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Research Article

The Effect of Entrepreneurial Orientation on Entrepreneurial Intention

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ABSTRACT

Objective: The purpose of this study is to analyze the influence of entrepreneurial orientation (innovativeness, pro-activeness, and risk-taking) on entrepreneurial intention employing the mediating factors of family business involvement, personal views, social norms, and perceived behavioral control.

Design/methodology/approach: Primary data were gathered using questionnaires. This study analyzed 445 valid responses from Egyptian enterprises. The hypotheses were tested by conducting correlation and structural equation modeling.

Findings: The analysis's findings unequivocally affirm the connections between social norms and entrepreneurial intention, family business engagement and entrepreneurial intention, and entrepreneurial orientation and personal attitude. The findings also partially corroborate the associations between entrepreneurial orientation and intention, social norms, perceived behavioral control, family business engagement, and entrepreneurial orientation. However, the investigation did not support the association between perceived behavioral control and entrepreneurial intention. Entrepreneurial orientation and entrepreneurial intention were found to be partially mediated by personal attitude, social norms, and family business involvement; the mediating function of perceived behavioral control was not substantiated.

Implications: The findings suggest that fostering these traits can significantly boost entrepreneurial intentions. Policymakers and educators should focus on promoting these qualities to strengthen the entrepreneurial ecosystem.

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Ethical Compliance: Every method carried out in this study involving human subjects complied with the national and institutional research committee's ethical standards as well as those of the Arab Academy for Science, Technology, and Maritime Transport (AASTMT), its subsequent amendments, or similar ethical standards.

Plain Language Summary: This paper used proofreading techniques to ensure clarity of the text, which in turn provided clarity regarding the topic of the paper. Grammarly was also used to refine grammar, spelling, and style, enhancing the overall quality of writing.

Keywords: entrepreneurial orientation, entrepreneurial intention, family business involvement, personal attitude, social norm, perceived behavioral control.

1. Introduction

It is anticipated that entrepreneurship can be crucial in driving economic expansion in an unstable industrial environment. Knowledge exchange, the development of new jobs, the supply of a variety of cutting-edge

products and services, and increased market rivalry are all encouraged by entrepreneurship (Selim, 2021). Therefore, investing in the education, coaching, and training of aspiring entrepreneurs is essential for fostering sustainable community development, job creation, and economic progress (Galvão et al., 2020). Similarly, young people are always interested in entrepreneurship as a professional path, but they still want education and practical skills to assist them in preparing for any obstacle (Efrata et al., 2021).

Advancements in technology, operations, and regulations impact corporate growth and competitiveness (Kubitskyi et al., 2024). Entrepreneurial Orientation, in particular, continues to find family-owned enterprises desirable, despite these shifts both domestically and internationally (Upadhyay et al., 2023). Family businesses, also known as the "nursery for future entrepreneurs", their influence on entrepreneurial inclinations has been the focus of numerous research (Wang et al., 2018). Arzubiaga et al. (2018) used a questionnaire to gather data from 230 family businesses in Spain and found that the relationship between entrepreneurial orientation (EO) and performance is stronger in businesses with higher levels of gender diversity and lower levels of family engagement. According to Glowka et al. (2021), the relationship between risk management and performance in Austrian small and medium family businesses is considerably mediated by the CEO's term and family engagement. A long-term approach benefits EO in family firms from a stewardship position in Iran's research and technology parks, according to Kalali (2022), who also showed that long-term orientation negatively affected risk-taking but favorably influenced innovativeness and pro-activity. However, Dos Santos et al. (2022) proved EO's impact on family involvement through a literature review.

Moreno-Menéndez et al. (2022) investigated if the EO of family businesses changes, gets stronger, or gets weaker after a crisis. The results of an analysis of a database of 151 family firms collected between 2004 and 2017 indicate that businesses with lower pre-crisis EO levels experienced faster post-crisis growth than those with larger levels. The former could maintain pre-crisis levels even after the crisis, in contrast to the latter group. Similarly, employing a global sample of family businesses, Jocic et al. (2023) found support for the mediated model, with the fundamental characteristics of families having various effects on EO, which in turn influences a range of innovative outcomes. Furthermore, it was demonstrated by Keen et al. (2024) that family firms with higher degrees of entrepreneurship are more likely to identify and take advantage of global business opportunities. According to the moderating effect of family social, this relational, family-specific asset supports stability and organizational performance. In a similar vein, Sultan et al. (2024) demonstrate that taking risks, being creative, and being proactive greatly enhance the performance of Palestinian family-owned businesses in 2022.

According to Dinc and Budic (2016), personal attitude, social norms, and perceived behavioral control are additional significant elements that may influence entrepreneurial inclination. The relationship between these factors was covered in a number of earlier works in various contexts. By surveying female students in their last year at three Nigerian university business schools, Ekpe and Mat (2012) gathered the core data. The findings show a strong positive correlation between EO and social norms, in addition to the importance of social norms as mediators of this association. On the other hand, Awang et al. (2016) shown that taking risks and having a proactive attitude significantly affect PBC and social norms among students at a Malaysian public institution. The findings also demonstrated the potential of PBC and social norms as mediators in the link between EO and EI. Data from nine universities in Pakistan and seven institutions in China were gathered for the Munir et al. (2019) survey, which revealed that TPB had a favorable impact in both nations. When personality factors were utilized as antecedents of TPB, the results likewise demonstrated a larger influence of these traits among Chinese students: internal locus of control, proactive personality, and risk-taking tendency. Lastly, the findings demonstrated that personality qualities had a major influence on entrepreneurial behavior.

