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Investment Behavior in the Fintech Era: A Serial Mediation Analysis

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Abstract
This study aimed to investigate the correlation between financial self-efficacy and investment behavior, and whether this correlation is influenced by consumer fintech use and digital financial literacy among millennials and Generation Z. A serial mediation model was constructed to examine the potential link. A sample of 301 millennials and Gen Z individuals from the Gaya district of Bihar participated in an online survey questionnaire. SmartPLS4 was used for the data analysis. The study found a significant positive correlation between Financial Self-Efficacy and Investment behavior, Financial Self-Efficacy and Consumer fintech utilization, Consumer fintech utilization and Digital Financial Literacy, and Digital Financial Literacy and Investment behavior. The findings also indicated that Consumer Fintech Utilization and Digital Financial Literacy sequentially moderated the connection between Financial Self-Efficacy and Investment Behavior. The results illuminate the core mechanisms that underpin the investment behavior of Gen Z and millennials in this fintech era. Policymakers need to regulate fintech apps to ensure embedded educational content (e.g., risk disclaimers, glossary features) aligns with literacy development goals. Fintech Developers need to design interfaces that boost user self-efficacy (e.g., onboarding tutorials, confidence-building feedback) to promote sustained engagement and better investment behavior.

Keywords: Consumer fintech use (CFU), Digital Financial Literacy (DFL), Financial Self-Efficacy (FSE), Investment behavior (INVB)

1. Introduction
The rapid advancement of financial technology (fintech) has revolutionized how people interact with financial services, particularly their investment decisions. Millennials (born 1981-1996) and Generation Z (born 1997-2012) are leading the digital financial revolution, using fintech platforms for investing choices more than prior generations (Daqar et al., 2020). Despite the increasing use of fintech technologies, investing behavior among these groups remains driven by psychological and cognitive aspects, such as financial self-efficacy —the belief in one's capacity to manage financial activities efficiently (Bandura, 1997). While previous research has found a relationship between financial self-efficacy and financial behavior (Ibarrientos et al., 2024), the processes by which it affects investment decisions in the context of fintech uptake remain unknown. This study aims to close this gap by investigating the link between financial self-efficacy and investing behavior, with consumer fintech use and digital financial literacy serving as serial mediators. Digital financial literacy, defined as the capacity to successfully use digital tools for financial decision-making (Choung et al., 2023b), is becoming increasingly important in the fintech age. However, little is known about how

financial self-efficacy leads to investing behavior through the gradual adoption of fintech products and the development of digital financial literacy. Understanding the serial mediation route can give more information on the behavioral dynamics of younger investors. The study uses a serial mediation model to investigate these linkages between millennials and Generation Zs in the Gaya district of Bihar, India, a place with fast fintech adoption but underrepresented in financial behavior research. The study uses partial least squares structural equation modeling (PLS-SEM) to determine the following questions.

RQ1. Is there a positive effect of Financial Self-Efficacy on Investment behavior?
RQ2. Is there a positive effect of Financial Self-Efficacy on Consumer fintech use?
RQ3. Is there a positive effect of Consumer fintech use on Digital Financial Literacy?
RQ4. Is there a positive effect of Digital Financial Literacy on Investment behavior?
RQ5. Do Consumer fintech use and Digital Financial Literacy serially mediate the positive relationship between Financial Self-Efficacy and Investment behavior?

The findings contribute to the literature by uncovering the underlying mechanisms that drive investment behavior in the fintech era. The findings will benefit policymakers, fintech developers, and financial educators in designing interventions that leverage fintech tools to enhance digital financial literacy and promote sound investment behavior among younger investors.

2. Literature Review and Hypothesis Development

2.1 Financial Self-Efficacy and Investment Behavior

Financial self-efficacy (FSE) refers to an individual's belief in their ability to manage financial responsibilities effectively (Bandura, 1997). Prior studies consistently identify FSE as a significant psychological determinant of financial behavior (Ibarrientos et al., 2024). Higher FSE is associated with greater risk tolerance, improved decision-making confidence, and more diversified investment portfolios, ultimately supporting long-term wealth accumulation (Joo & Grable, 2004).

H1: Financial self-efficacy positively influences investment behavior.

