Antecedents of Risky Financial Investment Intention among Higher Education Students: A Mediating Moderating Model Using Structural Equation Modeling

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Abstract: The current study examines the direct effect of investment awareness and university education support on students’ risky financial investment intentions. Additionally, it examines the mediating effect of social influence and the moderating effect of self-control on these relationships. For this purpose, we directed an online questionnaire to senior students at three public universities in Saudi Arabia. The results of SmartPLS showed positive significant effects of investment awareness and university education support on social influence towards investment. The results also showed direct positive significant effects of investment awareness and university education support on students’ risky financial investment intentions. The results confirmed a partial mediating effect of social influence on the link between investment awareness and university education support on students’ risky financial investment intentions. Moreover, self-control was found to have a moderating effect on the link between investment awareness, university education support and social influence. Self-control failed to confirm the other moderating effects; i.e., the link between university education support and investment awareness, nor the link between investment awareness, university education support and risky financial investment intention. Implications of these findings for academics and policymakers to stimulate investment intention among higher education graduates in the Kingdom of Saudi Arabia (KSA) are discussed.

Keywords: risky investment intention; investment awareness; university education support; self-control; social influence

MSC: 91-02

1. Introduction

Higher education equips students with knowledge, skills and enhances their abilities to make financial decisions [1]. However, many higher education students have less attention regarding money management and investment knowledge, which in turn increases their dependency on their families and their debt loads [2]. Therefore, earlier studies, e.g., [3,4], have highlighted the positive influence of investment awareness and financial knowledge on investment intentions. Investment awareness refers to understanding how to invest more effectively, including knowledge of investment-related issues [5]. Halim [6] indicated that investment behavior requires awareness, knowledge and business sense in order to make the right decision. Mawadah and Ratno [7] found that students’ intention to invest increased when their knowledge and awareness levels increased. Students will be more
effective and accurate in handling information to improve their investment decisions when they have a greater understanding of investments [8].

The factors influencing the investment intention of higher education students, such as investment awareness and support given by the education system, have gained the attention of academics and policymakers in many countries, such as Saudi Arabia [9]. The concept of investment awareness is highly valued as a financial concern [10]. In this sense, Hastings and Mitchell [11] argued that investment awareness varies according to the age of individuals. Investment and financial awareness are two critical variables for the financial market’s long-term growth [12]. Therefore, communities with a high degree of financial knowledge are more likely to contain individuals who are skilled at making good investment decisions [13]. Hence, investors who lack proper financial awareness have less intention to invest mainly in risky investments [14]. According to Mandell and Klein [15], financial awareness is a factor that emphasizes youth difficulties with investment. Many fresh investors are clueless and uninformed about the possibilities, rules, regulations, guidelines and restrictions of investment [16]. Consequently, a study conducted by Heniawan and Dewi [17] showed that variables such as abilities and awareness influence investment intentions for young investors.

In the context of education’s impact on investment intentions, Hani et al. [18] indicated that investment education has a significant role in motivating a student to engage in investment activities. Similarly, Veciana et al. [19] confirmed that higher education institutions are vital in inspiring and motivating university students to participate in investment activities.

Higher education students are expected to be upcoming investors if they have proper education support through universities [20]. Beyond the scope of the conventional educational system, investment training is an example of education support that enhances students’ investment skills and, consequently, affects their intention to engage in investment activities after graduation [8]. In this sense, Mega and Semara [21] emphasized that training can enhance students’ investment knowledge and awareness to select the convenient kind of investment. The study results of Ammer and Aldhyani [9] indicated that a person’s intention to invest increases with the frequency of his participation in investment training, because students can acquire a lot of information, motivation, rules and guidance through investment simulation activities, which helps to enhance their intention to invest.

In the context of Saudi Arabia, investment awareness and education support have received great attention after the inauguration of the Saudi Vision 2030. Despite initiatives by the Saudi government, there is still a lack of financial awareness and knowledge among young adults [12]. However, Sedais and Al Shahab [22] argued that Saudi young people (under 37 years old) have poor financial understanding. According to Alyahya [23], the majority of students in Saudi Arabia’s higher education lack financial literacy. The Saudi Vision 2030 recognized the value of the KSA financial sector and paid attention to fostering a culture of investment in the KSA market through the Capital Market Authority (CMA) and other private agencies. However, there is a gap in understanding investment knowledge and the role of education support in stimulating risky financial investment intentions in the Saudi context, which is the focus of the current study. According to Alshebami and Aldhyani [24], there is a lack of financial awareness in Saudi Arabia, which highlights the need to understand critical factors affecting investing knowledge and, consequently, affecting investment intentions. Agarwalla et al. [25] argued that family business engagement increases children’s awareness of their own financial fundamentals. Certainly, adults and children gain financial abilities in their families through multiple socialization practices, such as observing their parents’ financial behavior [12]. Social influence, such as family, peers and university professors, may shape an individual’s behaviors and principles; hence, it affects the individual’s decisions [26]. Parents have a crucial role in guiding and encouraging their children toward financial literacy [27]; thus, families are considered a key source of motivation for their children regarding financial knowledge and habits, such as saving. Families should teach their children about money matters and investment activities for a better life without financial problems [28].
Self-control in this study refers to the individual’s ability to regulate their needs, expectations and behaviors to achieve intended goals [29]. Alshebami and Aldhyani [24] asserted that it is essential to have self-control in order to maximize the advantages of investment awareness. Self-control is considered a crucial factor in forming a person’s behavior [30], because self-control helps improve and focus one’s thoughts, attitude and actions regarding achieving a particular goal [26]. Students with low self-control levels have frequent income-related challenges, inadequate retirement planning and use credit more regularly, exposing themselves to extra financial dangers [31,32]. On the other hand, those with good self-control can professionally handle their funds, fulfill their financial objectives and consistently expand their savings [33,34]. Therefore, as a psychological impact, self-control might be connected to an individual’s level of investment awareness, and it is relevant to research it, especially among university students. Investment intentions can be defined as an individual’s intention to establish a new business (Engle et al., 2010). Earlier studies, e.g., [35–37], confirmed that the intention is the primary and initial step towards becoming an investor; furthermore, the intention is the best predictor of investment behavior. It is clear that a person’s intellectual ability may influence their attitude toward risk [9]. Fellner and Maciejovsky [38] argued that an individual’s risk behavior might determine the way of investment. Additionally, investment risk intention positively correlates with investment awareness [39].

