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# The Moderating Role of Perceived Risks in the Relationship between Financial Knowledge and the Intention to Invest in the Saudi Arabian Stock Market

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**Abstract:** This research study aims to investigate the moderating role of perceived risks in the relationship between financial knowledge (represented by objective knowledge and subjective knowledge) and the intention to invest in the Saudi Arabian Stock Market. The researcher collected data from four hundred Saudi Arabian participants who were interested in investing in the Saudi Arabian Stock Market. The researcher used structural equation modeling (SEM) through the Smart PLS 3.3.2 software to analyze the data. This study's findings indicate that, in the formation of financial knowledge, the total effect of Subjective knowledge is greater than the total effect of objective knowledge. The findings also indicate that there is a positive relationship between financial knowledge and perceived risks and between financial knowledge and the intention to invest. Finally, the findings indicate that perceived risks have a negative effect on the relationship between financial knowledge and the intention to invest in the Saudi Arabian Stock Market.

**Keywords:** financial knowledge; perceived risks; intention to invest; Saudi Arabian Stock Market



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## 1. Introduction

Behavioral finance is an integral part of the decision-making process (Ainia and Lutfi 2019), which is based on the application of human psychology to finance (Hamza and Arif 2019). A better understanding of behavioral finance is important since it enables investors to make informed investment decisions. While the standard financial theory asserts that investors are rational and, therefore, tend to make risk averse decisions (Ainia and Lutfi 2019), the behavioral finance literature indicates that individuals do not always act rationally. The literature reveals that many factors influence an individual's financial decisions and push him or her to exhibit cognitive and emotional behaviors that lead to deviation from rational behavior (Sivaramakrishnan et al. 2017; Xiao and Porto 2017). Unfortunately, investors are less likely to objectively examine situations for perceived risks and returns and are mostly biased on their trading decisions that affect their attitudes (Ainia and Lutfi 2019). Additionally, investor sentiments affect the stock prices, which, in turn affect the demand from enough investors and values diverge because of the changes in security prices (Baker and Wurgler 2006).

The Saudi Arabian Stock Market is one of the largest financial markets in developed countries. It has great importance for the Kingdom of Saudi Arabia (KSA) due to its effect on the country's economic activities (Alshammari et al. 2020).

Some assert that investing in the Saudi Arabian Stock Market is a good opportunity. This is especially so with the entry of Saudi Aramco shares to be traded on the Stock Market, the increase in the ease of business within the KSA, and the convenience of the business

climate. This explains the current increasing number of investors in the Saudi Arabian Stock Market (Ungarino 2019).

On the other hand, others argue that it is wise for investors to monitor the Saudi Arabian Stock Market before investing in it (Konish 2019) because the investor is exposed to many investment risks in this Market. Since the KSA economy depends mainly on oil, fluctuations in oil prices lead to sharp fluctuations in the Stock Market. In addition, due to external crises, the Saudi Arabian Stock Market suffers from sharp fluctuations during different periods (Alshammari et al. 2020).

Whether investors decide to invest in the Saudi Arabian Stock Market or refrain from investing depends on their investment behaviors. These are affected by several factors including financial knowledge (Lim et al. 2018; Hamza and Arif 2019; Nguyen and Nguyen 2020) and perceived risks (Trang and Tho 2017).

However, there is insufficient evidence in the literature on whether perceived risks have a moderating role in the relationship between financial knowledge and the intention to invest. Consequently, this study aims to investigate the moderating role of perceived risks in the relationship between financial knowledge and the intention to invest in the Saudi Arabian Stock Market. The research findings will contribute to the literature on behavioral finance and provide evidence of the investors' decision-making processes in the Saudi Arabian Stock Market.

## 2. Literature Review

### 2.1. Financial Knowledge

Financial knowledge refers to an individual's understanding of important concepts related to finance (Robb and Sharpe 2009). It has two dimensions: namely, subjective knowledge and objective knowledge. Subjective knowledge refers to the extent of each person's self-rated level of knowledge of financial matters. On the other hand, objective knowledge refers to real financial knowledge calculated by the person's summary score of answers to knowledge items about financial concepts such as inflation, interest rate, stock market, savings, credit, and insurance (Khan et al. 2017; Lee et al. 2019).

The findings from previous studies indicate that financial knowledge plays a fundamental role in facilitating investment decisions. By surveying 1006 participants, Fedorova et al. (2015) examined financial knowledge's impact on the investors' stock market decisions. This study's findings showed that investors, who are knowledgeable about the financial literature, participate proactively in the stock market. In a different study, Sivaramakrishnan et al. (2017) examined financial knowledge's impact on the investors' stock market decision-making processes. The research employed the theory of planned behavior to explain the investors' participation in India's Stock Market. Planned behavior theory asserts that the investors' financial literacy determines how they control their behavior in the stock market. This study's findings showed that both objective and subjective financial knowledge had positive effects on the intention to invest in a stock market, while the investors' behaviors were influenced primarily by objective knowledge. This study's findings also showed that financial wellbeing had a positive influence on investor behaviors and their investment decisions. Therefore, while financial knowledge is necessary for investors, it does not lead an investor to make optimal investment decisions because only the objective financial literacy affects the actual behavior. However, both subjective and objective knowledge affect the intention to invest.