2.2 Financial Self-Efficacy and Consumer Fintech Use

Recent research suggests that individuals with higher FSE are more inclined to adopt fintech solutions, perceiving them as manageable and less intimidating (Islam & Khan, 2024). Goyal and Kumar (2021) reported that FSE accounted for 38% of the variance in fintech adoption among young Indian investors (confident individuals showing greater willingness to experiment with mobile trading platforms and digital wallets). Likewise, Nadeem et al. (2021) found that FSE mitigates "fintech anxiety," encouraging greater engagement with robo-advisors and automated investment tools. This tendency is particularly evident among millennials and Generation Z, for whom fintech aligns with broader digital-native lifestyles (Daqar et al., 2020). However, most existing studies focus on initial adoption, leaving a limited understanding of how FSE influences sustained fintech usage and deeper engagement over time.

H2: Financial self-efficacy has a positive influence on consumer fintech use.

2.3 Financial Self-Efficacy and Digital Financial Literacy

FSE is also linked to the development of financial literacy. While much of the literature focuses on traditional literacy (Lusardi & Mitchell, 2014), growing evidence highlights its importance

in building digital financial literacy (DFL)—the ability to navigate and utilize technology-enabled financial services. Potrich et al. (2023) found that individuals with high FSE actively seek fintech-related learning resources, such as in-app tutorials and investment webinars. Longitudinal evidence from Xiao et al. (2022) suggests that high FSE individuals acquire digital investing skills more rapidly than their low-FSE counterparts, demonstrating a proactive approach to mastering technological tools. Although this link is promising, the mechanisms by which FSE fosters DFL remain underexplored, particularly in emerging economies where fintech adoption is rapidly expanding (Ozili, 2023).

H3: Financial self-efficacy positively influences digital financial literacy.

2.4 Consumer Fintech Use and Digital Financial Literacy

Fintech platforms can serve not only as transactional tools but also as learning environments that enhance DFL. Through exposure to real-time market data, AI-driven insights, and embedded educational content, active users may progressively acquire more sophisticated digital financial skills (Ozili, 2021). However, while the association between fintech usage and improved literacy is often assumed, few studies empirically test this relationship—particularly within a mediation framework linking fintech use to subsequent investment behaviors.

H4: Consumer fintech use positively contributes to digital financial literacy.

2.5 Consumer Fintech Use and Investment Behavior

Active engagement with fintech platforms influences investment behavior through several pathways. First, these platforms lower barriers to market participation, enabling smaller and more frequent investments (D'Acunto et al., 2022). A meta-analysis by Lee and Shin (2023) found that fintech users execute over five times more trades annually than traditional investors, primarily due to the convenience of app-based trading. Second, features such as real-time analytics, robo-advisors, and automated rebalancing improve portfolio diversification and decision quality (Barber et al., 2021). Third, gamification elements—such as reward systems and social trading—can motivate consistent participation, particularly among novice investors (Tang et al., 2024). Despite these benefits, excessive reliance on fintech can also heighten exposure to behavioral biases, including herding and impulsive trading (Lin et al., 2023). This dual nature warrants closer examination of fintech's net impact on investment performance.

H5: Consumer fintech use has a significant impact on investment behavior.

2.6 Digital Financial Literacy and Investment Behavior

In the context of algorithmic trading, robo-advisory services, and decentralized finance (DeFi), DFL has emerged as a critical factor shaping investment decisions. Individuals with higher DFL are better equipped to evaluate risks, detect fraudulent schemes, and make informed choices (Lusardi & de Bassa Scheresberg, 2017; Xiao et al., 2022). However, much of the literature continues to emphasize traditional literacy metrics, leaving gaps in understanding how digital-specific competencies influence modern investment outcomes (Ozili, 2023).

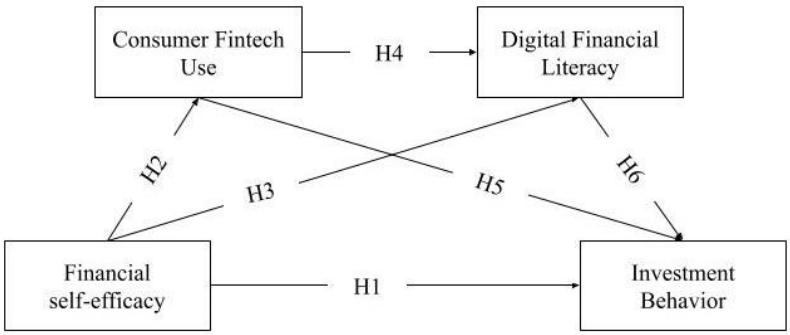
H6: Digital financial literacy has a significant impact on investment behavior.

