

IMPACT OF TECHNOLOGY INTEGRATION IN STOCK BROKING APPLICATIONS ON RETAIL INVESTOR PARTICIPATION

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Abstract: Incorporating technology and stock-broking applications affects retail investors' participation in the stock market. This study is organized in four technology-related explanatory constructs; Platform Efficiency; Analytical Tools; Security & Risk Concerns; Educational Support; and one dependent construct, Investor Participation. Technology acceptance, digital finance adoption, perceived risk, and financial capability, as theoretical perspectives, lead to a better understanding of platform design and feature quality as primary determinants of real market participation. Primary data was obtained by utilizing a 5-point questionnaire format of Likert-type response scales, and 104 valid survey responses remained to be processed for the evaluation. The analytic tool encompassed respondent profile analysis, descriptive statistics, item-level analysis, Cronbach's alpha, Pearson correlation, multiple regression, independent-samples t test, one-way ANOVA, and Tukey post-hoc comparison. The outcome showed that Investor Participation is relatively high overall (mean = 4.034), Analytical Tools (4.029), Educational Support (4.013) and Platform Efficiency (3.769). There is a moderate level of Security & Risk Concerns (3.315), which means that respondents have high awareness of digital risks, yet do not let these come to eclipse their own investing behaviour. Across all constructs, the reliability is good or moderate, with the Cronbach's alpha for each variable in the range of 0.722 to 0.887. All the explanatory constructs relate positively to Investor Participation. The strongest bivariate correlation ($r = 0.675$) appears with Analytical Tools. Platform Efficiency ($p = 0.0049$), Analytical Tools ($p = 0.0004$), and Educational Support ($p = 0.0394$) are positive and significant predictors of Investor Participation, while Security & Risk Concerns ($p = 0.8957$) are statistically insignificant when combined. The model overall accounts for 52.3 percent of the variance in Investor Participation and is robust. Overall, there is no statistical significance observed across the group-wise tests with respect to differences in gender, age, educational level, monthly income, and time in investments. While statistically insignificant within one trade type, it is notable in that discount brokers engage more people than do bank-app participants. The study reveals that the participation of retail investors in today's markets does not depend as much on the accessibility of digital-based resources as on decision support, efficiency, and embedded learning support.

Keywords: Digital trading platforms, Stock broking applications, Platform efficiency, Analytical tools, educational support, Financial literacy



1. INTRODUCTION

Over the past 10 years, technology has transformed how retail investors enter, understand and execute on the stock market. Mobile-first brokerage apps, real-time market feeds, seamless account launches, charting dashboards, screeners, AI-driven insights, and in-app educational functions have significantly reduced the real-world barriers to participation faced by seasoned or high-capital investors. Once intermediaries who needed a broker's help, separate research terminals and relatively high transaction fees are no longer required and now take place via a smartphone in minutes. Such a structural shift has allowed the retail investment community, with its younger and digitally sophisticated users, to become more interested in equities and related instruments: It is now more immediate, personalized, and data-rich. For the same reason, digital trading has also revolutionized the base of participation decision-makers. Accessibility in and of itself was a scarce advantage in the former brokerage environment. Now that access is available in the modern world, accessibility quality matters more than ever. Given the context, though, we know that platform efficiency, order execution smoothness, interface clarity, analytical support and embedded investor education may mean more than just if investors open an account – they want to stay engaged with that market. According to previous research, digital can facilitate on-line services, open up access and reach to investors (Aldridge and Krawciw, 2017; Shankar et al., 2021) and the increased maturity of the mobile apps has facilitated participation of smaller investors who were initially prevented from entering the market as they were blocked by the complexity of the process and through the expense (Chishti and Barberis, 2016). In other words, technology-enabled participation is not uniform in its positive effects. In the context of digital finance, some question privacy, the trust of a platform, cyber risks, and information overload. For some environments, especially those where trust or financial literacy is low, perceived risk can reduce trading intention (Gupta and Dey, 2024; Xie et al., 2021). In practice, of course, investors may instead see security as a baseline hygiene issue rather than a special feature. This raises the question of which constructs actively incentivise participation and which just prevent dissatisfaction. The present research aims at dealing with this dilemma by examining, within one framework, whether Platform Efficiency, Analytical Tools, Security & Risk Concerns, and Educational Support are the main predictors of Investor Participation.

The stock market today is more and more platform-mediated by the day. Investors do not only trade securities, but they do so with digital ecosystems that shape their experience of speed, trust, usability and learning. Previous work emphasises the large effect of digital literacy and technology-enabled behaviour and has found that better digital literacy increases the possibility for individuals to meaningfully engage with digital systems (Bejaković and Mrnjavac, 2020; Bergdahl et al., 2020). In investment contexts, this means that the platform is more than just a transactional channel but a behavioural influence mechanism. The present study expands on the reasoning above as it proposes a compact construct framework appropriate for the analysis and, it is therefore a re-structuring of the technology domain into Platform Efficiency, Analytical Tools, Security & Risk Concerns, and Educational Support, rather than repeating the same independent variables. This re-situation is not only congruent with the basic literature but also relates directly to the questionnaire used in the current study.