This study broadens and enriches the existing literature on the interrelationship between investment awareness, university education support, social influence, self-control and risky financial investment intentions. Such interrelationships have been mostly insufficiently investigated, particularly in emergent countries such as Saudi Arabia [40]. The study investigates the influence of both cognitive factors, such as investment awareness and university education support and non-cognitive factors; i.e., self-control and social impact on risky financial intentions of investment. Earlier investigations have focused mainly on cognitive factors, e.g., [17,41], with limited studies integrating cognitive and non-cognitive factors. In addition, as far as researchers are aware, there is no published research on the mediating effect of social influence in the relationship between investment awareness, university education support and risky investment intention. Furthermore, this is the first attempt to examine the influence of self-control as a moderator in the link between investment awareness, university education support, social influence and risky investment intention. The current study provides a unique perspective on such mediating and moderating impacts, and addresses gaps in the existing literature on an emergent country, i.e., Saudi Arabia. The study has major implications for universities, policymakers, regulators and higher education students by considering the influence of both cognitive and non-cognitive factors on risky investment intentions. Understanding these factors will enable policymakers to better stimulate higher education graduates’ investment intentions. This will ultimately positively impact the national economy.

Following the introduction of the research topic, its significance and purpose, the structure of the next sections of the paper are as follows. The next section (Section 2) develops the research hypotheses by critically reviewing the literature on the relations between investment awareness, university education support, social influence, self-control and risky financial investment intentions. This section discusses the theoretical foundations of both direct and indirect relationships. Section 3 presents the measures adopted for data collection. It also includes the procedures for data collection and analysis. Section 4 shows the findings of the analyzed data and the structural research model. Section 5 discusses the research results and elaborates on its implications for academics and policymakers in higher education, especially in Saudi Arabia.

2. Hypothesis Development

2.1. Investment Awareness and Social Influence

According to Agarwalla et al. [25], investment awareness creates a social influence among families and affects families’ income levels. When a family member, such as parents,
has investment information and shares it with other family members, this motivates non-participant relatives to join in the investments [42]. Social impact may be one of the actions that shape saving behaviors as a result of investment awareness [12]. In the context of Saudi Arabia, the 2030 Saudi Vision has promoted investment awareness among Saudi people through the Capital Market Authority (CMA). Thus, the government intends to make Saudis more aware regarding the value of the investment. The CMA frequently utilizes multiple channels and social media to cascade and promote investment awareness among Saudi people and institutions. The government aims to encourage investment awareness among the community and has created a social influence towards investment. Hence, it is expected that individual investment awareness enhances social influence towards investment. Therefore, we propose:

Hypothesis 1 (H1). Investment awareness has a positive direct effect on social influence.

2.2. Investment Awareness and Financial Risky Investment Intentions

According to Aydemir and Aren [43], the intention of risky investment refers to the level of persons who intend to invest in risky investment choices, such as starting/running their own business, other than those having a constant rate of return, such as bank deposits and bonds. Halim [6] argued that investors should have business sense, knowledge and investment awareness in order to determine the best investment alternative. Investment awareness is essential to avoid a potential loss in any investment choices. In this sense, Mawadah and Ratno [7] determined that high investment awareness leads to high intention to invest. Thus, investment awareness with investment rules, regulations, policies and knowledge influences intention to invest [44]. Shehata et al. [45] concluded in a recent study that an investor’s intent to invest in the Saudi Arabian Stock Exchange positively correlates with his or her awareness of investing risks. Despite this, Octarina et al. [46] argued that investment awareness has no significant impact on the student’s intention to invest; Ammer and Aldhyani, [9] confirmed that investment awareness positively influences students’ intentions toward investment. Thus, we propose:

Hypothesis 2 (H2). Investment awareness has a positive direct effect on risky financial investment intention.

2.3. University Education Support and Social Influence

According to Veciana et al. [19], higher education institutions play an important role in inspiring university students to participate in entrepreneurship and foster investment awareness. Thus, education policymakers in Saudi Arabia have provided financial support and regulations for universities across the Kingdom to include entrepreneurship and investment curricula in their educational programs [4]. Social influence is associated with education support and affects behavior to pursue investment activities [47,48]. Students’ intentions to become investors are often made after discussion with respected members of their close social network, including their professors and academics [49]. As a result, the attitude of university professors and peers toward students’ investing decisions influences their decision to pursue a career in investment. Furthermore, students with strong confidence in their competencies, talents, skills and knowledge may affect their colleagues’ behavior [20]. Students’ self-efficacy and confidence can be enhanced by the multi-education courses they acquire over their years of study, leading to a higher sense of competence to advance with investment activities [50]. To conclude, university education support affects social influence on university students or the surrounding environment. Thus, we propose:

Hypothesis 3 (H3). University education support has a positive direct effect on social influence.
Hypothesis 4 (H4). University education support positively and directly affects investment awareness.