2.7 Mediation Effects of CFU and DFL

Building on prior literature, this study proposes that fintech use and digital financial literacy function as mediators in the relationship between FSE and investment behavior. High FSE may encourage fintech adoption (H2) and foster DFL (H3), both of which, in turn, can enhance investment decision-making (H4–H6).

H7: Consumer fintech use mediates the relationship between financial self-efficacy and investment behavior.
H8: Digital financial literacy mediates the relationship between financial self-efficacy and investment behavior.
H9: Consumer fintech use and digital financial literacy jointly mediate the relationship between financial self-efficacy and investment behavior serially.
The proposed conceptual framework is illustrated in **Figure 1**, highlighting the hypothesized direct and mediated pathways between FSE, CFU, DFL, and investment behavior.

Fig. 1 Proposed model



Source: Figure by author

3. Research Methodology

3.1 Research Design

This study employed a cross-sectional, questionnaire-based research design to investigate the relationship between financial self-efficacy (FSE) and investment behavior (INVB), with a specific focus on the serial mediating roles of consumer fintech use (CFU) and digital financial literacy (DFL). The research targeted millennials and Generation Z respondents residing in the Gaya district of Bihar, India.

3.2 Questionnaire Development

Data were gathered using a structured questionnaire designed to capture the demographic characteristics of respondents as well as measures of CFU, DFL, FSE, and INVB. The measurement items were adapted from established scales developed in previous research, specifically those by Ravikumar et al. (2022), Lown (2011), Dew and Xiao (2011), and Bapat (2019), thereby ensuring both conceptual accuracy and empirical validity. Face validity was established through preliminary feedback from participants, confirming that the questions appeared relevant and understandable. The final questionnaire consisted of two sections: the first section collected demographic information, while the second section contained 20 closed-ended items that measured the four core constructs. All construct-related items were rated on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

3.3 Sampling Strategy and Sample Size

The study population comprised bank customers who were also active users of fintech services. Given the specific nature of the target group, a non-probability convenience sampling method was employed, which facilitated efficient access to digitally active participants within the study area. Data were collected from students and young professionals enrolled in higher education institutions located in and around Gaya, South Bihar. The generational classifications used in this study were based on Matthew (2023), which identifies Generation Y (ages 25–40) and Generation Z (ages 9–24) as key drivers of the digital transformation in financial services.

Primary data were collected between March and April 2023 through an online self-administered questionnaire. Out of 351 total responses, 50 were excluded due to incomplete or inconsistent answers, resulting in a final sample size of 301 valid cases. The adequacy of this sample size was assessed using the "10-times rule" proposed by Barclay, Higgins, and Thompson (1995), which suggests that the minimum sample size should be at least 10 times the maximum number of structural paths pointing toward any latent variable in the model. With a minimum requirement of 60 participants based on this rule, the final sample size was more than sufficient for statistical analysis.

3.4 Data Adequacy and Bias Assessment

Before proceeding with the main analysis, the data were tested for normality, revealing a non-normal distribution. Given this result, partial least squares structural equation modeling (PLS-SEM) was chosen as the most appropriate analytical technique, as it does not require normally distributed data. Sampling adequacy was further confirmed using the Kaiser–Meyer–Olkin (KMO) measure, which yielded a value of 0.895, well above the recommended minimum of 0.6, indicating that the data were suitable for factor analysis. Bartlett's test of sphericity was also significant at $p < 0.01$, further confirming the suitability of the dataset for multivariate analysis. To address the potential for common method bias (CMB), Harman's single-factor test was conducted, and results showed that the largest single factor accounted for 47.27% of the total variance—below the 50% threshold recommended by Podsakoff et al. (2003). This suggests that CMB was not a serious concern in the present study.

