In a similar vein, the 29 years and above age group investors depicted low usage of Technical Analysis (M = 4.0000; SD = .65969). Moreover, there was significant variation among different age groups with

Table 3. Differences across technical, sentiment, and fundamental analyses

Source: Output computed using AMOS.

Variable	DS	Technical Analysis			F	P	Sentiment Analysis		F	P	Fundamental Analysis			F	P
		Low	Moderate	High			Low	High			Low	Moderate	High		
Intrinsic Motivation	Mean	3.392	3.677	3.886	17.034	.000	3.369	3.759	32.647	.000	3.434	3.668	3.967	17.817	.000
	S.D.	0.709	0.507	0.583			0.720	0.525			0.689	0.522	0.559		
External Motivation	Mean	3.415	3.526	3.821	9.891	.000	3.224	3.694	39.760	.000	3.239	3.620	3.946	28.179	.000
	S.D.	0.792	0.563	0.671			0.730	0.601			0.700	0.562	0.677		
Stock Market Literacy	Mean	3.172	3.339	3.539	10.043	.000	3.018	3.463	49.531	.000	3.026	3.401	3.688	35.519	.000
	S.D.	0.674	0.451	0.631			0.641	0.499			0.592	0.479	0.552		
Investment Decision	Mean	3.511	3.612	3.900	9.422	.000	3.207	3.818	74.756	.000	3.152	3.750	4.180	77.963	.000
	S.D.	0.814	0.552	0.628			0.732	0.550			0.699	0.466	0.541		
Stock Market Participation	Mean	3.367	3.588	3.825	11.125	.000	3.199	3.730	49.768	.000	3.216	3.634	4.049	38.650	.000
	S.D.	0.847	0.513	0.726			0.736	0.605			0.721	0.549	0.658		

Note: S.D. = Standard Deviation; F = F ratio, P = Significance value.

respect to Technical Analysis (p = .017), Sentiment Analysis (p = .033), and Stock Market Participation (p = .017). Male investors depicted high usage of Sentiment Analysis (M = 3.7635), but no significant difference was found in intrinsic motivation, external motivation, stock market literacy, investment decision, and stock market participation between male and female, except for technical analysis. As far as differences in undergraduate and postgraduate students are concerned, there was no disparity found in intrinsic motivation, external motivation, stock market literacy, investment decision, and stock market participation.

Table 3 illustrates the disparity among technical analysis, sentiment analysis, and fundamental analysis concerning their intrinsic motivation, external motivation, stock market literacy, investment decision-making, and stock market participation using one-way ANOVA. Investors engaging in technical analysis exhibit high intrinsic motivation, external motivation, stock market literacy, investment decision-making, and stock market participation. Significant differences were observed across usage levels in intrinsic motivation (t = 17.034, p = .000), external motivation (t = 9.891, p = .000), stock market literacy (t = 10.043, p = .000), investment decisions (t = 9.422, p = .000), and participation (t = 11.125, p = .000). Similarly, sentiment analysis positively influenced these factors, with significant differences in intrinsic motivation (t = 32.647, p = .000), external motivation (t = 39.760, p = .000), stock market literacy (t = 49.531, p = .000), investment decisions (t = 74.756, p = .000), and participation (t = 49.768, p = .000). The results of one-way ANOVA further depicted that investor dealing highly with fundermental analysis also showed similar impacts, with significant differences in intrinsic motivation (t = 17.817; p = .000), external motivation (t = 28.179; p = .000), stock market literacy (t = 35.519; p = .000), investment decision (t = 77.963; p = .000), and stock market participation (t = 38.650; p = .000). This finding indicates that individuals with a greater understanding of fundamental and technical analysis are more likely to engage actively in the stock market. This supports the hypothesis that enhanced financial literacy is a critical driver of participation.

3.2. Structural model assessment

SEM is frequently employed in statistical methods to analyze the critical relationship between the conceptual framework's concealed and visible variables.