2. REVIEW OF LITERATURE

Research on the behavior of retail investors in digital finance is now on a broad theme: technology does not just provide access to the market; it also influences the quality, the frequency and the confidence of market actors. Several threads of research clarify why. One stream measures platform adoption and ease of use. Perceived ease of use has played a crucial role in acceptance of new technology and regularly showed that it is positively correlated to adoption intention across digital financial services (Raza et al., 2017; Elhajjar and Ouaida, 2020; Tahar et al., 2020). Reith et al. (2020) also show where user experience and system-based barriers are especially relevant, especially for beginners, and where easy and simple access can have key implications for sustained attachment to investment platforms. The second stream centers on technology and quality of digital trading participation. Mobile communication and information sharing for improved access to timely information, that in principle is, Brown, Stice and White (2015) note, is the tool of smarter decision making. Shankar et al. (2021) put forward more generically that technology is reinventing retail terrains via less friction and faster customer response times. In the world of

investments, such changes manifest as faster price reactions, greater visibility of trades, and more access to financial assets. Concurrently, Kalda et al. (2021) caution that app-based investment may exacerbate biases and increased attraction to volatile stocks when such a strategy is applied, noting that technological convenience does not guarantee adequate investment. One stream of the literature deals with risk, trust and security. We found that perceived risk is related to using digital finance across many contexts, for instance mobile stock trading and the application of fintech platforms (Gupta and Dey, 2024; Xie et al., 2021). For activities involving risks such as e-trading, the combination of technology acceptance and planned behaviour constructs indicates that perceived trust, social influence, and risk attitudes intersect to jointly affect intention (Raut and Kumar, 2024). Ho et al. (2020) also indicate that trust- and risk-related perceptions of behavioural intention to use mobile banking influence such behaviors. This literature indicates concerns with cyber risk, privacy, fund safety and glitch anxiety could impede participation, although the practical implications could depend on the familiarity of investors and the perceived security level that they are believed to have. The quality of interface, user experience, and involvement from the platform are a fourth theme. Redmond (2022) and Runsewe et al. (2024) highlight the growing strategic significance of UI/UX in financial systems, where trustworthiness, usability, and sustainable interaction are less about what a device does but, rather, more about how well it is comprehensible, accessible, and interpretable. According to Judijanto and Wardhani (2024), digital adoption is also improved when the system is simple, speedy, and visually understandable. In stock-broking, involvement is more than access to market access apps, but also the ability and willingness of investors to make stock-exchange decision-making on it. A fifth study shows how financial literacy and digital literacy are linked with technology enhancing market participation. Financial literacy has more direct positive relationships with stock market participation and improved investment behavior in a variety of longer-term studies conducted on this subject (Van Rooij, Lusardi and Alessie, 2007; Raut, 2020). Digital literacy has been defined as a life skill that teaches people to use digital systems responsibly (Sandra, 2022; Ullah et al., 2022), a more recent discovery. Tutorials, research notes, explainers, AI-assisted interpretation; these types of educational support might be included in the platform to make it easier for people to enter or leave an industry that can reduce barriers and support sense of self-efficacy, especially for beginners.

This logic is crucial in the present study where we anticipate that Educational Support is an enhancing method of fostering self-belief leading to increased participation. So, the research question behind this is that a survey method that assesses platform performance, analytical tools, educational support and security issues in a concise way is useful. Too many of them discuss those issues conceptually or have the general constructs of usability and trust tested in them, whereas fewer empirical papers resemble classroom projects and integrate the two dimensions of those concepts into one regression model using a single dataset of present retail investors. Thus, the present paper complements this recent literature in novel fintech adoption with a theoretical and grounded framework, based on real-world investor involvement approaches from the empirical studies literature.

The study is theoretically grounded on technology acceptance, perceived-risk theory, and investor-participation behaviour. Platform Efficiency and Analytical Tools are enablers that contribute to perceived usefulness and reduce action cost and could be seen as these enablers. Educational Support is correlated with high perceived capability and confidence; thus, participation is more likely. Security & Risk Concerns act as a restraining force that can erode trust and prompt hesitation. Investor Participation is a behavioral outcome that results because of the impact made by these enabling and restraining dimensions together.

3. RESEARCH METHODOLOGY

This study adopted a descriptive research design. The primary data were collected using structured questionnaire, 104 valid responses from 25 February 2026 to 24 March 2026. The questionnaire is based on a 5-point Likert-type scale, dividing 25 statements into 5 constructs (which are 5 items each): Platform Efficiency, Analytical Tools, Security & Risk Concerns, Educational Support, Investor Participation. The dependent variable is Investor Participation. We chose Platform Efficiency, Analytical Tools, Security & Risk Concerns, and Educational Support as independent variables in our analysis. The variables grouped for comparison were: gender, age and level of education, monthly income; and investing experience and primary trading mode. Limitations: The current study

appears to employ the convenience method, which is appropriate for academic studies but not applicable to the investor population. All analytical procedures were done using frequency distribution, descriptive statistics, item-level analysis, and Cronbach's alpha, Pearson correlation, multiple regression, independent-samples t-test, one-way ANOVA, and Tukey HSD post-hoc test. We have the following estimated regression model:

$$\text{Investor Participation} = \beta_0 + \beta_1(\text{Platform Efficiency}) + \beta_2(\text{Analytical Tools}) + \beta_3(\text{Security \& Risk Concerns}) + \beta_4(\text{Educational Support}) + \varepsilon$$

3.1 Research Problem

Though trading platforms have opened up access to the markets, not all technology dimensions affect participation to the same extent. Some features, such as superior charting, screeners, and integrated research, might be more important to investors than others. Similarly, security concerns are likely to drive initial hesitancy but may no longer contribute to the explanation once baseline trust is established. The challenge therefore is to ascertain the technology-linked features that influence retail investor participation significantly and those that do not when analysed together in a multivariate framework. The study is guided by the following questions: Does Platform Efficiency significantly affect Investor Participation? Do Analytical Tools significantly affect Investor Participation? Do Security & Risk Concerns significantly affect Investor Participation? Does Educational Support significantly affect Investor Participation? Does Investor Participation differ across selected demographic and trading groups?