4. Data Analysis and Results

4.1 Sample Characteristics

The study sample consisted of 301 respondents, with a predominance of male participants (62.5%), indicating a moderately skewed gender distribution (see Table 1). A substantial 71.4% belong to Gen Z, reflecting the study's strong representation from digitally native, younger individuals who are more inclined toward fintech adoption. In terms of educational background, over half of the respondents (52.5%) are postgraduates, followed by 22.9% holding PhDs. This reflects a highly educated sample with potential for advanced digital and financial literacy. The income stream is fairly distributed, with the majority (37.9%) being financially independent, which may influence confident financial behavior. Occupationally, the majority are either students (43.2%) or research scholars (27.2%), aligning with the educational profile and highlighting an academically engaged population.

Table 1: Demographic profile of the respondents

Measure	Items	Frequency	Percentage
Gender	Male	188	62.5
	Female	113	37.5
Age	Gen Z	215	71.4
	Millennials	86	28.6
Academic level	High school	9	3.0
	Undergraduate	65	21.6
	Postgraduate	158	52.5
	Ph.D.	69	22.9
Income stream	Fully dependent	98	32.6
	Partially dependent	89	29.6

	Fully independent	114	37.9
Occupation	Student	130	43.2
	Research scholar	82	27.2
	Business	2	.7
	Private employee	55	18.3
	Government employee	32	10.6

Source: Primary

4.2 Data Analysis

The Partial Least Squares Structural Equation Modeling (PLS-SEM) technique was applied using SmartPLS 4.0.9, following Ringle, Wende, and Becker (2022), to test the proposed theoretical model and research hypotheses. The choice of PLS-SEM was supported by its advantages over traditional regression methods, particularly for mediation analysis. As Preacher and Hayes (2004) note, PLS-SEM can provide more efficient estimates of mediation effects. Chin (1998) further emphasizes that it accounts for measurement error, thereby improving accuracy. Moreover, because SmartPLS does not require data normality, PLS-SEM is suitable for both complex and straightforward empirical studies (Hair et al., 2016). A bootstrapping procedure with 5,000 subsamples was used to determine the statistical significance of the model paths. The findings from the measurement and structural models are presented below.

4.2.1 Estimation of the Measurement Model

Reliability and validity tests were conducted to confirm the adequacy of the variables used in this study. Table 2 presents the reliability and validity statistics for each construct. Internal consistency reliability was assessed using Cronbach's alpha (CA) and composite reliability (CR), with values above 0.60 considered acceptable (Hair et al., 2012). All constructs exceeded this threshold, confirming satisfactory reliability (Bagozzi & Yi, 1988). Convergent validity was evaluated using the average variance extracted (AVE), with values above 0.50 being recommended (Hair et al., 2012). In this study, AVE values ranged from 0.501 to 0.687, satisfying this requirement. Additionally, following Hair et al.'s (2010) guidelines, item loadings above 0.5 were deemed acceptable, and those above 0.7 were considered desirable. All items in the present study exceeded 0.5, confirming item reliability and indicating that the variance shared between the latent constructs and their observed variables was greater than the error variance. Discriminant validity was examined using the Heterotrait–Monotrait (HTMT) ratio. Tables 3 show that all HTMT values were below 0.85, meeting the criteria suggested by Fornell and Larcker (1981), Hair et al. (2010), and Henseler et al. (2015). Furthermore, the square root of the AVE for each construct was greater than the inter-construct correlations, supporting discriminant validity.

Table 2: Cronbach's Alpha, Composite Reliability, and Average Variance Extracted

Construct	**Factor loading**	**Cronbach's alpha**	**CR (rho_a)**	**CR (rho_c)**	**AVE**
Consumer Fintech Use (CFU)	CFU1	0.722	0.771	0.832	0.501
	CFU2	0.670			
	CFU3	0.684			

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	CFU4	0.765			
	CFU5	0.679			
Digital Financial Literacy (DFL)	DFL1	0.798	0.780	0.840	0.514
	DFL2	0.797			
	DFL3	0.690			
	DFL4	0.656			
	DFL5	0.623			
Financial Self-efficacy (FSE)	FSE1	0.805	0.844	0.875	0.543
	FSE2	0.804			
	FSE3	0.554			
	FSE4	0.696			
	FSE5	0.730			
	FSE6	0.795			
Investment Behavior (INVB)	INVB1	0.780	0.867	0.898	0.687
	INVB2	0.870			
	INVB3	0.862			
	INVB4	0.797			

Source: SmartPLS (v. 4.0.9)

Finally, multicollinearity was assessed using the Variance Inflation Factor (VIF), with values below 5 considered acceptable (Hair et al., 2012). All constructs met this criterion, further confirming the absence of multicollinearity issues and supporting the discriminant validity of the variables.