Furthermore, Khan et al.'s (2017) findings show the necessity of examining the relationship between an individual's subjective and objective knowledge (knowledge gap), since it helps in understanding their financial behaviors. An overestimation of an individual's financial knowledge can lead them to make risky investment decisions. Notably, older individuals with lower education have an overestimated perception of their financial knowledge and this leads to poorly informed investment decisions. Therefore, investors can be financially vulnerable and have an incorrect perception of the adequacy of their

actual financial knowledge. Reliance on insufficient knowledge leads to making poorly informed decisions that are ultimately suboptimal.

The investors' decision making is influenced by several factors. These include corporate data, repayment, risk and financial knowledge (Lubis et al. 2015). Similarly, Hamza and Arif's (2019) findings showed that financial knowledge is an important factor in the investment decision. Notably, this study's findings showed that financial knowledge and agreeableness had significant positive impacts on investment decisions along with significant negative impacts on openness to investment and neuroticism. Additionally, extraversion and conscientiousness had insignificant impacts on investment decisions. At the same time, when making investment decisions, neuroticism and openness play critical roles in mediating the role of financial knowledge. Therefore, financial literature alone cannot be relied on in investor decisions since the personality traits mediate its role in influencing the decision-making process. Notably, an investor's personality trait determines the attitude toward the potential investment decisions.

Nowadays, numerous organizations are developing financial literacy programs to equip investors with financial knowledge and to provide counseling based on the investor's attitude toward perceived risks (Hamza and Arif 2019). According to Gizem Korkmaz et al. (n.d.), there is limited evidence to show that investors have enough knowledge to facilitate their decision-making processes. Despite the vast sources of financial knowledge and increased educational programs, many individuals still make suboptimal financial decisions that negatively affect their economic activities (Agarwal and Mazumder 2013). Therefore, Gizem Korkmaz et al. (n.d.) examined the impact of risk behavior, risk propensity, and risk preference on financial decision-making. This study's findings showed that there is an inconsistency between risk behavior and risk preferences. However, financial knowledge is prudent since it helps to overcome the inconsistencies for risk-seeking individuals and worsens the level of inconsistencies for risk-averse individuals. Financial knowledge encourages individuals to indulge in risky behaviors while little knowledge reduces the chances of engaging in risky behaviors. Therefore, investment decisions, which lean toward risky investment decisions, suggest that investors have significant financial knowledge while risk-averse investors have minimal financial knowledge.

## 2.2. Perceived Risks

Perceived risks affect the investor's ability to use their financial knowledge to make an optimal decision. Risk perception describes how an individual interprets and develops a picture from the received information. This is normally different from reality, thoughts, and estimates (Ainia and Lutfi 2019). Risk perception is part of cognitive bias and, in uncertain situations, influences human behavior and decision-making. Similarly, Trang and Tho's (2017) findings showed that perceived risks have direct positive impacts on performance and the intention to invest and, through the performance of the investments, an indirect impact on the intention to invest. According to Ainia and Lutfi (2019), the greater the individual's risk perception, the lower the chance that they will make an investment, and the vice versa is true. Therefore, a high-risk attitude has negative impacts since these reduce the opportunities that an investor will allocate more funds to highly risky assets.

In contrast, Trang and Tho's (2017) findings showed that the greater the perceived risk, the more the investors are satisfied with their investment decisions. Similarly, the high obtained returns increase the intention to invest the next time. According to Trang and Tho (2017), investors are recommended to draw attention to stocks that are labeled 'controlled', 'warned', and 'halted trading'. Therefore, while financial knowledge is important in determining investment decisions, the perceived risks, associated with the stock, can override financial knowledge and influence their investment decisions. Additionally, the perceived risks can either influence an investor to make highly risky decisions or refrain from making risky investment decisions.

Entrepreneurs are risk-takers and set their investment goals by taking reasonable risks. According to De Bortoli et al. (2019), investors make the ideal, perfectly rational,

and self-interested people and choose the best available option to maximize their utility in an efficient market. Unfortunately, the individual investor's personal character traits are a notable factor that affect their investment decisions. Therefore, the agent's behavior is not perfectly rational since cognitive and emotional errors influence their investment decisions. According to [De Bortoli et al. \(2019\)](#), investors, who have greater risk tolerance and a high degree of openness to experience and violate prospect theory, are more likely to make high risk investment decisions. More specifically, the investor profile analysis (IPA) in relation to the personality openness to experience leads an investor to make high risk investment decisions.

Turning to prospect theory, an investor is less likely to make a risky investment decision when they violate provisions in the utility theory. Similarly, [Sadiq and Amna \(2019\)](#) say that investors can only make rational decisions with the availability of perfect information. However, unfortunately, investors have limited financial knowledge and this leads them to miss opportunities and make satisfactory investment decisions. Additionally, cognitive and psychological factors inhibit an investor's ability to make a rational investment decision ([Sadiq and Amna 2019](#)).

Therefore, while investors aim to decide which will promote the attainment of maximum revenue, their abilities to make an optimal decision when risks are involved are affected by their personalities that result from their psychological and cognitive makeup.

From their investigation of the impact of cultural differences in investors' decisions, [Lobao and Maio's \(2019\)](#) findings showed that culture influenced herding behaviors and, consequently, the investors' financial decision. Similarly, [Chang and Lin \(2015\)](#) investigated the factors that determined investor decision-making in an international stock market and, more particularly, the impact of national culture in influencing the investors' decisions in the global market. Their findings showed that herding behavior among investors happens in less sophisticated and Confucian equity markets. Notably, national culture has the most influence on herding behavior.

