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Can orientation towards finance and perceived financial literacy lead to intention towards investment? An examination using structural equation modeling

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A B S T R A C T

Investor behavior is an intriguing affair and has been investigated by many social scientists and scholars. The disciple is still fecund and has scope for further empirical examination. The study aimed to examine the relationship that Orientation toward finance (ORTOFIN) and perceived financial literacy have with Intention toward investment. The study engaged in quantitative research design. Data was collected randomly online from 210 gainfully employed samples in Saudi Arabia. Structural Equation Modelling was used to analyze the data. Results indicated a significant positive relationship between ORTOFIN, perceived financial literacy, and Intention toward investment. The study discusses the findings and presents the limitations. The scope for further research is also presented. It is expected that the present study will act as a trigger for further research in this fascinating area.

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1. Introduction

Behavioral finance (BF) is a discipline that combines theories from classical economics, finance, and psychology and proposes new directions based on traditional finance theories (Sulphey, 2014). This new discipline emerged by the 1990s in the field of finance. This newly emerged BF paradigm highlights the psychological aspects of individual financial behavior (Dinç Aydemir & Aren, 2017; Aydemir et al., 2017). BF proposes psychological and behavioral decision theories to explain various abnormal effects like over/under-reaction, overconfidence, groupthink, the advent of speculative bubbles, market volatility, and the like. It aids in comprehending and analyzing the causes and effects of investor mistakes and offers recommendations to stabilize the market. In addition, BF helps controlling bodies devise mechanisms and regulations for investor protection and related accounting standards. In general, this fledging discipline helps investors make quality investment decisions and avoid losses. It also helps analyze systematic errors that can influence the market price and cause inefficient pricing. In recent years, BF research academics have been increasingly active and have attracted significant academic attention. Evidence reveals that FL positively impacts several financial behaviors (Aren & Aydemir, 2014). However, the possible factor that influences the intention to invest has not been accorded due importance. This research considers the effect of ORTOFIN and financial literacy on intention to investment behavior. This study examines how these attitudinal factors interact with the intention to invest. This study proposes an integrative model that integrates financial attitude and literacy factors in understanding individual investment behavior. This study will reveal how attitudes get involved in the investment decision-making process. Further, individual financial literacy and knowledge could change over time, which could have a reflection on investment intentions. This work is likely to aid in examining this aspect. Most previous research could not present any unequivocal evidence that

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financial literacy is a significant predictor for financial behavior in general or intention to invest (Aren & Aydemir, 2014). Current study attempts to fill this gap in literature.

This study will be of significance as it uses SEM to analyze data and examine the direct and indirect effects, while earlier studies have mostly used experimental and regression to analyze data. Invariably SEM has several advantages over regression models. For instance, SEM enables the simultaneous examination of all relationships within the model. In addition, it has the advantage of presenting robust and accurate coefficients by taking into consideration measurement errors. Further, this study is conducted based on samples from Saudi Arabia, where scant research evidence exists about individual financial behaviors. The empirical work proceeds as follows. Initially, the study summarily propounds the related literature, proceeding to formulate the research hypotheses. This is followed by defining the data set, variables, and analyses. The last section discusses the findings in the light of the reviewed literature. The theoretical and practical implications are discussed followed by limitations and directions for future studies.

2. Literature review

Scholars have proposed various psychological and behavioral decision theories to explain investor decisions. Prominent among them is the Prospect theory. Two psychologists Kahneman and Tversky (1979) laid the foundation of one of the prominent theories – the Prospect theory. It was introduced as an alternative to the Rational expectations theory and the Efficient market hypothesis. Later, Thaler (1980) applied the Prospect theory in the field of financial markets. He proposed that individuals do not always behave rationally. They often make mistakes while making investment decisions. These behavioral scientists are considered proponents of BF. This study has its basis in this theory. BF is a field of research in which psychology and finance blend. BF has identified psychological factors as the primary basis for investor decisions (Huang et al., 2016). The present study examines whether the psychological factors of ORTOFIN and perceived financial literacy impact the intention to invest.