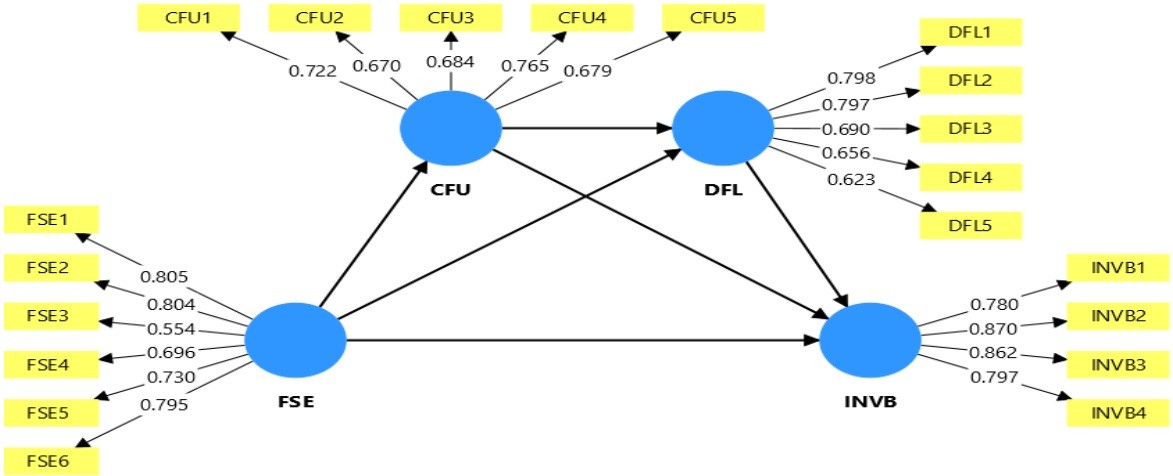

Fig. 2

Table 3: Discriminant Validity (HTMT)

	CFU	DFL	FSE	INVB
CFU				
DFL	0.726			
FSE	0.649	0.703		

INVB	0.559	0.615	0.689	

Source: SmartPLS

4.2.2 Structural Model and Hypothesis Testing

Once the measurement model met the requirements, the structural model was analyzed to test the research hypotheses. This included evaluating direct effects, indirect effects, total effects, and specific indirect effects to determine the significance of serial mediation. Bootstrapping was applied to estimate path coefficients, t-values, and p-values.

Direct Effects: Table 3 presents the results for direct effects. FSE had a significant positive influence on INVB ($\beta = 0.372$, $t = 3.590$, $p < 0.05$), supporting H1. FSE also had a significant positive impact on CFU ($\beta = 0.567$, $t = 9.517$, $p < 0.05$), supporting H2, and on DFL ($\beta = 0.394$, $t = 3.867$, $p < 0.05$), supporting H3. The relationship between CFU and DFL was significant ($\beta = 0.353$, $t = 3.679$, $p < 0.01$), supporting H4. However, CFU did not have a significant direct effect on INVB ($\beta = 0.167$, $t = 1.575$, $p > 0.05$), leading to rejection of H5. DFL had a significant positive effect on INVB ($\beta = 0.213$, $t = 2.133$, $p < 0.05$), supporting Hypothesis 6.

Indirect and Mediation Effects: The mediating role of CFU between FSE and INVB was found to be insignificant ($\beta = 0.094$, $t = 1.557$, $p > 0.05$), resulting in the rejection of H7. Similarly, the mediation effect of DFL in the FSE–INVB relationship was also insignificant ($\beta = 0.084$, $t = 1.622$, $p > 0.05$), leading to rejection of H8. Both results indicate a direct, non-mediation effect for these variables when considered individually.

Serial Mediation: For H9, the analysis examined the sequential mediating effect of CFU and DFL on the relationship between FSE and INVB. The results showed a significant indirect effect ($\beta = 0.042$, $t = 1.782$, $p < 0.05$), supporting the hypothesis. Even with these mediators included, the direct effect of FSE on INVB remained significant ($\beta = 0.372$, $t = 4.818$, $p < 0.001$), indicating a partial serial mediation effect.