2.4. University Education Support and Risky Investment Intention

A review of the existing literature, e.g., [51–53], revealed that formal education affects student behavior, determines their possible career options and significantly impacts their investment. Similarly, Turker and Selcuk [54] argued that high education is key in fostering student investment intentions. Conversely, Willis [55] and Fernandes et al. [56] proposed that education has less of an effect on promoting student investment decision-making. However, Shah et al. [57] argued a significant positive correlation exists between university education support and students’ intention toward risky investment. Similarly, Nastiti et al. [58] indicated that higher education graduates are supposed to be successful investors after graduation because colleges equipped them with investment knowledge and the required skills; therefore, they have a proper positive intention toward risky investment. Sánchez [59] reported some key reasons to explain the key role of education support in encouraging student investment intention. This includes that education enhances student independence, self-confidence and autonomy.

Moreover, it helps students become aware of career alternatives and choices. Policy-makers in Saudi Arabia have realized the importance of education support at the university level and its impact on student intention; therefore, they have added some investment courses to the existing curricula [12]. Keat et al. [60] and Alieidan et al. [61] confirmed that university education support positively impacts the entrepreneurial intentions of higher education students. Thus, we propose:

Hypothesis 5 (H5). University education support has a positive direct effect on risky financial investment intention.

2.5. Social Influence and Financial Risky Investment Intention

Burnkrant and Cousineau ([62], p. 206) stated: “One of the most pervasive determinants of an individual’s behavior is the influence of those around her/him”. Social influence includes a change in individual emotions, opinions or behavior caused by those in the external environment [63]. Social influence, i.e., friends, university professors, friends and family, can influence an individual’s behaviors and principles, and, consequently, might impact the individual’s intention and decisions to invest [26]. Student parents are crucial in forming and guiding their children to be financially literate [27]; thus, families play an important role for their children concerning education and inspiration regarding investment behaviors, such as saving and spending. Student intentions to invest can be influenced by their level of self-assurance and the knowledge they gain via social interaction, such as with parents, friends and teachers [64]. Social influence has less impact on student intentions to invest, many of which have a strong locus of internal control [65,66]. Thomas [67] indicated that social influence has a low level of effect on student intentions to invest. Nevertheless, Kautonen et al. [68] argued that social influence positively impacts student investment intentions. Thus, we propose:

Hypothesis 6 (H6). Social influence has a positive direct effect on risky financial investment intention.

2.6. Social Influence as a Mediator between University Education Support, Investment Awareness and Risky Investment Intention

Individuals who have investment awareness could better plan their future and have a high intention to invest [12]. Lim et al. [69] indicated a negative relationship between investor risk tolerance and investment intention. Investment awareness leads individuals to gain the knowledge and skills required to make financial decisions [70]. Thus, students can raise their level of investment awareness through many sources, such as peers, parents, friends, social channels and their network members, which can affect their intention to
invest \([26,71,72]\). Weber and Milliman \([73]\) indicated that students with more financial awareness have higher intentions toward investment. Ammer and Aldhyani \([9]\) indicated that investment awareness positively impacts student intentions, while social influence also promotes investment intentions \([68]\). Investment awareness among students’ families is important in guiding their children toward saving behaviors and affects their intention to engage in investment \([2]\). Families and individuals can benefit from a high investment awareness level \([74]\). Thus, the surrounding environment of a student, such as parents and friends, who have investment awareness, affects student intentions toward risky investments. To that end, social influence could mediate the relationship between investment awareness and investment intention. Therefore, we propose:

**Hypothesis 7 (H7).** Investment awareness and social influence have a serial mediating role in the relationship between university education support and risky financial investment intention.

**Hypothesis 8 (H8).** Social influence mediates the relationship between investment awareness and risky financial investment intention.

2.7. Social Influence as a Mediator between University Education Support and Risky Investment Intention

Aydemir and Aren \([43]\) argued that the degree of individual education has no relationship with investment awareness. In some cases, an individual may have a high level of education, while he/she has little understanding regarding fundamental financial principles, such as the time value of money, stocks, bonds and risk diversification. However, an individual who is less educated could have a better awareness about certain financial matters than someone with a higher educational level. Students who attend investment courses at university tend to obtain the necessary self-confidence to launch their own firms when proper investment instruction is provided \([20]\). On the other hand, Mawadah and Ratno \([7]\) valued the role of university education in promoting student intentions to invest. Risky investments require a skilled and knowledgeable student \([6]\). Students might gain these skills and knowledge through their families and/or universities. There are different sources of investment awareness, such as education support \([75]\), and students’ surrounding environment, such as peers, parents, friends, neighbors and university professors. In this sense, Manfrè \([76]\) emphasized that their investment intention will be stronger once family members gain financial awareness early in life. Families have the power to significantly alter their children’s attitudes and intentions regarding borrowing, saving and investing \([25]\). Similarly, evidence suggests that family members have an impact on the investment behavior of other family members \([77]\). Therefore, student intentions toward risky investments could be shaped through student families and closer relatives, who could motivate and support them to make the decision toward risky investments. Social influence can boost the link between university education and investment intentions. Thus, we propose:

**Hypothesis 9 (H9).** Social influence mediates the relationship between university education support and risky financial investment intention.