3.2 Objectives of the Study

The primary objective is to examine the impact of the technology embedded in stock broking applications on retail investors' participation. The goals are as follows: (i) Analyze the influence of Platform Efficiency on investor participation; (ii) Analyze the impact of Analytical and Decision-Support Tools on investor participation; (iii) Analyze the role of Security & Risk Concerns in determining participation; (iv) Validate the impact of Educational Support and technology-enabled learning features; (v) Test the reliability and relationship of the study constructs; and (vi) Compare participation across selected demographic and trading-related groups.

3.3 Hypotheses

H01: Platform Efficiency has no significant positive effect on Investor Participation.

H02: Analytical Tools have no significant positive effect on Investor Participation.

H03: Security & Risk Concerns have no significant effect on Investor Participation.

H04: Educational Support has no significant positive effect on Investor Participation.

H05: The overall regression model does not significantly explain Investor Participation.

3.4 Significance of the Study

The study is significant in three ways. First, for academia, it provides for the testing of many technology concepts at the same time in one participation paradigm rather than separately. Second, it's very relevant for broker and fintech companies — it shows which features of a platform seem most applicable for driving higher levels of investor engagement. Third, it includes a policy and educational element — that is, it shows the extent to which embedded learning support has importance alongside platform convenience and decision tools. Particularly in a quickly digitizing investment landscape, this evidence is valuable for designing a platform, strategy for retaining customers, or developing investments.

4. ANALYSIS AND INTERPRETATION

4.1 Demographic Profile of Respondents

Table 1: Age Profile of Respondents

Category	Count	Percent
Below 25	81	77.9%
25–35	8	7.7%
35–45	7	6.7%
45–55	5	4.8%
Above 55	3	2.9%

The age profile shows us an overwhelmingly young sample. Almost four in five participants are under the age of 25. Which means the study does tend to capture perceptions of early-stage or emerging investors who are more likely to be digitally comfortable and mobile-oriented, and also more willing to try app-based investing as well. More specifically, the profile is important for studying technology-driven broking platforms because this segment is often the earliest and most active adopter of platform innovations. Simultaneously, the presence of the below-25 demographic bias also influences interpretation. The findings shouldn't be read as a full picture of the entire investing population, given that older age groups are relatively underrepresented. This focus does put a strong lens on the segment where broking apps are currently most visible, and where features such as charting tools, AI explanations, and interface quality are likely to matter the most.

Table 2: Gender Profile of Respondents

Category	Count	Percent
Male	71	68.3%
Female	33	31.7%

The gender profile features a majority of men, although the number of females is still sizeable enough for comparison. In the study of survey works on retail-investors, for instance, high rates of male participation in the retail investor survey were found, especially in study samples with active (or self-directed) market participants. This might form part of broader trends in investment participation where men are to be found more active than women in trading-related activities. Yet following group-comparison results also do not express a statistically significant difference on gender, on Investor Participation. That conclusion matters, because once people join the broking-app ecosystem, the degree of participation might be more due to platform characteristics than gender identity itself.

Table 3: Educational Level of Respondents

Category	Count	Percent
Undergraduate	39	37.5%
Graduate	33	31.7%
Postgraduate	25	24.0%
Professional Qualification	7	6.7%

The distribution of educational features across undergraduate, graduate and postgraduate respondents is fair, with an overwhelming share being held by undergraduates. Meaning that the sample is represented by students and working-age individuals with varying levels of education. That diversity is an important one because digital trading platform users are logging on long before they get the education they need to be skilled in that new landscape. Such variation in educational levels has shown how Educational Support is also a construct. When investors from different

educational settings are using the same platforms, in-app learning tools and research support can act as a bridge to minimize knowledge asymmetry.

Table 4: Monthly Income of Respondents

Category	Count	Percent
Below Rs 25,000	49	47.1%
Rs 25,000–Rs 50,000	20	19.2%
Rs 50,000–Rs 100,000	16	15.4%
Above Rs 100,000	19	18.3%

But, nearly half the respondents have a monthly income of under Rs 25,000, indicating that it's a sample making up primarily low-income or younger participants. All of which matches the larger story of digital broking: Technology has lowered barriers to entry, democratizing stock-market investment options for smaller investors. Respondents across all four income brackets report that apps-based trading isn't restricted to the high-earners. As noted, the lack of significant income-group differences revealed in ANOVA indicate that technology-enabled participation may have to some extent democratized the sampling. In other words, once investors get practical tools and educational support, participation intensity may not be substantially biased against only income level.

Table 5: Investing Experience of Respondents

Category	Count	Percent
Less than 1 year	39	37.5%
1–3 Years	39	37.5%
3–5 years	15	14.4%
More than 5 years	11	10.6%

Profile is split mainly between those who are very new investors, and those who have invested for one to three years. You are predominantly people engaging with the services, investing, watching market activity and assessing it. Those in this category represent the best fit to be the focus of study in terms of technology integration features as a robust predictor for the extent of participation. Very few of the respondents possess over five years of investing experience. This is precisely how decision-making facilitated features that mitigate a sense of beginner hesitation emerge sharply in this research, particularly analytical tools plus educational support.

