



Nexus among Financial Literacy, Financial Attitude, Financial Experience and ESG Investment in the Banking Sector of Pakistan

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ABSTRACT

Purpose: This study aims to examine the role of financial literacy in shaping investors' engagement in Environmental, Social, and Governance (ESG) investments within the banking sector. Specifically, it investigates the direct effect of financial literacy on ESG investment, the mediating role of financial attitude, and the moderating effect of financial experience on the relationship between financial attitude and ESG investment.

Design/Methodology/Approach: A quantitative research design was employed. Data were collected from consumers of sustainable financial instruments and green financial products (e.g., green sukuk, green bonds, Renewable Energy Refinance Schemes, green loans, green mortgages, green funds, and sustainable agriculture financing) offered by the banking sector of Pakistan, including Meezan Bank, MCB Bank, and Habib Bank Limited (HBL). The data were analyzed using SmartPLS 4.

Findings: The results indicate that financial literacy has a significant positive effect on ESG investment. Financial attitude partially mediates the relationship between financial literacy and ESG investment, indicating complementary mediation. Furthermore, financial experience significantly moderates the relationship between financial attitude and ESG investment, strengthening the association.

Research Limitations/Implications: The study is limited to selected banks within Pakistan and focuses on specific sustainable financial products, which may affect the generalizability of the findings. Future research may extend the model to other sectors and geographical contexts to enhance external validity.

Practical Implications: The findings suggest that policymakers and banking institutions should enhance financial literacy and foster positive financial attitudes among investors to promote ESG investment. Additionally, improving investors' financial experience can further strengthen ESG-oriented investment behavior.

Originality/Value: This study contributes to the growing literature on sustainable finance by integrating financial literacy, financial attitude, and financial experience into a comprehensive model explaining ESG investment behavior in the context of a developing economy.



Introduction

Financial decision-making in the Pakistani economy in the modern economic period has grown in complex situations that demand an individual not just a simple economic knowledge, but also a high level of financial management expertise. The dynamic economic trends, banking development, and increasing level of involvement in online financial services have rendered personal financial planning a core competency amongst citizens. Financial literacy thus is an essential skill which helps people to efficiently manage their income, spending, saving, investments and even retirement planning. Comprehensive Government of Pakistan, State Bank of Pakistan (SBP), academic and financial institutions have been ardently advocating financial education over the last 20 years since poor financial literacy has been directly linked to bad financial choices, overutilization of borrowing and permanent financial susceptibility of households.

The financial environment in Pakistan has changed radically with the growth of digital financial services and financial technologies (FinTech). Mobile banking apps, branchless banking solutions like Easypaisa and JazzCash and online investment solutions and new digital financial solutions have made finance accessible to more citizens. Nevertheless, the same developments enhance financial inclusion, but they also make the decision-making process more complex and expose individuals to greater financial risks (Kandasamy et al., 2025). There are a lot of people engaging in financial products without the proper knowledge of diversification of risks, interests, and long-term financial implications.

The financial competence has become particularly important due to the recent economic turmoil in Pakistan. The economic effects of the COVID-19 crisis, exchange rate variations, increasing unemployment and the ongoing inflation have shown that people have to constantly assess the unknown economic situations and change their financial behavior. In this situation, economic resilience and long-term stability now require personal financial planning (Sticha et al., 2023). The financially illiterate frequently have trouble sustaining when they encounter income shock, debt repayment, and investments losses. As a result, financial literacy is now a decisive factor of personal wellbeing as well as national economic sustainability in developing countries such as Pakistan.

In conjunction with the value of financial knowledge, sustainability and responsible investment practices in Pakistan have also been on the increasing trend. Investors are becoming worried not only about profitability, but also about the ethical, social and environmental implications of their financial operations. In Pakistan, the financial markets are slowly adopting Environmental, Social and Governance (ESG) investing especially amongst the younger and educated investors. ESG investment approaches integrate non-financial measures of performance such as environmental sustainability, corporate social responsibility, and ethical governance into the process of investment decisions. Retail investors are slowly investing in the socially responsible portfolio in order to balance financial motives and personal and religious value particularly under Islamic finance and ethical investment ideology.

