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Research Article

Does the Financial Literacy of Academicians Predict their Investment Decisions? A Higher Order SEM Method for Estimation

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ABSTRACT

This research intends to investigate the influence of financial literacy on the investment decisions made by the academicians of higher educational institutes in the Uttarakhand region of India. Data from 400 respondents was collected utilizing a non-probability convenient sampling. The current study enumerates financial literacy and Investment decisions as concepts with several facets. Consequently, the study uses PLS-SEM and aims to validate investment decisions and financial literacy as higher-order constructs. The results demonstrate a favorable impact of Financial Literacy on academician's investment decisions. The measurement model findings further support interpreting financial literacy and investment decisions as higher-order models. The conclusion suggests the need for more research on academicians, as they are crucial in imparting financial literacy to students, that can help them make well-informed investment decisions. The study carries implications for the government and policymakers striving to enhance individuals' Financial Literacy for making prudent investment choices.

Keywords: Financial Literacy, Investment decision, Higher-Order Construct, Financial Attitude, financial Behaviour, financial knowledge, Academicians

INTRODUCTION

With the increasing liberalization of financial markets, individuals are assuming more responsibility for their personal investment and wealth management. Investors choose between economic investments (e.g., equipment, buildings) and financial investments (e.g., stocks, bonds, mutual funds) based on their needs, risk tolerance, and expected returns. These investments are crucial for boosting productivity and strengthening a nation's economy. Countries with a strong commitment to investment tend to be more progressive and successful (Sarkar et al.,2018). However, many investors struggle to understand the risks associated with financial instruments, especially as these instruments have become more complex (Gui et al., 2021). This highlights the need to enhance investors' financial knowledge.

According to Messy et al. (2016), financial illiteracy is a major obstacle to a nation's economic growth. Numerous studies worldwide emphasize the crucial role of financial literacy in empowering individuals to effectively plan for their retirement and manage their savings (Clark et al.,2017; Lusardi, A., & Mitchell, O. S., 2011). Moreover, financial literacy significantly influences decisions about investments and participation in the stock market (Gupta, Sangeeta, 2017; Hassan Al-Tamimi et al., 2009; Jariwala, H. V., 2015; Mouna, A., & Anis, J., 2017). Stolper, O., & Walter, A. (2017) defined financial literacy as individuals' understanding of finance concepts and their effective implementation. It involves awareness and comprehension of finance concepts that enable sound judgment in financial decisions and proper management of individual finances (Remund, D. L., 2010; Stolper, O., & Walter, A., 2017; Yakoboski et al., 2022). According to NCFE, financial literacy helps customers make informed financial choices, thereby promoting financial inclusion (RBI, 2021). Sconti, A. (2024) aso underlined the significance of financial literacy in protecting individuals from financial strain and difficulties, specifically during the period of challenges.

Several studies have explored the link between individuals' financial literacy and investment decisions among various groups, including students (Arianti, B. F., 2018; Owusu, et al.,2020; Kumari, D. A. T., 2020; Mohd Padil et al.,2022), salaried individuals (Bhushan, P., 2014; Assefa et al.,2018), investors (Baihaqqy et al.,2020; Bellofatto et al.,2018; Hassan Al-Tamimi, H. A., & Anood Bin Kalli, A., 2009; Raut, R. K., 2020), and households (Li, J., Li, Q., & Wei, X., 2020; Mouna, A., & Anis, J., 2017). Yet, there is limited body of research investigating link between financial literacy and investment decisions from educators' perspectives. Surendar, G., & Sarma, V. S. (2017) discovered that there is not much research looking at the connection between financial literacy and financial planning among faculties of higher educational institutes. According to Jenita, A. M. A. (2020), the research on the investment behavior of faculties at higher educational institutes is very limited, despite the complex and multifaceted nature of the teaching profession. In this study, we seek to bridge this gap by examining financial literacy's impact on academician's investment decisions. Where academicians of higher educational institutes in Uttarakhand were included in the study.

Investment decisions and financial literacy consist of multiple elements that can make the cause-effect relationship quite complex. To reduce the complexity involved in analyzing the number of relationships in the structural model, researchers have increasingly employed higher-order constructs in their PLS-SEM (Sarstedt, M., Hair, J.F., Pick, M., Liengaard, B.D., Radomir, L., & Ringle, C.M.,2022). Such a construct includes more abstract components that measure a broader concept. The present study also aims to investigate both constructs as higher-order constructs using the Smart PLS technique.

Literature Review and Hypothesis Formulation

2.1 Financial Literacy

Financial literacy, as per the OECD, 2013 encompasses a wide range of abilities like knowledge, understanding, awareness, attitudes, and habits that enable individuals to make informed financial decisions and improve their financial wellness. The lack of a worldwide standard for measuring financial literacy prompted the OECD/INFE to create an instrument that evaluates the financial literacy of individuals around the world. Thus, the OECD measurement of financial literacy is comprehended with three main elements: Financial Attitude, Financial Behaviour, and Financial Knowledge. Similarly, Potrich et al. (2018) constructed a valid model for financial literacy based on these three dimensions. On the same grounds several other studies such as. Atkinson, A. and F. Messy (2012); Janor et al. (2017), Agarwalla et al. (2015); Bajaj, I., & Kaur, M. (2022); Chettri, P., Mothey, A., & Chhetri, M. (2024) among others have included these three factors for assessing the level of financial literacy among people worldwide. Delavande et al. (2008) defined financial knowledge as a specialized form of human capital that is developed gradually over time through experiences related to the potential to manage income, expenditure, and savings effectively. Whereas financial attitude according to Shockey (2002) is an amalgamation of beliefs, knowledge, and emotions about money that leads to a positive temperament towards finances. However, to achieve financial stability, financial knowledge and attitudes alone are insufficient (Vieira et al.,2020). Apart from knowledge and willingness to act, a clear understanding of the financial situation is also required. In this context, OECD (2013) highlighted financial behavior as one of the most important elements of Financial Literacy.