2.8. The Moderating Impact of Self-Control

Social Cognitive theory (SCT) is a social psychology theory that has gained wide popularity \([78]\), and which has been used in several fields involving behavioral finance. The theory primarily focuses on the continual mutual link between environmental influences and human behavioral variables in explaining the mechanism of social cognitive learning \([79,80]\). This theory is based on the premise that individuals gain knowledge and awareness by observing others. This is required to happen in the immediate social environment in which a person lives, which includes family, friends, the local community and the media. According to SCT, one’s behavior is influenced by interactions between his/her observations of other people, their surroundings and their cognitive ability \([81,82]\).
Additionally, the three factors of interpersonal connections, individual experiences and the environment may explain human nature. Human factors include desires, preferences, characteristics and other specific motivational elements, whereas environment effects reflect the circumstances and setting in which an action is carried out. Observational learning, self-efficacy, end objectives, self-discipline, motivation and emotional control are a few factors that might play a role in the process of behavioral adjustment [30]. According to the theory, social learning is a prerequisite for interpersonal, peer-to-peer, socioeconomic and environmental impacts [83].

Self-control is the ability of a person to regulate their needs, expectations and behaviors in order to achieve specific goals [26]. Agarwalla et al. [25] argued that psychological characteristics, such as self-control, are more predictable based on a person’s socioeconomic status. Iram et al. [84] examined the investment awareness of females and indicated that females could develop better investment intentions when they had good self-control and high financial awareness. A student’s control of his/her current financial situation will have an impact on their financial future [85]. Self-control is believed to assist a person in dealing with personal money management [84]. Alshebami and Aldhyani [24] reported that Saudi youth at university have a lack of self-control. According to Ali et al. [12], self-control substantially and adversely influences the connections between financial literacy, saving habits and investment awareness. Strömbäck et al. [86] added that people with stronger self-control are more likely to exhibit better financial behavior, make wiser financial decisions and feel more secure regarding their present and future financial conditions. A person’s level of self-control can predict their intelligence and overall wellbeing in the future [87]. Furthermore, Miotto and Parente [88] argued that individuals with a strong sense of self-control and a propensity for making plans for the future are better able to manage their finances (Figure 1). Thus, we propose:

Figure 1. The theoretical mediating-moderating model.

**Hypothesis 10 (H10).** University education support and investment awareness relationship is moderated by self-control.

**Hypothesis 11 (H11).** Investment awareness and risky financial investment intention relationship is moderated by self-control.

**Hypothesis 12 (H12).** Investment awareness and social influence towards investment relationship is moderated by self-control.

**Hypothesis 13 (H13).** University education support and risky financial investment intention relationship is moderated by self-control.

**Hypothesis 14 (H14).** University education support and social influence relationship is moderated by self-control.

**Hypothesis 15 (H15).** Social influence and risky financial investment intention relationship is moderated by self-control.
3. Methods

3.1. Participant Selection and Data Collection Procedures

To accomplish the aims of this study, we selected a representative sample of senior students from a public university in the Kingdom of Saudi Arabia (KSA). An online questionnaire based on Google Forms was distributed to senior students at three KSA public universities (Imam Mohammad Ibn Saud Islamic University, King Faisal University and Umm Al-Qura University). Our target participants consisted of senior students who had previously completed courses in areas such as business management, entrepreneurship principles and finance; these courses provide skills for running their own business. In addition, these respondents had a greater capacity for reading and comprehending the questions pertaining to investment awareness and other variables. As all of our measurements were taken from English sources, we found it necessary to translate the questionnaire into Arabic so that it could be understood by the respondents who spoke Arabic. Following the lead of previous research, such as [12], we utilized convenience sampling due to its time- and cost-saving benefits in terms of contacting respondents. Along with the various WhatsApp groups, we emailed the questionnaire link to each respondent using the university’s standard email system. After making the link accessible to respondents (students) throughout September 2022, 650 responses were received and were valid for further analysis. Because privacy is such an important concern, we made sure to begin the survey with an introduction that explained both the purpose of the survey and the strict secrecy that would be maintained with any information gathered.

3.2. Measurement

The measurements of this study’s variables were taken from the most common and important previous studies that were related to the topic of this study. The study variables are listed along with their respective measurement sources, abbreviations and items in Section 4.

3.3. Methods of Data Analysis

SEM “Structural Equation Modeling” with “partial least squares” (PLS) was chosen as the main data analysis method so that the hypothesized relationships between the moderating and mediating effects could be examined and tested. Because it requires a smaller sample size than CB-SEM and the collected data do not require normal distribution, PLS-SEM was assumed to be the most appropriate method by which to analyze the current study data [89]. In addition, PLS-SEM makes it possible to retain a greater number of variables for each dimension than other methods. The suggested structural model categorizes the link between latent (unobserved) and observed items as reflective. This is because latent variable variations influence the measurement of observed variables [90]. In accordance with the two-stage methodology outlined by Leguina [89], the suggested theoretical model was assessed after the measurement (outer model) had already been assessed. In order to evaluate the outer (structural) and the inner (measurement) models in accordance with the suggestions made by Hair et al. [90], some criteria were utilized such as: the “standardized factor loading” (>0.7); the “composite reliability” (>0.7); the “average variance extracted” (>0.5); the “normed fit index” (>0.90); the “Standardized root mean square error” (<0.08); the $R^2$ (>0.1); and the Stone-Geisser Q2 (>0.0).