It has thus become important to understand the different factors that affect the ESG investment behavior in order to enable policymakers and financial institutions to encourage a sustainable economic development in Pakistan. Despite the fact that institutional investors were the first to control the use of ESG on the global market, individual investors are gaining access to sustainable investment markets. The growth of the awareness of ESG is a manifestation of changing the attitude of the society to the responsible behavior of investment. But the use of ESG investment

instruments is subject to several different determinants, such as financial knowledge, perceived risk, personal values, and previous financial experience (Kandasamy et al., 2025). Therefore, the discussion of behavioral and psychological determinants along with financial literacy gives a more detailed explanation of sustainable investment behavior in the Pakistani context.

In addition to cognitive knowledge, psychological aspects which determine financial decisions are also significant. Financial behaviour is not a rational one alone but again is affected by attitudes, perceptions as well as past experiences. Financial attitude is the assessment of a person about the financial issue and it is influenced by beliefs, emotions and previous experience of the person with financial institutions. The positive financial attitude encourages saving, long-term planning, and sound investment choices, and the negative attitude can encourage impulse spending and financial misuse (Sesa et al., 2024). Thus, financial attitude is a mediator between knowledge and behavior, as it transforms financial awareness into the practical financial behavior.

This behavioral pattern is further supported by financial experience. The people will gain the experience with the banking products in terms of loans, credit cards, savings accounts, insurance policies and investment portfolios. These are the experiences that can allow people to consider financial risks and develop self-confidence in their decision-making. The capacity to rationalize previous financial struggles and use the retrieved knowledge to direct future financial conduct can thus be proposed as financial experience (Brilliant and Lutfi, 2020; Diana and Lutfi, 2021). Unless it is through a systematic process, experienced people tend to be better placed to evaluate investment options, risk management, and innovation of new financial products such as ESG-oriented investment instruments.

Financial literacy, financial attitude, and financial experience, together, play a significant role in determining the investment decisions and financial well-being in Pakistan. Such aspects especially influence the readiness of people to take part in Sustainable investment markets. It is thus necessary to research the relationship between knowledge-based, psychological and experiential variables to gain insight into how individuals make financial decisions in the changing financial environment in Pakistan. This kind of knowledge will not only add to academic literature but will help policy makers and financial institutions develop strategies that will increase financial resilience, financial inclusion and sustainable economic growth. In this study find the relationship among Financial Literacy, Financial Attitude, Financial Experience and ESG Investment. The research questions of this study are RQ1: What is the impact of Financial Literacy and ESG Investment? RQ2: Is there mediating relationship among Financial Literacy and ESG investment? RQ3: Is there moderating relationship present among Financial Attitude and ESG Investment?

Literature Review

The Theory of Reasoned Action (TRA) was further to be developed as the Theory of Planned Behavior (TPB) which is an all-embracing theory of human action in any situation, including the making of financial decisions. Ajzen (2020) notes that self-control, intention, and cognitive evaluation of the available options are closely tied to financial behavior. TPB assumes that behavioral change of an individual depends on salient beliefs and ideas of particular actions. Although people might have various beliefs regarding a specific action, it is only some of them that are actually triggered by a certain situation thus influencing real action. Here, the intent to engage in a behavior by an individual is the main predictor of real behavior, which is moderated by the behavioral attitude, subjective norms, and behavioral control (Anugrah, 2018). In the context of financial management, this theory preaches that individual goals and personal attitudes that are held towards investment and how much control is perceived in the control of financial decisions are all the factors that determine money management practice and investment behaviours.