2.2 Investment Decision

Virlics, A. (2013) defined investment as the process of allocating resources over time with the expectation of generating profitable returns. This may involve committing funds for a medium or long term, with the goal not only of recovering the initial investment cost but also of gaining substantial returns. Investments can be made in different types of assets, both physical and financial (Bodie et al.,2018). Common types of physical assets include land, buildings, machinery, and commodities like gold. Examples of financial assets are bank accounts, bonds, mutual funds, and stocks (Ainia, N. S. N., & Lutfi, L., 2019). According to the SIS Report 2015, among market-based instruments, mutual funds are the most popular in urban households, followed by equities and debentures, while derivatives and futures have a very low preference. Among non-market-based instruments, people prefer bank deposits the most, followed by life insurance, precious metals, post office schemes, and real estate. The dominance of physical assets, specifically gold, land, and buildings, can be seen among Indians (Badarinza et al., 2016).

Decision-making is a complex skill that involves assessing the most suitable option from the available ones. Choosing the best alternative can be challenging as many factors have to be considered, and individuals cannot solely rely on

personal resources to make a decision (Abdeldayem, M. M., 2016). Decision-making involves choosing a future course of action to meet specific goals. In 2015, SEBI conducted an extensive survey analyzing household investment objectives. The results demonstrated that the majority of investing households prioritize capital gain as their investment's primary goal. Additionally, improving lifestyle and fulfilling liquidity needs were also significant motivating factors for household investments.

Investors are acquainted with abundant information about financial products while making an investment decision. In this context, Bi et al. (2017) aimed to determine the information that could significantly impact investor behavior in Chinese crowdfunding. The outcome revealed that both quality signals and electronic word of mouth have comparable effects on investor behavior. Nuzula et al. (2019) discovered a robust connection between information sources and investors' investment behavior in the security market. After classifying sources of information into five categories it was inferred that information derived from annual reports and advice provided by qualified financial advisors influence the investment decisions. In contrast, mass media, the internet, and word-of-mouth do not influence investment decisions Lusardi, A., & Mitchell, O. S. (2011) indicated that financially literate individuals tended to rely on formal sources such as financial planners, retirement seminars, and calculators when planning for their retirement. They were less likely to seek advice from informal sources like family, friends, or co-workers.

The literature above showcases the different aspects of Investment decisions such as frequency of investment, importance of choosing a product, sources of information, and objectives of investment among others.

2.3.1 Financial Literacy and Investment Decision

A recent study by Wendy, W. (2024) reveals that financial literacy-which is defined as a person's financial knowledge, competencies, and attitudes-has a favorable influence on investment-related decision-making. In this context, 233 survey responses were collected from investors (who have finished their training related to financial management) from 8 provinces of Indonesia. However, risk perception as a moderator diminished the effect of financial literacy on Investment Decisions. Moreover, the research indicates that differing levels of financial literacy result in variations in the behaviour related to investment. This states that individuals with higher financial literacy are more likely to allocate a greater portion of their assets in financial instruments when compared with individuals with low financial literacy.A study by Zahwa, A. F. N., & Soekarno, S. (2023) found that components of financial literacy namely Financial knowledge, Financial behavior, and Financial attitude, significantly influence investment decisions. Financial knowledge showed a negative correlation, while behavior and attitude had a positive correlation, indicating that a positive outlook and better financial behavior lead to more effective investments. Likewise, Hc, R., & Gusaptono, R. H. (2020) studied financial literacy's influence on investment choices among customers in the Yogyakarta Special Region in Indonesia, finding a significant impact. Similarly, Nugraha, R.K., et.al. (2022) discovered that financial literacy elements significantly impact students' investment choices at Mercu Buana University in Jakarta. Kumari, D. A. T. (2020) studied 200 undergraduate students in Sri Lanka and found a positive association between financial literacy and informed investment decisions, particularly regarding financial skillfulness, investment choice insight, and knowledge of financial products. Raut, R. K. (2020) argued that adopting financial literacy can help investors establish a logical mindset for making investment choices, increasing their confidence in decision-making.

Investors' Potential to make sound investment decisions depends largely on their financial literacy level, which underscores the critical role of education in providing the necessary knowledge for choosing financial products. Lusardi and Mitchell (2007a) found a lack of financial literacy among females, African Americans, and less educated individuals, affecting their investment decisions. These groups were found to participate less in the stock market, lack clarity on retirement plans, and exhibit poor borrowing behaviour. Similarly, after investigating financial literacy's influence on portfolio choices and investment income of Chinese households, Li, J., Li, Q., & Wei, X. (2020) found that financial literacy substantially enhances investment in high-risk assets, augmenting their ability to comprehend and contrast financial assets, resulting in better investment decisions and potentially higher returns. Abdeldayem, M. M. (2016) also found that financial literacy influences investors' preferences for different financial products. Likewise, Bhushan, P. (2014) observed that financial literacy affects awareness and investment choices regarding various financial products among salaried individuals in Himachal Pradesh.Several other studies have concluded the significant effect of financial Literacy on Investment choices (Hassan Al-Tamimi et al.,2009; Jariwala, H. V.,2015; Gupta, Sangeeta.,2017; Assefa, M., & Rao, D.,2018; Upadana et al.,2020; Chandra et al.,2023).

