

Unveiling The Factors Shaping Financial Choices among Women in the Professional Sphere: An Analytical Framework Utilizing Structural Equation Modeling in Behavioral Finance.

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Abstract:- This research focuses on exploring the factors that impact the financial decision-making of female professionals in Hyderabad, Pakistan. It examines the influence of education and employment on the financial attitudes and knowledge of female professionals. The study adopts a cross-sectional approach and collects primary data from female professionals in Hyderabad. The collected data is analyzed using partial least squares (PLS) structural equation modeling (SEM) to investigate the relationships between observed and underlying variables, allowing for causal connections to be examined. The findings reveal that financial literacy alone is not the sole determinant affecting the financial decisions of female professionals. Financial attitudes and behaviors also play a crucial role and positively influence their decision-making. The study further establishes a direct correlation between the financial attitudes of female professionals and their level of financial knowledge. In conclusion, the research suggests potential enhancements in financial literacy among female professionals in Hyderabad and discusses the implications, limitations, and future directions of the study.

Keywords:- Financial Attitude, Financial Behavior, Financial Knowledge, Financial Decision

I. LITERATURE REVIEW

In today's global context, we encounter various challenges and strive to find effective solutions to address them. Decision-making lies at the heart of planning, involving the selection of a course of action among alternatives. According to George R. Terry (1953) and Harold Koontz (1974), decision-making is a complex task for individuals, groups, or teams, regardless of whether they are consumers, manufacturers, investors, or producers. For instance, as investors, we make decisions about where, how, and when to invest, considering factors that yield the highest returns in the form of profit. However, decision-making abilities may vary between genders. Research suggests that males and females employ different decision-making strategies, possess different traits, exhibit varying levels of risk-taking, and have different confidence levels. Notably, studies indicate that females tend to be less inclined towards

risk-taking compared to males in society (Melanie & David, 1997).

Gender differences are apparent in financial and personal decision-making (Johson & Powell, 1994). Such studies reveal interesting findings, including the notion that women tend to be more cautious, have less ability to make impromptu decisions, display lower levels of aggression, are more easily influenced, and may have perceived limitations in leadership and intellectual capabilities compared to men. Nevertheless, other studies indicate that both males and females are equally capable of accomplishing tasks under the same level of uncertainty (e.g., Hudgens & Fatkin, 1985; Johson & Powell, 1994) and possess the ability to handle complex information and respond to given situations effectively (Stinerock et al., 1991; Hyde, 1990).

Females are integral members of society, contributing not only as homemakers but also to socio-economic development. They play a crucial role in making household decisions, making it essential to enhance their financial literacy. Improving financial literacy not only benefits the welfare of families but also enhances their financial planning and saving behavior. When women become official owners of land, property, or other assets, their self-confidence and social responsibility naturally increase, promoting financial inclusion. However, women are less likely than men to have access to financial institutions or possess a bank account. Globally, while 65% of men report having an account at a formal financial institution, only 58% of women do (UN Report, 2018).

Individuals who are financially literate are better equipped to engage in effective financial planning. Both males and females can attain economic empowerment by enhancing their financial literacy, fostering a positive financial attitude, and improving their financial well-being (Hafiz Abdur Rashid, 2021). To facilitate this, formal financial service firms need to enhance individuals' confidence in managing their finances and utilizing structured financial products and services. By doing so, clients can observe improvements in their financial behavior and adjust their financial habits accordingly, promoting financial inclusion and the optimal utilization of financial

resources (Mindra et al., 2017). Financial awareness empowers individuals to make informed financial decisions, seize the best financial opportunities, and make the most of their financial resources, yet many people lack such awareness (Arora, 2016). Financial literacy and education are crucial for achieving financial inclusion (Morgan & Trinh, 2019).

In summary, this research focuses on female professionals in Hyderabad and utilizes the theory of planned behavior (TPB) to examine how financial awareness is developed through the interplay of individual behavioral components such as financial education, knowledge, attitude, and behavior. By studying the financial behaviors that influence decision-making, this research contributes to existing literature and provides valuable insights. The findings will benefit society as a whole, aiding the government, bankers, and finance professionals in formulating policies, financial services, and instruments that cater to women's preferences, financial attitudes, financial behavior, and financial knowledge.

➤ *Background of Behavioural Finance*

Behavioral finance is a field within finance that examines the behavior and psychological factors of individuals in the financial market, and how these factors influence their buying and selling decisions, subsequently impacting market prices. The objective of this field is to provide explanations for the belief that markets are not always efficient. Several key definitions of behavioral finance have been proposed. Sewell (2007) defines it as the study of how psychology influences the behavior of financial learners and, in turn, affects the markets. It focuses on theories and experiments that investigate decision-making based on attitudes and emotions. Sheffrin (2000) describes behavioral finance as a rapidly developing area that explores the influence of psychological science on the behavior of financial learners. Fama (1998) states that behavioral finance is a financial sector that seeks to rationalize contradictions in stock market behavior by considering well-known psychological biases, instead of dismissing them as mere market inefficiencies. Behavioral finance serves as a valuable tool not only for understanding the underlying intuitive causes of financial decision-making behaviors, but also for effectively addressing them on a daily basis. By gaining a deeper understanding of the drivers behind their decisions, individuals can make more informed and rational choices in their professional practices.

➤ *Financial Behaviour*

Financial behavior can be understood through the application of the Theory of Planned Behavior (TPB), which explains individual behavior based on intentions. According to TPB, behavior is driven by purposeful intentions influenced by attitudes and the perceived importance of the behavior. The intention to behave in a certain way is shaped by social norms and the individual's perception of what others expect (Ajzen, 1991). The significance of these factors is determined by subjective variables and norms (Ajzen & Fishbein, 1980). The acceptance of crossing a boundary is

referred to as Individual Behavioral Management Belief (Ajzen, 1991).

The Theory of Reasoned Action (TRA), originating from Ajzen and Fishbein (1980), also supports the TPB. TRA emphasizes the role of subjective norms as social influences that dictate human behavior, whether approving or disapproving certain actions. These norms are based on what is considered standard belief. The social environment in which individuals operate or are influenced by is an important factor in their behavioral choices. If others perceive a particular action as positive and appropriate, individuals are more likely to engage in that behavior.

Financial behavior pertains to the actions related to financial management. It encompasses various aspects such as cash flow management, credit management, savings, and investment, as described by Hogarth et al. (2003). Ida and Dwinta (2010) further explain that financial behavior is tied to one's responsibilities in managing finances effectively, including setting budgets, assessing the need for debt, and planning for debt repayment within a reasonable timeframe.