Financial literacy has been identified as an essential factor that determines successful financial decisions. It is the understanding of a major financial concept where an investor is equipped with the aspects of risk evaluation, inflation, diversification, asset allocation, and long-term planning to help them reduce financial risks and make investment choices (Feng et al., 2019). Financial literacy is gained by investors either through formal (schooling, workshops, training programs), informal, (advice of friends and family, workmates, and experience of past investment) (Bado et al., 2023). According to the existing literature, financial literacy is a major factor in determining the sustainable behavior of investing, especially in Environmental, Social, and Governance (ESG) investment, by affecting the attitudes and the decision-making process (Murhadi et al., 2023). According to OECD (2012), financial literacy refers to knowledge, skills, attitude and behaviors that make people make sound financial decisions that deliver sustainable results. On the other hand, low financial literacy is closely linked to poor financial decisions, reduced involvement in sustainable investments, and poor financial management (Coskun and Dalziel, 2020).

Besides the issue of financial literacy, financial experience is also a crucial element that influences investment behavior. Gains or losses are personal experiences that are used as learning opportunities in the future. These types of experiences increase the evaluation of risk and reward, planning, and more strategic evaluation. Investors can gain experience either through direct involvement with a financial instrument, e.g., the stock, mutual fund, real estate, gold, or ESG-based products, or through observations or conversations with peers, family members, and other more experienced investors (Pertiwi et al., 2020). Financial literacy and experience combinations enhance confidence and competencies in the analysis of investment opportunities, especially when applied to sustainable financial products.

The combination of financial literacy, financial experience, and personal attitudes towards sustainability and profitability affects ESG investment behavior. The attitudes of investors towards ESG investments, including positive and negative, have a very close impact on their desire to invest in green bonds, green loans, renewable energy financing, and sustainable agriculture projects (Boiral et al., 2023; Dung et al., 2024; Moktar et al., 2023; Verma and Khanna, 2024). Financial literacy helps people comprehend financial instruments based on their structure, risk and potential returns of ESG investment, and financial experience makes learning more entrenched and builds confidence in decision-making. As such, TPB framework indicates that knowledge, experience, and attitudes are behavioral intention factors to ESG investments that influence actual investment behavior. Consequently, the knowledge about the interrelationships between TPB, financial literacy, financial experience and ESG investment behavior offers a solid basis to study sustainable investment choices in the banking industry and emphasize the notion of combining cognitive, experiential and attitudinal constructs to encourage responsible and informed financial behaviors.

According to above literature following hypotheses are proposed:

H1: There is direct relationship between Financial Literacy and ESG Investment.

H2: There is direct relationship between Financial Attitude and ESG Investment.

H3: There is direct relationship between Financial Literacy and Financial Attitude.

H4: There is mediating relationship of Financial Attitude between Financial literacy and ESG Investment.

H5: There is moderating relationship of Financial Experience between Financial Attitude and ESG Investment.