According to Zollo as al. (2021), EO is significantly influenced by entrepreneurial passion, which in turn significantly influences strategic entrepreneurship behavior. Additionally, entrepreneurs' linear thinking style moderates the relationship between EO and strategic entrepreneurial behavior, but not the relationship between EO and enthusiasm. A nonlinear way of thinking, however, moderates the relationship between EO and passion in a favorable way, but not between EO and strategic entrepreneurship. Similar to this, Hwang et al. (2021) emphasized the noteworthy favorable impact of innovativeness on individual perceptions in the setting of 321 Korean food delivery services. By conducting a quantitative method, with questionnaires distributed to five universities in Indonesia, Bagis (2022) proved that a spiritual workplace might counterproductively regulate students' intentions to develop EO. Subjective standards appear to have the most significant impact on students' intentions. Furthermore, Perez et al. (2024) demonstrated that innovativeness, proactivity, and risk-taking were fostered by entrepreneurship education programs among 1,423 undergraduate students from Ecuador and Colombia.

Regarding the association between Family Involvement and Entrepreneurial Intentions, Wang et al. (2018) gathered secondary data from business family offspring businesses in China in 2010. According to the results, there is a positive correlation between EI and perceived parental entrepreneurial rewards. This relationship is partially mediated by entrepreneurial self-efficacy, and family business involvement increases the impact of entrepreneurial self-efficacy while decreasing the positive impact of perceived parental entrepreneurial rewards on entrepreneurial intentions. In contrast, Zaman et al. (2020) surveyed 367 Pakistani university students and found no direct correlation between family business involvement and EI. However, it had an indirect influence because institutional forces acted as a full mediator between them.

Onjewu et al. (2022) examined a number of family exposure factors in relation to the intention of Nigerians to implement entrepreneurship using the concept of planned behavior. Five public universities in Nigeria provided the data. The results show that, to the extent that entrepreneurial self-efficacy, attitudes, and subjective norms are differentially influenced, entrepreneurial exposure—such as that provided by parents, family members, and job engagement—has distinct and noteworthy effects on implementation intention. In a similar vein, 202 business-minded students at a prestigious university in eastern China provided data to Xu et al. (2023). Through the mediating effect of ESE, EI is positively correlated with affective family-work enrichment. There is a significantly larger correlation among those with lower levels of work-home segmentation preferences. By combining the resource-based perspective, the dynamic capability view theory, and the literature on family business entrepreneurship, Chaudhuri et al. (2023) discovered that gender moderated the relationship between government assistance, technology use, and EI in family businesses.

Women's entrepreneurship has contributed significantly to economic progress in the past ten years. By sending a questionnaire to two major Bosnian cities, Dinc and Budic (2016) demonstrated the beneficial effects of perceived behavioral control and personal attitude on the emotional intelligence (EI) of women in the Federation of Bosnia and Herzegovina. Miralles et al. (2017) used a questionnaire to gather primary data from people in the northeastern Spanish province of Catalonia. The researchers found that there was a positive correlation between EI and entrepreneurial behavior, but only when the age of the individual was taken into account. According to Saeed et al. (2019), among Yemeni undergraduate students, PBC and societal norms both exhibited a statistically significant association with EI; however, there was no significant relationship between personal attitude and entrepreneurial ambition. Furthermore, EI is strongly positively correlated with social norms, PA, and PBC. Similar to this, Al-Jubari et al. (2019) collected primary data from 600 students at four public institutions in Malaysia in order to examine the connection between EI and entrepreneurial behavior (PA, social norms, and PBC). The results indicate a strong correlation between entrepreneurial intention and behavior. The results also demonstrate that TPB and SDT offer complementary explanations for the motivating processes of entrepreneurs.

Additionally, Gieure et al. (2020) collected primary data by sending questionnaires to fourth-year business and management master's degree students at 74 universities across 34 nations. The findings demonstrated a strong correlation between EI and entrepreneurial behavior (PA and social norms). These findings aligned with Jena's (2020) findings, which revealed that PA improves EI in 509 business management students in India's higher education system. Similarly, 160 students from the University of Split, Croatia's Faculty of Economics, Business, and Tourism participated in a survey conducted by Zovko et al. (2020). The findings demonstrated that attitudes improved EI. Social norms and behavioral control, however, had no discernible impact on EI. Kusumawardhany and Dwiarta (2020) investigated the effect of PA on EI and demonstrated that it had a beneficial influence on EI in Indonesian university students. Furthermore, Cynthia et al. (2020) found that at a few Kogi postsecondary institutions, PBC significantly influences students' intentions to start their own business. In contrast, Vamvaka et al. (2020) used a cross-sectional study that included 441 Greek undergraduate computer technology students in higher education to demonstrate the relationship between attitude, perceived behavioral control, and emotional intelligence. Tausif et al. (2021) conducted a comparison study between Saudi Arabia and India and came to the same conclusions. The results demonstrated that PBC and attitude significantly impacted EI in both nations. However, only in India did social norms play a substantial role in explaining EI.

The connection between entrepreneurial orientation and intention was another topic covered in earlier research. Mandongwe and Jaravaza (2020) use questionnaires given to aspiring female entrepreneurs in the rural marketplaces of Zimbabwe's Manicaland Province to demonstrate the strong correlation between EI and innovativeness and risk-taking. Nevertheless, proactivity and EI did not significantly correlate. Furthermore, by surveying 330 undergraduate students from public universities, Wathanakom et al. (2020) verified that innovativeness may accurately predict EI among undergraduate students. Using an inductive quantitative method via questionnaires, Chafloque-Cespedes et al. (2021) found that among university students from Latin American business schools, factors like the entrepreneur's position, employment status, country, and gender significantly moderated the relationship between entrepreneurial attitude and EI.