2.3.2 Financial Literacy and Investment Decision

The authors, Wangi, L. A. L. G. C., & Baskara, I. G. K. (2021) acknowledge that factors such as financial attitude, financial behavior, and financial knowledge play a pivotal role in investment decisions that can lead to favorable outcomes in the future.Studies have demonstrated that MSME operator's financial attitudes have a significantly positive impact on their investment choices. Referring to the MSME actors, the study further states that those with positive financial attitudes display a positive mindset, opinion, and discernment related to financial decisions. Further assisting the business owners to diversify their funds into different forms of investment avenues (Rustan, D. M.,2021).Paluri, R. A., & Mehra, S. (2016) focussed on the attitude of Indian women regarding financial matters. The study concentrated on splitting the Indian women based on their financial attitude. The formation of different clusters was identified with their unique features which offer strategic implications for managers. Few clusters were recognized as very significant for the marketers as they included respondents who had a keen interest in financial topics and understood financial jargon.Various other studies in the past have confirmed the correlation between people's financial attitudes and the Investment decisions they make (Zahwa et al.,2023; Pradana et al.,2021; Dwiastanti, A.,2017).

2.3.3 Financial Literacy and Investment Decision

Pradana, et al. (2021) argued that an individual's financial behavior is a significant factor in predicting the likelihood that they make an investment that corresponds with their financial Management style. Upadana et al. (2020) executed research that aimed to gauge and assess how financial Literacy and Financial Behavior affect Investment decisions. It also aims to ascertain the disparities in investment choices made by Udayana University and Ganesha Education University students. The study revealed that behavior concerning financial matters had a favorable influence on Investment decisions. A study by Nugraha, R.K., et.al. (2022) found that the financial behavior of students at Mercu Buana University in Jakarta has significantly impacted their investment choices. Stated another way the students who made wise financial decisions would also make appropriate investment choices. The conclusion of the investigation carried out by Rustan, D. M. (2021) demonstrated that responsible financial conduct impacts effective investment decisions among MSME operators. This states that the Investment Choices of the MSME Operators are influenced by overall financial behavior which is shaped by psychological features.

2.3.4 Financial Knowledge and Investment Decision

Clark et al. (2017) examined the relationship between Investment Performance and financial Knowledge using details from a large financial institution with over 20000 employees across the United States. The Organization offers a retirement plan with a range of investment options. The findings of the study concluded that other things remain the same, people who are more financially knowledgeable tend to invest more in stocks. Furthermore, the investment portfolio of individuals with high financial knowledge was observed to be more unstable, particularly those with the highest degree of financial knowledge. According to Pradana et al. (2021) with financial knowledge, a person can better understand financial situations and make informed decisions to improve them. Overall, financial knowledge is crucial for enhancing one's financial well-being. Wangi, L. A. L. G. C., & Baskara, I. G. K. (2021) emphasized the significance of financial knowledge in managing funds effectively, after investigating Denaspur City, Indonesia residents who regularly trade in stock market.Various other studies in the past have already verified the link between Investment decisions and Financial Knowledge (Mubaraq, M. R., Anshori, M., & Trihatmoko, H., 2021; Akhtar, F., & Das, N.,2019; Baker et al.,2019; Sahi et al.,2013).

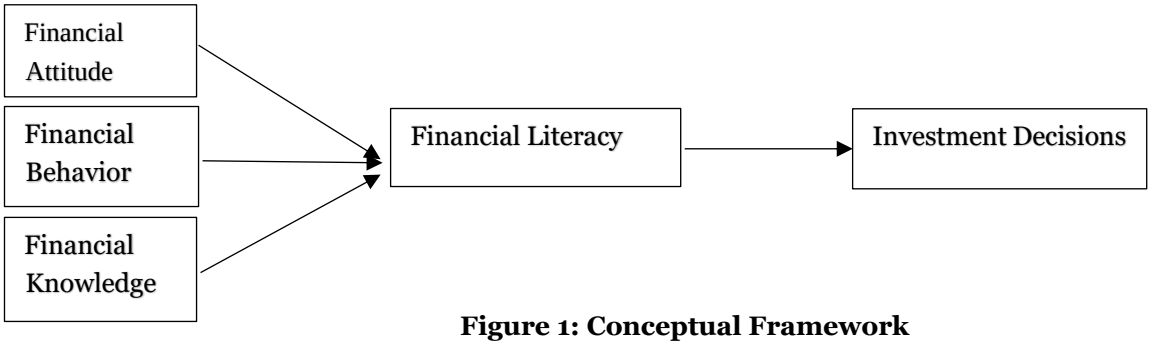


Figure 1: Conceptual Framework

Sample Survey and Measure of Variables

Given their academic background, educators have the potential to positively influence the various facets of students' lives. In light of this, the objective of this study is to explore financial literacy's influence on the investment decisions of faculty members in higher educational institutions in the state of Uttarakhand, India. The data was collected from 400 faculties from both private and government colleges in these cities using a non-probability convenient sampling method. The information was gathered using an online questionnaire from 61% of males and 39% of females. The age bracket of 25–34 (57%) had the highest proportion of responders, followed by those under 25 (27.5%), 35–44 (9%), and over 45 (6%). Of these, 38% had finished a Ph.D., 41.3% had a Master's degree, and 13.8% fell into the other category. The largest group of respondents, 66.8%, had between 5-10 years of work experience. Subsequently, participants with more than ten years of experience accounted for 18.3%, followed by those with less than five years of experience, making up 15%.