Proposed Model

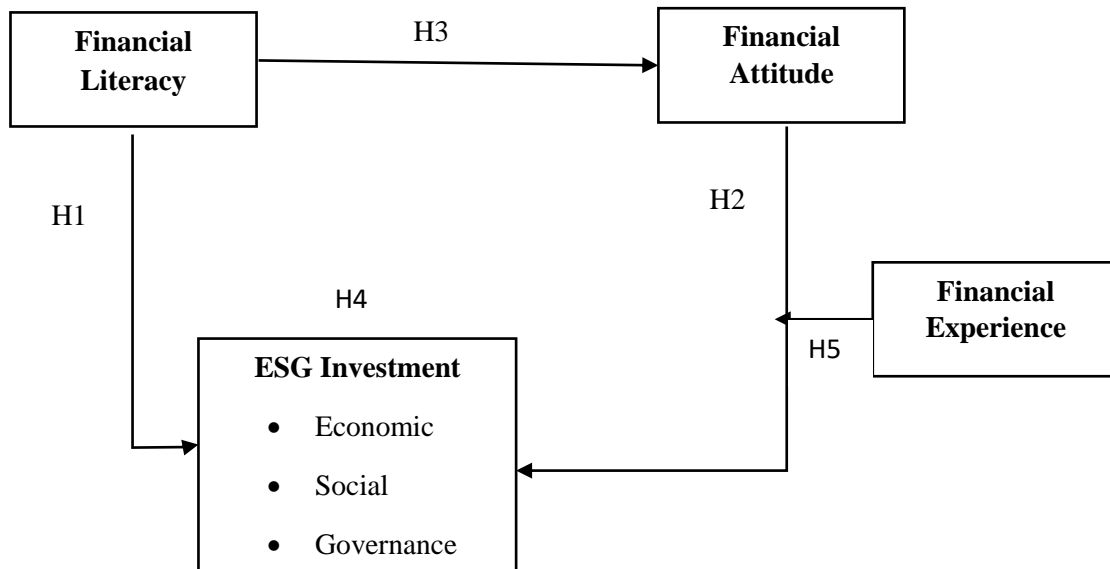


Figure 1: Proposed Model

Research Methodology

The research design used in this study was a quantitative research design to analyze the factors that have an impact on the consumers in engaging with sustainable investment instruments provided by the big banks in Pakistan including Mezan Bank, MCB Bank, and HBL bank. These tools would be Green Sukuk, Green Bonds, Renewable Energy Refinance Schemes, Green Loans, Green Mortgages, Green Funds and Sustainable Agriculture Financing.

Bank consumers on these sustainable investment products were sampled and provided with their data. There were 258 respondents who gave valid responses resulting in a response rate of 47 which is thought to be a good rate in any survey-based research in the financial services industry.

The previously tested scales were used to format the questionnaire to achieve reliability and content validity. Specifically:

Financial Literacy (FL) is modified based on Chen and Volpe (1998), Van Rooij et al. (2011) and Mendari and Kewal (2013).

Financial Attitude (FA) had been modified by Rajna et al. (2011), Ismail et al. (2017), and Shim et al. (2010).

Pertiwi et al. (2020) borrowed Financial Experience (FE).

Adapted ESG Investment measures were developed by Karmacharya (2023).

The sampling method used in this research was purposive sampling as the study focused on people that focus their efforts on sustainable financial products of the chosen banks. This gives the data collected its relevancy as well as representing the population of interest. Ethical considerations were properly followed before data collection; such as informed consent was connected, and the responses would be confidential and emphasizing voluntary participation.

Quantitative statistical methodologies such as descriptive statistics, reliability and validity tests, as well as inferential tests, were used in the analysis of the collected data to determine the relationships between Financial Literacy, Financial Attitude, Financial Experience, and ESG investment behavior. The high validity, consistency and generalizability of the research results are made through the application of pre-existing scales, a stringent sampling approach and an effective method of analysis.

The complete questionnaire is given in Appendix A. Construct validity is achieved through the use of already existing scales used by previous research and utilization of similar scales can be used to make meaningful comparisons with available literature.

The demographic data of the respondents is present in table 1.

n= 258

Table 1: Demographic Data

Category	Frequency	Percentage
Gender		
Male	185	72%
Female	73	28%
Age group		
20- 30 years	56	22%
31-40 years	109	42%
41-50 years	85	33%
51 to above	8	3%
Education Level		
Matriculation	40	16%
Inter	56	22%
Graduate	145	56%
Post Graduate	17	7%
Experience of Sustainable Instruments and Green Instruments		
	86	33%
1 to 5 years	123	48%
5 to 10 years	49	19%
10 to above years		

According to table 1, male respondent of this study is 72% and female respondent is 28%. According to age group highest respond rate of 31-40 years age group and lowest age group of respondent is 5 to above age group. The education level of respondent that shows higher rate of response have graduation degree and lower response rate of respondent is post graduate. Experience level of use of sustainable instruments that have highest response rate is 5 to 10 years and category of 10 to above years have lowest response rate that's mean there are experience of 5 to 10 years of sustainable or green instruments of banks, respondents have.