Furthermore, [Chang and Lin's \(2015\)](#) findings showed that the national culture's influence on the investors' herding behavior resulted in their making unfortunate investment decisions. Additionally, perceived risks and, in turn, their impact affects investors' decisions. According to [Ferreira \(2018\)](#), different people's risk attitudes and perceptions of risks are dependent on their financial models used in portraying perceived risks. The objective and subjective risk propensity explain the investment behaviors. However, cultural factors, institutions, and geographical location significantly influence the development of risk preferences in investments. Ultimately, national culture affects how investors perceive risks in the international market. The application of national culture compromises the individuals' needs to learn how the stock market in foreign countries operates and, hence, the high levels of investors' behavioral pitfalls in the international market.

### 2.3. Intention to Invest

The behavioral intention to invest refers to the investors' attitudes to making decisions due to the many factors that motivate them to act on their intentions and perceptions to make investment decisions. [Ali \(2011\)](#) studied the relationships between the individual investors' perceived corporate financial performance and their intentions to invest and the mediating impact of corporations' images on such relationships. The researcher emphasizes that investors are customers with knowledge requirements including the need to properly determine the risks and returns of businesses. The study's findings showed that investors formed their intentions to invest when they evaluated the businesses' financial positions. Thereafter, as they attempt to explain their investment decisions in the company's stocks, their emotional expectations of such assessments come into effect. This study's findings showed that, when the investors assessed a firm, their attitudes acted as a mediator before they decided to invest in a company's stocks.

This study's findings also showed that companies' attractive marketing strategies can have a huge influence on investors' emotions. Consequently, investors' attitudes

toward the companies' brands play a significant role, besides the cognitive assessment of companies in anticipating their final actions in terms of investing in these companies' stocks. [Trang and Tho \(2017\)](#) established new perceived risk measurement scales in relation to the Vietnam Stock Market. Their study investigated the impact of perceived risk on investment performance and used these scales to measure the investors' investment intentions. This study's findings show that the greater the investors perceive risks in making an investment, the greater the satisfaction of their investment decisions, or the more they will invest in the stock.

Perceived risks in the investing environment are described as unexpected or unpleasant results from the investor's action, in addition to establishing a new scale to measure the degree to which investors perceive the risk of investing in forms of stock trading on the stock market. [Trang and Tho \(2017\)](#) also measured the degree to which the perceived risks influenced investor satisfaction and their intentions on investment performance compared to their expectations and investment decisions. This study's findings showed that perceived risk had a significant positive effect on investment efficiency and on the investors' investment intentions. On the other hand, perceived risk had an adverse impact on the investors' intentions to invest through investment performance. This study's findings showed a positive relationship between the investors' perceived risks and the satisfaction of their investment decisions to invest in the stock.

#### 2.4. Literature Gap and Research Purpose

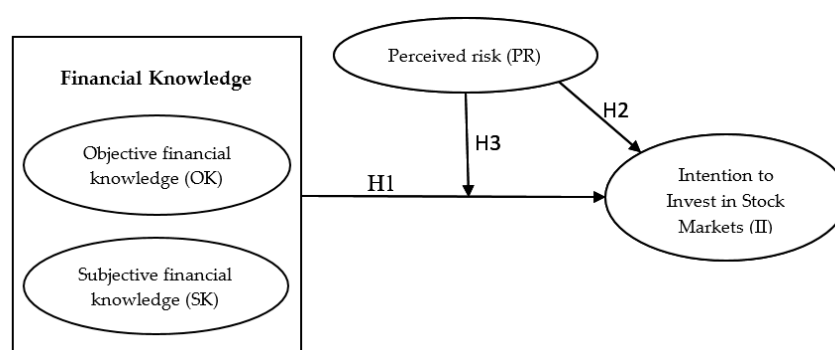
The literature review shows that perceived risks and financial knowledge are both important factors in helping the shareholders make their investment decisions. Adequate financial knowledge enables an investor to make informed investment decisions ([Fedorova et al. 2015](#); [Khan et al. 2017](#); [Sivaramakrishnan et al. 2017](#)). Unfortunately, the extent of the investor's knowledge and attitude toward perceived risks affect the investor's ability to make rational investment decisions ([Lubis et al. 2015](#); [Trang and Tho 2017](#); [Ainia and Lutfi 2019](#); [Gizem Korkmaz et al. n.d.](#); [Hamza and Arif 2019](#)). The investor's attitude is influenced by different factors such as personality ([De Bortoli et al. 2019](#); [Sadiq and Amna 2019](#)) and culture ([Chang and Lin 2015](#); [Ferreira 2018](#); [Lobao and Maio 2019](#)).

From reviewing previous studies, the researcher noted that no research study had investigated the perceived risks' moderating role on the relationship between financial knowledge and the intention to invest in the Saudi Arabian Stock Market. Therefore, this study investigated financial knowledge's impact on the investors' intentions to invest and also investigated the moderating role of perceived risks on the relationship between financial knowledge and the investors' intentions to invest in the Saudi Arabian Stock Market.