To assess financial Literacy, we used a composite measure that encompasses: Financial Attitude, Financial Behaviour, and Financial Knowledge, suggested by the Organization of Economic Cooperation and Development and also adhered to by the NCFE, India. To evaluate financial attitude, a 10-question scale was formed using a 5-point Likert scale (1=Completely Disagree to 5=Completely Agree). These statements explored participants' views on their spending habits, saving practices, and record-keeping, among others. On the other hand, to assess Financial behavior, 10 statements were structured, using a 5-point Likert scale (1=Never to 5=Always). These statements evaluated individuals' behavior in terms of financial goal setting, affordability consideration, budgeting, savings, debt management, and cash management. The scale used to assess financial attitude and financial behavior was based on previous research conducted by the OECD (2018), NCFE (2019), Potrich et al. (2018), and Potrich et al. (2015). Moreover, to assess financial knowledge, a 10-question scale was formed (based on the Time value of money, diversification of risk, interest rate, numeracy, and inflation) utilizing a 5-point Likert scale (1=Completely Disagree to 5=Completely Agree) adapted from Van Rooij, M., Lusardi, A., & Alessi, R. (2011), NCFE (2019).

To determine the elements of Investment decisions a questionnaire was formed, which was adapted from well-established literature for which its reliability and validity were assessed. The 9 financial instruments used in the study for measuring frequency of investment (1=Never to 5=Always) were adapted from previous literature such as SEBI and NCAER 2015; Bhushan, P. (2014); OECD/INFE (2018). The variable, objective of investment which contains 6 statements (1=Extremely unimportant to 5=Extremely important) were adapted from OECD/INFE (2018), SEBI, and NCAER 2015; Chaurasia, P. (2017) while source of information (1=Least Preferred to 5=Most Preferred) which encompass 7 statements adapted from OECD/INFE (2018), Lin, Q., & Lee, J. (2002); Al-Tamimi, H. A. H. (2006). The final determinant namely the importance of choosing a product (1= Extremely unimportant to 5=Extremely important) comprising 4 statements was taken from OECD/INFE (2018).

Analysis & Findings

As investors have numerous choices to park their savings, it is crucial to analyze the investment process and management comprehensively (Penaranda, F., 2016). Lan et al. (2018) identified various investment decision variables such as the size of investments, the types of investments made, the frequency of transactions, the styles of decision-making, and the sources of investment information. These variables constitute the major behaviors displayed by investors at several stages of decision-making. As a consequence, investment decision becomes a common element representing several components. Thus, making investment decisions is a higher-order construct. When such a situation arises where HOC serves as a common element for several sub-components, the type of connection between LOC and HOC is reflective thus stating it as a reflective-reflective higher-order -construct (Lohmoller, J.B., 1989). On the other hand, financial literacy, as defined by the OECD and other researchers (Potrich et al., 2018; Agarwalla et al., 2015), comprises financial attitude, behavior, and knowledge. Based on this definition, the present study seeks to validate financial literacy as HOC (formative) formed with three lower-order components (Reflective) making it a Reflective-Formative Type II Construct.

The PLS-SEM is used to validate the model as it can assess reflective and formative constructs simultaneously (Ali et al., 2018). Financial Literacy is a Higher-Order construct constituted by three reflective zero-order constructs (Financial Attitude, Financial Behaviour, and Financial Knowledge). As a result, the measurement model is Reflective-Formative. On the contrary, the Investment decision is a reflective second-order construct represented by six lower-order constructs with reflective items (Investment Awareness Preference, Frequency of investment,

Objectives of investment, Sources of Information, and Importance of investment) thus making it a Reflective-Reflective Model. According to Lohmoller, J.B.(1989) a higher-order is reflective, when it serves as a common element for various other specific factors. Notably, both Higher-order constructs have no indicators of their own. In this respect, Guinot et al.(2001); Lohmoller, J.B. (1989); Tenenhaus et al.(2005), highlighted the significance of PLS Path modeling in the development of the Hierarchical model with the repeated use of measured variables. According to Wetzels et al.,2009 the observed variables are primarily used for first for the lower-order construct and then for the higher-order construct. This approach is the repeated indicators approach and can easily be expanded to a second-order hierarchical model (Noonan et al.,1983). Chin (1998); Tenenhaus et al. (2005) specified the possibility of calculating the latent variable score (in the PLS path model) of the lower-order latent variable which can be used further as measured variables for the higher-order construct.