Results

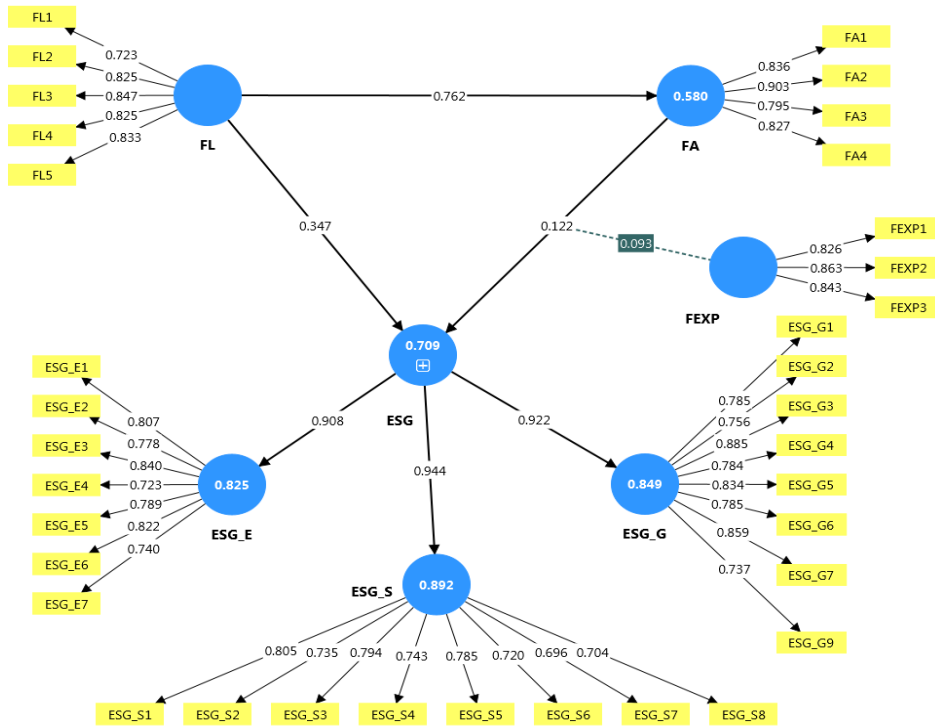


Figure 2: PLS Algorithm Results

Table 2: Factor Loading

	ESG_E	ESG_G	ESG_S	FA	FEXP	FL
ESG_E1	0.807					
ESG_E2	0.778					
ESG_E3	0.840					
ESG_E4	0.723					
ESG_E5	0.789					
ESG_E6	0.822					
ESG_E7	0.740					
ESG_G1		0.785				
ESG_G2		0.756				
ESG_G3		0.885				
ESG_G4		0.784				
ESG_G5		0.834				
ESG_G6		0.785				
ESG_G7		0.859				
ESG_G9		0.737				
ESG_S1			0.805			
ESG_S2			0.735			
ESG_S3			0.794			
ESG_S4			0.743			

ESG_S5			0.785			
ESG_S6			0.720			
ESG_S7			0.696			
ESG_S8			0.704			
FA1				0.836		
FA2				0.903		
FA3				0.795		
FA4				0.827		
FEXP1					0.826	
FEXP2					0.863	
FEXP3					0.843	
FL1						0.723
FL2						0.825
FL3						0.847
FL4						0.825
FL5						0.833

Table 3: Convergent Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ESG	0.958	0.959	0.961	0.520
ESG_E	0.897	0.901	0.919	0.619
ESG_G	0.921	0.923	0.936	0.647
ESG_S	0.887	0.889	0.911	0.561
FA	0.862	0.867	0.906	0.707
FEXP	0.799	0.807	0.881	0.712
FL	0.870	0.876	0.906	0.659

According to table 2 and Figure 2 the factor loading of all items are above 0.5 (Hair et al., 2019). According to table 3, internal consistency of construct are above 0.7, that's means all Cronbach's alpha value of construct are above 0.7 and Composite reliability of all constructs are above 0.7 (Bagozzi & Yi, 1988; George and Mallery, 2024; Chin, 2009; Chin et al., 2013). The value of AVE is greater than 0.5 (Bagozzi & Yi, 1988).