### 3. Methodology

#### 3.1. Research Framework and the Development of the Hypotheses

Based on the aim of this research study, Figure 1 below sets out the conceptual framework used in this study:



**Figure 1.** Conceptual framework. Source: Prepared by researchers from the literature review and research gap.



According to Figure 1, the researcher developed the following hypotheses:

**Hypothesis 1 (H1).** *There is a positive relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market.*

**Hypothesis 2 (H2).** *There is a positive relationship between perceived risks and intention to invest in the Saudi Arabian Stock Market.*

**Hypothesis 3 (H3).** *Perceived risks moderates the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Markets and, thus, the lower the perceived risk, the stronger the relationship.*

### 3.2. Measurement

With reference to previous studies, the researcher prepared a questionnaire to collect the primary data for this study. The questionnaire consisted of four main parts. The first part measured objective knowledge by asking the participants to answer five financial statements that include correct and incorrect answers about financial concepts. The researcher relied on a scale for this purpose (Hysmith 2017). The second part measured the subjective knowledge by asking the participants to answer five financial statements that included their self-evaluation on some financial concepts. For this purpose, the researcher used a five-point scale graduated from “I do not know anything about it” to “I know a lot about it” (Alqatawni 2016). The third part measured perceived risks by asking the participants to state the degree of their agreement with six statements about perceived risks. For this purpose, the researcher used a five-point scale, graded from “very agree” to “never agree” (Metzger and Fehr 2018). The fourth part measured the intention to invest by asking the participants to state the degree of their approval of three statements about the intention to invest on a five-point scale, graded from “very agree” to “never agree” (Sivaramakrishnan et al. 2017). Table 1 presents the scale used to measure the research variables.

**Table 1.** The scale used to measure the research variables.

Variable	Code	Item
Objective Knowledge (OK)	OK1	Suppose you had \$100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow? (Answers: a. More than \$102, b. Exactly \$102, c. Less than \$102, d. Don't know).
	OK2	Imagine that the interest rate on your savings account was 1% per year, and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? (Answers: a. More than today, b. Exactly the same, c. Less than today, d. Don't know).
	OK3	If interest rates rise, what will typically happen to bond prices? (Answers: a. They will rise, b. They will fall, c. They will say the same, d. There is no relationship between bond prices and the interest rates., e. Don't know).
	OK4	A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. True or false? (Answers: a. True, b. False, c. Don't know).
	OK5	Buying a single company's stock usually provides a safer return than a stock mutual fund: true or false? (Answers: a. True, b. False, c. Don't know).
Subjective Knowledge (SK)	SK1	Interest rates, finance charges, and credit term.
	SK2	Credit ratings and credit files.
	SK3	Managing finances.
	SK4	Investing money.
	SK5	What is on your credit report income

Table 1. Cont.

Variable	Code	Item
Perceived Risk (PR)	PR1	The uncertainty of whether the markets will rise, or fall keeps me from buying stocks.
	PR2	Stock markets are unpredictable, which is why I would never invest in stocks.
	PR3	When I hear the word 'stocks', the term 'possible loss' comes to mind immediately.
	PR4	I am willing to take financial risks in order to substantially increase my assets.
	PR5	I am aiming for capital growth in the long run, which is why I am willing to take considerable financial risks.
	PR6	In money matters, I tend to be willing to take risks.
Intention to invest (II)	II1	I expect to invest in equities (stocks/shares) and/or equity mutual funds.
	II2	I want to invest in equities (stocks/shares) and/or equity mutual funds.
	II3	I intend to invest in equities (stocks/shares) and/or equity mutual funds.

Source: (Alqatawani 2016; Hysmith 2017; Metzger and Fehr 2018; Sivaramakrishnan et al. 2017).

### 3.3. Data Collection

The researcher collected the data for this study during the period from February to July 2020 by publishing the questionnaire online. The researcher received correct responses from four hundred Saudi Arabian national participants interested in investing in the Saudi Arabian Stock Market.

## 4. Analysis and Results

To analyze the collected data, the researcher used a partial least squares (PLS) technique to perform component-based structural equation modeling (SEM) through the Smart PLS 3.3.2 software. According to Anderson and Gerbing (1988), the researcher adopted a three-step approach in carrying out the data analysis. First, he conducted a descriptive statistic. Second, he estimated the measurement model to ensure the construct's validity and reliability. Then, he evaluated the structural model to ensure its suitability for testing the hypotheses. The details of these three steps are as follows:

### 4.1. Descriptive Statistics

After collecting the data, the researcher ran a descriptive statistic of the research variables. Table 2 shows the descriptive statistics of the research variables.

Table 2. The descriptive statistics of the research variables.