➤ *Financial Knowledge*

Financial knowledge encompasses various areas such as banking, savings, insurance, credit usage, taxes, and investments. It depends on the depth of understanding an individual possesses in these domains. The attitudes towards finance significantly influence the success or failure of an individual's financial behavior. Acquiring knowledge about finance is essential to improve financial behavior. Bowen (2002) emphasizes that financial awareness is crucial for financial literacy and fundamental concepts that contribute to societal well-being. Halim and Astuti (2015) assert that financial knowledge refers to the ability to comprehend, analyze, and manage finances in order to make sound financial decisions and prevent financial difficulties.

➤ *Financial Attitude*

Attitude refers to the emotions, ideas, or personal devotion that individuals hold towards objects, people, or events, which can be either positive or negative. It represents a subjective norm influenced by social pressures that either motivate or discourage individuals from taking certain actions. Subjective norm is a shared belief that reflects an individual's inclination to conform to prescribed behaviors.

Financial attitudes, as defined by Eagle and Chaiken (1993), are mental tendencies that manifest through the expression of favorable or unfavorable attitudes. They reflect individuals' level of acceptance or rejection of terms related to finance, aiding them in managing their financial matters. Higher financial attitudes indicate a greater sense of control over financial decisions, leading to positive impacts on financial behavior.

According to Rajna et al. (2011), financial attitudes encompass thoughts, opinions, or valuations about finance. They identified eleven elements related to financial attitudes, including the importance of consistent savings patterns, setting financial goals, maintaining a written budget, taking

personal responsibility for financial well-being, recognizing the significance of savings, ensuring timely debt repayment, valuing savings, planning for retirement, considering disability income, obtaining insurance coverage for assets, and contemplating future financial circumstances.

In summary, financial attitudes encompass individuals' mindsets and evaluations regarding finance, influencing their financial decisions and behaviors.

➤ *Personal Finance and Financial Decisions Making*

Personal finance encompasses various aspects of managing money, including budgeting, banking, insurance, mortgages, investments, retirement planning, tax, and estate planning. It involves setting and achieving financial goals based on individual needs and constraints, such as short-term financial needs, retirement planning, and fulfilling personal desires. To optimize income and savings, it is essential to have financial literacy.

A seminal study by Sharma et al. (2017) explored the factors influencing women's preferences in investment decision-making. The research revealed that investment decisions are influenced by psychographic and demographic variables unique to individual investors. Women were found to have different perceptions regarding financial decision-making, often opting for riskless savings and investment avenues due to a higher level of fear associated with high-risk investments.

Agarwalla et al. (2015) examined the financial behavior of women and found that they exhibit a higher level of financial engagement compared to men. The study emphasized the importance of involving family members in financial decision-making to improve financial literacy levels. Collaborative decision-making within the family can contribute to increased financial literacy.

Anjali Devi (2016) conducted a survey in the Kamrup district of Assam and highlighted the correlation between an individual's financial literacy level and their financial needs and behavior.

Overall, these studies emphasize the significance of financial literacy and its impact on decision-making, particularly among women. They underscore the importance of understanding individual preferences, involving family members, and tailoring financial education programs to meet diverse needs and behaviors.

There has been a lack of sufficient research conducted on behavioral finance specifically among women professionals in Hyderabad, Pakistan. The relationship between financial education, financial behavior, financial attitude, and financial awareness among female professionals in Pakistan remains unclear. Therefore, it is crucial to explore the determinants of behavioral finance and understand its relevance in the context of working women.

The findings of this study align with the argument presented by Amanah et al. (2016) that financial attitude

significantly influences financial management behavior. An individual's thoughts, opinions, and personal financial evaluation shape their approach to financial decisions. For instance, if someone believes that savings are no longer important, they are less likely to save. Persistent thoughts and opinions can lead to entrenched behaviors that are challenging to change.

Furthermore, the research reveals indirect effects of financial knowledge on financial management behavior through the concept of Locus of Control. Financial approaches also indirectly impact financial management behavior through Locus of Control.

Chetna and Raj (2017) investigated various factors contributing to financial illiteracy among women in India, including education and social and cultural barriers. Additionally, women's lack of confidence and knowledge in wealth management hinder their financial capabilities. Fear of asking financial-related questions and perceiving financial methods as overly complex are common among women.

Sharma (2017) examined the association between financial literacy, financial inclusion, and factors influencing financial literacy levels in India. The study found that male investors generally have higher financial literacy compared to female investors. Urban investors tend to possess greater financial knowledge than rural investors due to varying levels of exposure to financial inclusion practices such as banking, insurance, and credit. Qualification level also significantly impacts investors' financial knowledge, with highly educated individuals displaying higher levels of financial literacy. The study emphasized the importance of improving financial knowledge levels to enhance financial inclusion among investors, particularly among the economically disadvantaged segments of society.

Amutrani (2017) conducted a study to assess the financial literacy and attitudes of rural women. The findings highlighted that rural women have lower levels of knowledge, higher concerns, lower confidence, and a greater inclination towards spending. The study also revealed that rural women lack knowledge in various aspects of financial decision-making, such as credit utilization, savings, investment, insurance, estate planning, and retirement planning. However, they do possess some knowledge about specific financial services like deposits, interest, investments, loans, and banking services. Limited access to financial service providers in rural areas contributes to the lower likelihood of rural women receiving such services. The economic attitude of rural women primarily revolves around protecting invested capital with assured returns, and their focus tends to be short-term, ranging from one to three years based on their financial needs.

Chaudhary (2017) examined the income and investment patterns of independent women. The study indicated a significant shift in the status of women, with independent women taking on the risk of earning, spending, and investing on their own. The research highlighted that women invest for various reasons, including managing life risks, securing

independence, ensuring the future of their families, gaining tax benefits, and increasing capital. The financial attitude of women in terms of investment revolves around capital preservation, regular and consistent income, and minimizing investment risk. The results demonstrated that the financial attitude of women also depends on their income level. High-income individuals tend to make larger investments and focus on long-term goals, while low-income individuals prefer smaller investments with a short-term focus. Overall, female investors exhibit an interest in financial products that offer risk-free returns.

Mittal & Aggarwal (2017) conducted research on the investment behavior of working women. The study revealed that investment is a means of allocating earnings towards financial security or assets, with the goal of generating returns. Women tend to opt for convenient and low-risk investment options that offer high returns, security, and peace of mind. Traditional investment methods like gold and silver also remain popular among women. The study emphasized the importance of seeking advice from reliable financial planners to make informed investment decisions.

Vijay et al. (2018) highlighted the significant influence of socio-demographic and psychosocial factors on the level of financial awareness among the population.

Chen-chen et al. (2018) emphasized the negative impact of poor financial literacy and management practices on individuals. They also found that financial attitude mediates the relationship between financial knowledge and behavior, underscoring the importance of having the right attitude to effectively utilize financial knowledge.

Rai (2019) concluded that the financial attitude of working women is closely associated with their level of financial literacy. The study highlighted that financial education alone is not sufficient to promote financial literacy; financial attitudes and behaviors also play a vital role. Despite having a good educational background and substantial income, many working women still struggle to achieve financial independence.