Discriminant Validity

Table 4: Fornell-Larcker Criterion

	ESG	ESG_E	ESG_G	ESG_S	FA	FEXP	FL
ESG	0.721						
ESG_E	0.908	0.786					
ESG_G	0.922	0.725	0.804				
ESG_S	0.944	0.809	0.814	0.749			
FA	0.727	0.787	0.565	0.675	0.841		
FEXP	0.777	0.808	0.652	0.703	0.766	0.844	
FL	0.756	0.775	0.625	0.707	0.762	0.697	0.812

According to table 4, the square root of AVE value is greater than every diagonal value (Fornell & Larcker, 1981).

Structural Model Assessment

The current study is reflective model. All items are intercorrelated. The model have one higher order construct that’s why two step analysis of disjoined is used for analysis. The result of the hypothesis shows in Figure 3: second step model where are higher order construct a lot latent variable of its dimensions.

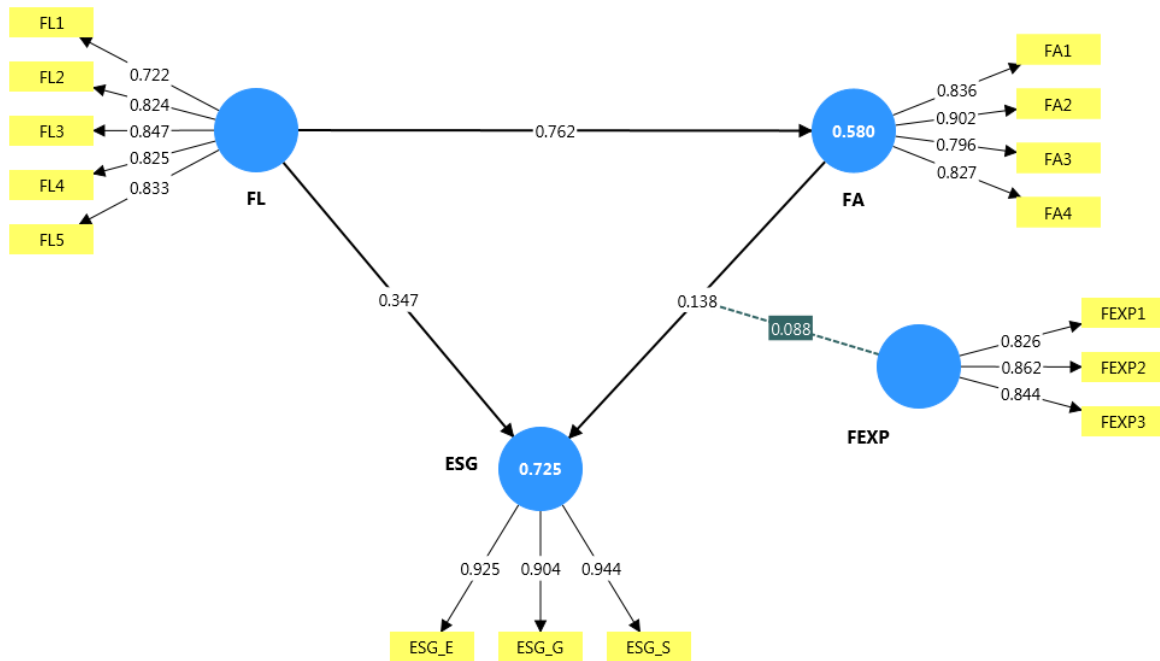


Figure 3: Bootstrapping Results

Table 5: Path Co-efficient Table

Hypothesis	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H1	FL -> ESG	0.347	0.348	0.053	6.506	0.000	Accepted
H2	FA -> ESG	0.138	0.136	0.056	2.442	0.007	Accepted
H3	FL -> FA	0.762	0.764	0.027	28.185	0.000	Accepted
H4	FL -> FA -> ESG	0.105	0.104	0.043	2.433	0.008	Accepted
H5	FEXP x FA -> ESG	0.088	0.086	0.030	2.916	0.002	Accepted

Table 5 shows the path coefficients, t-values and p-values of the association between Financial Literacy (FL), Financial Attitude (FA), Financial Experience (FE) and ESG Investment behavior. The findings reveal the importance of all the hypothesized relationships.