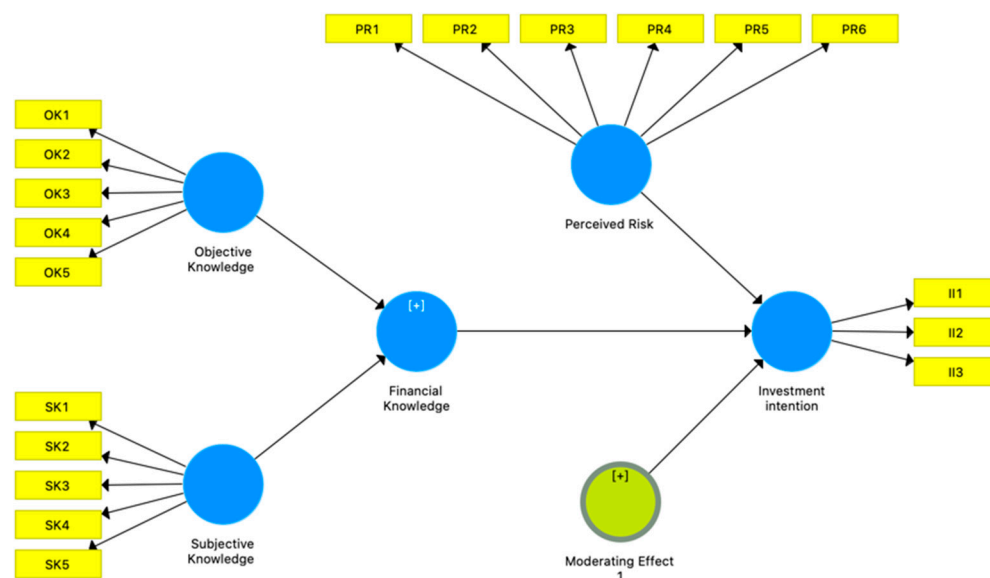
Variable	N	Mean	SD
Financial knowledge		2.974	1.195
- Objective Knowledge		3.111	1.157
- Subjective Knowledge	400	2.836	1.217
Perceived Risk		3.059	1.259
Intention to invest		3.546	1.333

Source: Outputs of statistical analysis.

As shown in Table 2, the results indicate that the mean of financial knowledge was 2.974 (SD = 1.195). Objective knowledge was a larger component than subjective knowledge of financial knowledge. The mean of objective knowledge was 3.111 (SD = 1.157) and the mean of subjective knowledge was 2.836 (SD = 1.217). Consequently, the research sample's objective knowledge was greater than their awareness of financial knowledge (subjective knowledge). The results also indicate that the mean of perceived risk was 3.059 (SD = 1.259). This means that the research sample's perception of risks is relatively high and that five is the highest level of options. Finally, the results indicate that the mean of the intention to invest was 3.546 (SD = 1.333) and was the largest mean among the research variables.

#### 4.2. Measurement Model

As shown in Figure 2, the measurement model illustrates the relationships between the indicators (items) and the latent variables that these indicators measure, in addition, to the expected relationship between these variables. It illustrates that the financial knowledge consists of two aspects, namely, subjective knowledge and objective knowledge and its measurable elements. Then, it shows the expected relationship between the independent variable, which is financial knowledge, and the dependent variable is the intention to invest. The perceived risks are entered as a moderate variable that may affect this relationship.



**Figure 2.** The measurement model. Source: Outputs of Smart PLS software considering the research framework and measurement.

In order to ensure that the indicators represent their latent variables and that the items meet sufficient convergent and discriminant validity, the researcher used factor loadings, composite reliability, and average variance extracted (AVE), as suggested by [Hair et al. \(2006\)](#). As a result of this test, the researcher deleted two items (OK1, OK5) from the objective knowledge scale because they did not meet the required standards. The rest of the elements achieved the required standards. Table 3 lists the converging credibility indicators.

Table 3 shows that, as suggested by [Bagozzi and Yi \(1998\)](#), after excluding (OK1, OK5), all the reflective index loads exceeded the necessary cutoff level of 0.60. Composite reliability values exceeded the recommended threshold value of 0.70 for all reflective combinations ([Hair et al. 2006](#)) where, as suggested by [Fornell and Larcker \(1981\)](#), AVEs are above the recommended value of 0.50 per build. As an embryo, the Cronbach alpha values are acceptable since, as suggested by [Taber \(2018\)](#), they are between 0.45–0.98. These indications point to the validation of the affinity.



**Table 3.** Convergent validity.

Item Indicators	Type of Measure	Item Loadings/Weights	Composite Reliability (CR)	Cronbach Alpha	AVE
Objective Knowledge					
OK2	Reflective	0.789	0.772	0.563	0.532
OK3		0.758			
OK4		0.632			
Subjective Knowledge					
SK1	Reflective	0.839	0.917	0.887	0.690
SK2		0.824			
SK3		0.874			
SK4		0.809			
SK5		0.805			
Intention to Invest					
II1	Reflective	0.910	0.947	0.916	0.856
II2		0.927			
II3		0.938			
Perceived Risks					
PR1	Reflective	0.648	0.865	0.812	0.521
PR2		0.737			
PR3		0.526			
PR4		0.769			
PR5		0.844			
PR6		0.764			

Source: Outputs of statistical analysis using Smart PLS software. Note the two items (OK1, OK5) were excluded from the objective knowledge scale because they did not meet the required standards.

For a further validity check, as suggested by [Bollen and Lennox \(1991\)](#), [Diamantopoulos and Winklhofer \(2001\)](#), [MacKenzie et al. \(2005\)](#), [Petter et al. \(2007\)](#), and [Andreev et al. \(2009\)](#), the researcher conducted discriminant analysis to check the degree of variation between the different compositional measures. He conducted the discriminant analysis by contrasting structural associations with the square root of the structure's AVE ([Fornell and Larcker 1981](#)). Table 4 presents the results of the discriminant validity.

**Table 4.** Discriminant validity.

	OK	SK	PR	II
OK	0.730			
SK	0.497	0.831		
PR	0.463	0.606	0.722	
II	0.390	0.463	0.582	0.925

Source: Outputs of statistical analysis using Smart PLS software.