In the Egyptian context, Entrepreneurship education fosters individual EO and entrepreneurial motives and has a positive correlation with EI, according to Hassan et al. (2021). Efrata et al. (2021) also conducted a survey with 255 university business and management students who had finished an entrepreneurial education course. According to the data, the only factor that significantly predicted EI was innovativeness; risk-taking and personal proactivity had no discernible effect. However, a study by Twum et al. (2021) examined the relationship between Entrepreneurial Intention (EI) and Entrepreneurial Orientation (EO) variables including risk-taking, proactivity, and innovativeness among students from Ghanaian public and private universities. Using information gathered from 720 participants in an online survey, they discovered that all three EO aspects had a substantial impact on EI. Singh and Mehdi (2022) surveyed students studying entrepreneurship in northern Indian academic institutions. The research focused on the interaction between openness to experience and EO, demonstrating significant impacts on EI.

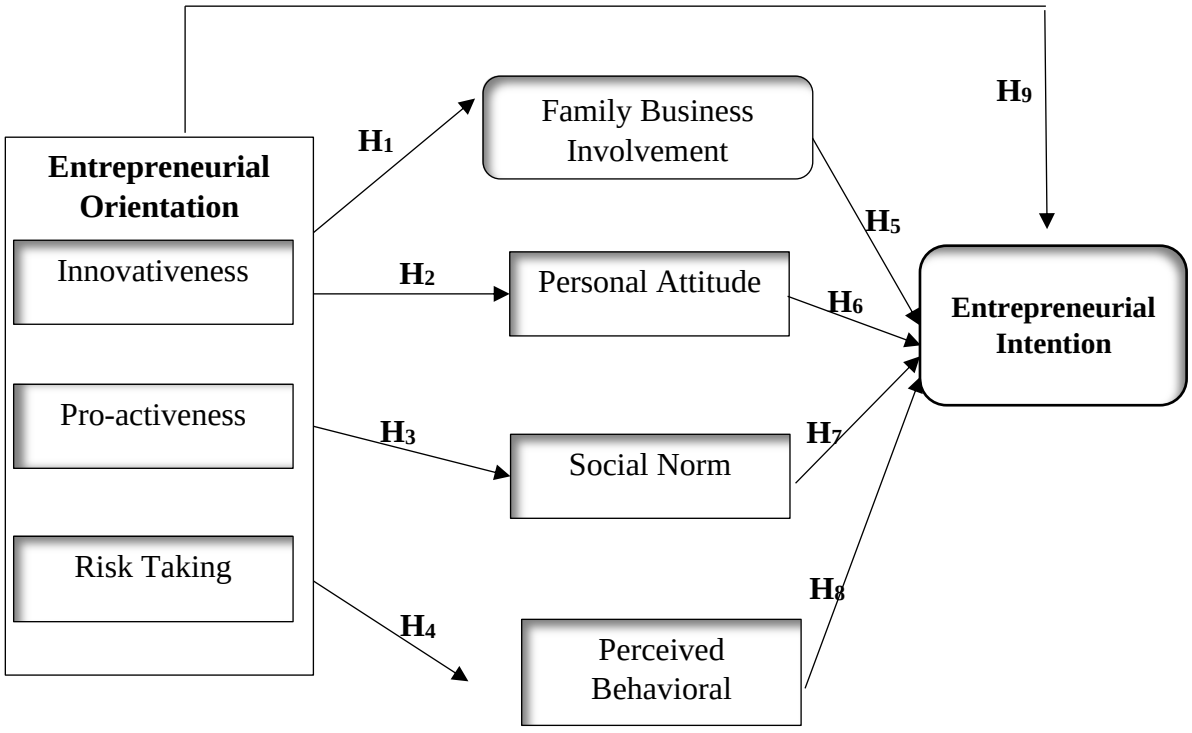
There is a significant gap in assessing the relationship between entrepreneurial orientation elements and entrepreneurial intention through family business involvement, personal attitude, social norms, and perceived behavioral control in Egypt, despite a wealth of research on the subject. This is because no model has been

found in previous studies to examine these variables collectively. In order to fill these gaps, the current study looks at these connections and mediations, concentrating on the ways that risk-taking, proactivity, and innovativeness affect these variables. Insights and suggestions for policymakers and educators to promote a strong entrepreneurial ecosystem in Egypt are among the goals. Furthermore, since no other study has looked at these factors in the Arab Republic of Egypt, this study offers a thorough analysis of a number of the most significant factors influencing the family business sector in Egypt, which has a significant influence on the growth of this industry in the Egyptian economy.

2. Methods

The methodology of this study depends on positivism philosophy because positivism is based on evaluating assumed causal relationships in phenomena and utilizes a deductive method of research design. The main processes are precisely depicted in the observation and experimentation stages, followed by the formulation of hypotheses regarding various relationships. Accordingly, quantitative approaches are widely used in research. This technique uses numerical data collection and analysis to quantify relationships, patterns, and trends. Statistical techniques are often used to analyze data and draw conclusions. Collecting original data directly from the source is known as primary data collection. Surveys are often used to gather information from a large group of respondents (Smith, 2018). Therefore, quantitative data were collected through questionnaires to test the impact of innovativeness, pro-activeness, risk-taking and family business involvement, personal attitude, social norms, and perceived behavioral control on entrepreneurial intention as follows:

Dependent variable: Entrepreneurial Intention.
Independent variable: Entrepreneurial Orientation Dimensions.
Mediator: Family Business Involvement, Personal Attitude, Social Norm and Perceived Behavioral Control.
The current research conceptual framework is illustrated in Figure 1,



According to Figure 1, the research hypotheses are stated as follows:
H_1: There is a significant relationship between Entrepreneurial Orientation and Family Business Involvement.
H_2: There is a significant relationship between Entrepreneurial Orientation and Personal Attitude.
H_3: There is a significant relationship between Entrepreneurial Orientation and Social Norm.
H_4: There is a significant relationship between Entrepreneurial Orientation and Perceived Behavioral Control.
H_5: There is a significant relationship between Family Business Involvement and Entrepreneurial Intention.
H_6: There is a significant relationship between Personal Attitude and Entrepreneurial Intention.
H_7: There is a significant relationship between Social Norm and Entrepreneurial Intention.

H_8: There is a significant relationship between Perceived Behavioral Control and Entrepreneurial Intention.
H_9: There is a significant relationship between Entrepreneurial Orientation and Entrepreneurial Intention.
H_{10}: Family Business Involvement significantly mediates the relationship between Entrepreneurial Orientation and Entrepreneurial Intention.
H_{11}: Personal Attitude significantly mediates the relationship between Entrepreneurial Orientation and Entrepreneurial Intention.
H_{12}: Social Norm significantly mediates the relationship between Entrepreneurial Orientation and Entrepreneurial Intention.
H_{13}: Perceived Behavior Control significantly mediates the relationship between Entrepreneurial Orientation and Entrepreneurial Intention.

As indicated in Table 1, the research variables were measured using a questionnaire adapted from the studies of Miralles et al. (2016), Hooi et al. (2016), and Wang et al. (2018). The questionnaire used a 5-point Likert scale, asking participants to rate how much they agreed or disagreed with each statement. This was done in accordance with the aforementioned research framework and hypotheses.

Table 1: Research Variables Operationalization

Conceptual Definition	Operational Definition	Statements
Innovativeness (Hooi et al., 2016)		
The capacity of a company to promote novel concepts, try new things, launch novel goods, and engage in creative processes is referred to as innovativeness (Hernández-Perlines et al., 2020).	It is measured by the levels of development in the company's products and services, as well as the levels of R&D and technology leadership within it.	My organization offers numerous new product or service lines.
		Product or service line adjustments at my organization have often been rather drastic.
		Innovations, technological leadership, and R&D are highly valued at my organization.
Pro-activeness (Hooi et al., 2016)		
It is the ability of companies to invest in launching innovative products and services ahead of competitors (Hernández-Perlines et al., 2020).	It is measured by the company's priority in introducing new products/services, management methods, and operating technologies, to ensure the company's competitiveness.	My organization is frequently the first to launch new operating technologies, administrative strategies, goods, or services.
		My organization usually takes a fiercely aggressive, "undo-the-competitors" stance.
Risk taking (Hooi et al., 2016)		
Risk-taking entails the development of audacious acts employing significant resources that are most suitable (Hernández-Perlines et al., 2020).	It is measured by how a company engages in new projects and bold, large-scale decisions in order to achieve its goals	My organization has a significant tendency to take on high-risk projects with the potential for extremely large profits.
		My organization feels that in order to accomplish its goals, daring, comprehensive actions are required due to the environment.
		To increase the likelihood of seizing possible chances, my organization usually takes a bold, aggressive stance.
Family Business Involvement (Wang et al., 2018)		
Family involvement in the business is characterized by ownership (e.g., the percentage of family stock), succession (e.g., the number of generations of family members working for the company), governance (e.g., family members on the board of directors), and management	It is measured by the levels of involvement of family members of company owners in managing the company and making decisions.	I used to go to work with my family.
		I used to go to business meetings with my family.
		I used to learn how to run a business from my family.
		I used to talk about job and business with my family.

Conceptual Definition	Operational Definition	Statements
(e.g., a family member serving as CEO) (Garcia-Castro and Aguilera, 2014).		I used to be encouraged by my family to get to know their partners and employees.
Personal Attitude (Miralles et al., 2016)		
Individuals have attitudes about the world and their circumstances before making decisions that affect their behavior patterns. In essence, people's attitudes are influenced by their fundamental ideas and values (Yildiz et al., 2022).	It is measured by the attitude of the businessman towards their work.	For me, there are more benefits than drawbacks to becoming an entrepreneur.
		I find a career as an entrepreneur appealing.
		Out of all the possibilities, I would want to be an entrepreneur.
Social Norm (Miralles et al., 2016)		
Accepted standards of behavior among different social groups are known as social norms. Social norms include both formal laws and regulations as well as unwritten beliefs that guide social behavior (Sinclair and Agerström, 2023).	It is measured by the levels of support for entrepreneurship initiatives in your close environment of close family, friends, and colleagues.	I believe that my close family supports business endeavors in my close surroundings.
		I believe that your friends encourage you to pursue business ventures in your close circle.
		I see that your coworkers encourage entrepreneurial endeavors in your immediate surroundings.
		I sense that your close family has a favorable opinion of entrepreneurial endeavors in your close surroundings.
		I sense that your acquaintances have a favorable opinion on entrepreneurial endeavors in your close circle.
		I see that your coworkers have a favorable opinion on entrepreneurial endeavors in your close surroundings.
Perceived Behavioral Control (Miralles et al., 2016)		
Perceived behavioral control is the belief that one has control over the way an action is carried out. Intentions are influenced differently by three factors (Hagger et al., 2022).	It is measured by the level of awareness of the processes necessary to start and develop a company, and its success rates.	I have authority over the establishment of a new company
		I am aware of the practical aspects required to launch a business
		I am capable of creating an entrepreneurial project
		I'd have a good chance of success if I sought to launch a business.
		I have authority over the establishment of a new company.
Entrepreneurial Intention (Miralles et al., 2016)		
One way to define entrepreneurial ambitions is the desire to work for oneself or launch a business. Entrepreneurial intents are also taken into account as personal preferences that could lead to the establishment of firms (Halizah and Mardikaningsih, 2022).	It is measured by entrepreneurs' intentions to start a new business, their levels of development in the field of entrepreneurship.	In the future, I want to launch my own company.
		I'm learning the skills and information required to launch a business.
		I'm thinking about writing a business strategy.