3.2.1. Direct effect

Table 4 and Figure 2 demonstrate the direct impact of intrinsic and external motivation on stock market literacy and investment decision-making that ultimately leads to stock market participation. The results shows that Intrinsic (β =.361, t = 8.416, p = 0.000) and External Motivations (β =.422, t = 9.816, p = 0.000) substantially impact stock market literacy (*H1* is proved), since it indicates that higher the intrinsic and extrinsic motives to participate in stock market enables them to acquire stock market literacy. In particular, a 1 unit in-

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Table 4. Results of direct and mediation effects

Source: Output computed using AMOS.

Hypothesis	Relationship	Standardized Regression Estimate	S.E.	C.R.	P	Label
H1.1	IM → SML	.361	0.038	8.416	***	Highly Significant
H1.2	EM → SML	.422	0.034	9.816	***	Highly Significant
H2	SML → ID	.450	0.056	9.761	***	Highly Significant
H3	SML → SMP	.207	0.058	4.495	***	Highly Significant
H4	ID → SMP	.485	0.048	10.560	***	Highly Significant
H5 (IE)	SL*ID*SMP					
	Direct Effect	.224				
	Indirect Effect	.131				
	Total Effect	.355				

Note: IM = Intrinsic Motivation, EM = Extrensic Motivation, SML = Stock Market Literacy, ID = Investment decision, SMP = Stock Market Participation, β = Path Coefficient, p-value = Significance Level.

crease in intrinsic and external motivation leads to a 0.361 and 0.422 unit increase in stock market participation, respectively. Also, due to a high level of motives, the stock market literacy among investors significantly influences their investment decision making (β = .450, t = 9.761, p = 0.000) (*H2*) and stock market participation (β =.207, t = 4.495, p = 0.000) (*H3* is proved). Further, this investment decision notably shapes their stock market participation, resulting in behavior (β = .485, t = 10.560, p = 0.000) through offering insightful data, simplifying complex financial information, and improving investor confidence with unbiased knowledge (*H4* is accepted). According to these results, those motivated by internal factors like self-efficacy and personal curiosity are more likely to become knowledgeable about the stock market. In the meantime, external forces like monetary rewards and social recognition are also quite important. This double effect suggests that financial behaviors are significantly shaped by both internal and external factors.

3.2.2. *Mediation analysis*

Mediation analysis has been employed to understand the mediation role of investment decisions. Table 4 demonstrates the intervening role and mediating effect of investment decision making between stock market literacy and stock market participation. As per the results, stock market literacy's positive impact on stock market participation (direct effect: .224) is significant, which could be because it is driven by intrinsic and external fac-

Source: Output computed using AMOS.