Financial Literacy and ESG Investment have a positive and significant relationship ($\beta = 0.347$, $t = 6.506$, $p < 0.05$), the t-value is greater than the critical value (1.96). Thus, H1 is accepted, which means that the more financially literate people are, the more they are engaged in making ESG investments.

In the same way, the correlation between Financial Attitude and ESG Investment is also meaningful ($\beta = 0.138$, $t = 2.442$ and $p = 0.007$) with the t-value exceeding 1.96 and the p-value being less than 0.05. Therefore, H2 can be accepted, and a positive financial attitude is proposed to have a positive impact on ESG investment behavior.

H3 is validated by the fact that Financial Literacy and Financial Attitude are impacted in a strong and statistically significant ($\beta = 0.762$, $t = 28.185$, $p = 0.000$) way. It means that the increased financial literacy has a paramount positive impact on the financial attitude of the investors, which may indirectly affect the investment decisions.

Financial Attitude is also supported to mediate Financial Literacy and ESG Investment ($\beta = 0.105$, $t = 2.433$, $p = 0.008$), and t-value is more than 1.96 and p-value is less than 0.05. Thus, H4 is accepted which proves that financial attitude partly mediates the relationship between financial literacy and ESG investment.

Lastly, H5 is confirmed, as the b value of Financial Experience between Financial Attitude and ESG Investment is significant ($\beta = 0.088$, $t = 2.916$, $p = 0.002$). It implies that the financial experience of the investors enhances the impact of financial attitude on the ESG behavior of an investor on investing.

On the whole, the findings point to the fact that financial literacy, financial attitude and financial experience are key determinants of ESG investment behavior and both direct and indirect influences attest to the relevance of the proposed research model.

R Square

Table 6: R Square

	R-square	R-square adjusted
ESG	0.709	0.704
ESG_E	0.825	0.824
ESG_G	0.849	0.849
ESG_S	0.892	0.891
FA	0.580	0.579

According to the table 6 the value of R square is less than 0.9. Greater than 0.9 value is outfitted (Hair et al., 2019). The R Square value of 0.75 show the significant larger correlation, 0.50 shows the moderate correlation and 0.25 shows the smallest correlation (Henseler & Sarstedt, 2013).

Conclusion

This study provides a nuanced understanding of ESG investment behaviour by integrating financial literacy (FL), financial attitude (FA), and financial experience (FE) into a unified framework. The findings confirm that financial literacy serves as a foundational driver of ESG investment, reinforcing the argument that cognitively informed investors are more likely to engage with sustainable financial products. However, beyond this direct effect, the results reveal that

financial literacy alone is insufficient to fully explain ESG investment behaviour, thereby addressing a critical gap in the existing literature.

The mediating role of financial attitude highlights the importance of psychological and behavioural dimensions in investment decision-making. Specifically, the findings suggest that financial knowledge must be internalized through positive attitudes, beliefs, and confidence to translate into actual investment behaviour. This supports the core assumptions of the Theory of Planned Behaviour, which posits that attitudes and perceived behavioural control are key determinants of behavioural intention and action. In this context, financial attitude acts as a complementary mediator, indicating that the effect of financial literacy on ESG investment is both direct and indirect. This dual pathway underscores the interplay between cognitive competence and behavioural disposition in shaping sustainable investment decisions.