Irni (2020) found that personal finance courses have a positive impact on financial knowledge, but no significant impact on financial attitudes or behavior. The study emphasized the role of financial socialization in improving financial behavior.

Jyoti (2020) analyzed the investment behavior of female entrepreneurs and found that while they are willing to take risks in their businesses, they exhibit reluctance when it comes to making investment decisions. Factors such as lack of time to understand investments and limited knowledge about various products contribute to their behavior. The study also highlighted the influence of parental investment behavior on women entrepreneurs.

Although there is a wealth of literature available on this topic from various cities and countries, there is a noticeable gap in the Pakistani context. Most studies have focused on other Asian countries like India and have explored psychological factors. To date, no study has provided a comprehensive understanding of women's financial decision-making behavior in Pakistan.

➤ Theoretical Framework and Hypotheses Development

Gaining insights into the process of developing effective financial decision-making skills is crucial (Hung, Parker & Yoong, 2009). Creating a comprehensive understanding of the subject can be achieved by integrating financial knowledge, attitude, and behavior into a single model (Serido, Shim & Tang, 2013).



Fig 1 Quality of Financial Decision

The current research model is based on a previous article titled "Financial Knowledge, Attitude, and Behavior of Young Adults in Malaysia" (published on 4th October 2018). However, in this proposed study, the variable "financial literacy" has been replaced with another variable, namely "quality of decision-making". The theoretical framework incorporates two dimensions of financial decision-making: knowledge and application. Viewing financial decision-making as a process, the model includes input, throughput, and output components. It suggests two alternative paths to financial decision-making, going beyond the knowledge dimension and extending into the application dimension, as recommended by Huston (2010). According to the model, an individual's financial knowledge is influenced by financial education, which subsequently leads to desirable financial behavior. The first path proposes that this occurs through changes in attitude resulting from improved financial knowledge, while the second path hypothesizes a direct link between increased knowledge and immediate changes in behavior.

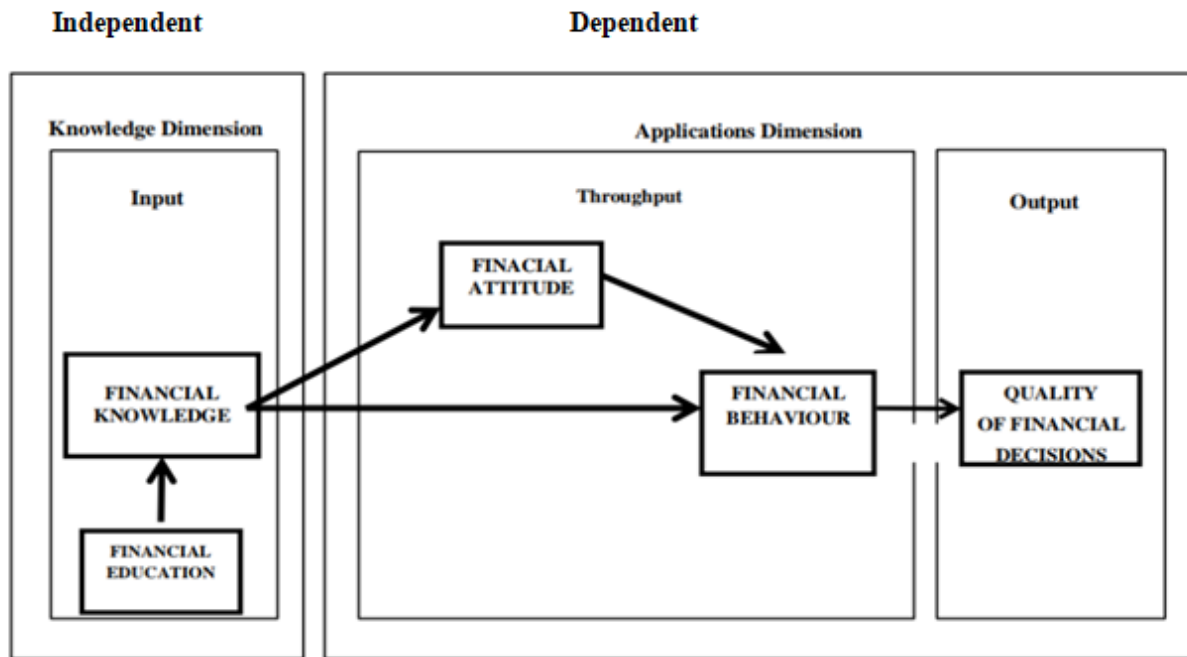


Fig 2 Theoretical Model

• After Studying Above Theoretical Framework, the Following Hypotheses Guided the Entire Study:

- ✓ Financial education has a significant impact on financial knowledge.
- ✓ People who have a strong financial behavior have a greater level of financial knowledge.
- ✓ The relationship between financial knowledge and financial behavior is mediated by financial attitude.
- ✓ Financial Behavior significantly influences financial literacy.

II. RESEARCH METHODS AND MATERIALS

➤ *Data Collection*

This study employed a quantitative approach, gathering primary data from female professionals in Hyderabad to address the study's objectives. The methodology played a pivotal role in achieving the aims and objectives of this research. The primary focus was on female professionals in Hyderabad as the target population for data collection. The collected data served as primary data and underwent validation and testing to examine the factors influencing financial behavior among female professionals. Furthermore, the study analyzed the impact of education and employment on the financial attitude and financial knowledge of female professionals.

➤ *Sample and Sampling*

The research focuses on female professionals residing in Hyderabad city as the population. Due to the challenges of collecting data from all female professionals, a sample of 100 active female professionals was gathered, ensuring sufficiency. Data collection employed a combination of simple random sampling and convenient sampling, utilizing an adopted instrument. The collected data underwent analysis

using variance-based structural equation modeling, specifically employing the partial least squares path modeling method.

➤ *Questionnaire Design*

The present study focuses on data collection through a meticulously designed questionnaire. Different scales were utilized to measure the dependent and independent variables of this research. These scales encompass three constructs, as defined by the OECD (2013): financial knowledge, financial behavior, and financial attitude. Female professionals were presented with a series of inquiries encompassing various aspects. The questionnaire consisted of items pertaining to risk attitude, financial planning, management of financial stress, satisfaction with the financial situation, and more, aiming to evaluate financial attitude. To assess financial behavior, questions related to savings behavior, bill and debt repayment behavior, profitable investment behavior, and investment behavior were incorporated. Financial knowledge was assessed through questions on financial numeracy, saving and investments, bank loans, risk and return, among others.