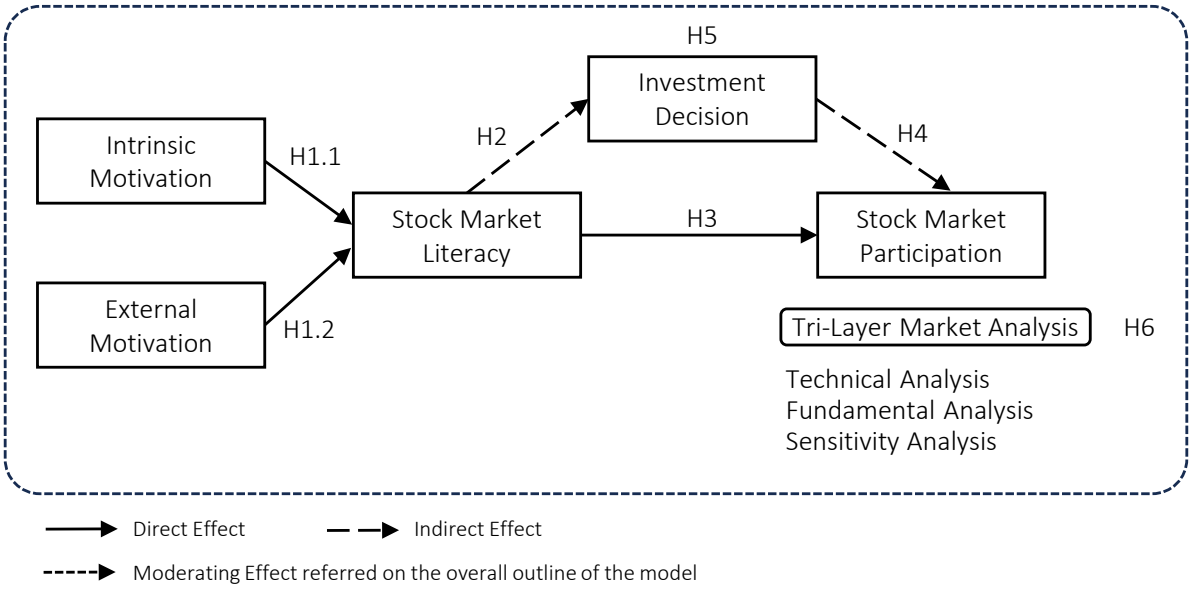

Figure 2. Tested structural model with path estimates

tors. Fortunately, since stock market literacy leads to investment decisions providing insightful data advice, the indirect impact via investment decision (indirect effect: .131) significantly mediates the relationship between stock market literacy and stock market participation. Well, with this advantageous mediation, the total impact increases (total effect: 0.355), indicating that even though stock market literacy contributes to stock market participation, by the intervening role of investment decision, stock market literacy highly contributes to stock market participation (*H5* is proved to be true). This result demonstrates that stock market literacy not only directly impacts participation but also exerts an additional indirect influence through improved investment decision-making. Individuals with higher stock market literacy are more likely to make informed investment decisions, which in turn enhances their likelihood of participating in the stock market.

3.2.3. Moderating effect of tri-layer market analysis

The moderating role of technical analysis on the interconnectedness between study variables was examined. Table 5 shows the moderating effect of technical analysis, fundamental analysis, and sentiment analysis on the overall model. The results show that intrinsic (β = .496) and external motivation (β = .516) have a greater positive impact on stock market literacy at high technical analysis usage. Frequent trading and higher investment decision-making intervention (β = .260) are evident (*H6.1* is accepted). Similarly, with sentimental analysis, intrinsic (β = .496) and external motivation (β = .516) strongly impact stock market literacy, significantly influencing participation (*H6.2*). For fundamental analysis, intrinsic and external motivation directly impact literacy, which further influences investment decisions and participation, with high moderating and mediating effects (*H6.3* is proved). Overall, literacy driven by motivation significantly enhances participation through these analyses. The significant interaction effects confirm that these analytical tools enhance the overall predictive strength of the model. These results highlight the importance of incorporating technical, fundamental, and sentimental analyses into financial education programs. By leveraging these tools, investors can significantly improve their decision-making processes and participation rates in the stock market.

Table 5. Moderating effects of tri-layer market analysis

Source: Output computed using AMOS.

Relationship	Standardized Regression Estimate					
Moderator	Low	P	Moderate	P	High	P
Technical Analysis						
IM→ SML	.066	.459	.365	***	.496	***
EM→ SML	.512	***	.252	***	.516	***
SML→ ID	.477	***	.358	***	.450	***
SL→ SMP	.098	.310	.200	.004	.223	.006
ID→ SMP	.534	***	.332	***	.577	***
SML*ID*SMP	.254	***	.119	***	.260	***
Sentiment Analysis						
IM→ SML	.251	.002	.361	***	.471	***
EM→ SML	.452	***	.298	***	.343	***
SML→ ID	.467	***	.202	.004	.282	.015
SML→ SMP	.215	.017	.169	.011	.207	.037
ID→ SMP	.437	***	.325	***	.525	***
SML*ID*SMP	.204	***	.066	***	.148	***
Fundamental Analysis						
IM→ SML	.210	.009	.323	***	.426	***
EM→ SML	.417	***	.262	***	.468	***
SML→ ID	.364	***	.169	.034	.501	***
SML→ SMP	.224	.008	.122	.090	.231	.013
ID→ SMP	.360	***	.440	***	.459	***
SML*ID*SMP	.131	***	.074	***	.230	***

Note: IM = Intrinsic Motivation, EM = Extrinsic Motivation, SML = Stock Market Literacy, ID = Investment decision, SMP = Stock Market Participation, β = Path Coefficient, p-value = Significance Level.