2.1 Orientation Towards Finances (ORTOFIN)

ORTOFIN is a behavioral disposition characterized by personal interests and talents connected to properly managing one's income and financial situations. Loix et al. (2005) identified ORTOFIN to include two dimensions – financial information and personal financial planning. Financial information indicates the interest factor involving seeking active financial and economic knowledge. This idea is also confirmed by Tigges et al. (2000). Personal financial planning involves the typical logic toward financial management, which focuses on planning-related behaviors. A positive attitude toward finance contributes to better OFTOFIN and more effective competencies and encourages one to actively focus on personal financial management. High levels of ORTOFIN symbolize a better financial orientation, indicating fair responsiveness towards financial matters and avenues for savings and investments. In addition, stronger ORTOFIN would lead to extensive use of debit cards and an extensive diversity in investments (Loix, et al., 2005). Further, they have more knowledge and awareness of financial means. ORTOFIN helps examine success in life in terms of money (Loix et al., 2005). It involves a keen desire to plan expenses and take an active interest in financial aspects. Those with higher ORTOFIN values denote significant usage of financial tools, more savings, and a comprehensive assortment of investments (Loix et al., 2005). They are fascinated with monetary aspects and quantity success and authority against money. As such those scoring high in ORTOFIN better comprehend financial means and consider the finer details about finance and savings. In addition, another study identified that ORTOFIN and investment intention are related. Based on this, the first hypothesis is formulated as:

H_1: *There is a significant positive relationship between ORTOFIN and the intention to invest.*

2.2 Financial Literacy

Financial literacy is identified by Mandell (2008) as an individual's required knowledge that enables making significant and ideal financial decisions. Lusardi and Mitchell (2011) defined it as the knowledge about the basic concepts of inflation, risk diversification, and the ability to do calculations related to interest rates. Chen and Volpe (1998) reported that individuals with financial literacy make accurate investment decisions related to savings, borrowing, and investments. According to Klapper et al. (2015), individuals who know four basic financial concepts, viz., numeracy, risk diversification, inflation, and compound interest, are considered to have financial literacy. Financial literacy is indispensable in the current scenario where financial markets consist of complex financial products. In contrast, financial ignorance could be disastrous as could lead to individuals having bigger debt burdens and exorbitantly higher interest rates on loans (Lusardi & Tufano, 2015), and less saving (Stango & Zinman, 2009). FL could also make individuals deepen their financial skills and attitude. Individuals with higher FL manage their finances better are better (Lusardi & Mitchell, 2009). They accomplish this through diversifying their risk by spreading their funds across various financial assets (Abreu & Mendes, 2010). Empirical evidence suggests that self-efficacy influences financial literacy (Forbes & Kara, 2010). In addition, there is substantial evidence to suggest that financial literacy has a direct and vital role in influencing financial behavior (Tauni & Sibal, 2017). FL is also a significant factor that influences the ability to make financial decisions (Mouna & Anis, 2017; Thomas & Spataro, 2018). Alternatively, deficiencies in FL may result in inertia and poor financial decision-making. Orientation toward finance was found to be significantly related to financial knowledge.

H_2: *There is a significant positive relationship between ORTOFIN and financial literacy.*