Regarding the study population, the researcher targeted Egyptian enterprises, where the sample size was chosen according to the Saunders equation. The Saunders equation depends on a 95% confidence level, in which the sample size should not be less than 385 respondents (Saunders et al., 2016). After developing the questionnaire, 800 questionnaires were distributed, and 520 respondents received a response rate of 65%. From the collected responses, only 445 completed questionnaires were valid for the analysis.

2. Results and Findings

The current section presents the empirical analysis and its main findings, which are presented in the following six sub-sections:

2.1. Validity and Reliability Analysis

Two key metrics were taken into account when evaluating the validity of this study. The average shared variation across the latent elements is indicated by the first metric, Average variation Extracted (AVE). Acceptable validity in AVE is defined as meeting or surpassing the 0.5 criteria (Hair et al., 2016). Examining the factor loadings is the second metric; satisfactory validity requires loading of at least 0.4 (Yong and Pearce, 2013). On the other hand, reliability assessment depends on Cronbach's alpha being used to evaluate each factor's stability and consistency. Higher Cronbach's alpha values, which range from 0 to 1, indicate a higher level of reliability; coefficients of 0.7 or higher indicate good reliability (Taber, 2018).

Table 2 illustrates the validity and reliability tests conducted for the research variables. According to the results, the research variables (innovativeness, pro-activeness, risk-taking, family business involvement, personal attitude, social norm, perceived behavioral control, and entrepreneurial intention) were demonstrated to be valid, as the AVE values were above 50% (85.161, 87.097, 84.428, 84.989, 86.293, 82.402, 85.198, and 84.798 respectively). Regarding the KMO values are higher than 0.4 (0.759, 0.500, 0.757, 0.920, 0.761, 0.941, 0.870, and 0.756 respectively). Furthermore, the research variables were reliable as Cronbach's Alpha value exceeded 0.7 indicating satisfactory reliability (0.913, 0.852, 0.908, 0.956, 0.920, 0.957, 0.942, 0.910 respectively).

Table 2: Reliability and Validity Table

Variables	KMO	AVE %	Cronbach's α	Items	Factor Loading
Innovativeness	.759	85.161	.913	INN1	.849
				INN2	.852
				INN3	.854
Pro-activeness	.500	87.097	.852	PAC1	.871
				PAC2	.871
Risk-taking	.757	84.428	.908	RT1	.841
				RT2	.851
				RT3	.841
Family Business Involvement	.920	84.989	.956	FBIN1	.858
				FBIN2	.836
				FBIN3	.850
				FBIN4	.846
				FBIN5	.860
Personal Attitude	.761	86.293	.920	PAT1	.876
				PAT2	.859
				PAT3	.854
Social Norm	.941	82.402	.957	SN1	.825
				SN2	.809
				SN3	.837
				SN4	.833
				SN5	.815
				SN6	.825
Perceived Behavioral Control	.870	85.198	.942	PBC1	.851
				PBC2	.854
				PBC3	.847
				PBC4	.856
Entrepreneurial Intention	.756	84.798	.910	EIN1	.845
				EIN2	.864
				EIN3	.835

The Average Variance Extracted (AVE) percentage for each research variable is displayed in Figure 2. As mentioned before, all the AVEs are more than 50% and are considered to have acceptable validity.