Table 6: Primary Mode of Trading

Category	Count	Percent
Discount Broker (Zerodha, Angel One, etc.)	73	70.2%
Others / Banking Apps	17	16.3%
Traditional Broker	14	13.5%

The primary mode-of-trading table is one of the key strategic profile tables in the paper. Over 70 percent of respondents were predominantly using discount brokers to trade with, indicating that the sample is deeply integrated into the contemporary app-based broking ecosystem. The use of traditional brokers is low and banking-app usage is even lower. This distribution supports that the empirical context of the research corresponds to its study's main topic: respondents are predominantly users of platforms that integrate technology, not peripherally. This table becomes more significant subsequently, when read in close harmony with the Tukey test that identifies the presence of a noticeable difference between users of discount brokers and users of banking apps. This finding suggests that type of the platform itself is important for the intensity of participation, with discount brokers perhaps performing superior as compared to

regular broker providers because they typically provide more comprehensive analytical tools, simpler interfaces, and more participation-oriented feature design.

Table 7: Most Used Trading Applications

App	Count	Percent
Zerodha	34	32.7%
Groww	28	26.9%
Angel One	14	13.5%
Upstox	10	9.6%
Kotak Neo	2	1.9%
Kotak	1	1.0%
ICICI Direct	1	1.0%
HDFC	1	1.0%

There are also a few main digital brokers driving the respondent base according to the app-usage table. Zerodha and Groww collectively account for well over half the sample, then Angel One and Upstox. This reflects a real-world view of these sorts of platforms, one perceived by young and self-driven investors as a necessity. Their prominence suggests that respondents are probably contemplating tech features at a moment when advanced charting, low-friction onboarding, market education, and mobile usability are already the primary selling points. The limited presence of bank-linked or legacy-style trading channels contributes to our argument that today's retail investor world follows a platform mode of operation. This is key when interpreting our findings: for us the research provides some of the finest data yet on the degree of app-led ecosystem participation but practically no evidence across the full range of institutional investment channels.

4.2 Descriptive Statistics and Construct Interpretation

Table 8: Descriptive Statistics of Constructs

Construct	Mean	SD	Interpretation
Platform Efficiency	3.769	0.771	High
Analytical Tools	4.029	0.753	High
Security & Risk Concerns	3.315	1.062	Moderate
Educational Support	4.013	0.804	High
Investor Participation	4.034	0.803	High

The first summary of respondent perceptions over the major constructs in the descriptive-statistics table. The mean Investor Participation (4.034) has the highest values; we understand from the results that the sample is not biased and they had a high overall sentiment among the investor about the market participation in technology-enabled platforms. This is important, because it confirms that they indeed are not just account holders, but actually reporting that they are active or have meaningful participation. Analytical Tools (4.029) and Educational Support (4.013) also have very high means. This indicates that participants attach great importance to the decision-support context around trading, and not the transactional aspects of the system as far as the result is concerned. That's to say, there's something about investors that suggests they don't value technology when they are simply traders, but because technology is a means to interpret and learn, to act on. Platform Efficiency, of all the enabling constructs, has a high score (3.769), slightly lower compared to the last two, suggesting that the need to focus on speed and usability may not be sufficient for differentiation anymore. There is a mean for Security & Risk Concerns which is moderate mean=3.315, with the highest standard deviation (1.062). The analysis suggests two explanations. To explain, you see, digital risk exists in

investors' thoughts and not just absent. Second, opinions on this construct are more sharply defined than opinions around other constructs — respondents are very split on how anxious they are about security. This distance partly explains why the construct is positively related to participation in simple association terms although this association becomes less significant in regression with stronger enabling variables.

Table 9: Highest-Rated Statements

Statement	Mean
Technology makes investing easier for beginners	4.288
Overall technology-driven platform has increased my engagement in the stock market	4.231
Analytical tools in modern platforms are superior to earlier brokerage systems	4.202
I rely more on digital platforms than traditional brokers	4.117
Integration of advanced charting tools has improved my decision-making	4.115

Most telling is a coordinated story about what investors care about most. The first assertion — that technology is an accessible investment tool for newcomers — indicates that respondents see digital platforms as entry-enabling systems. That aligns with a broader view that once technology is integrated in, entry barriers (both psychological and procedural) become less daunting. It also links to the higher mean for Educational Support as first-time users often consider beginner-friendly the way an educational support platform educates, guides, and explains is one aspect of its friendliness. Items two and four mention user interaction and reliance on digital platforms. Users not only say they find the site helpful but also report very directly feeling like they are more involved in the market and using digital channels more than traditional brokers. The other two things reflect analytical sophistication. This indicates a high agreement with advanced charting tools and the relative advantages of analytic features over older brokerage systems, which highlights that more and more retail investors welcome the extra support of interpretation beyond the execution aspect.

Table 10: Lowest-Rated Statements

Statement	Mean
Minor system lags do significantly affect my trading behaviour	3.346
System glitches reduce my trading confidence	3.346
I am concerned about digital security while trading online	3.317
Privacy concerns limit my full participation in digital platforms	3.282
I worry about fund safety in technology-based trading systems	3.279

Mostly lowest ranked items are Security & Risk Concerns. Not a lot of respondents would reject risk as being a reality, but instead risk concerns are much less prominent than the positive contributions they make to efficiency, tools, and education. The mean values remain above the middle of the range, and thus they are concerned, yet they do not manifest as strong agreement statements like platform usefulness. Lower privacy, security, glitches, and fund safety scores explain the regression outcome later in the paper. Investors in this sample may have already normalized their trust in established digital brokers at a certain level. The perceived risk thus does not form a key factor in determining who participates when the performance of the platform is considered.