2.3 Intention towards investment

Intention toward investment is the willingness to execute a specific behavior toward investing (Pathak et al., 2017). Recently investor behavior and intention toward investment have received interest from academicians and management experts (Begam et al., 2023). Ballard et al. (2005) found that locus of control moderates the relationship between financial literacy and responsible financial behavior. There is considerable empirical evidence that suggests that certain psychological factors play a prominent role in determining intervention toward investment (Nandan & Saurabh, 2016). According to Kogei and Mutswenje (2021), investment decisions precede extensive brainstorming. Investors, in their desire to minimize losses, make mistakes in investment decisions. However, several factors, including economic and psychological are likely to impact investment decisions. Investors need to apply their minds deeply to all related factors that could affect their investment decisions (Huang et al., 2016). Any intention is the most proximal driver of conduct, influenced by individuals' attitudes (Norman et al., 2019), which can be either negative or positive. There is a wealth of empirical evidence on the impact of intentions on financial decisions (Phan et al., 2014; Raut et al., 2020; Raut & Das, 2017). Zhou and Pham (1984) examined the reasons for investor orientations toward investment opportunities. They found that investors make separate investment decisions maintaining discrete mental accounts for profits and losses. Either of the decisions acts as a separate stimulus in choosing options. Raut et al. (2020) found a significant relationship between past behavior and investor intention. Akhtar and Das (2019) found financial self-efficacy to be a predictor of intention toward investment. Further, Akhtar and Das (2019) found that the constructs of the Theory of Planned Behavior, viz., attitude, subjective norms, and financial self-efficacy had a significant positive relationship with intention to invest, providing a direction for this research.

Durand et al. (2008) identified that personal characteristics influence investment decisions. In addition, a few psychological factors also play a significant role in determining investment intention (Nandan & Saurabh, 2016). Chandra (2008) identified behavioral factors affecting investment decisions and considered them to be risk factors, which include heuristics, cognitive dissonance, greed, anchoring, and mental accounting. Knowledge about such investors facilitates better investment decision-making. Huang et al. (2016) found that since investors are affected by emotions and cognitions their financial decisions and investment strategies are affected by these behaviors. Gopi and Ramayah (2007) found a positive relationship between subjective norms, and intention to invest. In addition, various psychological characteristics like optimism, herd behavior, and risk attitude, are major predictors of investment intention (Phan et al., 2014). Studies by Hoyle and Smith (1994) and Baron and Kenny (1986) found a relationship between financial knowledge and intention to invest. Hence, the next hypothesis (H3) is formulated as:

H_3: *There is a significant positive relationship between financial literacy and intention towards investment.*

3. Methodology

The present study used quantitative research methodology to achieve the objectives. Data for the study was collected randomly online using three standardized and validated questionnaires, the details of which are as under:

1. Financial literacy: The tool developed by Van Rooij et al. (2011) was used to measure the variable financial literacy. The tool had four items. A sample item included "*The stock market helps to predict stock prices and earnings"*. The questionnaire reported a robust Alpa value of 0.86 in earlier studies.
2. ORTOFIN: This was measured using the eight-item tool developed by Liox et al. (2005). A sample item is "*I try to keep track of general economic trends*". Earlier studies have also used this tool (Sulphey & Faisal, 2017; Sulphey & Nisa, 2014).
3. Intention towards investment: To measure this variable, the three-item questionnaire developed by Chen and Chen (2007) was employed. A sample item is "*I will encourage my friends and family to invest in the stock market".* This questionnaire has been used by earlier studies and reported good validity (Raut et al., 2020).

All the tools were on a five-point scale – strongly agree, agree, neutral, disagree, and strongly disagree. The control variables used in this study included gender, age, qualification, years of experience, and industry.

Data was collected online from employed samples from Saudi Arabia. The link to the questionnaire was posted on various social media groups through group administrations. The link also had a short appeal to obtain informed consent from the respondents. Goodman et al. (2013) confirmed that obtaining online responses have quality is as ideal as in the case of traditional forms of data collection methodology. The data collection process, which took around six weeks, yielded 210 responses. The respondents had varying demographics, enjoying wide diversity. 132 (62.9%) respondents were males and 78 (37.1%) females. The average age was 41.48, with the range being 21 and 60 years. The average experience was 14.58, ranging between less than one year to 30 years. The average experience was 14.58 years. The descriptive statistics of the data are presented in Table 1.