III. RESULTS AND ANALYSIS

The study utilized structural equation modeling (SEM) and the partial least squares (PLS) approach for data analysis. The conceptual model employed was complex, and the population size was relatively small, making the PLS method, particularly SmartPLS, appropriate for the analysis (Ringle et al., 2005). The SEM method was recommended over covariance-based approaches (Hair et al., 2011). The PLS method was applied to 5,000 sub-samples using bootstrapping techniques to assess changes in sign (Hair et al., 2011). The results were evaluated based on validation, reliability, discriminant validity, construct reliability, outer-

loadings, and average variance extracted. The construct reliability, indicated by Cronbach alpha and composite reliability values, exceeded the threshold of 0.708 (Hair et al., 2014; Hulland, 1999), confirming the reliability of both scales. The average variance extracted, above the threshold of 0.5, indicated validity (Hair et al., 2014; Bagozzi and Yi, 1988). Discriminant validity, which compares the square

correlations with other constructs, also met the requirements (Fornell and Larcker, 1981). According to Fornell and Larcker (1988), the diagonal values of discriminant validity should be greater than 0.708, and in this study, all discriminant values met this criterion (Hair et al., 2014; Fornell and Larcker, 1988).

Table 1 Constructs Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Age	1.000	1.000	1.000	1.000
Education	1.000	1.000	1.000	1.000
Employment	1.000	1.000	1.000	1.000
Financial Attitude	0.824	0.851	0.878	0.592
Financial Behavior	0.940	0.947	0.948	0.586
Financial Knowledge	0.896	0.933	0.916	0.610
Income	1.000	1.000	1.000	1.000
Marital Status	1.000	1.000	1.000	1.000

➤ *Assessment of PLS Measurement Model*

In PLS analysis, the first step involves assessing the measurement model, also known as the outer model. This model establishes the relationship between observed variables and latent variables (Hair et al., 2010). It allows for the inclusion of multiple variables for a single independent or dependent construct. Two key criteria used in PLS analysis to evaluate the measurement model are reliability and validity (Ramayah, Lee, & In, 2011). Reliability tests examine the stability and consistency of the measurement instrument, while validity tests assess the accuracy of measuring the intended concept (Sekaran & Bougie, 2010). Individual item reliability, construct internal consistency, and construct validity are considered in evaluating the outer model in PLS.

The table in this study also measures the Average Variance Extracted (AVE), with values above the threshold of 0.5 indicating reliability. The table demonstrates that all

AVE values exceed 0.5, signifying the reliability of all constructs (Hair et al., 2014). Most factors in the figure have values above the threshold in all types, indicating the construct reliability of the hypotheses due to positive values of the dependent variables. While an AVE value of 0.50 is considered acceptable, this study demonstrates higher values (Hair et al., 2014; Limpin, 2018).

Smart-PLS, widely used in social science and business research, was employed for the analysis using Smart-PLS 4.0 software (Hair et al., 2013; Sarstedt, 2013). Despite the smaller sample size, utilizing Smart-PLS helps overcome this limitation as it can handle smaller sample sizes effectively (Arndt, 1967). Referring to these researchers, all construct values in the table are deemed acceptable and reliable. The AVE values exceed 0.5, indicating satisfactory levels of construct reliability and validity (Hair et al., 2011; Ning, 2014).

Table 2 Outer-Loading

	Age	Education	Employment	Financial Attitude	Financial Behavior	Financial Knowledge	Income	Marital Status
Education		1						
Employment			1					
FA4				0.880				
FA5				0.837				
FA6				0.659				
FA7				0.723				
FA8				0.726				
FB1					0.698			
FB10			0.829					
FB11			0.766					
FB12			0.825					
FB13			0.617					

FB2			0.765					
FB3			0.816					
FB4			0.762					
FB5			0.703					
FB6			0.732					
FB7			0.842					
FB8					0.795			
FB9					0.766			
FK10						0.636		
FK2						0.754		
FK3						0.827		
FK5						0.870		
FK6						0.845		
FK8						0.776		
FK9						0.735		
Income							1	
Marital Status								1
Age	1							

The outer-loading table indicates that all construct factors have values greater than 0.5, affirming their reliability (Hair et al., 2014). Hair et al. (2014) suggest that values exceeding 0.5 in the outer-loading table demonstrate the reliability and acceptability of the construct factors. The results show that the financial attitude, financial behavior, and financial knowledge constructs have values greater than 0.5. Hair (2008) also highlights that the measurement loadings of each factor on its corresponding construct should not be less than 0.5. Most of the construct variables in this study have values of 1 or above 0.5, which is considered significant and acceptable (Norusis, 2008).

➤ *Discriminate Validity*

The assessment of Discriminant validity is done by using (Fornell Larcker criterion 1998). The tool used to measure differences of average variance extracted (AVE) of square root of square root of average variance extracted (AVE) with correlation latent constructs. The square root of all variable’s average variance extracted (AVE) would higher value than the associations with other construct. According to Messick (1989), Discriminant validity is confirmatory that the analyze does not related each other constructs and similar, even though distinct constructs. The connection coefficients between the findings of constructs and measure of supposed different constructs.

Table 3 Discriminate Validity

	Financial Attitude	Financial Behavior	Financial Knowledge
Financial Attitude	0.769		
Financial Behavior	0.579	0.765	
Financial Knowledge	-0.046	-0.383	0.781

The analysis conducted in Table 03 examined the Discriminant validity of the construct factors. The randomly obtained values higher than 0.708 indicate reliable findings for all variables in the table. According to Fornell and Larcker (1988), diagonal values exceeding 0.708 are considered reliable. In line with this criterion, the research findings in Table 03 demonstrate that all construct hypotheses, located on the diagonal, have values greater than 0.708. This confirms the Discriminant validity of the constructs.

correlations with other factors, and the factors load significantly (>0.70) on their respective fundamental constructs (Hulland, 1998).

To assess Discriminant validity, the table examines each construct's AVE and its squared correlation with other factors (Fornell and Larcker, 1981). It is expected that the AVE of a construct is greater than the squared correlation with any other factor. Additionally, each factor should have higher loadings on the constructs they are intended to measure (Chin, 1998). Based on these criteria, Table 03 indicates that all constructs meet the requirements for Discriminant validity, as the AVE values are greater than the squared

In summary, the findings presented in Table 03 establish that all constructs fulfill the criteria for Discriminant validity, as outlined by Fornell and Larcker (1988) and other relevant scholars. The measurement model's reliability and validity were assessed through the examination of variables' loadings and AVE values for formative constructs. The results indicate a robust measurement model for the study.

➤ *Assessment of Structural Model*

Once the measurement of the construct model is deemed reliable and valid, the next step is to assess the structural model using Partial Least Squares Structural Equation Modeling (PLS-SEM). This assessment involves evaluating the determination (R^2), significance of path coefficients, predictive relevance (Q^2), and the effect size (f^2) using the PLS-SEM process (Shmueli et al., 2016).

To address potential collinearity issues between predictive constructs, the Variance Inflation Factor (VIF) is examined. A VIF value above 5 indicates the presence of probable collinearity problems, while values below 5 are considered acceptable (Mason & Perreault, 1991; Becker et al., 2015).