Furthermore, the moderating role of financial experience provides an additional layer of insight by demonstrating that prior exposure to financial decision-making enhances the effectiveness of both financial literacy and financial attitude. Experienced investors appear better equipped to operationalize their knowledge and attitudes, suggesting that experiential learning reinforces both cognitive and affective components of decision-making. This finding contributes to the literature by positioning financial experience not merely as an antecedent but as a boundary condition that strengthens the FL–FA–ESG relationship.

From a theoretical perspective, this study extends existing models of investment behaviour by integrating cognitive (financial literacy), affective (financial attitude), and experiential (financial experience) dimensions into a single framework. While prior studies (e.g., Mavlutova et al., 2022; Oktaviani et al., 2025; Paul, 2025; Zubair et al., 2024) have examined these factors in isolation or in limited combinations, this study offers a more comprehensive explanation of ESG investment behaviour, particularly within the context of a developing economy.

Practically, the findings suggest that policy interventions aimed solely at improving financial literacy may yield suboptimal outcomes unless accompanied by efforts to cultivate positive financial attitudes and provide opportunities for experiential learning. Financial institutions and policymakers should therefore adopt a holistic approach that combines financial education programs, behavioural interventions, and practical exposure to sustainable financial products. Such an integrated strategy can accelerate the adoption of ESG investments and contribute to broader sustainability objectives.

Despite its contributions, this study is not without limitations. The focus on selected banking institutions and specific ESG-related financial products in Pakistan may limit the generalizability of the findings. Future research could explore cross-country comparisons, longitudinal designs, or additional moderating variables (e.g., risk tolerance or cultural factors) to further refine the model and enhance its external validity.

Managerial Implications

The results of this research have several significant implications for the banking and financial services industry. Financial institutions, particularly banks, play a crucial role in promoting sustainable investment by developing policies and programs that encourage customers to engage with ESG products. In particular, banks should implement comprehensive financial education and literacy campaigns targeting both potential and existing investors. Such programs may include workshops, seminars, web-based training, and personalized advisory services aimed at increasing awareness of sustainable financial instruments and enhancing investor confidence.

Furthermore, encouraging positive financial behaviours among customers—through guidance, incentives, and effective communication of the benefits of ESG investments—can reinforce the adoption and utilization of these instruments. By facilitating access to sustainable investment products and promoting the integration of financial literacy, positive financial attitudes, and experiential learning, banks can support not only individual wealth accumulation but also broader economic development, environmental sustainability, and social well-being.

Limitations

Although this research provides valuable insights, several limitations should be acknowledged. First, the study primarily focuses on financial literacy, financial attitude, and financial experience as predictors of ESG investment, which may overlook other important determinants such as regulatory frameworks, cultural factors, social influence, and risk perception. Second, the sample is limited to investors in major cities in Pakistan, which may restrict the generalizability of the findings to rural or less urbanized populations. Third, the cross-sectional design of the study does not allow for causal inferences or the examination of changes in investment behaviour over time.

Future research should address these limitations to provide a more comprehensive understanding of ESG investment behaviour across different contexts.

Future Research Directions

In light of the findings and limitations, several avenues for future research are suggested. Researchers should investigate additional determinants of ESG investment, such as sustainable financial literacy, investors' risk-taking behaviour, socio-cultural factors, and institutional influences that may moderate investment behaviour. Longitudinal studies would also be valuable for examining changes in financial literacy, financial attitude, financial experience, and investment behaviour over time.

Furthermore, expanding the research across broader geographical regions and diverse socio-economic groups would enhance the overall validity and generalizability of the findings, providing deeper insights into sustainable investment behaviour in different contexts. Additionally, exploring the combined impact of digital financial literacy, technology adoption, and behavioural nudges on ESG investment may offer valuable implications for policymakers and financial institutions seeking to promote sustainable investment practices.

By addressing these gaps, future studies can provide a clearer understanding of how investors engage with sustainable financial instruments and offer practical guidance for designing policies and interventions to encourage the widespread adoption of ESG investments..

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