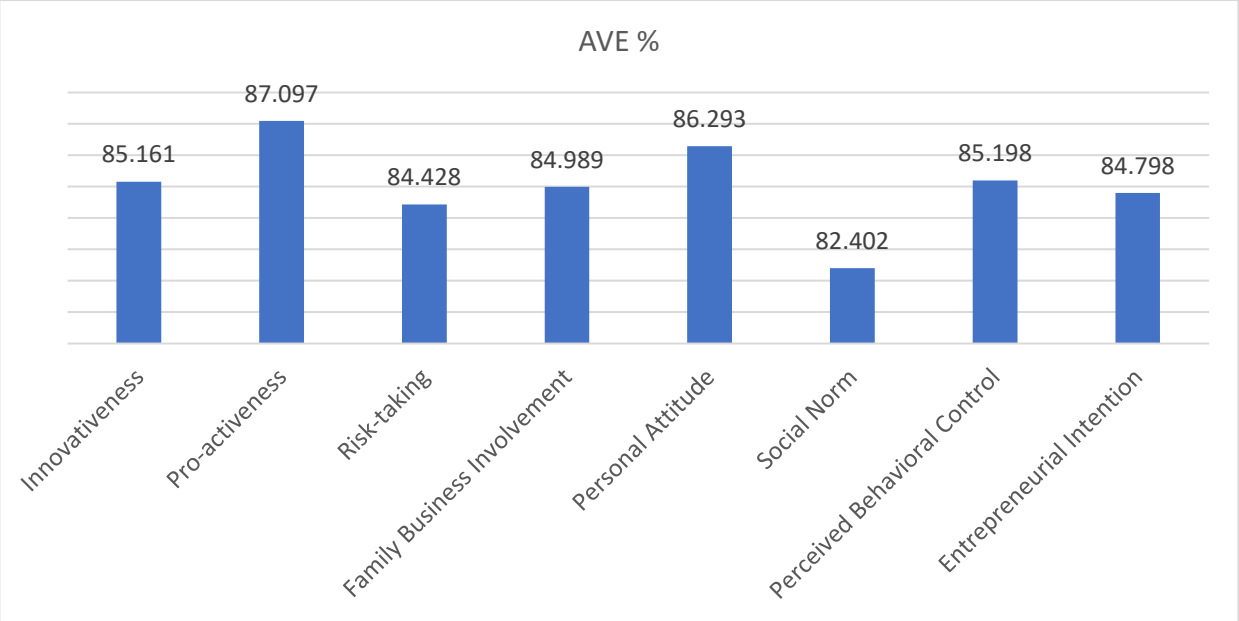


Figure 2: Average Variance Extracted Percentage of the Research Variables

2.2. Confirmatory Factor Analysis

Prior to applying structural equation modeling (SEM), Confirmatory Factor Analysis (CFA) is carried out using AMOS 24 software. The Maximum Likelihood (ML) estimation approach is used to ascertain factor loadings and evaluate the overall model fit. A thorough evaluation of how well the measurement model fits the observed data is given by the fit indices. Given that values near 1 are preferred, the model fits the data rather well, as indicated by the chi-square/df ratio of 1.106. The model's fit appears to be statistically significant based on the related p-value of 0.000. With a Goodness-of-Fit Index (GFI) of 0.944 and an Adjusted Goodness-of-Fit Index (AGFI) of 0.930, both metrics above 0.90, indicating that the model fits the data well. These indices quantify the percentage of variance in the observed data that a model can explain.

Excellent fit is indicated by values above 0.90 for the Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI). With NFI = 0.975, TLI = 0.997, and CFI = 0.998, these indices evaluated how well the model replicated the observed covariance structure. The model's overall accuracy is supported by the Root Mean Square Residual (RMR) of 0.020, which shows a slight difference between the observed and predicted covariance matrices. The model fits the population covariance matrix quite well, as evidenced by the Root Mean Square Error of Approximation (RMSEA) of 0.015, which is less than the generally used cutoff of 0.05. Overall, these fit indices indicate that the measurement model fits the observed data well, showing statistical significance, good overall fit, and precise covariance structure reproduction. Table 3 of this study offers more specific information.

Table 3: Thresholds and Fit Indices for the Measurement Model

Measure	Results	Threshold
Chi-square/df	1.106	< 2 excellent; < 3 good; < 5 sometimes permissible
P-value	0.000	> 0.05
GFI	0.944	> 0.90
AGFI	0.930	> 0.90
NFI	0.975	> 0.90
TLI	0.997	> 0.95
CFI	0.998	> 0.90
RMR	0.020	< 0.08
RMSEA	0.015	< 0.05

The Fit Indices for the Measurement Model are displayed in Figure 3, which shows that the model fits the observed data well and performs well overall.

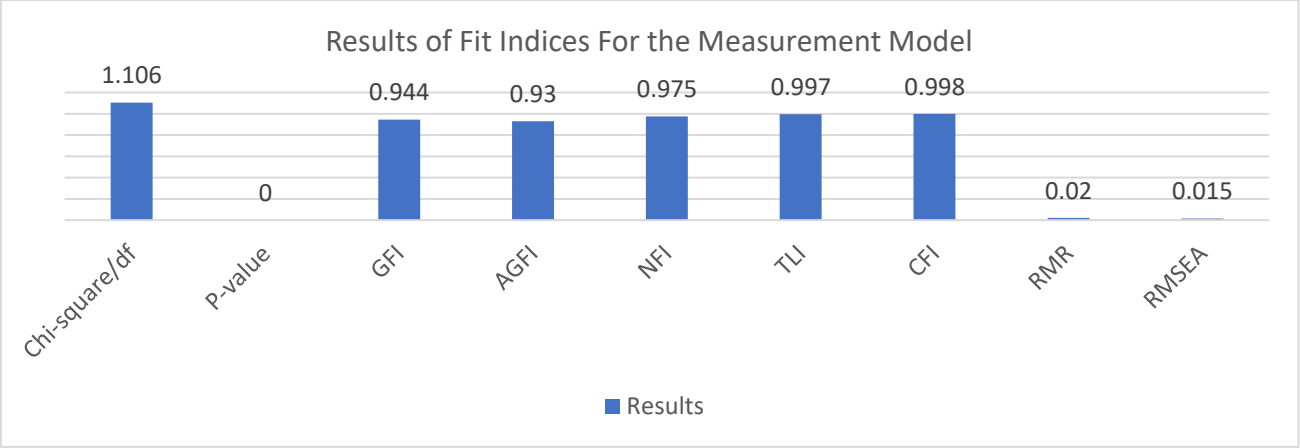


Figure 3: The Results of Fit Indices for the Measurement Model

Figure 4 illustrates the execution of the confirmatory factor analysis, portraying the factor loadings through prominent arrows. The arrows signify strong factor loadings, with values exceeding the 0.4 threshold.