Table 6. Summary of path estimates

Source: Output computed using AMOS.

Effect	Path Coefficient	P Value
Direct Effect		
Intrinsic Motivation → Stock Market Literacy	.316	***
External Motivation → Stock Market Literacy	.334	***
Indirect Effect		
Stock Market Literacy → Investment Decision → Stock Market Participation	.218	***

Lastly, Table 6 demonstrates the overall summary of path estimates to gain a one-stop overview of the whole analysis that displays both direct and indirect effects. The findings demonstrated in Table 6 illustrate that using direct, indirect, and moderated pathways, the Intrinsic (β =.361, t = 8.416, p = 0.000) and External Motivations (β =.422, t = 9.816, p = 0.000) substantially impact stock market lit-

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eracy. The stock market literacy among investors significantly influences their investment decision making (β = .450, t = 9.761, p = 0.000) and stock market participation (β =.207, t = 4.495, p = 0.000). Since stock market literacy leads to investment decisions providing insightful data advice, the indirect impact via investment decision (indirect effect: .131) significantly mediates the relationship between stock market literacy and stock market participation. Lastly, the contribution of stock market literacy driven by intrinsic and external motivation on stock market participation through the mediation of investment decision is higher among those investors who use technical, sentiment, and fundamental analyses to a greater extent. Overall, the fundamental force behind stock market literacy is motivation, both internal and external, which pushes people to gain financial literacy. In turn, this literacy makes it easier to make well-informed investing decisions, which serves as a mediating element between stock market participation and literacy. Additionally, this link is amplified by the moderating effects of technical, fundamental, and sentiment analyses, strengthening the influence of literacy and decision-making on involvement. These components work together to create a thorough model highlighting how information, motivation, decision-making, and analytical tools interact to promote active stock market participation. These findings highlight the need for integrated financial education programs that foster motivation, enhance analytical skills, and bridge the gap between financial literacy and active market participation.

4. DISCUSSION

The findings emphasized that intrinsic and extrinsic motivations are relevant in furthering the levels of stock market literacy to influence investment decisions and participation. Therefore, the results obtained support the literature, as in Deci and Ryan's Self-Determination Theory of 1985, which describes intrinsic motivation as more long-lasting in terms of commitment and learning. This study contributes uniquely to the literature by validating investment decisions as a mediating factor between stock market literacy and participation. It is furthered that the moderating effects of technical, fundamental, and sentiment analyses indicate the significant strengthening among the analytical tools in the relationship of literacy, decision-making, and participation.

The findings of this study thus support and add to the current literature on stock market participation, especially regarding financial literacy and motivational factors. Baveja and Verma (2024) argued that financially literate investors can make better decisions, have less vulnerability to risks, and show greater confidence.

The finding in this study is close to the finding of how an unusually strong linkage in financial literacy positively relates to millennials' behavioral decision to participate in the marketplace, extended to the moderating influence of investment. Though Hastings and Mitchell (2020) focused their studies on literacy about portfolio optimality, the emphasis falls on how stock market literacy directly mediates decisions and participation pertaining to investment. Another supporter is Shahvari (2023), who cited financial education as the driver of rational investment behavior and thus supported the exploration in this study of how knowledge turns into action in investment.