4.1. Assessment of Multi-dimensional Structures: Measurement Model

Smart PLS 4 software was used to test Reflective-Formative higher-order and Reflective-Reflective structures of Financial Literacy and Investment decisions. The Measurement model was constructed utilizing the repeated indicators approach. Using this approach, the Higher-order construct can be elaborated by using manifest variables of all the lower-order constructs (Lohmoller, J.B., 1989; Guinot et al.,2001; Wetzels et al.,2009; Becker et al.,2012; Tehseen et al.,2019). In this context, Sarstedt, et al. (2019) discussed the evaluation criteria of Higher-order models. For the reflective-formative and reflective-reflective models, the measurement criteria state that the reliability of the lower-order constructs should be reported first followed by the reliability and validity of the higher-order construct. Hair et al. (2019) outlined the procedure for assessing the measurement model for reflective and formative constructs. Stating that for a reflective construct: Indicator's loading, Cronbach's alpha, composite reliability, ρA, Average variance extraction (AVE), and HTMT must be assessed while the formative construct must report the collinearity statistics (VIF), redundancy analysis, and the significance and relevance of the indicators weight. Following the suggestions of Hair et al.(2017); Hair et al.(2019) the lower-order constructs were assessed for their internal consistency reliability, convergent validity, and discriminant validity.

According to Cortina, J.M.(1993), Cronbach's alpha is the most widely used measure of internal consistency. Hair et al, 2017 specified that internal consistency reliability is ensured when composite reliability and Cronbach's α, ρA are greater than 0.70 and less than 0.95. Table 1.1 showcases all the variables (LOC)with values of Cronbach's alpha and composite reliability within the recommended threshold value. Hair et al., 2017 specified suitable criteria for achieving convergent validity through Average variance extracted (AVE), indicators loading, and composite reliability. Chin, W. W. (1998) suggests that AVE above 0.50 signifies that the construct explains at least 50 percent of the variance of its items. As shown in Table 1.1 the AVE of all the measures exceeds the cut-off value of 0.50 as recommended by Fornell and Larcker (1981). Likewise, Hair et al. (2017) suggested that in social science research, factor loading values higher than 0.6 are considered acceptable. Following the recommendation, the outcome reveals (Table 1.1) that all items load on their respective construct with a value higher than 0.6. Further, researchers suggested evaluating discriminant validity through cross-loadings of items, Fornell & Larcker's criterion, and the HTMT(Heterotrait-Monotrait) ratio of correlation.. The HTMT values (Table 1.2) below 0.85 and significantly lower than 0.9 indicate supporting the discriminant validity (Franke et al., 2018). The Fornell & Larcker's criterion as stated by Fornell, C. and Larcker, D.F. (1981) must be greater than 0.70. All the variables (Table 1.3) had a value that surpassed the threshold limits.

Lowe-Order Construct	Form	Items	Indicator Loading	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Financial Attitude	Reflective	FA3 FA4 FA6 FA7	0.63 0.789 0.635 0.813	0.701	0.738	0.811	0.521

Financial Behaviour	Reflective	FB1 FB2 FB3 FB4 FB5 FB6 FB7 FB8 FB9 FB10	0.613 0.703 0.703 0.726 0.708 0.701 0.782 0.735 0.652 0.615	0.881	0.883	0.903	0.5
Financial Knowledge	Reflective	FK1 FK5 FK6 FK7 FK8 FK9 FK10	0.716 0.774 0.74 0.79 0.668 0.787 0.677	0.859	0.864	0.893	0.544
Investment Frequency	Reflective	IF1 IF2 IF3 IF4 IF5 IF6 IF7 IF8 IF9	0.6 0.664 0.721 0.745 0.759 0.752 0.77 0.729 0.668	0.881	0.883	0.905	0.515
Investment Importance	Reflective	II1 II2 II3 II4	0.734 0.832 0.675 0.746	0.742	0.752	0.836	0.561
Investment Objectives	Reflective	IO1 IO2 IO3 IO4 IO5 IO6	0.636 0.815 0.812 0.801 0.793 0.796	0.868	0.871	0.902	0.606
Source of Information	Reflective	IS1 IS2 IS3 IS4 IS5 IS6 IS7	0.734 0.773 0.8 0.749 0.844 0.794 0.777	0.894	0.895	0.917	0.612

Table 1.1: Internal Consistency and Convergent Validity of Lower-Order Construct

	FA	FB	FK	IF	II	IO	IS
FA							
FB	0.482						
FK	0.410	0.697					

IF	0.352	0.543	0.512				
II	0.343	0.533	0.427	0.668			
IO	0.486	0.717	0.738	0.635	0.663		
IS	0.338	0.584	0.473	0.621	0.709	0.725	

Table 1.2: HTMT Criterion

	FA	FB	FK	IF	II	IO	IS
FA	0.722						
FB	0.406	0.700					
FK	0.342	0.610	0.738				
IF	0.256	0.480	0.453	0.718			
II	0.253	0.446	0.363	0.549	0.749		
IO	0.402	0.627	0.638	0.542	0.552	0.778	
IS	0.276	0.516	0.414	0.553	0.596	0.637	0.782