Table 4 shows that the values in the diagonals of the matrix representing the square root of AVEs were in all cases greater than the non-diagonal elements in the corresponding row and column. This means that the correlation of each variable with itself is greater than its association with the rest of the research variables. This confirms the fulfilment of the discriminatory validity.

#### 4.3. Goodness of Fit (GoF) of the Model

According to [Tenenhaus et al. \(2005\)](#), as the global fit measure, GoF is the geometric mean of both the AVE and the endogenous variables' average  $R^2$ . The GoF's aim is to take account of both the calculation and the study's structural model along with an emphasis on the model's overall performance ([Chin 2010](#); [Henseler and Sarstedt 2013](#)). The calculation formula of GoF is as follows:

$$\text{GoF} = \sqrt{(\overline{R^2} \times \overline{\text{AVE}})}$$

The determination of whether or not the PLS model is valid is based on the GoF criteria (below 0.1 = no fit, from 0.1 to 0.25 = small fit, from 0.25 to 0.36 = medium fit, higher than 0.36 = Large fit) (Wetzels et al. 2009). For this study, the GoF was (0.5066); this means that this study's GoF model was large enough to have sufficient global PLS model validity.

#### 4.4. Structural Model

The structural model involves an analysis of the model's presumed association of exogenous and endogenous variables. Table 5 summarizes the structural model's path coefficient and regression result.

**Table 5.** Structural model's path coefficient and regression result.

Hypo.	Relationship	Std. Beta	Std. Error	t-Value	p-Value	Decision	Adj. R <sup>2</sup>
H1	FK ≥ II	0.204	0.069	2.975	0.003	Supported *	0.385
H2	PR ≥ II	0.385	0.061	6.329	0.000	Supported **	
H3	Moderating Effect ≥ II	−0.143	0.039	3.664	0.000	Supported **	

Significant at \*\*  $p = <0.01$ , \*  $p = <0.05$ . Source: Outputs of statistical analysis using Smart PLS software.

As shown in Table 5, there was a positive relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market since the Std. Beta was (0.204) and  $p$ -value was (0.003). This means that the first hypothesis is accepted. This relationship comes from subjective knowledge more than objective knowledge since the subjective knowledge path coefficient on financial knowledge was 0.819 compared with 0.296 for objective knowledge.

Table 5 also shows that there was a positive relationship between perceived risk and intention to invest in the Saudi Arabian Stock Market since the Std. Beta was (0.385) and  $P$ -value was (0.000). This means that the second hypothesis is also accepted.

Additionally, Table 5 shows that perceived risks negatively moderate the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market and, thus the lower the perceived risk, the stronger this relationship. This is because Std. Beta was (−0.143) and the  $p$ -value was (0.000). Figure 3 presents the moderating effect.

Figure 3 shows the moderating effect on the relationship between financial knowledge and intention to invest in the case of high financial knowledge and low financial knowledge. It refers to perceived risks reducing by 14.3% the positive relationship between financial knowledge and intention to invest. This also means that the third hypothesis is accepted.

The researcher assessed the illustrative strength of the estimated model by the  $R^2$  of the endogenous structures, and  $R^2$  shows the variance in the dependence of all the exogenous variables in the model. As shown in Table 5, the  $R^2$  value was 0.395. This means that the model has moderate illustrative strength (Falk and Miller 1992; Chin 1998).