Motivational intrinsic and extrinsic factors play the most indispensable role. Sugianto et al. (2019) discussed how workplace programs provided an added interest in the investment phenomenon. The study of Liu et al. (2013) discussed how pressures exert their influence. The updated paper, among other things, of intrinsic drive, especially growth concerning this case, had been mostly the superior motivator in relation to extrinsically driven motives. This perspective is in tune with the Self-Determination Theory developed by Deci and Ryan (1985b, 2013), which argues that intrinsic motivation creates more depth in engagement and long-term learning. This contrasts with the findings by Adil et al. (2023c), who indicated that during the pandemic-induced surge in stock market participation, extrinsic drivers, especially trust in financial institutions, dominated.

Technical, sentiment, and fundamental analyses give a better perspective on the moderating effects. Such a study differs from studies such as Salim and Setyawan (2023), which have concentrated on demographics, pointing to the interplay between literacy, motivation, and analytical tools, thus underlining what different studies have found.

CONCLUSION

This study aims to investigate the impact of behavioral finance on investment decisions and strategies among students. Specifically, it also examines how a tri-layered market analysis comprising fundamental, technical, and sensitivity analysis moderates investor participation in the stock market.The study concludes that motivation-driven financial literacy is a critical determinant of stock market participation, with informed decision-making serving as a pivotal mediator. These insights underscore the need for integrated financial education programs that address both the motivational and practical aspects of investing. Such programs can empower young investors with the knowledge, confidence, and tools required to navigate the complexities of financial markets, ultimately enhancing greater financial inclusion and economic resilience.

This study underlines the pivotal role of motivation, stock market literacy, and analytical tools in shaping investment behavior among Indian university students. The study fills the gaps in the literature by showing that intrinsic and extrinsic motivations together contribute to financial literacy, which, through informed investment decisions, leads to active stock market participation. These findings raise awareness of the need for holistic financial literacy programs, including motivational drivers and hands-on tools in the education of young investors for a changing financial environment. Future studies should therefore focus on longitudinal effects of these interventions and explore the external validity across demographic and cultural settings.

Future research should expand the demographic scope by including various populations of diverse age groups, professions, and cultural contexts to enable comparison across regions and countries. Longitudinal designs are imperative to ensure that the changes in financial literacy and investment behavior can be studied over time; this, in turn, can help in obtaining information about the long-term effects of interventions and exogenous influences. Mixed-method approaches, adding qualitative insights such as interviews or focus groups to quantitative data, can reduce biases and give further detail into investor motivations. It may also be informative to see how specific psychological factors of fear and overconfidence interact with financial literacy in various market states.

IMPLICATIONS

The findings have very serious policy implications and ramifications for educational institutions. From the motivational and analytical aspects that this study has integrated, stakeholders can better conceive interventions that may not only be capable of training but also motivating students to participate in financial markets. This form of holistic approach toward financial education may create a generation of knowledgeable investors with confidence, leading to higher financial inclusion and economic development.

Therefore, the intrinsic and extrinsic motivators may be used in designing specific financial education programs by educational institutions and financial organizations to enhance stock market literacy among students. These should focus on making financial learning interesting, relevant, and personal. Thirdly, the training in technical, sentimental, and fundamental analyses in the financial literacy workshop will help the students with the necessary tools for making practical investment decisions in real life. Another way financial services providers can contribute is by using gamified digital platforms to attract and engage younger customers who are approaching retirement age, as it is an interactive and rewarding learning environment that they grew up in.

From a practical perspective, focused financial literacy campaigns by policymakers should be targeted at younger audiences, highlighting the importance of responsible decision-making in stock markets. Universities can incorporate stock market literacy into their business and management curricula, thus

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helping students prepare for possible career opportunities in finance and investments. Furthermore, the use of peer learning groups and mentoring programs will afford networking opportunities that enhance student confidence through observational learning and shared experience.

Results from this study add to the following theoretical frameworks – the Theory of Planned Behavior and Social Learning Theory – by validating their applicability in the financial contexts of emerging markets. This study, therefore, stressed interaction between internal and external motivations in bringing out financial behavior. The present paper thus contributes to behavioral finance because of the examination of psychological and educational factors that act as mediators between investment decisions and stock market participation, thus setting the avenue for significant insight for academics and practitioners.