Table 1
Descriptive statistics

	Orientation towards finance	Financial literacy	Intention towards investment
Mean	29.69	13.70	8.7
S.D.	5.37	2.83	3.08

Source: Author investigation

The first step in using PLS-SEM is to evaluate the measurement model. The reflective outer models are to be assessed to establish the construct's reliability and validity (Hair et al., 2014). To attain reliability, the values need to be above 0.70 to have reliability (Hair et al., 2014). Items with less than 0.70 need to be deleted. If not deleted, it would adversely impact the construct measures, leading to issues associated with internal consistency and convergent validity. Based on construct validity, a few items were deleted due to lower loadings. The items were FL4, FI1 to 3, and PFP2.

3.1 Collinearity

Since collinearity between latent variables may lead to biased path coefficients, the study examined co-linearity between endogenous constructs using the variance inflation factor (VIF) before analyzing the model. Though there is no agreement on the optimal VIF range, Rahi (2012) advocated a value less than 3.3. Though there is no definite value to be the ideal VIF range, according to Rahi (2012) a value less than 3.3 is preferred. The VIF values are presented in Tables 2 and 3. This result signifies no lateral multicollinearity issues (Hair et al., 2014) and confirms the lack of common method bias (CMB).

Table 2
Collinearity Statistics (VIF) Outer model

Items	**VIF**
ORTOFIN1	1.619
ORTOFIN3	1.786
ORTOFIN4	1.467
ORTOFIN5	1.310
FL1	1.296
FL2	1.377
FL3	1.271
ITI1	2.773
ITI3	3.556
ITI4	2.744

Source: PLS output

Table 3
Collinearity Statistics (VIF) Inner model

	VIF
FL → ITI	1.192
ORTOFIN → FL	1.000
ORTOFIN → ITI	1.192

Source: PLS output

3.2 Construct reliability and validity

Construct validity and reliability provide a better understanding of the quality of the measures used for the study (Hair et al., 2014). They must be met prior to examining the significance of relationships in any SEM structure (Fornell & Larcker, 1981). This indicator was used to examine Cronbach's alpha and composite reliability (CR - rho_a). The results presented in Table 4 show that all alpha values are over 0.70 (Hair et al., 2014), which indicates good reliability. Further, the rho_a is also above 0.70, as Dijkstra and Henseler (2015) stipulated. The AVE examines the convergent validity. The AVEs presented in Table 4 showed that they ranged between 0.568 and 0.839, which is above 0.50 as Fornell and Larcker (1981) stipulated. This indicates good internal consistency and convergent validity.

Table 4
Construct Reliability and Validity

Items	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FL	0.672	0.693	0.818	0.601
ITI	0.904	0.908	0.940	0.839
ORTOFIN	0.758	0.782	0.840	0.568

Source: PLS output

3.3 Discriminant validity

The study used the Heterotrait-Monotrait (HTMT) ratio to evaluate discriminant validity. The results presented in Table 5 indicate the discriminant validity of the measurement model. According to Hair et al. (2014) values ≤ 0.90 indicate discriminant validity, which is met in the instant case.

Table 5
Discriminant Validity HTMT (Heterotrait Monotrait Ratio)

Items	FL	ITI
FL		
ITI	0.540	
ORTOFIN	0.509	0.478

Source: PLS output

Another measure of discriminant validity is the Fornell-Lacker criterion (Fornell & Larcker, 1981), which compares the square roots of the AVE with the latent constructs' correlations. Fornell and Larcker (1981) stipulate that the square roots of AVE need to be more than the r values. Table 6 shows that the stipulations of discriminant validity are met.

Table 6
Fornell – Larcker Criterion

Items	FL	ITI	ORTOFIN
FL	*0.775*		
ITI	0.427	*0.916*	
ORTOFIN	0.401	0.428	*0.754*

Source: PLS output

3.4 Model fit

The study examined the model fit based on Standardized Root Mean Square Residual (SRMR), ChiSquare, squared Euclidean distance (d_ULS), geodesic distance (d_G), and Normed Fit Indices (NFI), as Hair et al. (2014) stipulated. The results presented in Table 7 present a good fit. The SRMR is less than 0.08, which indicates a good fit (Hu & Bentler, 1998). The NFI is below the stipulated 0.90, which indicates a good fit (Bentler & Bonett, 1980). The values in Table 7 show robust goodness of fit.