Table 1.3: Fornell-Larcker criterion

4.2 Estimation of Higher-Order Constructs:

As our model contains two higher-order constructs, one reflective (Investment Decision) and the other formative (Financial Literacy), the measurement specifications of both are different. For a Higher-Order Formative construct i.e. Financial Literacy, the latent variable scores of the lower-order construct (financial attitude, financial behavior, financial knowledge) were calculated which was utilized for the assessment of the Higher-order construct. Hair et al., 2018; Ringle et al. (2020) focused attention on carrying out a redundancy analysis of a formative construct by assessing its convergent validity. In this context, Chin (1998); Hair et.al. (2017); Cheah et al.(2018) highlighted the use of a Single global item for redundancy analysis. In such a case the formative construct is treated as an exogenous variable while the global item measuring the same concept is treated as an endogenous variable (Chin, 1998). The path coefficient between the exogenous (Financial Literacy) and endogenous variables (Global item) as reflected in Figure 3 is greater than 0.7 with more than 50 percent of the Variance (R2) of the endogenous variable being explained by the exogenous variable which according to Hair et.al 2017 is sufficient to achieve convergent validity of a formative construct. Furthermore, the formative construct was assessed for the indicator's collinearity followed by the significance and relevance of indicator weight (Sarstedt et al.,2019). Assessing Collinearity typically involves calculating the Variance Inflation Factor. The VIF values as indicated in the Table 2.1 reveal that the correlation between items is below 5 which is acceptable according to Hair et al., 2011. Finally, to evaluate the significance and relevance of the indicator's weight the bootstrapping procedure was utilized to arrive at the P-values (Hair et al., 2021). Using the bootstrapping procedure of 5000 resamples (Sarstedt et al., 2014), the statistical significance of each indicator's weight was assessed. The significant T-values (Table 2.2) for all the indicators provide enough evidence to keep all indicators (Hair et al., 2021; Sarstedt et al., 2019)

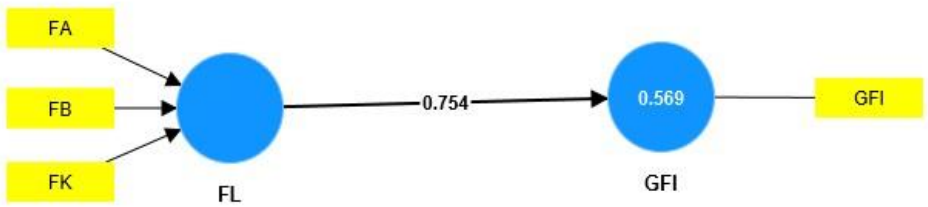


Figure 3: Convergent Validity: Global Item

Outer Model	VIF
FA	1.194
FB	1.689
FK	1.607

Table 2.1: VIF Values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FA -> Financial Literacy	0.143	0.144	0.061	2.328	0.020
FB -> Financial Literacy	0.558	0.556	0.068	8.148	0.000
FK -> Financial Literacy	0.484	0.481	0.07	6.945	0.000

Table 2.2: Outer Weights

For estimating the Reflective higher-order construct (Investment Decision), the latent variable score of its lower-order construct was calculated (Chin 1998; Tenenhaus et al., 2005) based on which the reliability and validity of the higher-order construct were stated (Sarstedt et al.,2019). To assess the reliability of the Higher-order construct (Investment decision) we used the score of composite reliability and Cronbach Alpha. The results display (Table 2.3) that the values of CA and CR as 0.841 and 0.892 are within the threshold limit (more than 0.70) as specified by Hair et al., 2017. Construct validity was evaluated using Convergent and Discriminant validity. Convergent validity was tested using the results of AVE while Discriminant validity was tested using Fornell larker Criteria. An AVE higher than 0.5 is recommended while the Fornell-Larker criteria is suggested to be higher than 0.7 (Fornell and Larcker,1981). The values of AVE and Fornell-Larker as shown in Table 2.3 & Table 2.4 are within the specified limits which assures the achievement of convergent and Discriminant validity.

Higher -Order Latent Variable	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Investment Decision	0.841	0.892	0.675

Table 2.3: Indicators loading

Higher-Order Latent Variable	Investment Decision
Investment Decision	0.822

Table 2.4: Fornell-Larcker criterion

Structural Model Evaluation

After establishing the reliability and validity of the higher-order and lower-order construct, the structural model was evaluated using Smart PLS 4 software. A useful step to assess the causal relationship between exogenous and endogenous variables is to analyze the path coefficient between them. In this context, the bootstrapping procedure was utilized to evaluate the significance of each coefficient (Tenenhaus et al.,2005). After testing the hypothesis through 5000 bootstrap samples (Hair et al., 2011) results indicated in Table 3 showcase that Financial Literacy has

a significant and positive impact on the investment decisions of individuals as β=0.692 and p-value <0.05(t-value > 1.96) that state the acceptance of H1. As a next step Sarstedt et al. (2021) suggested to analyse the coefficient of variation (R2) that evaluated the explanatory power of the model (Shmueli et al.,2011). The R2 value (Figure 4) of the endogenous variable (Investment Decision) is 0.479 which according to Cohen, J. 1992 is classified as having a large effect size (0.02=small, 0.13=medium, 0.26=large). The next step involves the goodness of fit measure using Smart PLS (Ringle et al.,2020). In this context the SRMR (standardized root mean square residual) was tested. According to Kline, R. B, 2010, a model is considered the best fit with smaller values. Hooper et al.(2008) suggested a threshold value of less than 0.08 for SRMR. The test results display SRMR value as 0.067 which concludes the achievement of model fit criteria.