AUTHOR CONTRIBUTIONS

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Writing – review & editing: Shakira Irfana, Mohammad Nihal, S. M. Riha Parvin, Niyaz Panakaje, Niha Sheikh, Madhura K, Mahammad Shahid.

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APPENDIX A

Table A1. Factor loadings, composite reliability, and average variance extracted depicting reliability and validity of the instrument

Source: Computed using AMOS.

Item Code	Statements	Mean ± S.D.	Factor Loading	CR	AVE
	Motivation				
MV1	I invest in the stock market because I find the process personally rewarding	4.21±1.185	0.811	0.952	0.571
MV2	Participating in the stock market gives me a sense of accomplishment	3.6±0.852	0.768		
MV3	I am motivated by stock market activities because I genuinely enjoy the challenge of analyzing stocks	3.43±.900	0.774		
MV4	I invest in stocks because it helps me grow as an individual	3.67±1.044	0.811		
MV5	I invest in stocks because it helps enhance my knowledge	3.61±1.019	0.698		
MV6	I am motivated because it is an easy way to make extra money as a student	3.63±.944	0.778		
MV7	I am motivated to invest in the stock market to diversify my income sources.	3.59±.970	0.612		
MV8	The stock market excites me because it allows me to apply my financial knowledge	3.51±1.076	0.851		
MV9	I participate in the stock market because my family expects me to invest.	4.04±1.206	0.775		
MV10	I invest in stocks to gain social recognition from my peers	3.47±.917	0.712		
MV11	I feel motivated to invest in stocks because many people around me do so.	3.36±.989	0.819		
MV12	My decision to invest in stocks is influenced by the desire to improve my social status.	3.44±1.071	0.671		
MV13	I am motivated to invest by watching stock market movies.	3.56±1.047	0.761		
MV14	My friends motivate me to invest in the stock market	3.53±1.032	0.674		
MV15	I am motivated by the success stories of others who have gained profit from stock market investments	3.60±1.004	0.777		
	Stock market literacy				
SML1	I understand the concepts of how the stock market operates	4.14±1.146	0.853	0.953	0.612
SML2	I am familiar with the different types of financial instruments (e.g., stocks, bonds, mutual funds) traded in the stock market	3.63±.911	0.861		
SML3	I can interpret stock market indices such as the Nifty and Sensex	3.39±.963	0.763		
SML4	I know how to read and understand stock charts and price trends	3.57±1.046	0.691		
SML5	I understand the factors that can cause stock prices to rise or fall	3.63±.958	0.779		
SML6	I am aware of the risks associated with investing in the stock market	3.65±.929	0.771		
SML7	I know how to diversify my investments to reduce risk	3.60±.942	0.719		
SML8	I am familiar with the differences between long-term and short-term investing	3.61±.942	0.775		
SML9	I can evaluate a company's stock based on its financial reports	3.61±.997	0.859		
SML10	I am aware of the tax implications related to stock market investments	3.62±1.036	0.701		
SML11	I know how to assess the market impact of macroeconomic country level	3.54±.982	0.743		
SML12	I understand the differences between small-cap, mid-cap, and large-cap companies in the stock market.	3.50±1.025	0.839		
SML13	I understand how global economic conditions impact stock market performance	3.62±1.000	0.788		
	Technical analysis				
TA1	I use support and resistance levels to time my stock purchases	3.55±1.449	0.697	0.900	0.602
TA2	I use moving averages to decide when to enter or exit a stock.	3.24±1.622	0.777		
TA3	I use the Relative Strength Index in my stock market analysis	2.81±1.336	0.714		
TA4	I use Fibonacci Retracement in my stock market analysis	2.78±1.236	0.769		
TA5	I use Bollinger Bands in my stock market analysis	2.63±1.245	0.887		
TA6	I use Moving Average Convergence Divergence (MACD) in my stock market analysis	2.78±1.336	0.797		
	Fundamental analysis				