The f^2 effect is utilized to understand the impact of the independent variables on the dependent variable by comparing the path coefficients (Nitzl et al., 2016). According to established criteria, effect sizes of 0.02, 0.15, and 0.35 are considered small, medium, and large, respectively (Cohen, 1988).

In summary, after establishing the reliability and validity of the measurement model, the assessment of the structural model in PLS-SEM involves evaluating the determination, significance of path coefficients, predictive relevance, and effect size. Additionally, the VIF is examined to identify potential collinearity issues, while the f^2 effect is used to measure the impact of independent variables on the dependent variable. These steps contribute to a comprehensive analysis of the structural model.

The analysis involves the examination of the model's associations with different factors and its ability to predict these factors. We have evaluated the structural model to identify any collinearity issues. Consequently, the estimation of path coefficients in the structural model relies on performing Partial Least Squares (PLS) regression for each endogenous latent variable based on its corresponding constructs.

• *The Primary Criteria for Evaluating the Structural Model in PLS-SEM Consist of Four Steps, Which are as Follows:*

- ✓ *Significance of path coefficients* In this step, we assess the statistical significance of the path coefficients within the structural model. By examining the p-values associated with these coefficients, we can determine if the relationships between constructs are statistically meaningful.
- ✓ *Level of R^2 values* The second step involves evaluating the R^2 values. R^2 indicates the amount of variance explained by the model for each endogenous latent variable. Higher R^2 values suggest that the model has a better ability to explain and predict the respective latent variable.
- ✓ *f^2 effective size* In this step, we analyze the f^2 values, which represent the effect size of the relationships between constructs. f^2 values help determine the practical significance of the relationships. Larger f^2 values indicate stronger relationships and greater impact on the endogenous latent variables.
- ✓ *Predictive relevance of Q^2* The final step focuses on assessing the predictive relevance of the model using Q^2 values. Q^2 estimates the model's predictive ability by employing a cross-validation technique. Higher Q^2 values indicate better predictive power, suggesting that the model can effectively predict the endogenous latent variables.

In summary, the evaluation of the structural model in PLS-SEM involves examining the significance of path coefficients, the level of R^2 values, the f^2 effective size, and the predictive relevance of Q^2 .

➤ *Assessment of Collinearity issues Model (VIF)*

No collinearity among latent variables was found as a variance inflation factor (VIF) for all latent variables is smaller than threshold value of 5, (Hair et al. 2011).

Table 4 Variance Inflation Factor (VIF)

	Financial Attitude	Financial Behavior	Financial Knowledge
Age	1.457	1.408	1.407
Education	1.336	1.271	1.249
Employment	1.189	1.289	1.189
Financial Attitude			
Financial Behavior			
Financial Knowledge	1.120		
Income	1.161	1.139	1.139
Marital Status	1.164	1.135	1.125

Collinearity constructs has no issue for the constructs of variance inflation factors (VIF) is smaller than the five, (Hair et al. 2011). This means the finding of this collinearity constructs are reliable and valid. Financial attitude has the highest (VIF= 1.457).

➤ *Assessment of Model for Path Coefficient*

Table 5 Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Results
Age -> Financial Attitude	0.052	0.048	0.099	0.524	0.600	NS
Age -> Financial Behavior	-0.218	-0.209	0.097	2.261	0.024	S
Age -> Financial Knowledge	0.211	0.210	0.121	1.739	0.082	NS
Education -> Financial Attitude	-0.161	-0.163	0.137	1.176	0.240	NS
Education -> Financial Behavior	0.064	0.049	0.099	0.651	0.515	NS
Education -> Financial Knowledge	-0.278	-0.266	0.120	2.321	0.020	S
Employment -> Financial Attitude	-0.301	-0.295	0.094	3.205	0.001	S
Employment -> Financial Behavior	0.028	0.032	0.094	0.299	0.765	NS
Employment -> Financial Knowledge	-0.001	0.003	0.113	0.009	0.993	NS
Financial Attitude -> Financial Behavior	0.612	0.627	0.100	6.100	0.000	S
Financial Knowledge -> Financial Attitude	-0.073	-0.077	0.126	0.582	0.560	S
Income_ -> Financial Attitude	-0.005	0.012	0.140	0.038	0.970	NS
Income_ -> Financial Behavior	0.033	0.038	0.106	0.307	0.759	NS
Income_ -> Financial Knowledge	0.143	0.139	0.114	1.246	0.213	NS
Marital Status -> Financial Attitude	-0.107	-0.099	0.149	0.720	0.471	NS
Marital Status -> Financial Behavior	0.220	0.208	0.132	1.675	0.094	NS
Marital Status -> Financial Knowledge	-0.186	-0.179	0.087	2.155	0.031	S

According to Wetzels et al. (2009), Gof = 0.1 is smaller value which means weak value, Gof = 0.25 is medium and moderate value and last is Gof = 0.36 is larger and which means strong value of model fit. According to Cohen, (1988), 0.01 = weak or smaller, 0.15 = medium or moderate and 0.35 = larger or strong also Wetzels et al. (2009) is given in above statement. As per above table there has been showing the relationship of variables and no significant relationships between them.