4.3 Reliability Analysis

Table 11: Reliability Analysis of Constructs

Construct	Items	Cronbach's alpha	Reliability level	Decision
Platform Efficiency	5	0.722	Acceptable	Retain
Analytical Tools	5	0.785	Acceptable	Retain
Security & Risk Concerns	5	0.887	Good	Retain
Educational Support	5	0.840	Good	Retain
Investor Participation	5	0.866	Good	Retain

Cronbach's Alpha is one commonly used method to analyze internal consistency or the extent to which constructs move in unison. These five constructs are high, much above the commonly accepted cut-off of 0.70, which reveals the scales are reliable enough to be interpreted across multiple participants, and also can be assessed across multiple participants. A key quality check, since later regression and comparison tests operate on the premise that the construct scores are consistently and meaningfully constructed and not internally fragmented. While Platform Efficiency and Analytical Tools are in the acceptable range, Security & Risk Concerns, Educational Support, and Investor Participation show good reliability. The highest alpha in the table is for Security & Risk Concerns (0.887), indicating that the risk items are correlated really closely with each other. This is also not an automatic sign of significance in regression. Reliability indicates that items reliably measure the same concept, rather than implying strongly the same concept explains the dependent variable. The alpha value for Investor Participation in itself is 0.866, indicating there is a validity to using the five participation items within a single dependent construct. Finally, all items were left on the board owing to the robustness of the outcome which has a firm basis of measurement in the rest of the analyses.

4.4 Correlation Analysis

Table 12: Correlation Matrix

Construct	Platform Efficiency	Analytical Tools	Security & Risk Concerns	Educational Support	Investor Participation
Platform Efficiency	1.000	0.574	0.365	0.445	0.563
Analytical Tools	0.574	1.000	0.395	0.690	0.675
Security & Risk Concerns	0.365	0.395	1.000	0.290	0.296
Educational Support	0.445	0.690	0.290	1.000	0.583
Investor Participation	0.563	0.675	0.296	0.583	1.000

All four explanatory constructs are positively correlated with Investor Participation (correlation matrix). Analytical Tools presents the strongest correlation with Investor Participation ($r = 0.675$). This is a meaningful result because it indicates that the richer a decision-support environment the platform creates for its users, the higher the participation tendency observed. For investors, they appear to react positively to elements that help them interpret their data, evaluate opportunities, and be confident in making their investment decision. In addition to the above, Educational Support ($r = 0.583$) and Platform Efficiency ($r = 0.563$) are also strongly positively interrelated with

involvement. This suggests that one important dimension of involvement is the reduction of friction, and the other is the building of confidence. The stronger effect of Educational Support over Security & Risk Concerns also suggests that this sample is more likely to demonstrate that positive learning support is a stronger explanation for market participation than negative worry. It is the weakest positive relationship with Investor Participation and Security & Risk Concerns ($r = 0.296$). Although there is a positive correlation it is quite weak and suggests this construct is functioning in complex ways. For instance, more engaged investors might not only be more risk-conscious. That overlap goes a long way to understanding why we need regression (it's not always easy to tell just how significant a predictor was when you adjust for other factors). And the rationale is soundly intuitive, too, because today's platforms that sink significant sums into analytics frequently include content for learning, explainers, and advice along with other materials. While only the correlation is small enough to be reasonable and does not mean anyone can falsify this model, it reflects the reality that present day broking is multi-component and many good brokers utilize numerous enabling features at the same time.

4.5 Multiple Regression Analysis

Table 13: Overall Regression Model Statistics

Model Statistic	Value
Observations	104
R-squared	0.523
Adjusted R-squared	0.503
F-statistic	27.086
Prob > F	0.00
Durbin-Watson	1.899

As per the Model Summary statistics, the regression model fits well. Given the R-squared of 0.523 shows that collectively the four independent constructs provide 52.3 percent of the variance in Investor Participation. This provides a decent level of explanatory power in a social-science and behavioural research setting and is significant for a more compact model rooted in perception-based survey variables. The observed adjusted R-squared (0.503) still approaches the unadjusted R-squared with a corresponding interpretation that explanatory power is not artificially inflated by redundant predictors. Our model is statistically significant with F-statistic 27.086 for which the probability value is near zero. So, in fact, those independent variables provide a far better interpretation of Investor Participation than one lacking predictors. The Durbin-Watson statistic of 1.899 is close to 2, meaning that as for the residuals there is no significant autocorrelation issue. Although autocorrelation is of considerable importance in time-series, this number gives people some assurances about their errors' structure.

Table 14: Regression Coefficients

Variable	Coefficient	Std. Error	t-stat	p-value	95% CI
Constant	0.569	0.342	1.664	0.0993	[-0.110, 1.248]
Platform Efficiency	0.260	0.090	2.880	0.0049	[0.081, 0.439]
Analytical Tools	0.423	0.114	3.702	0.0004	[0.196, 0.650]
Security & Risk Concerns	-0.008	0.058	-0.131	0.8957	[-0.123, 0.108]
Educational Support	0.201	0.096	2.088	0.0394	[0.010, 0.391]