Table 3: Output of research hypotheses

H No.	**Relationship**	**Original sample (O)**	**Standard deviation**	**T Statistics**	**P values**	**Result**
H1	FSE -> INVB (Direct effect)	0.372	0.104	3.590	0.000	Accept
	FSE -> INVB (Total effect)	0.593	0.062	9.500	0.000	Accept
H2	FSE -> CFU	0.567	0.060	9.517	0.000	Accept
H3	FSE -> DFL	0.394	0.102	3.867	0.000	Accept
H4	CFU -> DFL	0.353	0.096	3.679	0.000	Accept
H5	CFU -> INV	0.167	0.106	1.575	0.058	Reject
	CFU -> INV (Total effect)	0.242	0.099	2.437	0.007	
H6	DFL -> INV	0.213	0.100	2.133	0.016	Accept
H7	FSE->CFU->INVB	0.094	0.061	1.557	0.060	Reject
H8	FSE->DFL->INVB	0.084	0.052	1.622	0.052	Reject
H9	FSE -> CFU -> DFL -> INVB	0.042	0.024	1.782	0.037	Accept (Partial

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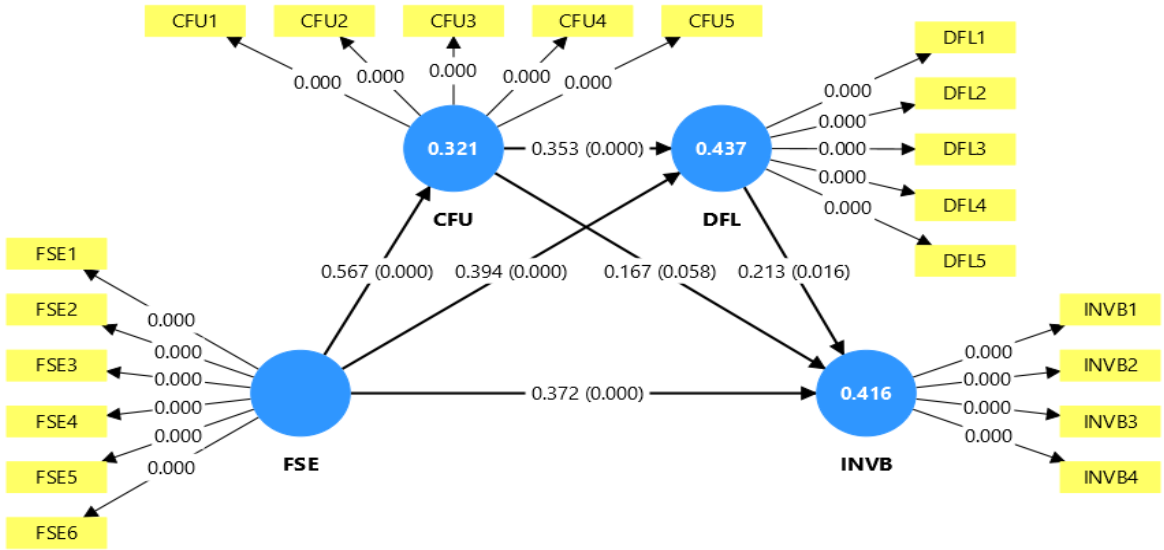
						serial mediation)

Source: Author's own compilation

R-square (R^2): This table indicates the effect of the predictor variable on the criterion variable. In this study, FSE and serial mediators (CFU and DFL) contributed 41.6% toward the investment behavior. Here, a serial mediation analysis (three-path model) was part of the structural model of the study. Table 4 shows the summary of R^2.

Figure 3. Path coefficient



Source: SmartPLS

5. Discussion and conclusions

This study aimed to investigate the complex relationship between financial self-efficacy (FSE) and investment behavior (INVB), with a focus on the serial mediating roles of consumer fintech use (CFU) and digital financial literacy (DFL). The findings provide valuable insights into the psychological and technological drivers of investment activity in today's increasingly digital financial landscape.