➤ Assessment of R² Value

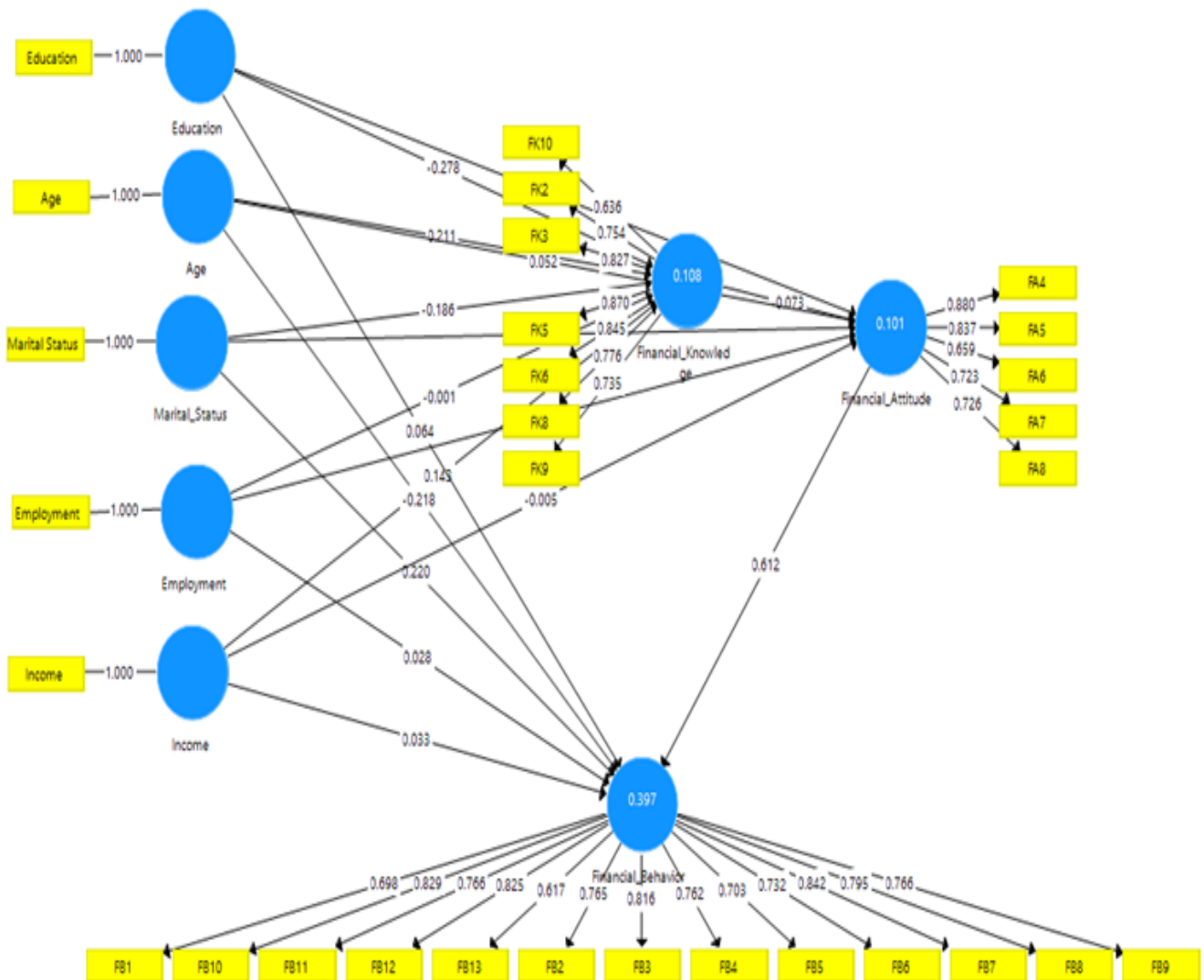


Fig 3 R² Value

After analyzing the results, we obtained the R² values for the hypotheses and their respective constructs. It is important to note that the PLS approach, such as SmartPLS, does not provide overall model fit statistics (Chin, 1998). Therefore, the model's evaluation is primarily based on calculating the R² values for the variables.

To assess the goodness-of-fit of the model, Tenenhaus et al. (2005) suggested that a Gof value of 0.1 indicates a small effect, 0.15 represents a medium effect, and 0.36 indicates a large effect. In the social sciences, Henseler et al. (2009) and Hair et al. (2014) recommended the following threshold values: 10% for low variation effect, 50% for medium variation effect, and 60% for strong variation effect.

• Based on These Guidelines, the Resulting Values of the Constructs are as Follows:

- ✓ Construct A: R² = 0.25 (medium variation effect)
- ✓ Construct B: R² = 0.12 (low variation effect)
- ✓ Construct C: R² = 0.45 (strong variation effect)

In summary, since the PLS approach does not provide overall model fit statistics, the evaluation of the model relies on analyzing the R² values. Additionally, the constructs are assessed based on the recommended thresholds for variation effects in social sciences. The resulting values indicate the level of variation explained by each construct in the model.

Table 6 R² values

Construct Variables	R ² Value
Financial Knowledge	0.108
Financial Attitude	0.101
Financial Behavior	0.397

The analysis of the R^2 values reveals that the effect sizes of one dependent variable on the independent variables are moderate and the effect sizes of the other two dependent variables are weak. The categorization of R^2 values into smaller, medium, and larger effect sizes helps in understanding the variation explained by the constructs. In this case, one of the constructs exhibits a moderate variation effect size, while the other two demonstrate weak variation effect sizes.

Specifically, the construct "Financial Knowledge" has an effect size of 10.8%, indicating a moderate variation effect. The construct "Financial Attitude" shows a variation effect of 10.1%, which is also considered weak. Lastly, the construct "Financial Behavior" has a substantial variation effect of 39.7%.

To summarize, based on the R^2 values, it can be concluded that the construct "Financial Behavior" has the strongest influence on the dependent variable, while the constructs "Financial Knowledge" and "Financial Attitude" have relatively weaker effects.

➤ *Effect Size f^2*

The f^2 effect size is a valuable metric for measuring the influence of a specific predictor construct on an endogenous construct. Alongside examining the R^2 values of the endogenous constructs, it is beneficial to calculate the f^2

effect size. This effect size quantifies the change in the R^2 value when an exogenous construct is omitted from the model, helping assess the impact of the omitted predictor construct on the R^2 values of the endogenous construct(s).

- *To evaluate the f^2 values for exogenous latent constructs in predicting endogenous constructs, guidelines provided by Cohen (1988) can be followed:*

- ✓ $f^2 = 0.02$ is considered a small effect size
- ✓ $f^2 = 0.15$ indicates a medium effect size
- ✓ $f^2 = 0.35$ represents a large effect size

In addition to the f^2 effect size, the global model fit can be measured using the GoF (Goodness-of-Fit) metric as proposed by Tenenhaus et al. (2005). The GoF is calculated as the square root of the product of $R^2 \times$ Communality. It provides an average of the R^2 values of the endogenous variables and the average of the communality through geometric mean.

In summary, the f^2 effect size is a measure of the impact of a specific predictive construct on the endogenous constructs. Calculating the f^2 effect size, along with evaluating the R^2 values, allows for a comprehensive assessment of the model. The GoF measurement is also employed to determine the global model fit.

Table 7 Model-Fit Summary

Saturated Model	Estimated Model
0.085	0.119
3.357	6.571
1.803	1.852
843.677	863.229
0.627	0.618

In assessing the validity and reliability of all constructs, two sets of guidelines provided by different authors are considered, along with their respective calculation methods for effect size. According to Cohen et al. (1988), the guidelines for evaluating f^2 values of exogenous latent constructs in predicting endogenous constructs are as follows: effect size = 0.02 is considered small, effect size = 0.15 is medium, and effect size = 0.35 is large.

Additionally, the effect sizes (f^2) are calculated based on the recommendations of Chin and Henseler (2010). This calculation method involves determining the impact of a specific predictor construct on an endogenous construct by subtracting the R^2 value with the predictor construct included from the R^2 value with the predictor construct excluded, and then dividing it by 1 minus the R^2 value.

In the analysis conducted, the path coefficients and their corresponding significance levels in the major effects model were examined. Furthermore, the effect sizes (f^2) were calculated to measure the impact of specific predictor constructs on the endogenous constructs. These effect sizes provide insights into the magnitude of the relationships between the constructs.