The results of the study mainly observed from the coefficient table. In this regard, Platform Efficiency is found to have a positive coefficient $(\beta=0.260, p=0.0049)$, which is statistically significant. That is, in the presence of other influences, opinions on platform efficacy will have a correlational positive relationship with participation in the investor market. In other words, platforms that are stable, capable, quick, intuitive and have high performance smooth and consistent operating and flow properly as you're trading are said to maintain investor interest. The strongest predictor in the model appears to be Analytical Tools $(\beta = 0.423, p = 0.0004)$. This is a useful observation, because this means that investors have the biggest impact on how they evaluate the decision-support (in a decision-support judgment) as per the platform itself. Charting tools, screeners, indicators and AI-derived insights appear to add complexity not just to the experience, but to turn access into actual participation. This finding is in perfect agreement with the correlational results and indicates a powerful explanatory power of the analytic support, as efficiency, risk and educational support are kept constant. Educational Support: There is a positive association with Educational Support $(\beta = 0.201, p = 0.0394)$. Less powerful than Analytical Tools or Platform Efficiency, but it still matters. The results also suggested that the use of apps for learning from tutorials or research reports, through market explanations, and beginner guidance decreased hesitation and increase participation. You could argue that this is particularly well-suited to a sample of young, relatively early-stage investors where platform-based learning could take the place of formal market training. Security & Risk Concerns is the only non-significant predictor $(\beta = -0.008, p = 0.8957)$. The coefficient is slightly negative, in line with the potential association between concern and lower participation, but is small and weak for a significance determination in this model. This is an intriguing result of the analysis in several ways. This suggests that investors for this data are more sensitive to high enabling feature than technology risk concern. The one view here is that baseline security has become accepted as a minimum standard that should apply to existing trading platforms, and thus level of participation variation is less a function of what the platform is providing investors with and more what it is offering investors a chance to do better. The presence of the constant term is found to be not statistically significant and the insignificance of this term is trivial and, the study is at least about predictor coefficients and not at least as the intercept. While the overall coefficient table significantly indicates that engagement of retail investors in app-led trading ecosystems is capability-driven as opposed to fear-driven.

4.6 Hypothesis Testing

Table 15: Hypothesis Testing Summary

Hypothesis	Statement	Decision
H1	Platform Efficiency significantly affects Investor Participation	Supported ($p = 0.0049$)
H2	Analytical Tools significantly affect Investor Participation	Supported ($p = 0.0004$)
H3	Security & Risk Concerns significantly affect Investor Participation	Not supported ($p = 0.8957$)
H4	Educational Support significantly affects Investor Participation	Supported ($p = 0.0394$)
H5	Overall regression model significantly explains Investor Participation	Supported ($p < 0.001$)

The hypothesis summary indicates strong support for three of four of these constructs and for the model as a whole. Platform Efficiency, Analytical Tools and Educational Support all very much fall toward the positive side on Investor Participation whereas Security & Risk Concerns do not. This theory works insofar as it differentiates between performance-enhancing and confidence-building aspects and just generalized platform anxiety. The strongest support is provided by Analytical Tools, followed by Platform Efficiency and Educational Support. Together, these findings suggest that, best of all, the strongest platforms are getting investors to act, interpret and learn — not just promise a

safe infrastructure. It is not as if safety is without consequence, rather, differences in participation depend more on value-added features than on the mere need of a safe environment.

4.7 Group Comparison Tests

Table 16: Independent-Samples t-Test by Gender

Group	N	Mean IP score	SD
Male	71	4.019	0.712
Female	33	4.067	0.983

A t-test among men and women for the mean Investor Participation shows a very small difference with a t-test of gender differences. Female participants claim to have a little larger mean participation score than males, and this difference is also a small mean variation. This difference is not statistically significant as reflected by the test statistic ($t = -0.250$, $p = 0.8039$). Hence, the null hypothesis of no gender difference is upheld. That finding was interesting because it implies that participation concerns probably much more the quality of the platform and the user experience in the current digital-broking landscape and probably less some gender difference. They appear to track a similar pattern as before once the investors enter the app ecosystem.

Table 17: One-Way ANOVA Results

Grouping Variable	F-statistic	p-value	Interpretation
Age	2.184	0.0762	No significant difference
Educational level	1.693	0.1733	No significant difference
Monthly income	0.894	0.4472	No significant difference
Investing experience	1.769	0.1579	No significant difference
Primary mode of trading	5.994	0.0035	Significant difference

The ANOVA shows that we observe a consistent pattern. At the 5 percent level, Age, Education, Monthly Income, and Investing Experience do not have any significantly different effect on the level of Investor Participation. That indicates an unexpectedly clear feature of participation across quite a few background demographics within the sample. So we propose that digital investing may be blunting some of the conventional demographic distinctions that develop on a financial activity, at least among respondents who have already made use of some form of trading platform. Importantly, Primary Mode of Trading is the only relevant variable in the grouping. This becomes important because it manifests, at least in part, in the platform channel as the primary participant group. It's a sign that the sort of ecosystem in which an investor interacts most directly with the market — discount broker, traditional broker or banking app — matters more than a static profile demographic. It gives us something analogous to the market access mode as a behavioural factor with participation implications.