The results confirmed a significant positive relationship between FSE and investment behavior (Q1), suggesting that individuals who feel more confident in managing their finances are more inclined to engage in investment activities. This aligns with previous literature, which consistently shows that higher levels of financial self-efficacy are associated with stronger investment intentions (Khan et al., 2023; Khan et al., 2024). Furthermore, the analysis revealed a positive correlation between FSE and CFU (Q2), supporting the notion that confidence in financial management increases the likelihood of adopting fintech tools. Prior studies support this relationship, emphasizing that individuals with higher FSE are more open to exploring and using financial technologies (Islam & Khan, 2024). The study also found that greater fintech use is associated with higher digital financial literacy (Q3). This finding reflects how engagement with fintech platforms naturally develops digital financial capabilities, as users interact with budgeting features, expense trackers, robo-advisors, and other tools that offer real-time feedback and education (Kakinuma, 2023). In this way, fintech serves as both a tool and a learning environment. Additionally, the analysis revealed that DFL has a positive impact on

investment behavior (Q4), further supporting the notion that digital competencies are crucial for making informed financial decisions in today's digitized economy. As Choung et al. (2023) observed, while general financial literacy remains important, understanding digital financial products—such as mobile investment apps, online trading platforms, and cryptocurrency exchanges—is increasingly critical for effective investment behavior.

The study also confirmed the partial serial mediation effect of CFU and DFL in the relationship between FSE and INVB (Q5). The results clarified the reasoning behind this association and suggested that CFU and DFL partially contributed to why financial self-efficacy positively affects investment behavior. Millennials and Gen Z with higher financial self-efficacy are more likely to engage with fintech (Islam & Khan, 2024), which, in turn, enhances their digital financial literacy (Kakinuma, 2023) and ultimately encourages better investment decisions (Choung et al., 2023).

This research makes several important theoretical contributions. First, it is among the few empirical studies to examine CFU and DFL as serial mediators between FSE and investment behavior, filling a gap in the literature where these constructs have often been studied in isolation. The findings offer a more nuanced understanding of the mechanism by which psychological confidence translates into financial action. Second, the results align with the Technology Acceptance Model (TAM), illustrating how psychological factors (such as FSE) and technological engagement (through CFU and DFL) work together to shape behavior. This underscores the notion that while confidence may initiate interest, technology use and literacy are what enable that confidence to translate into meaningful financial activity.

From a practical standpoint, the findings offer actionable insights for various stakeholders seeking to promote investment participation among younger generations. Fintech Companies and Financial Institutions should focus on creating educational platforms that foster regular engagement. Personalized tools, such as robo-advisors, gamified investment apps, or budgeting challenges, can enhance both user confidence and digital literacy. Embedding educational prompts, interactive tutorials, and behavior-based nudges within apps can help bridge the gap between self-efficacy and action. Policymakers and Financial Regulators should frame policies that simplify onboarding processes (e.g., e-KYC), offer low-barrier entry points into investing, and promote secure, ethical fintech practices to encourage responsible participation and reduce fear or mistrust among novice users. Financial Educators and Advisors should provide understanding on algorithmic trading, crypto assets, and AI-driven personal finance tools. Programs should focus not only on technical knowledge but also on building confidence, as FSE is a key precursor to the adoption of technology. Behavioral techniques, such as goal setting and progress tracking, can help learners turn knowledge into consistent action.

This study has a few of drawbacks that ought to be stated, regardless the fact that it offers many insightful observations. First, the cross-sectional design restricts causal inference; a longitudinal approach would provide stronger evidence on how these relationships evolve. Second, the sample was confined to millennials and Gen Z participants from the Gaya district of Bihar, which limits the generalizability of the findings to broader populations across different regions, cultures, and socioeconomic backgrounds.

Future research could address these limitations by employing longitudinal or experimental designs, expanding to more diverse and representative samples, and integrating objective

behavioral metrics, such as transaction histories or platform usage logs, to strengthen the validity of results. Additionally, examining potential moderators (e.g., risk tolerance, cultural attitudes toward investment, or access to financial services) could provide deeper insights into the conditions under which FSE and DFL exert the strongest influence.

In summary, this research sheds light on the psychological and digital competencies that shape modern investment behavior. As fintech innovations continue to transform financial markets, cultivating both self-efficacy and digital financial literacy will be essential for empowering younger generations to navigate increasingly complex investment landscapes. By fostering these capabilities, policymakers, educators, and fintech providers can contribute to building a more financially resilient and informed investor base in the digital era.

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