Table 7
Model Fit statistics

	Saturated model	Estimated model
SRMR	0.095	0.095
d_ULS	0.493	0.493
d_G	0.18	0.18
Chi-square	232.386	232.386
NFI	0.739	0.739

Source: PLS output

3.5 Factor loading

The outer model involves the unidirectional predictive relationships between the latent construct and the observed indicator (Hair et al., 2014). From Table 8, it can be observed that all the standardized factor loading coefficients exceed 0.50.

Table 8
Outer Loadings

	FL	ITI	ORTOFIN
FL1	0.818		
FL2	0.800		
FL3	0.703		
ITI1		0.910	
ITI3		0.928	
ITI4		0.910	
ORTOFIN1			0.697
ORTOFIN3			0.737
ORTOFIN4			0.799
ORTOFIN5			0.778

Source: PLS output

3.6 Hypothesis testing

Subsequent to factor analysis and examining goodness of fit, the significance of the direct and indirect effects of the structural model was evaluated using a bootstrapping technique. The bootstrapping technique was used to investigate the importance of the various hypothesized links by analyzing the T-statistics for the path coefficients. Bootstrapping examines the significance of the inner and outer models (T-values) (Wong, 2013). Bootstrapping was conducted with a sample size of N = 10000 (Hair et al., 2016). The results (*p*-value and *t*-values) are presented in Table 9. The path analysis coefficients, *p*-value, and *t*-values for the hypothesized are presented in Table 10 and Fig. 1. The results show that all the hypotheses formulated for the study are supported at 0.001 level. The results show that ORTOFIN is significantly related to FL ($t = 6.125$, $p < .00$) and ITI ($t = 3.873$, $p < .00$). FL is also found to be significantly related to ITI ($t = 4.674$, $p < .001$).

Table 9
Path coefficients

Hypothesis	Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H1	ORTOFIN → FL	0.401	0.411	0.065	6.125	0.00
H2	ORTOFIN → ITI	0.306	0.306	0.079	3.873	0.00
H3	FL → ITI	0.304	0.31	0.065	4.674	0.00

Source: PLS output

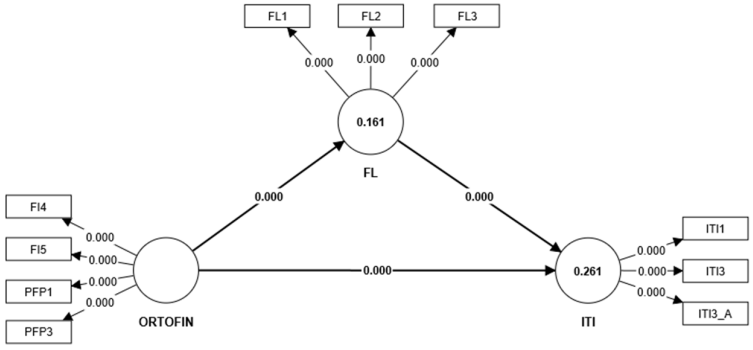

Fig. 1. Path analysis

Source: PLS output

4. Discussion

In a developing economy like Saudi Arabia that strives to become sustainable, there is an immense need to raise resources that can fuel capital needs and ensure steady growth. There is, hence, a definite requirement to channel individual savings through various investment avenues. This can be done through enhanced financial inclusion in financial markets. The study was conducted to examine the relationship between ORTOFIN, Financial literacy, and Intention toward investment. There is scant literature on how emotions and rationale jointly impact the investment decision-making processes. Though there exists evidence about the antecedents of investment intentions (Akhtar & Das, 2019), what induces investment behavior is a matter that elicits empirical interest. The current study used SEM to analyze data. The findings suggest significant positive relationships between all three variables examined. Thus, the study indicates that intention towards investment is predicted through finance orientation and financial knowledge.