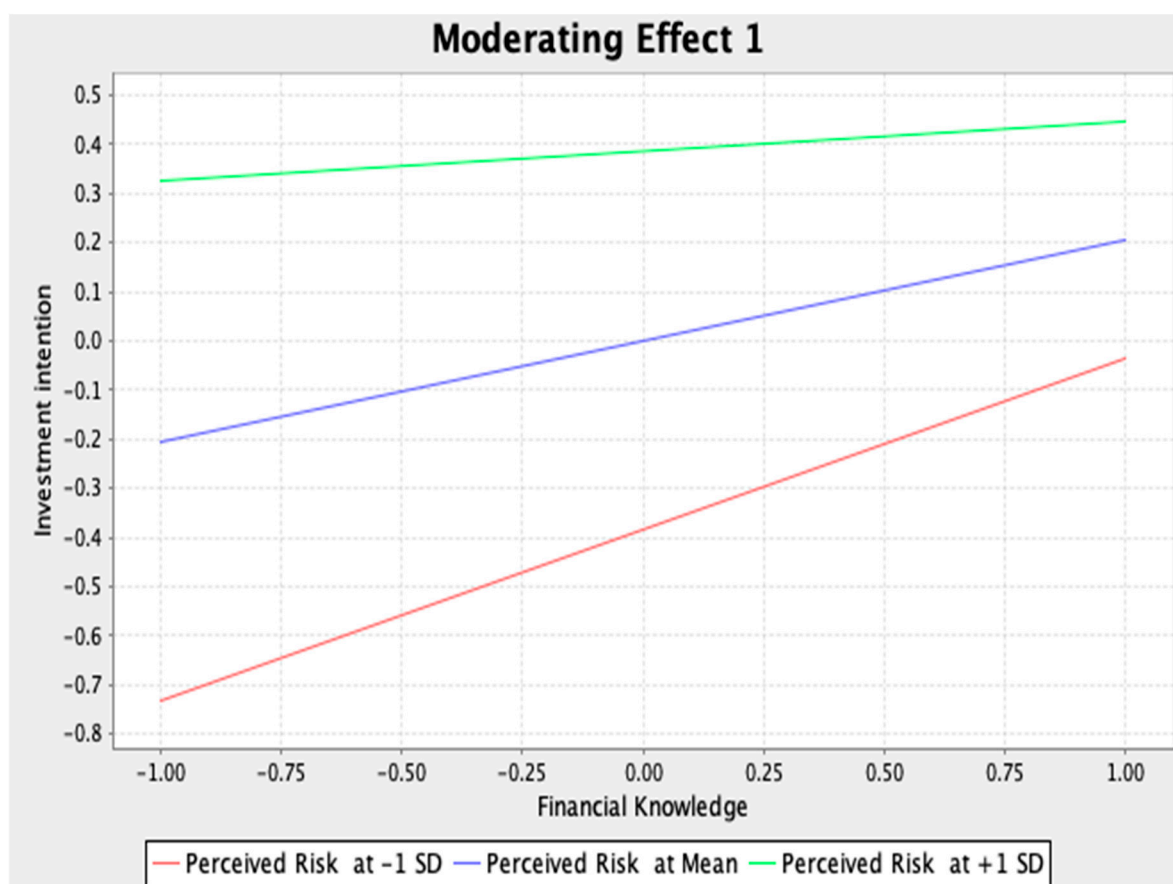


Figure 3. Moderating effect. Source: Outputs of statistical analysis using Smart PLS software.

To investigate the size of the financial knowledge's effect and perceived risk on intention to invest, and the size of the moderating variable's (PR) effect on the relationship between financial knowledge and intention to invest, the researcher calculated the effect size ( $f^2$ ) as presented in Table 6.

Table 6. Assessment of effect size ( $f^2$ ).

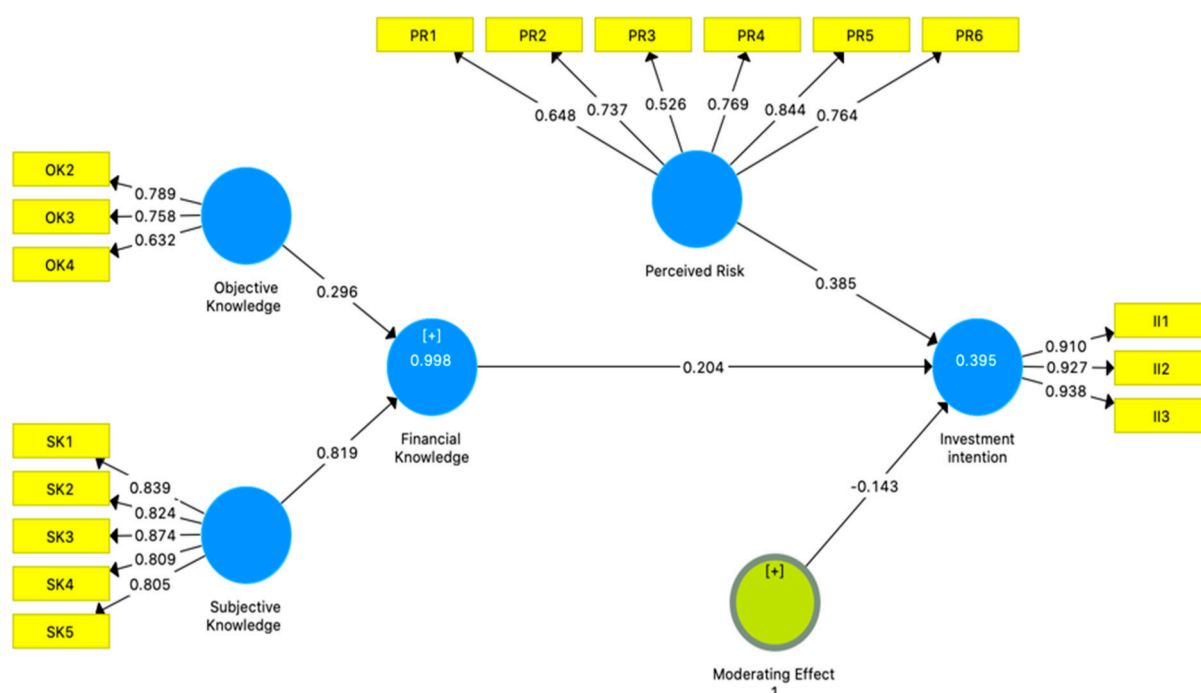
Constructs Relation	$f^2$	Result
Financial Knowledge (FK)	0.041	small effect size
Perceived Risk (PR)	0.137	small effect size
Moderating Effect	0.045	small effect size

Source: Outputs of statistical analysis using Smart PLS software.

According to Cohen (2013), the financial knowledge and perceived risks have small effects on intention to invest. In addition, perceived risks have small effects on the size of the relationship between financial knowledge and intention to invest.

To measure the ability of independent variables in predicting the dependent variable, the researcher tested the predictive relevance ( $Q^2$ ), and its value was 0.322. This means that according to Chin (2010), the model predictive relevance is acceptable.

Based on the analysis and results, Figure 4 shows this study's final structural model.



**Figure 4.** This study's final structural model. Source: Outputs of statistical analysis using Smart PLS software considering the measurement model.