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Table A1 (cont.). Factor loadings, composite reliability, and average variance extracted depicting reliability and validity of the instrument

Item Code	Statements	Mean ± S.D.	Factor Loading	CR	AVE
FA1	I assess companies' long-term future plans	2.62±1.319	0.746	0.910	0.560
FA2	I check the experience of the company.	4.35±1.140	0.681		
FA3	I review a company's competitive position and industry	3.76±.872	0.777		
FA4	I analyze the company's position in the market	3.49±.955	0.795		
FA5	I research a company's management team	3.57±1.049	0.765		
FA6	I analyze a company's financial health.	3.66±1.046	0.699		
FA7	I pay attention to a company's dividends	3.64±1.020	0.713		
FA8	I look at how a company interacts with and contributes to society	3.68±1.063	0.799		
	Sentiment analysis				
SA1	News headlines impact my stock market investment.	3.75±1.053	0.714	0.909	0.591
SA2	Meme and Internet Culture influence my investment	4.37±1.050	0.775		
SA3	The comments made by famous sports celebrities can influence my investment decisions	3.70±.917	0.669		
SA4	I look for the economic condition of the country	3.46±.971	0.891		
SA5	Tweets from famous investors and financial institutions influence my investment	3.60±1.051	0.758		
SA6	Public opinion plays a crucial role in my stock market	3.66±1.047	0.791		
SA7	I keep an eye on market rumors before making investments	3.70±.998	0.764		
	Investment Decision				
ID1	I carefully consider the potential risks before making an investment decision	3.70±1.015	0.766	0.942	0.621
ID2	I take into account the past performance trends of an asset before investing	4.25±1.138	0.721		
ID3	I thoroughly research the past performance of a company before investing in its stocks	3.66±.913	0.788		
ID4	I diversify my investments across different stocks to minimize risk	3.35±.949	0.849		
ID5	Market news and updates significantly influence my investment choices	3.66±1.047	0.777		
ID6	I prefer investing in well-established companies over newly established ones	3.54±1.016	0.771		
ID7	I monitor market trends and economic indicators before making investment decisions	3.63±1.001	0.885		
ID8	I make investment decisions based on my risk tolerance	3.60±1.015	0.756		
ID9	I regularly review and reassess my investment portfolio to ensure it aligns with my financial goals	3.59±.986	0.791		
ID10	Emotional factors such as fear or excitement affect my investment decision	3.59±1.077	0.766		
	Stock Market Participation				
SMP1	I am interested in actively participating in the stock market	3.60±.989	0.698	0.948	0.626
SMP2	I believe that investing in the stock market is a good way to grow my wealth	4.19±1.212	0.799		
SMP3	I am confident in my ability to make informed investment decisions in the stock market	3.64±.919	0.844		
SMP4	I believe that investing in the stock market is too risky for me	3.44±.981	0.769		
SMP5	I frequently buy and sell stocks to take advantage of market opportunities	3.59±1.089	0.848		
SMP6	I allocate a significant portion of my savings to stock market investments	3.55±1.094	0.718		
SMP7	I believe that investing in the stock market is an important part of financial planning for my future.	3.47±1.083	0.859		
SMP8	I actively discuss stock market investments with friends, family, or financial advisors	3.44±1.034	0.777		
SMP9	I regularly engage in stock market activities, such as buying and selling shares	3.48±1.088	0.853		
SMP10	I participate in the stock market as a way to achieve long-term financial security.	3.49±1.078	0.810		
SMP11	I consistently follow stock market news and trends for my participation	3.60±.994	0.701		

Note: AVE = Average Variance Extracted, CR = Composite Reliability, MV = Motivation; SML = Stock Market Literacy, TA = Technical Analysis, FA = Fundamental analysis, SA = Sentimental analysis, ID = Investment decision, SMP = Stock Market Participation.