4. Findings of Data Analysis

4.1. The Outer Model (Measurement Model)

As suggested by Hair et al. [90], several indices were employed to evaluate the discriminant and convergent validity measurement model. These indices included “composite reliability” (C.R.), “internal consistency reliability” (Cronbach’s alpha), and “Average Variance Extracted” (AVE). All of the study measures showed good Cronbach’s alpha values (>0.7), as shown in Table 1: Inv-Awr ($a = 0.973$); UES ($a = 0.855$); Self-Co ($a = 0.980$); Soc-If
Composite reliability (CR) and average variance extracted (AVE) were estimated using the following [89–92] formulas, as below:

\[
CR = \frac{\left(\sum \lambda_i\right)^2}{\left(\sum \lambda_i\right)^2 + \left(\sum \varepsilon_i\right)}
\]

\[
AVE = \frac{\sum \lambda_i^2}{n}
\]

where \(\lambda\) is the standardized factor loading (SFL) for items, \(i\) refers to error variance and \(n\) is the number of items.

CR scores were calculated for all the employed factors and showed a high internal consistency: for example, the CR of investment awareness was as estimated as stated below:

For investment awareness (five items),

\[
CR = \frac{\left(0.940 + 0.922 + 0.954 + 0.982 + 0.949\right)^2}{\left(0.940 + 0.922 + 0.954 + 0.982 + 0.949\right)^2 + \left(0.070 + 0.13 + 0.098 + 0.183 + 0.144\right)} = 0.973
\]

as depicted in Table 1. Similarly, the C.R for UES (C.R = 0.858); Self-Co (C.R = 0.981); Soc-If (C.R = 0.963); and FRII (C.R = 0.965), exceeded the threshold value of 0.70 [92]. Additionally, the findings in Table 1 approved the proper convergent validity of the employed scales, as all the standardized factor loadings (SFL) were sufficiently high and with significant p values less than 0.05. The average variance extracted (AVE) exceeded the value of 0.50 for all dimensions. The AVE was estimated using the formula of Hair et al. [92].

\[
AVE = \frac{\text{sum squared standardized factor loadings}}{\text{number of factor items}}
\]

For example, for investment awareness, AVE = \(0.940)^2 + (0.922)^2 + (0.954)^2 + (0.982)^2 + (0.949)^2 \div 5 = 0.902\), as shown in Table 1. Similarly, the AVE for UES = 0.701; Self-Co. = 0.927; Soc-If = 0.893; and FRII = 0.903, exceeded the threshold value of 0.50 [92], further approving a proper convergent validity.

### Table 1. Outer model results.

<table>
<thead>
<tr>
<th>Dimensions/Variables</th>
<th>Abbrev.</th>
<th>Loadings</th>
<th>(\alpha) Value</th>
<th>C.R</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Awareness (Inv-Awr) Azhar et al. [41]</td>
<td>Inv.Awr1</td>
<td>0.940</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
<tr>
<td>“I am aware of different investment avenues”.</td>
<td>Inv.Awr2</td>
<td>0.922</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
<tr>
<td>“I am aware that investment is important for the near future”.</td>
<td>Inv.Awr3</td>
<td>0.954</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
<tr>
<td>“I am aware that investments are suitable for financial planning”.</td>
<td>Inv.Awr4</td>
<td>0.982</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
<tr>
<td>“I am aware that investment can give more income”.</td>
<td>Inv.Awr5</td>
<td>0.949</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
<tr>
<td>“I am aware that investment has high risk”.</td>
<td>Inv.Awr6</td>
<td>0.999</td>
<td>0.973</td>
<td>0.973</td>
<td>0.902</td>
</tr>
</tbody>
</table>
Table 1. Cont.