Only a few studies have examined the relationship between ORTOFIN and ITI. Earlier studies were limited to regression analysis. The current study is one of the few that has used SEM. The hypotheses about ORTOFIN and ITI were accepted at 0.01 level. The next hypothesis that financial literacy is significantly related to investment intention is also accepted. This result substantiates the earlier findings of Bongini and Cucinelli (2019). This finding is also consistent with Aren and Aydemir (2014). They found financial literacy to be positively related to financial behaviors. The study also found ORTOFIN and FL to have a significant positive relationship with intention to invest (Liox et al. (2005). This is a new finding as no earlier study has examined this aspect. The study thus found a positive relationship between all the variables studied. Thus, the intention to invest is influenced by ORTOFIN and financial literacy. It is also unique that the study used samples from Saudi Arabia, where no earlier study has examined this complex relationship. The results indicate that financial orientation and knowledge have a direct relationship with investment intentions. These findings are beneficial for researchers, as well as for fund managers and private pension companies. Investment advisors and fund managers could examine attitudes towards investment by examining their risk aversion and providing financial advice to them.

4.1 Implications

The present study has presented certain inputs that are ideal for individuals, academicians, and financial professionals for arriving at strategies and helping investors in making investment decisions. This is the first study that has examined ORTFIN, literacy, and investment intention together among Saudi samples. Further, the study was conducted using SEM, which has multiple advantages, including examining the simultaneous relationship between the variables (Schumacker and Lomax, 2004). The study shows that financial orientation and literacy lead to the intention to invest. Investment and financial advisors could do well to make investors financially oriented and literate, as the findings indicate a direct relationship between the variables.

Long-term investment plans for individual investors require adequate assistance from financial advisors. In addition, a financial adviser could ask for investors' specific preferences and build a behavioral portfolio depending on their personality traits, rather than expecting investors to build efficient portfolios by themselves. This study thus provides directions about the intention towards investment, which could be of use to advisors.

4.2 Suggestions for further research

This study measured only general financial literacy, which could be a limitation. Financial literacy could include objective and subjective financial literacies (Aren & Nayman, 2020). Further, the investor's real knowledge and their knowledge levels could affect their investment preferences differently. Future studies could consider this aspect and examine the sub-variables. Evidence suggests that investors with moderate financial literacy prefer to invest in riskless and assured investments (Aren & Nayman, 2020). This is because those with lower literacy levels lack the confidence to invest. Investors could also overestimate their financial literacy levels and be involved in high-risk investments as they believe that they have good investment knowledge. These aspects could also be considered while involved in further research. Future studies could also be considered by integrating certain psychological variables like cognitive and affective assessment to help broaden the conceptual framework on intention to invest. In addition, there is a limitation to this study that it was conducted with data collected from employed samples from Saudi Arabia. Therefore, there is doubt whether the results are representative. Future studies could include samples from across a cross-section of the population and from other regions and countries. Another limitation is that this study considered only two variables. Studies could be conducted with multiple variables to examine their relationships with intention to invest. This could provide a clear picture of the psychology behind investment intentions.

5. Conclusion

This study was undertaken to examine the relationship between ORTOFIN, financial literacy, and intention to invest, using SEM based on samples from Saudi Arabia. The results indicated a significant positive relationship between all the variables studied. It has helped extend the understanding of financial and investment behavior into a single model. The present study is a significant addition to the existing financial and investment knowledge in the Saudi context. The limitations offer further insights into directions for future research. Future research could also be conducted with data collected from other regions. Further, this work has focused on two psychological factors, which can be extended to personality traits and cultural factors. The present study is expected to trigger further studies in this interesting area.

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