Table 18: Tukey HSD Post-Hoc Test for Primary Mode of Trading

Group 1	Group 2	Mean diff	Adjusted p	Decision
Discount Broker	Traditional Broker	-0.488	0.0796	Not significant
Discount Broker	Banking Apps / Others	-0.626	0.0087	Significant
Traditional Broker	Banking Apps / Others	-0.138	0.8725	Not significant

Tukey post-hoc comparison gives us the sources of the significant ANOVA result. Pairwise, there is only one significant difference between Discount Broker and Banking-App/Other users. Those who use Discount Broker are statistically significantly more active. This demonstrates the descriptive profile of the sample that leads to the

regression results, as discount brokers are created to encourage active market interaction with integrated analytics, lower friction, educational content, and specialized trading interfaces. It can be said that the difference between Discount Broker users and Traditional Broker users is not statistically significant at 5% with adjusted p-value = 0.0796 which indicates some directional separation. No significance was found, primarily due to the lower number of traditional-broker users included in the sample. Clearly on this point, there is no difference between Traditional Broker and Banking-App users. Combined, the post-hoc results suggest that banking-app-based investing is not necessarily producing the same degree of intense trading habits that we see on platforms that were built to facilitate trading behaviour.

5. DISCUSSION

The data offer compelling evidence for why retail participation in the contemporary stock market is better facilitated by platform capacity than platform anxiety. Analytical Tools is the best predictor of both bivariate analyses and multivariate analysis of data. Investors want more from platforms that offer them more than simply access (what platforms do is help create the knowledge in their heads), so this means they're on the hunt more than ever. This interpretation is in line with the literature relating digital applications, investor information, and decision quality (Brown, Stice, & White, 2015), with recent discussions around platform construction, market design and market acceptance in mobile stock trading (Chong, Ong, & Tan, 2021). Platform Efficiency is also an important predictor. This finding offers evidence for the theory that fluid navigation, sustained delivery, and reduced friction help to drive engagement. Such a platform raises the cost of participation concretely when it leads to time out, crashes, or it is not easy to use in a turbulent setting. The latter concurs with previous studies about perceived ease of use and adoption of digital finance (Raza et al., 2017; Reith et al., 2020). The efficiency seems also to be positively associated with satisfaction in relation to other factors— the efficiency itself seems to be positively related as part of satisfaction, at least in this particular analysis—but, in a sense, even more significantly, the most strongly correlated efficiency is seen as a precondition for strong market participation. Educational Support adds a layer of complexity to the story. Importing here indicates that there are learning-supportive factors in place when having a dataset for which respondents already show a fairly high level of participation. In the early stage investor segment where the platforms serve as a broker or teacher, this educational support can be a big assist.. These findings align with the literature-based association between financial literacy, digital literacy and technology-enabled participation (Van Rooij, Lusardi, & Alessie, 2007; Ullah et al., 2022). Theoretically, I thought that the finding where Security & Risk Concerns were irrelevant was also the most cool. That doesn't mean security is irrelevant without a need to defend itself. By contrast,

- it suggests that security serves as a baseline expectation,
- not a competitive advantage,
- for users of mature platforms. Investors simply must see the protection in action if it fails;
- while they are using the analytical tools,
- platform agility,
- and guidance of a learning nature in normal use. Alternatively, one possibility might be that more frequent investors simply have more experience
- with digital risk and are more reluctant to be swayed by concern. In that sense these fears of technology don't just go away, but decline to oblivion rather than what they might have to do in terms of good with the platform ecosystem. They also contribute toward comparison of the groups. The fact that there is no difference of significant age, income or educational levels and experience between users, that investment can be made for some basic characteristics, suggests that people who join a digital-broking ecosystem have pretty similar background levels of participation experience. But the significant difference by primary mode of trade indicates that platform architecture still matters. Discount brokers may seem to attract a higher degree of

participation compared to apps for banking applications because they are grounded in behavioral logic of investing and not the convenience of a general financial-service provider.

6. IMPLICATIONS OF THE STUDY

Platform developers and broking agencies now have the insights to help them decide the priorities of a product. First, we have to keep analytical competence as an essential part of our engagement driver, rather than an optional one. Better engagement ties: Data and analysis tools, screeners, indicators, and great insight systems. Secondly the platform works well: fast load times, convenient navigation ease, easy order processing & performance stability on such a dynamic scale (in the case of turbulence) should be integrated, in the use journey as well. A third kind, educational support is a resource as well which can be put into use selectively at the very beginning of a platform development process with the goal of re-engaging potential new customers and re-entering the market through repeated practice. And as to educators and investment programmes, it suggests that tech-savvy content is not an option we tack on top of what we already offer — it is a must-have. To overcome the hesitance and improve participation process, we mention tutorials, explainers, research notes, guided workflows and AI-assisted summaries. By contrast, the conclusions for regulators and policymakers may be that, although measures of investor inclusion ought to aim not only just at opening up, they should also be able to raise the bar for the transparency, usability, clarity and other such measures in the context of platform standards. The results from our present study indicate that small, construct-based survey designs constitute the underlying basis for substantial evidence of positive digital finance behaviour in academic literature. Even in the absence of a structural model in full complexity, we argue that careful consideration of variables and interpretation of tables can provide an effective explanatory account of investor thinking.

7. CONCLUSION

Based on primary data collected from 104 participants, the present study examined the impact of technology integration in stock broking applications on retail investor engagement. Platform Efficiency, Analytical Tools, and Educational Support were found to positively affect Investor Participation. That is to say, they account for a large portion of the variation in participation. Security & Risk Concerns, though conceptually relevant and reliably measured, do not include user participation in a multivariate regression model. Key finding: Today's retail investor will invest more when the platform is both efficient and informative, driving confidence. To put it differently, engagement in digital markets has less to do with quelling fear than supporting functionality. Analytical tools were the most predictive, suggesting that investors want platforms built to encourage thinking, not just some transactions. By combining Platform Efficiency with Educational Support, it is possible to make this involvement more frictionless and confident. It thereby underpins more general change in stock market behaviour, from “trading market”, to technology-mediated participation, in which platform architecture also impacts upon investor behavior.