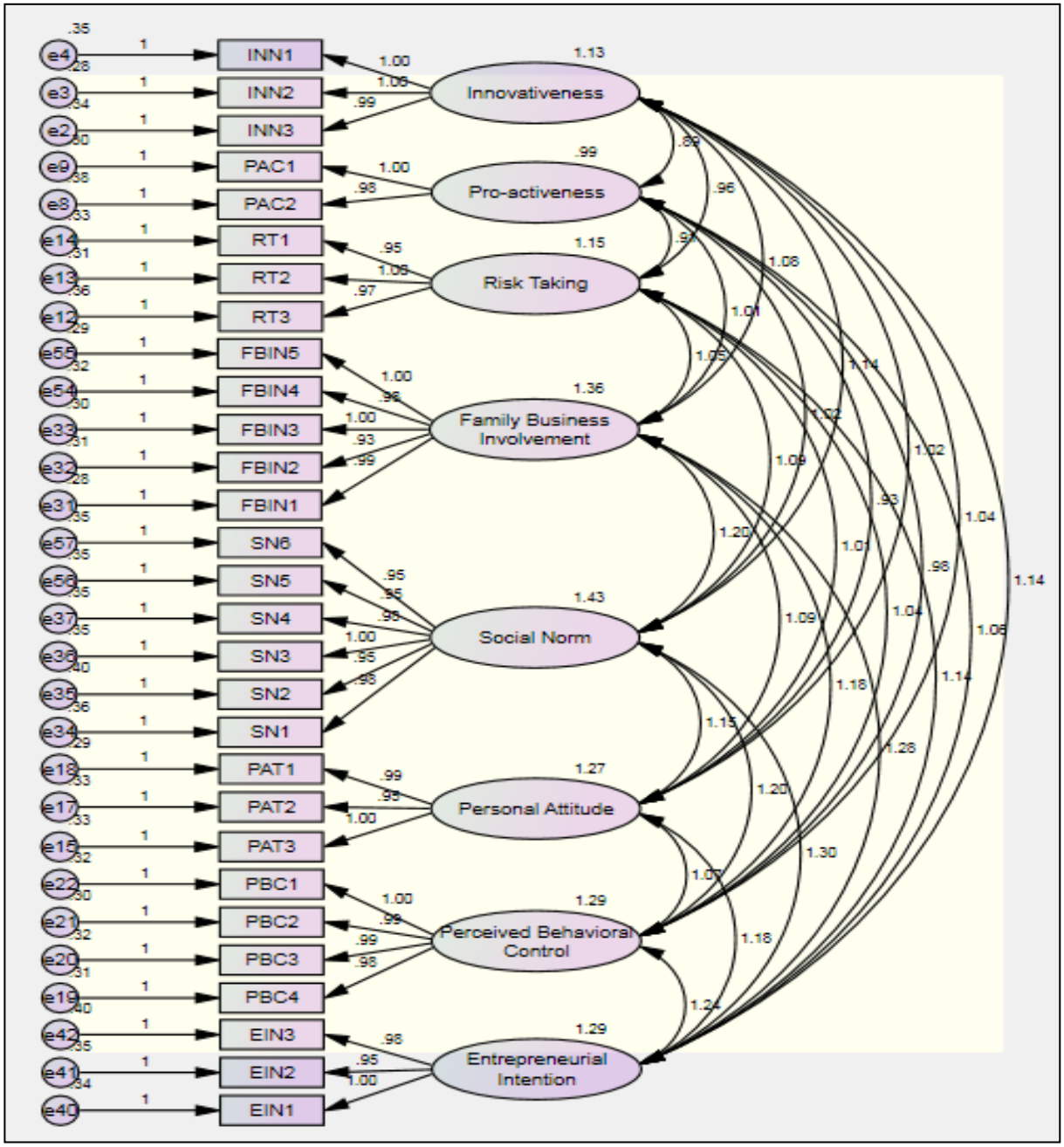


Figure 4: CFA for the Measurement Model

2.3. Descriptive Analysis

Using brief summaries of the samples and instructions on quantifying the data, descriptive statistics are a tool that helps make sense of and give a clear picture of the features of a specific data collection (Vetter, 2017). The profiles of the respondents and research factors are descriptively analyzed in this part.

2.3.1. Descriptive Analysis of Respondent Profile

Important details on the demographics and traits of the research participants were revealed by the respondent profile (Table 5). With the data arranged from high to low percentages, the responder profile offers insights into important demographic traits. The plurality of respondents (42.7%) had been in business for five to less than ten years, while 18.9% had been in business for fifteen years or longer. The largest proportion of business volume operates in large companies (44.9%), followed by medium(37.3%), and small companies (17.8%). Employee count revealed a distribution with 1000 - Less than 3000 employees being the most dominant (41.3%), followed by Less than 1000 employees (18.7%).

According to the age distribution, the largest group is between the ages of 40 and 50 (32.4%), followed by those between the ages of 22 and 30 (19.6%) and 50 and under 60 (19.6%). According to the gender distribution, there were more male respondents (58.0%) than female respondents (42.0%). Regarding education, a sizable chunk of the population had a bachelor's degree (49.7%), followed by a master's degree (32.1%), and a doctorate (7.0%). The percentage of respondents with "other" educational backgrounds was 11.2%.