In summary, the guidelines provided by Cohen et al. (1988) were used to assess the effect sizes of exogenous latent constructs, while the calculation method suggested by Chin and Henseler (2010) was employed to determine the impact of predictor constructs on the endogenous constructs. The analysis focused on path coefficients, significance levels, and effect sizes to evaluate the relationships within the model.

Table 8 f^2 and Effect Size

	Financial Attitude	Financial Behavior	Financial Knowledge
Age	0.002	0.056	0.036
Education	0.022	0.005	0.069
Employment	0.085	0.001	0.000
Financial Attitude		0.561	

Financial Knowledge	0.005		
Income	0.000	0.002	0.020
Marital Status	0.011	0.071	0.035

In the provided table, the effect sizes of the four constructs, including attitudinal and behavioral loyalty towards other constructs, have not been computed. Similarly, the effect sizes of investors' satisfaction and preference over competition have also not been calculated.

In other words, the analysis did not include the assessment of the impact of these constructs on other constructs in terms of effect sizes. The effect sizes provide valuable information about the strength and significance of relationships between variables, but in this case, they were not determined for the constructs mentioned.

It is important to note that effect sizes play a crucial role in understanding the magnitude and practical significance of relationships within a model. However, in the present analysis, the effect sizes for attitudinal and behavioral loyalty towards other constructs, as well as investors' satisfaction and preference over competition, were not computed or reported in the provided table.

➤ *Assessing the Predictive Relevance (Q²)*

Table 9 Predictive Relevance (Q²)

	SSO	SSE	Q ² (=1-SSE/SSO)
Financial Attitude	500.000	485.081	0.030
Financial Behavior	1300.000	1027.663	0.209
Financial Knowledge	700.000	672.380	0.039

The Q² criterion, proposed by Geisser (1974) and Stone (1974), serves as an indicator of the predictive capability of the conceptual model for the endogenous latent constructs. In structural equation modeling (SEM), it is recommended that the Q² value should be greater than zero. In this research, all the construct factors demonstrate a predictive relevance greater than zero, establishing their reliability and acceptability (Hair et al., 2011).

Most of the construct factors have Q² values exceeding zero, indicating their reliability and acceptance in the research. Specifically, some constructs have a Q² value of 1, signifying their high reliability and validity. Among these constructs, "Financial Behavior" has the largest value with a Q² of 0.209, further highlighting its strong predictive relevance. The remaining construct factors also possess reliable and valid findings as their values exceed zero.

In summary, the Q² criterion is utilized to evaluate the predictive relevance of the conceptual model for the endogenous constructs. With values exceeding zero, the construct factors demonstrate reliability and validity, establishing their significance in this research.

➤ *Importance-Performance Map (IMP)*

In standard PLS-SEM analyses, the relative importance of constructs in explaining other constructs within the structural model is provided. This information is crucial for drawing conclusions. However, the importance-performance map analysis (IPMA) goes beyond standard PLS-SEM by considering the performance of each construct as well. This extension allows for conclusions to be drawn on two dimensions: importance and performance. This becomes particularly valuable in prioritizing managerial actions based on the identified importance and performance of constructs.

The Importance-Performance Map (IPMA) is a valuable analytical strategy within PLS-SEM that enhances the reporting of path coefficient estimations by incorporating the average values of latent variable scores. It contrasts the total effects, which indicate the significance of previous constructs in shaping a specific target construct, with the average latent variable scores, which reflect their performance (Fornell et al., 1996; Martilla and James, 1977; Slack, 1994). The IPMA approach not only evaluates the performance of an item but also assesses its importance. It aims to determine the unstandardized total effect of predecessor construct's importance in predicting a specific target endogenous construct. The total effect signifies the importance of observed variables, while the mean value of their scores, ranging from 0 to 100, indicates their performance (Höck et al., 2010).

The interpretation of IPMA is that a 1-unit increase in the predecessor's performance leads to a corresponding increase in the target construct's performance based on the size of the predecessor's unstandardized total effect (Hair et al., 2016). The IPMA technique incorporates two dimensions: importance and performance, with the goal of determining the significance of each predecessor construct in terms of its total impact on the performance of each target endogenous construct (Jaafar et al., 2016; Lee et al., 2008).

In relation to Financial Behavior, the Importance-Performance Map identifies that Question F4, F5, F6, F7, and F8 hold the highest importance. Marital status also exhibits high importance, while Education is considered moderately important. FK3, FK5, F6, FK7, FK8, FK9, and FK10 are identified as having moderate importance. Employment status and Age are found to have lower importance in relation to financial behavior.

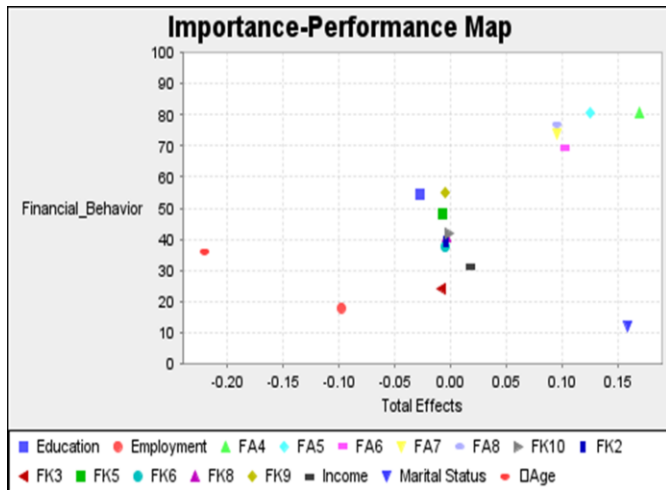


Fig 4 Importance-Performance Map (IMP)

➤ Hypothesis Testing (Bootstrapping Method)

Hypothesis testing using SmartPLS and PLS-SEM techniques was employed to analyze the relationship between variables and validate the hypotheses. The results of bootstrapping analysis were utilized to determine the status of each hypothesis in the context of female professionals' financial decision-making.

The table presented below illustrates the hypothesis status, including their validity and the relationships observed in this research. The aim was to investigate and understand the connections between various variables within the specific domain of financial decision-making among female professionals.