Table 1: Construct Reliability and Validity

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Financial Literacy -> Investment Decision	0.692	0.697	0.031	22.457	0.000

Table 3: Path Coefficient

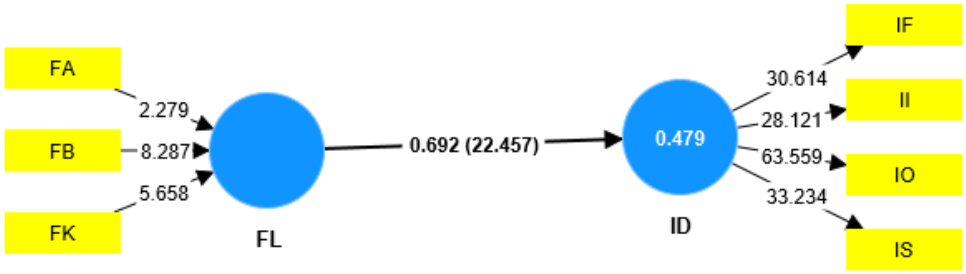
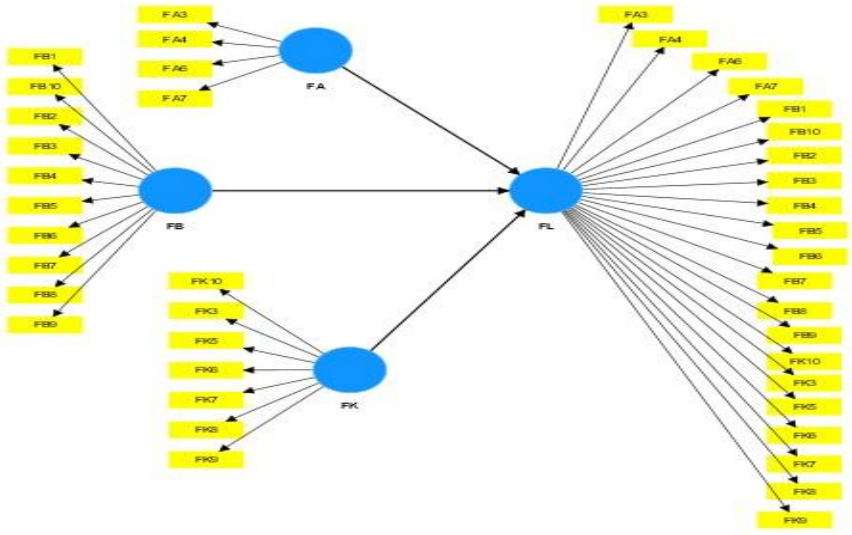


Figure 4: Path Analysis



PLS Higher-Order Measurement Model of Financial Literacy

	FA	FB	FK	IA	IF	II	IO	IP	IS
FA3	**0.63**	0.151	0.155	0.151	0.201	0.189	0.177	0.211	0.147
FA4	**0.789**	0.34	0.322	0.171	0.181	0.19	0.364	0.236	0.22
FA6	**0.635**	0.224	0.158	0.175	0.239	0.205	0.205	0.199	0.169
FA7	**0.813**	0.387	0.296	0.127	0.187	0.176	0.354	0.225	0.241
FB1	0.218	**0.613**	0.427	0.266	0.363	0.262	0.383	0.36	0.366
FB10	0.233	**0.615**	0.359	0.329	0.377	0.364	0.414	0.405	0.386
FB2	0.317	**0.703**	0.372	0.256	0.291	0.335	0.426	0.37	0.371
FB3	0.297	**0.703**	0.416	0.242	0.304	0.262	0.432	0.336	0.322
FB4	0.355	**0.726**	0.509	0.227	0.298	0.344	0.456	0.362	0.372
FB5	0.321	**0.708**	0.491	0.247	0.291	0.304	0.436	0.349	0.311
FB6	0.342	**0.701**	0.421	0.237	0.375	0.388	0.521	0.394	0.436
FB7	0.274	**0.782**	0.437	0.308	0.385	0.297	0.459	0.406	0.352
FB8	0.211	**0.735**	0.428	0.261	0.377	0.302	0.478	0.372	0.389
FB9	0.238	**0.652**	0.364	0.36	0.358	0.263	0.336	0.334	0.29
FK10	0.317	0.442	**0.677**	0.267	0.3	0.266	0.442	0.376	0.326
FK3	0.157	0.426	**0.716**	0.288	0.332	0.218	0.451	0.378	0.305
FK5	0.259	0.493	**0.774**	0.309	0.337	0.3	0.512	0.409	0.339
FK6	0.301	0.453	**0.74**	0.297	0.359	0.22	0.452	0.386	0.29
FK7	0.298	0.473	**0.79**	0.343	0.379	0.263	0.477	0.403	0.273
FK8	0.175	0.342	**0.668**	0.32	0.295	0.287	0.416	0.339	0.245
FK9	0.242	0.502	**0.787**	0.412	0.436	0.338	0.535	0.488	0.354
IF1	0.291	0.421	0.445	0.396	**0.6**	0.421	0.497	0.497	0.431
IF2	0.179	0.347	0.317	0.337	**0.664**	0.339	0.411	0.459	0.371
IF3	0.266	0.428	0.393	0.465	**0.721**	0.363	0.46	0.538	0.436
IF4	0.167	0.33	0.33	0.395	**0.745**	0.4	0.372	0.468	0.369
IF5	0.206	0.385	0.384	0.428	**0.759**	0.395	0.451	0.498	0.436
IF6	0.2	0.342	0.37	0.513	**0.753**	0.389	0.419	0.531	0.422
IF7	0.208	0.391	0.358	0.533	**0.77**	0.439	0.428	0.523	0.432
IF8	0.075	0.25	0.236	0.456	**0.729**	0.4	0.298	0.458	0.358
IF9	0.102	0.214	0.178	0.408	**0.668**	0.355	0.217	0.434	0.277
II1	0.284	0.454	0.408	0.394	0.435	**0.734**	0.552	0.492	0.544
II2	0.221	0.359	0.317	0.348	0.448	**0.832**	0.472	0.441	0.483
II3	0.097	0.243	0.111	0.191	0.348	**0.674**	0.251	0.3	0.308
II4	0.111	0.233	0.185	0.267	0.388	**0.745**	0.312	0.348	0.397
IO1	0.254	0.419	0.398	0.33	0.392	0.441	**0.636**	0.356	0.433
IO2	0.328	0.5	0.494	0.36	0.455	0.395	**0.816**	0.482	0.554
IO3	0.349	0.585	0.515	0.308	0.413	0.431	**0.812**	0.419	0.54
IO4	0.286	0.465	0.493	0.371	0.455	0.464	**0.801**	0.463	0.471
IO5	0.302	0.458	0.527	0.363	0.464	0.434	**0.793**	0.448	0.472
IO6	0.353	0.491	0.544	0.326	0.428	0.434	**0.796**	0.472	0.497
IS1	0.208	0.438	0.388	0.311	0.404	0.429	0.557	0.424	**0.733**
IS2	0.21	0.419	0.33	0.281	0.415	0.442	0.538	0.435	**0.772**
IS3	0.21	0.421	0.32	0.284	0.47	0.513	0.488	0.465	**0.798**