<table>
<thead>
<tr>
<th>Dimensions/Variables</th>
<th>Abbrev.</th>
<th>Loadings</th>
<th>α Value</th>
<th>C.R</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Education Support (UES, Yi, 2021) [93]</td>
<td></td>
<td></td>
<td>0.855</td>
<td>0.858</td>
<td>0.701</td>
</tr>
<tr>
<td>“My university offers courses on entrepreneurship principles”.</td>
<td>UES1</td>
<td>0.727</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>“My university motivates students to start a business”.</td>
<td>UES2</td>
<td>0.871</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“My university offers project work focused on entrepreneurship”.</td>
<td>UES3</td>
<td>0.834</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“My university provides students with the financial and policies means to start a business”.</td>
<td>UES4</td>
<td>0.906</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Control (Self-Co), Tangney et al. (2018) [29]</td>
<td></td>
<td></td>
<td>0.980</td>
<td>0.981</td>
<td>0.927</td>
</tr>
<tr>
<td>I can break my bad habits”.</td>
<td>Self.Co1</td>
<td>0.982</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do not get distracted easily”.</td>
<td>Self.Co2</td>
<td>0.965</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am good at resisting temptation”.</td>
<td>Self.Co3</td>
<td>0.965</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do things that feel good in the moment and not regret later on”.</td>
<td>Self.Co4</td>
<td>0.977</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often act with thinking through all the alternatives”.</td>
<td>Self.Co5</td>
<td>0.922</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Influence (Soc-If), Ariffin et al. [94]</td>
<td></td>
<td></td>
<td>0.960</td>
<td>0.963</td>
<td>0.893</td>
</tr>
<tr>
<td>“My family is a good example for me regarding financial management”.</td>
<td>Soc.If1</td>
<td>0.981</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I always talk about financial management with my friends”.</td>
<td>Soc.If2</td>
<td>0.974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I appreciate it when my colleagues advise me on what to do with my money”.</td>
<td>Soc.If3</td>
<td>0.911</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Saving is something I do regularly because my peers wanted me to save when I was little”</td>
<td>Soc.If4</td>
<td>0.913</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risky Financial Investment Intention (FRII) Aydemir and Aren (2017) [43]</td>
<td></td>
<td></td>
<td>0.964</td>
<td>0.965</td>
<td>0.903</td>
</tr>
<tr>
<td>“When making an investment decision, I generally prefer risky alternatives”.</td>
<td>FRII1</td>
<td>0.980</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“If I were going to make an investment, I would consider risky investment alternatives”.</td>
<td>FRII2</td>
<td>0.949</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“The likelihood of buying risky investments is high”.</td>
<td>FRII3</td>
<td>0.942</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“My willingness to buy risky investments is high”.</td>
<td>FRII4</td>
<td>0.929</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, the discriminant validity of the employed scale was assessed by the three criteria suggested by Leguina [89]. These criteria have several indices, such as “factor cross-loading”, the “Fornell-Larcker criterion” and the “heterotrait-monotrait” ratio (HTMT). To begin, as seen in Table 2, the outer-louter loading latent reflective variable was significantly higher than the cross-loading associated with the other scale measures.

Second, looking at Table 3, we can see that the diagonal AVE values that are highlighted in bold are greater than the inter-variable correlation coefficient, which indicates that discriminant validity is high [90]. Finally, according to Leguina [89], the value of the HTMT should be lower than 0.90 to approve discriminant validity. According to the findings of the study, HTMT levels were considerably lower than 0.90 (see Table 4). After conducting analysis and making certain that the scale possessed sufficient convergent and discriminant validity, we were able to continue with the assessment of the structural model in order to test our hypotheses [92].
**Table 2. Factor loading and cross-loadings.**

<table>
<thead>
<tr>
<th></th>
<th>FRII</th>
<th>Inv-Awr</th>
<th>Self-Co</th>
<th>Soc.If</th>
<th>UES</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRII1</td>
<td>0.980</td>
<td>0.412</td>
<td>0.708</td>
<td>0.584</td>
<td>0.641</td>
</tr>
<tr>
<td>FRII2</td>
<td>0.949</td>
<td>0.411</td>
<td>0.656</td>
<td>0.540</td>
<td>0.593</td>
</tr>
<tr>
<td>FRII3</td>
<td>0.942</td>
<td>0.480</td>
<td>0.671</td>
<td>0.535</td>
<td>0.574</td>
</tr>
<tr>
<td>FRII4</td>
<td>0.929</td>
<td>0.421</td>
<td>0.653</td>
<td>0.564</td>
<td>0.562</td>
</tr>
<tr>
<td>Inv.Awr1</td>
<td>0.428</td>
<td>0.940</td>
<td>0.381</td>
<td>0.476</td>
<td>0.452</td>
</tr>
<tr>
<td>Inv.Awr2</td>
<td>0.422</td>
<td>0.922</td>
<td>0.369</td>
<td>0.454</td>
<td>0.416</td>
</tr>
<tr>
<td>Inv.Awr3</td>
<td>0.440</td>
<td>0.954</td>
<td>0.370</td>
<td>0.433</td>
<td>0.424</td>
</tr>
<tr>
<td>Inv.Awr4</td>
<td>0.434</td>
<td>0.982</td>
<td>0.370</td>
<td>0.434</td>
<td>0.396</td>
</tr>
<tr>
<td>Inv.Awr5</td>
<td>0.429</td>
<td>0.949</td>
<td>0.374</td>
<td>0.457</td>
<td>0.430</td>
</tr>
<tr>
<td>Self.Co1</td>
<td>0.691</td>
<td>0.359</td>
<td>0.982</td>
<td>0.566</td>
<td>0.617</td>
</tr>
<tr>
<td>Self.Co2</td>
<td>0.680</td>
<td>0.386</td>
<td>0.965</td>
<td>0.535</td>
<td>0.581</td>
</tr>
<tr>
<td>Self.Co3</td>
<td>0.680</td>
<td>0.386</td>
<td>0.965</td>
<td>0.535</td>
<td>0.581</td>
</tr>
<tr>
<td>Self.Co4</td>
<td>0.691</td>
<td>0.387</td>
<td>0.977</td>
<td>0.559</td>
<td>0.598</td>
</tr>
<tr>
<td>Self.Co5</td>
<td>0.664</td>
<td>0.373</td>
<td>0.922</td>
<td>0.532</td>
<td>0.578</td>
</tr>
<tr>
<td>Soc.If1</td>
<td>0.570</td>
<td>0.465</td>
<td>0.549</td>
<td>0.981</td>
<td>0.630</td>
</tr>
<tr>
<td>Soc.If2</td>
<td>0.585</td>
<td>0.469</td>
<td>0.565</td>
<td>0.974</td>
<td>0.654</td>
</tr>
<tr>
<td>Soc.If3</td>
<td>0.501</td>
<td>0.424</td>
<td>0.520</td>
<td>0.911</td>
<td>0.554</td>
</tr>
<tr>
<td>Soc.If4</td>
<td>0.551</td>
<td>0.436</td>
<td>0.506</td>
<td>0.913</td>
<td>0.632</td>
</tr>
<tr>
<td>UES1</td>
<td>0.507</td>
<td>0.352</td>
<td>0.436</td>
<td>0.527</td>
<td>0.727</td>
</tr>
<tr>
<td>UES2</td>
<td>0.559</td>
<td>0.403</td>
<td>0.603</td>
<td>0.529</td>
<td>0.871</td>
</tr>
<tr>
<td>UES3</td>
<td>0.467</td>
<td>0.375</td>
<td>0.483</td>
<td>0.555</td>
<td>0.834</td>
</tr>
<tr>
<td>UES4</td>
<td>0.552</td>
<td>0.363</td>
<td>0.527</td>
<td>0.578</td>
<td>0.906</td>
</tr>
</tbody>
</table>