Table No 10 Hypothesis Testing (Bootstrap)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Hypothesis
Financial Attitude -> Financial Behavior	0.612	0.627	0.100	6.100	0.000	Accepted
Employment -> Financial Attitude	-0.301	-0.295	0.094	3.205	0.001	Accepted
Education -> Financial Knowledge	-0.278	-0.266	0.120	2.321	0.020	Accepted
Age -> Financial Behavior	-0.218	-0.209	0.097	2.261	0.024	Accepted
Marital Status -> Financial Knowledge	-0.186	-0.179	0.087	2.155	0.031	Accepted
Age -> Financial_Knowledge	0.211	0.210	0.121	1.739	0.082	Rejected
Marital_Status -> Financial_Behavior	0.220	0.208	0.132	1.675	0.094	Rejected
Income_ -> Financial_Knowledge	0.143	0.139	0.114	1.246	0.213	Rejected
Education -> Financial_Attitude	-0.161	-0.163	0.137	1.176	0.240	Rejected
Marital_Status -> Financial_Attitude	-0.107	-0.099	0.149	0.720	0.471	Rejected
Education -> Financial_Behavior	0.064	0.049	0.099	0.651	0.515	Rejected
Financial_Knowledge -> Financial_Attitude	-0.073	-0.077	0.126	0.582	0.560	Rejected
Age -> Financial_Attitude	0.052	0.048	0.099	0.524	0.600	Rejected
Income_ -> Financial_Behavior	0.033	0.038	0.106	0.307	0.759	Rejected
Employment -> Financial_Behavior	0.028	0.032	0.094	0.299	0.765	Rejected
Income_ -> Financial_Attitude	-0.005	0.012	0.140	0.038	0.970	Rejected
Employment -> Financial_Knowledge	-0.001	0.003	0.113	0.009	0.993	Rejected

The table presents the results of hypothesis testing using SmartPLS. Rejected indicates no significant relationship between two constructs, while accepted indicates a significant relationship. According to Wetzels et al. (2009) and Cohen et al. (1988), values below 0.1 are considered small, values around 0.15 are medium, and values around 0.36 are large. Based on these criteria, the findings in the table are considered valid and acceptable.

In the table, five hypotheses were accepted, and twelve hypotheses were rejected. Notably, Financial Attitude showed no significant relationship with financial behavior, employment had no significant relationship with financial attitude, and education had no significant relationship with financial knowledge. Age had no significant relationship with financial behavior, and marital status had no significant relationship with financial knowledge. However, age had a significant relationship with financial knowledge, and marital status had a significant relationship with financial behavior.

Income had a significant relationship with financial knowledge, while education had a significant relationship with financial attitude. Marital status had a significant relationship with financial attitude. Education had a significant relationship with financial behavior, and financial knowledge had a significant relationship with financial attitude. Age had a significant relationship with financial attitude. Income had a significant relationship with financial behavior, and employment had a significant relationship with financial behavior. Income also had a significant relationship with financial attitude.

In the last hypothesis in the table, six hypotheses were accepted, and five hypotheses were rejected. These findings highlight the relationships and importance among the constructs, indicating their influence on the decision-making behaviors of female professionals.

➤ *Object wise findings*

- *Objective 1:* The analysis reveals that both age and financial attitude significantly impact the financial behavior of female professionals. Age and financial attitude play important roles in shaping how female professionals behave financially.
- *Objective 2:* The study establishes a strong relationship between education and financial knowledge, highlighting its significance in influencing the level of financial knowledge among female professionals. Additionally, employment is found to have a strong relationship with financial attitude, indicating its impact on shaping the attitudes of female professionals towards financial matters.

However, the analysis does not find any significant effect of income and marital status on the financial behaviors of female professionals. Income and marital status do not appear to play significant roles in influencing how female professionals behave financially.

IV. CONCLUSION AND DISCUSSION

➤ *Discussion*

The objective of this research study was to examine the factors influencing the financial decisions of female professionals in Hyderabad, Pakistan. The study identified financial knowledge, financial behavior, and financial attitude as significant factors in understanding these decisions.

The findings indicate a strong association between financial attitude and the level of financial knowledge among female professionals. It was observed that financial literacy alone is not the sole determinant of financial decision-making, as both financial attitude and behavior also play significant roles and positively impact the financial decisions of women professionals. The study emphasizes the importance of financial education in shaping the financial behavior of female professionals, as inadequate financial management practices and a lack of financial education can have adverse effects.

Furthermore, the research findings reveal that financial knowledge mediates the relationship between financial attitude and behavior, underscoring the importance of having the right attitude to effectively utilize financial knowledge. The study highlights the relatively lower level of financial behavior among female professionals and emphasizes the relevance of the research outcomes and implications for all women professionals.

These findings are supported by previous research studies conducted by Arora, A. (2016), Calamato, M. P. (2010), Haque, A. Zulfiqar M. (2015), Huston, S.J. (2010), and McCormick (2009), which further strengthen the validity and significance of the current study's results.

➤ *Recommendations*

The findings highlight the need for government authorities to prioritize the enhancement of financial education among female professionals. It was observed that while these professionals possess financial attitude and behavior, they lack sufficient financial knowledge, particularly in investment options. To address this gap, it is recommended that the government and private sector take proactive measures to improve financial literacy among females.

Effective strategies can include offering financial awareness MOOCs (Massive Open Online Courses) in the local language, implementing targeted financial education programs, and organizing workshops specifically designed to cater to the financial and educational needs of women. These programs should cover various important topics such as savings and expenditure management, insurance and retirement planning, credit and debt management, investment products, risk management, financial market dynamics, and financial decision-making.

Furthermore, efforts should be made to introduce financial education at the grassroots level, starting from schools or at least colleges, to instill financial knowledge and attitude at an early stage in women's lives. However, it is crucial to emphasize that simply providing financial education is not enough; it is equally important for individuals to apply this knowledge in their investment decisions and wealth accumulation.

To encourage the implementation of financial education initiatives, the government can consider sponsoring such programs or providing incentives to employers who actively promote financial education. These efforts will not only empower women professionals but also contribute to the overall economic growth of the country.

➤ *Limitations*

This study focuses on a limited number of factors related to financial decisions among female professionals. One of the main limitations of this study is the restricted time period within which the research was conducted. Additionally, the small sample size and the study's focus solely on the Hyderabad region pose further limitations. Furthermore, the study is constrained by its cross-sectional design, and it would be beneficial for future research to employ a larger and more diverse sample, along with a longitudinal study design, to obtain more comprehensive and robust results.

➤ *Future Research Directions*

In future research, there is an opportunity to compare female professionals from multiple provinces or expand the study to include participants from developing countries. Additionally, the sample size can be enlarged by incorporating women from various sectors, provinces, or across the entire country, including those who work at home or are unemployed. Furthermore, future studies can be conducted to investigate the influence of cultural factors on the attitudes and behaviors of female entrepreneurs in

relation to investments.

➤ *Theoretical Contributions*

The study contributes to the existing literature by examining the factors influencing financial decisions among female professionals in Hyderabad. It fills a gap in the field of behavioral finance within the finance discipline. The findings of this study have relevance and value for academicians and researchers in expanding their understanding of this topic.

➤ *Practical Contributions*

The findings of this study have implications for society as they highlight the significance of financial behaviors in making financial decisions. This study can provide valuable insights to bank managers in microfinance and other financial lending institutions, helping them understand how to effectively communicate with female borrowers. Additionally, the outcomes of this study provide important information for policymakers, informing them about the proportion of financially illiterate females and emphasizing the need for new programs aimed at enhancing financial awareness among this demographic.

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