IS4	0.21	0.402	0.35	0.25	0.423	0.489	0.447	0.401	**0.748**
IS5	0.223	0.41	0.322	0.336	0.444	0.476	0.489	0.474	**0.844**
IS6	0.208	0.363	0.238	0.322	0.457	0.482	0.433	0.46	**0.795**
IS7	0.241	0.373	0.324	0.324	0.421	0.436	0.537	0.421	**0.779**

Table 5.1 Cross loading

CONCLUSION

This study focused on examining the connection of academicians' financial Literacy with their investment decisions. The study was carried out among the academicians from higher educational institutes in the Uttarakhand, India. The study additionally concentrates on evaluating financial literacy and Investment decisions as higher-order constructs. For testing the hypothesis and measurement model Smart PLS has been utilized.

The results of the measurement model give enough evidence to consider Financial Literacy (Reflective-Formative) and Investment decision as a (Reflective-Reflective) higher-order model. The outcome of the bootstrapping procedure confirms financial literacy as a formation of Financial -Attitude, Behaviour, and Knowledge (as also confirmed by Bajaj, I., & Kaur, M.,2022; Agarwalla et al.,2015) in which each variable is having a distinct relevance on it (Financial Literacy). Furthermore, financial behavior has the highest weight followed by financial knowledge and attitude in forming financial literacy. On the other hand, variables such as, frequency of Investment, objectives of investment, source of information, and importance of choosing product were found to be significant sub-components of investment decisions which was similar to the results of the study conducted by Singh, Chetna (2019) which considered Investment decision as a multi-dimensional construct.

Furthermore, findings from the hypothesis confirm significant and positive association of financial literacy with Investment decisions. The results are in conjunction with past studies (Hc, R., & Gusaptono, R. H.,2020; Kumari, D. A. T.,2020). This research study has a few limitations due to the limited sample size involved, covering only a few government and private colleges of Uttarakhand. Furthermore, using a non-probability convenient sampling for data collection itself has some limitations Therefore, generalization may not be concluded for the teaching fraternity of other areas. In addition, future research can utilize other investment decision indicators and can incorporate several variables.**Social Cognitive Theory:** Developed by Albert Bandura in (1986), which focuses on the role of observing the behavior of others, social interactions and obtaining information. Social Cognitive Theory can be used to magnify learning experiences by motivation, monitoring, and emulation. E- learning has changed the way knowledge is delivered and gained, which enables the learner to access content anytime and anywhere. Although, the satisfaction of e- learning is not only dependent on technology but also on the pedagogy used by institution and instructor. Learner can examine the behavior of instructor or peers, through Asynchronous learning which includes recorded lectures or assignments. This helps students learn difficult concept by seeing them. It tells abouts the learner trust in their ability to be successful in a specific task. In e- learning environment the instructor can track the progress of learner by giving them quizzes with feedback and encourage them to complete the task. self-determination theory focuses on instructor emotional support plays significant role in enhancing learner motivation, engagement and learning outcome in e- learning (Patall & Zambrano, 2019). Self Determination Theory is universally used to understand how social background impact the motivation and prosperity (Ryan & Deci, 2020). Three crucial needs are highlighted by SDT are relatedness, competence, and autonomy, all of which encourages motivation and effective functioning (Reeve, 2002; Gagné, 2003). SDT also helps to investigate how instructor and learner interactions can impact learning outcomes by satisfying these psychological needs in the e – learning environment.

Practical Implication

The presented research expands the prevailing knowledge pertaining to the causal connection between investment decisions and financial literacy worldwide, with an emphasis on Indian academicians specifically. This study is relevant to researchers interested in examining the association between these two variables. Additionally, it is crucial to the government and policymakers striving to elevate nationwide, the financial literacy level of citizens so that they make wise investment decisions. As a result, a plan of action can be devised to improve financial literacy (with financial - knowledge, attitude, and behavior as its components) that would result in better decisions related to

investment. Moreover, well-informed professors can play a major role in enhancing student's financial literacy which can improve their decisions related to investment.

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