**Table 3. Discriminant validity results.**

<table>
<thead>
<tr>
<th>Fornell-Larcker Criterion</th>
<th>Heterotrait-Monotrait Ratio (HTMT)-Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FRII</td>
</tr>
<tr>
<td>FRII</td>
<td>0.950</td>
</tr>
<tr>
<td>Inv-Awr</td>
<td>0.454</td>
</tr>
<tr>
<td>Self-Co</td>
<td>0.708</td>
</tr>
<tr>
<td>Soc.If</td>
<td>0.585</td>
</tr>
<tr>
<td>UES</td>
<td>0.624</td>
</tr>
</tbody>
</table>

**Table 4. Model GoF indices.**

<table>
<thead>
<tr>
<th>Endogenous Variables</th>
<th>(R^2 Adjusted)</th>
<th>(Q2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial risky investment intention</td>
<td>0.583</td>
<td>0.480</td>
</tr>
<tr>
<td>Investment awareness</td>
<td>0.220</td>
<td>0.190</td>
</tr>
<tr>
<td>Social influence</td>
<td>0.518</td>
<td>0.422</td>
</tr>
<tr>
<td>Model Fit</td>
<td></td>
<td>NFI</td>
</tr>
</tbody>
</table>

4.2. The Structural Model for Hypotheses Testing

After adequately evaluating and confirming the outer model, structural equation analysis was employed to assess the study hypotheses. Several criteria were used to test the model GoF, as recommended by [89,92]. To evaluate the model fit, the estimated covariance matrix (k) should be statistically compared with the real tested covariance matrix (S). When these two matrices are close, the model fits the data well [92]. All of the requirements depicted in Table 5 prove that the model is a good fit for the data and has good predictive power [92,94]. In other words, the R2, Q2, SRMR and NFI values exceeded the threshold values, so we could evaluate the study hypotheses [92].

A 5000 bootstrapping approach was conducted in SmartPLS 4 to repeat the 650 responses to evaluate the regression weights, t-values and the significant level of the direct, mediating and moderating impacts. In the current study, we assumed, as seen in Table 5, six direct, three mediating and six moderating hypotheses.
As seen in Table 5 and Figure 2, the Smart PLS outcomes demonstrated that investment awareness was found to directly, positively and significantly impact social influence ($\beta = 0.243, t = 7.097, p < 0.001$) and risky investment intention ($\beta = 0.117, t = 3.333, p < 0.01$), therefore, hypotheses H1 and H2 were supported. Similarly, university education support has a direct, significant and positive impact on social influence ($\beta = 0.387, t = 8.097, p < 0.001$), investment awareness ($\beta = 0.321, t = 7.591, p < 0.001$) and risky investment intention ($\beta = 0.188, t = 4.446, p < 0.001$), therefore, hypotheses H3, H4 and H5 were supported.

In return, social influence was found to have a direct, positive and significant impact on risky investment intention ($\beta = 0.132, t = 2.969, p < 0.01$), which supports hypothesis H6.

For the moderating effect, as depicted in Figure 3, the SmartPLS 4 report provides evidence that only two out of the six moderating hypotheses were supported, where self-control significantly and positively moderates the relationship between investment awareness and social influence ($\beta = 0.032, t = 2.762, p < 0.01$); hence, H8 was supported. Furthermore, social influence was found to partially, positively and significantly mediate the impact of university education support and risky investment intention ($\beta = 0.051, t = 2.651, p < 0.01$), which supported hypothesis H9. Finally, both investment awareness and social influence were found to mediate the relationship between university education support and risky investment intention ($\beta = 0.010, t = 2.567, p < 0.01$); therefore, H7 could be accepted.
The current study examined the effects of investment awareness and university education support on students’ intention of risky investments. Additionally, the study examined the mediating effect of social influence and the moderating effect of self-control on these relationships. The results of SmartPLS on higher education senior students in Saudi Arabia supported all the direct and mediating hypothesized relationships. First, the results confirmed the positive, significant and direct effect of investment awareness on social influence towards investment, as well as stimulating their risky investment intentions. This confirms that the student’s network, e.g., colleagues, parents and professors, is crucial in shaping their intention to engage in risky investment. Furthermore, social influence was found to have a direct, positive and significant effect on investment awareness, social inference and risky investment intentions. This confirms that higher education has a crucial role in shaping student awareness and risky investment intentions. This also shows that the influence gained through surroundings, e.g., families, peers and professors, ensures the provision of risky investment intentions. In addition, social influence was found to partially, positively and significantly mediate the impact of investment awareness and risky investment intention. This means that social influence has the ability to increase or decrease the effect of investment awareness on risky investment intentions. This also supports the efforts of CMA, which adopts multiple communication channels to promote investment awareness among Saudi people, to create social influence.