## 5. Discussion and Implications

### 5.1. Discussion

This study aimed to investigate the moderating role of perceived risks on the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market. This study's findings showed that there was a positive relationship between financial knowledge and intention to invest. There was also a positive relationship between perceived risks and intention to invest and that perceived risks moderate the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market. The researcher collected data were from four hundred Saudi participants and used component-based structural equation modeling (SEM) through the Smart PLS 3.3.2 software to analyze their answers. This study's main findings are discussed below.

First, the results refer to the two dimensions of financial knowledge (namely objective knowledge and subjective knowledge) that are significantly associated with the latent variable that they express. This is consistent with [Lee et al.'s \(2019\)](#) findings. The results show that the total effect of subjective knowledge is greater than the total effect of objective knowledge in the formation of financial knowledge since the total effect of subjective knowledge was (0.819), while the total effect of objective knowledge was (0.296). This indicates the importance of subjective knowledge in forming financial knowledge.

Second, the results showed that there was a positive relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market. This result proves the correctness of the first hypothesis. It also appears to be very convincing in that the participants who had high financial knowledge had a greater intention to invest in the Saudi Arabian Stock Market. Moreover, this result was consistent with the results of previous studies regarding the existence of a relationship between financial knowledge and intention to invest ([Fedorova et al. 2015](#); [Lim et al. 2018](#); [Hamza and Arif 2019](#); [Nguyen and Nguyen 2020](#)).

Third, the results showed that there was a positive relationship between perceived risk and intention to invest in the Saudi Arabian Stock Markets. This means that the second hypothesis is accepted. In addition, this result is consistent with [Maziriri et al.'s \(2019\)](#) findings. The higher the investor's awareness of risk, the greater the investor's

confidence in trading on the stock exchange, and thus the greater the intention to invest in the stock market.

Finally, perceived risk has a moderately negative effect on the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market. Thus, the lower the perceived risk, the stronger this relationship. This means that the third hypothesis is also accepted. This downturn is a good sign because it reduces the investment that arises from decisions that are not related to the perception of risks that these investments involve. In turn, this leads to less bad investments in the Saudi Arabian Stock Market as well as an increase in market efficiency. The results of the moderating variable analysis also indicate that the effect of financial knowledge on intent to invest is greater if the perceived risk is lower, and the effect is lower in the case of higher perceived risk.

### 5.2. Implications

Investors do not always act rationally. There are many factors that influence an individual's financial decisions and push him to exhibit cognitive and emotional behavior such as biased and sentiments, which leads to deviation from rational behavior. Although the Saudi Arabian Stock Market is important, some investors have refrained from investing in it due to their fear of perceived risk or their lack of financial knowledge.

This study's findings showed that the better the investor's awareness of investment risks, the greater their intention to invest in the Saudi Arabian Stock Market due to having more confidence in companies surrounded by fewer perceived risks. This also improves an individual's investment decisions.

This study's findings also indicate that more financial knowledge helps to increase intention to invest. The more the investor is familiar with the financial concepts (such as interest rate, consolidation, mortgage, etc.), the greater their intention to invest in the stock market. This reduces biased and emotional decision-making and improves an individual's investment decisions.

However, the investor's perception of risk has a negative effect on this relationship. In such circumstances, the level of perceived risk may lead the investor to not rely on their financial knowledge when deciding to invest in the Saudi Arabian Stock Market. Regardless of their expectations toward the stock market, an investor may realize that it is a good opportunity to invest in low-risk companies rather than high-risk companies.

## 6. Conclusions

The primary purpose of this study was to investigate the moderating role of perceived risk in the relationship between financial knowledge and the intention to invest in the Saudi Arabian Stock Market.

This study's findings indicate that there was a positive relationship between both financial knowledge and perceived risk and intention to invest in the Saudi Arabian Stock Market. The findings also indicate that perceived risk had a negative moderating effect on the relationship between financial knowledge and intention to invest in the Saudi Arabian Stock Market.

Investors in the Saudi Arabian Stock Market should improve their knowledge of various financial aspects such as interest rate, mortgage, inflation, etc. This helps them to improve their financial decisions away from bias and emotion. Additionally, they should well study the risks surrounding companies trading on the Saudi Arabian Stock Market to reduce the losses that they are likely to suffer either future reductions in the prices of their shares, or reductions in the profits that companies distribute to them or the default or bankruptcy of these companies.

Decision-makers in companies whose shares are traded on the Saudi Arabian Stock Market must work to reduce the perceived risks to which investors are exposed when dealing in their shares. This may result from the possibility of lower share prices in the future or the possibility of reductions in the profit distributed by these companies. These companies may resort to diversifying their investments and try to reduce their investments



in high-risk areas. In addition to transparency in dealing with investors, there is a need to measure and predict risks in the long term and to also search for ways to reduce the likelihood of their occurrence and the resulting losses.

Finally, the Capital Market Authority must be transparent on the rules of disclosure, fairness, and speed in disseminating information among dealers on the Saudi Arabian Stock Market. This is especially important in respect of the information that affects the prices of the securities in circulation. Such action would increase investor confidence in the Saudi Arabian Stock Market.

This study had some limitations. First, it was conducted in the Saudi Arabian environment and, consequently, the results may differ according to the appropriate environment. Second, the researcher collected the data during the global COVID-19 pandemic and these circumstances may have impacted on the participants' responses. Third, this study was based on the participants' evaluation of themselves according to the research variables, and this may suggest a kind of social bias. Consequently, the researcher recommends that future studies are conducted on research variables in a different environment or within a different period or by using various measures.

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