8. LIMITATIONS AND FUTURE SCOPE FOR RESEARCH

The study has several limitations. One, this sample is predominantly youth-focused, so does not embody the total demographic snapshot of retail investors. Secondly, the sample appears to be convenience-selected and so limits generalisability. Third, the analysis is cross-sectional and perception-based, so it captures attitudes and self-reported behaviour at a single point in time, rather than longer-term change. Fourth, there were additional possibly influential predictors — brokerage charges, customer support, portfolio size, social influence, regulatory trust, and behavioral biases — which were not modeled.

Future studies could expand the sample and include additional senior or experienced investors, alongside studying the comparison of active traders versus long-term investors. Other potential avenues for research involve additional variables including transaction cost, gamification, social features, advisory services, and trust in regulation. Such a sample would allow for more rigorous testing of mediation or moderation, such as whether Educational Support mediates the relationship between Platform Efficiency and Participation or experience moderates the importance of Analytical Tools. Structural-equation modelling may be applied in future efforts to better explore direct and indirect relationships.

REFERENCES

1. Aldridge, I. and Krawciw, S. (2017). Real-time risk: What investors should know about FinTech, high-frequency trading, and flash crashes. John Wiley & Sons.
2. Bejaković, P. and Mrnjavac, Ž. (2020). The importance of digital literacy on the labour market. *Employee Relations: The International Journal*, 42(4), 921–932.
3. Bergdahl, N., Nouri, J. and Fors, U. (2020). Disengagement, engagement and digital skills in technology-enhanced learning. *Education and Information Technologies*, 25(2), 957–983.
4. Brown, N.C., Stice, H. and White, R.M. (2015). Mobile communication and local information flow: Evidence from distracted driving laws. *Journal of Accounting Research*, 53(2), 275–329.
5. Chishti, S. and Barberis, J. (2016). *The Fintech Book: The financial technology handbook for investors, entrepreneurs and visionaries*. John Wiley & Sons.
6. Chong, L.L., Ong, H.B. and Tan, S.H. (2021). Acceptability of mobile stock trading application: A study of young investors in Malaysia. *Technology in Society*, 64, 101497.
7. Elhajjar, S. and Ouaida, F. (2020). An analysis of factors affecting mobile banking adoption. *International Journal of Bank Marketing*, 38(2), 352–367.
8. Gupta, S. and Dey, D.K. (2024). Risk perception and adoption of digital innovation in mobile stock trading. *Journal of Consumer Behaviour*, 23(2), 639–654.
9. Ho, J.C., Wu, C.G., Lee, C.S. and Pham, T.T.T. (2020). Factors affecting the behavioural intention to adopt mobile banking: An international comparison. *Technology in Society*, 63, 101360.
10. Judijanto, L. and Wardhani, D. (2024). The impact of mobile payment systems and user interface design on customer adoption and transaction volume in e-commerce companies in Jakarta. *The Eastasouth Journal of Information System and Computer Science*, 2(01), 47–61.
11. Kalda, A., Loos, B., Previtero, A. and Hackethal, A. (2021). Smart (Phone) Investing? A within investor-time analysis of new technologies and trading behavior. *National Bureau of Economic Research Working Paper*.
12. Raut, R.K. (2020). Past behaviour, financial literacy and investment decision-making process of individual investors. *International Journal of Emerging Markets*, 15(6), 1243–1263.
13. Raut, R.K. and Kumar, S. (2024). An integrated approach of TAM and TPB with financial literacy and perceived risk for influence on online trading intention. *Digital Policy, Regulation and Governance*, 26(2), 135–152.
14. Raza, S.A., Umer, A. and Shah, N. (2017). New determinants of ease of use and perceived usefulness for mobile banking adoption. *International Journal of Electronic Customer Relationship Management*, 11(1), 44–65.
15. Redmond, C. (2022). FundNest—A mobile application with open banking solutions to assist financial management.
16. Reith, R., Fischer, M. and Lis, B. (2020). Explaining the intention to use social trading platforms: An empirical investigation. *Journal of Business Economics*, 90, 427–460.
17. Runsewe, O., Akwawa, L.A., Folorunsho, S.O. and Osundare, O.S. (2024). Optimizing user interface and user experience in financial applications: A review of techniques and technologies. *World Journal of Advanced Research and Reviews*, 23(3), 934–942.
18. Sandra, J. (2022). The importance of digital literacy for society 5.0: A phenomenological approach. *Technium Social Sciences Journal*, 28, 849.
19. Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., Hennessey, J., Bull, J.S. and Waddoups, R. (2021). How technology is changing retail. *Journal of Retailing*, 97(1), 13–27.
20. Tahar, A., Riyadh, H.A., Sofyani, H. and Purnomo, W.E. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness. *The Journal of Asian Finance, Economics and Business*, 7(9), 537–547.
21. Ullah, S., Kiani, U.S., Raza, B. and Mustafa, A. (2022). Consumers' intention to adopt m-payment/m-banking: The role of their financial skills and digital literacy. *Frontiers in Psychology*, 13, 873708.
22. Van Rooij, M., Lusardi, A. and Alessie, R. (2007). Financial literacy and stock market participation. *NBER Working Paper No. 13565*.
23. Xie, J., Ye, L., Huang, W. and Ye, M. (2021). Understanding FinTech platform adoption: Impacts of perceived value and perceived risk. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(5), 1893–1911.