Figure 2. The study tested model.

Figure 3. Simple slope analysis.

5. Discussion and Implication

The current study examined the effects of investment awareness and university education support on students’ intention of risky investments. Additionally, the study examined the mediating effect of social influence and the moderating effect of self-control on these relationships. The results of SmartPLS on higher education senior students in Saudi Arabia supported all the direct and mediating hypothesized relationships. First, the results confirmed the positive, significant and direct effect of investment awareness on social influence.

Simple slope analysis.
influence. These findings support the work of Agarwalla et al. [25], that investment awareness positively correlates with social influence shaped by families and other surroundings. This also supports the efforts of CMA, which adopts multiple communication channels to promote investment awareness among Saudi people, to create social influence. The results also confirmed that this investment awareness significantly affects students’ risky investment intentions in higher education. This means that students with high investment awareness are more likely to engage in investment, which supports the previous literature review [6,7,9].

The results showed that university education support has a direct, significant and positive effect on investment awareness, social inference and risky investment intentions. This confirms that higher education has a crucial role in shaping student awareness and social influence towards investment, as well as stimulating their risky investment intentions [19,20,61], through the educational programs and training given to students. Furthermore, social influence was found to have a direct, positive and significant effect on risky investment intentions. This confirms that the student’s network, e.g., colleagues, parents and professors, is crucial in shaping their intention to engage in risky investment [68].

With regard to the mediating effect of social influence on the link between investment awareness, university education support and risky investment intention, the results showed that social influence significantly, positively and partially mediates the impact of investment awareness and risky investment intention. This means that social influence has the ability to increase or decrease the effect of investment awareness on risky investment intentions. This also shows that the influence gained through surroundings, e.g. families, peers and professors, ensures the provision of risky investment intentions. In addition, social influence was found to partially, positively and significantly mediate the impact of university education support and risky investment intentions. This confirms that investment intention is affected by social influence because of investment awareness. This is in line with the previous literature review; financial behavior is formed by social influence and awareness of the surrounding community [12]. The serial mediating roles of investment awareness and social influence were confirmed in the link between university education support and risky investment intention. This confirms the value of investment awareness and social influence in the aforementioned relationship.

For the moderating effect, the results supported only two hypothesized moderating effects. It was confirmed that self-control significantly and positively moderates the relationship between university education support, investment awareness and social influence. Self-control was found to increase the effect of both university education support and investment awareness on social influence. The current findings confirm the work of Alshebami and Aldhyani [24] regarding the role of self-control in order to maximize the advantages of investment awareness and to stimulate investment intentions. However, the results of Smart PLS self-control failed to confirm the other moderating effects, i.e., the link between university education support and investment awareness, nor the link between investment awareness, university education support and risky financial investment intentions.

The current study contributes to the existing literature by adopting a comprehensive model to investigate the interrelationship between investment awareness, university education support and risky investment intentions mediated by social influence. These interrelationships have yet to be sufficiently investigated, particularly in emergent countries such as Saudi Arabia. The current study confirmed the positive, significant and direct effects of university education support and investment awareness on risky investment intentions. The current study confirmed the mediating role of social influence in the link between university education support, investment awareness and risky investment intentions. The study demonstrated, for the first time, the moderating effect of self-control in the link between investment awareness, university education support and social influence. This study provides a unique perspective on such mediating and moderating impacts, and addresses gaps in the current literature on an emergent country, such as Saudi Arabia. The results of the current study can put forward some important suggestions to policymakers in
order to simulate investment intentions among higher education students in Saudi Arabia. This includes raising investment awareness among university students, as it is the main antecedent of social influence and risky investment intentions. Social media campaigns could be undertaken to enhance social influence towards investment. Entrepreneurship curricula are also important to provide students with the basic investment knowledge and information required to initiate their own businesses. University business administrators can also play a role in developing student skills and providing the required support for starting their businesses to stimulate their investment intentions. Training is important to enhance student self-control, which was found to have a significant moderating effect on the link between university education support and investment awareness, and social influence toward investment.

Author Contributions: Conceptualization, I.A.E. and A.E.E.S.; methodology, I.A.E. and A.E.E.S.; software, I.A.E.; validation, I.A.E. and A.E.E.S.; formal analysis, I.A.E. and A.E.E.S.; investigation, I.A.E. and A.E.E.S.; resources, I.A.E. and A.E.E.S.; data curation, A.E.E.S. and I.A.E.; writing—original draft preparation, I.A.E. and A.E.E.S.; writing—review and editing, I.A.E. and A.E.E.S.; visualization, I.A.E. and A.E.E.S.; supervision, I.A.E.; project administration, A.E.E.S.; funding acquisition, A.E.E.S. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the deanship of scientific research ethical committee, King Faisal University (project number: 2524, date of approval: 1 February 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is available upon request from researchers who meet the eligibility criteria. Kindly contact the first author privately through the e-mail.

Conflicts of Interest: The authors declare no conflict of interest.

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