Table 4: Respondent Profile

	Frequency (n=445)	Percent %
Company Age		
Less than one year	38	8.5
One – less than Five years	91	20.4
Five – less than 10 years	190	42.7
10 – less than 15 years	42	9.4
15 years or more	84	18.9
Business Volume		
Small	79	17.8
Medium	166	37.3
Large	200	44.9
Employee Count		
Less than 1000	83	18.7
1000 – Less than 3000	184	41.3
3000 – Less than 5000	92	20.7
5000 – Less than 10000	56	12.6
10000 or more	30	6.7
Age		
22 - Less than 30	87	19.6
30- Less than 40	83	18.7
40- Less than 50	144	32.4
50- Less than 60	87	19.6
60 or older	44	9.9
Gender		
Male	258	58.0
Female	187	42.0
Education		
Bachelor's degree	221	49.7
Master's degree	143	32.1
Doctorate degree	31	7.0
Other	50	11.2

2.3.2. Descriptive Analysis of Research Variables

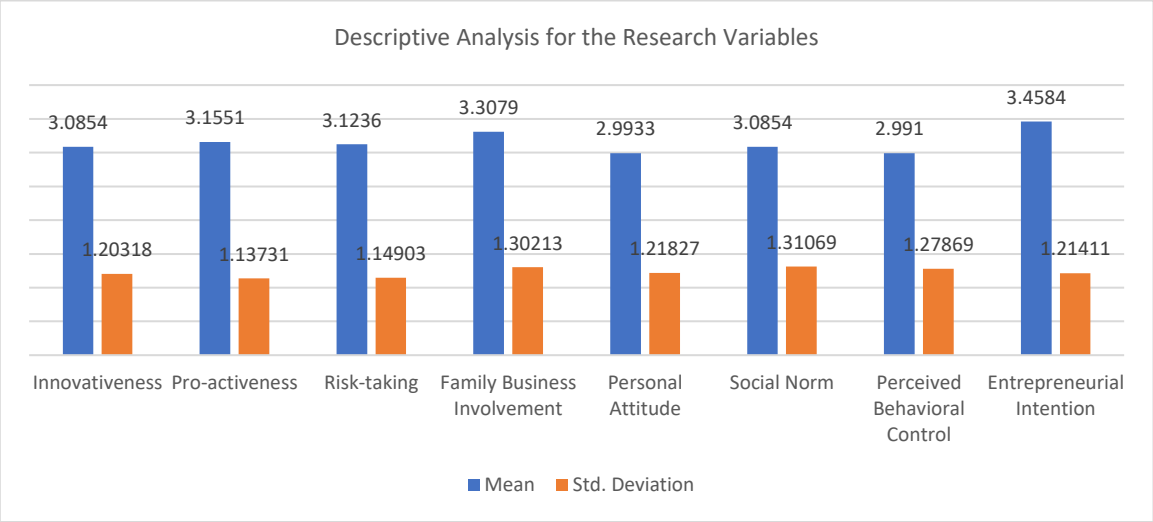
As indicated in Table 6, the descriptive results for the study variable provide important information about the core tendencies and variances within the dataset. The standard deviation for "innovativeness" was 1.20318, while the mean was 3.0854. The mean score for "pro-activeness" is 3.1551, with a standard deviation of 1.13731. Likewise, the mean score for "Risk-taking" was 3.1236, with a standard deviation of 1.14903. The standard deviation of "Family Business Involvement" is 1.30213, whereas the mean is 3.3079. The mean for "Social Norm" was 3.0854 with a standard deviation of 1.31069, whereas the mean for "Personal Attitude" was 2.9933 with a standard deviation of 1.21827. The standard deviation of "Perceived Behavioral Control" is 1.27869, while the mean is 2.9910. Finally, the mean score for "Entrepreneurial Intention" is 3.4584, with a standard deviation of 1.21411.

Table 5: Descriptive Analysis for the Research Variables

Research Variable	N	Mean	Std. Deviation	Frequency				
				1	2	3	4	5
Innovativeness	445	3.0854	1.20318	60	79	114	147	45
Pro-activeness	445	3.1551	1.13731	48	73	127	156	41
Risk-taking	445	3.1236	1.14903	47	84	125	145	44
Family Business Involvement	445	3.3079	1.30213	51	88	67	151	88
Personal Attitude	445	2.9933	1.21827	67	84	125	123	46
Social Norm	445	3.0854	1.31069	58	115	78	119	75
Perceived Behavioral Control	445	2.9910	1.27869	74	96	82	146	47
Entrepreneurial Intention	445	3.4584	1.21411	13	121	72	127	112

Figure 5 shows the descriptive statistics for the research variables, represented as mean and standard deviation.

Figure 5: Descriptive Statistics for he Research Variables



2.4. Normality Testing for the Research Variables

Confirming the normality of the data is a prerequisite before conducting inferential analyses, influencing the choice between parametric and non-parametric tests for hypothesis testing (Demir, 2022). A widely employed method for assessing normality is the Kolmogorov-Smirnov test, which is especially suited for sample sizes exceeding 50 observations in Table 6. A P-value surpassing the 0.05 threshold indicates the dataset conforms to a normal distribution. This meticulous evaluation of normalcy is a key aspect of the research process, steering the selection of appropriate statistical tests for hypothesis testing, thereby fortifying the reliability and validity of the research outcomes.

Table 6: Formal Testing of Normality

Research Variables	Kolmogorov-Smirnov[a]		
	Statistic	Df	Sig.
Innovativeness	.208	445	.000
Pro-activeness	.214	445	.000
Risk-taking	.202	445	.000
Family Business Involvement	.240	445	.000
Personal Attitude	.175	445	.000
Social Norm	.193	445	.000
Perceived Behavioral Control	.219	445	.000
Entrepreneurial Intention	.209	445	.000

Given the outcomes of the formal tests signaling a departure from a normal distribution in the dataset in Table 7, a supplementary informal assessment was employed to gauge the data's approximate normality. This informal assessment showed that the skewness and kurtosis values were both higher than the permissible range of ±1, as seen in Table 7. As a result, non-parametric tests are seen to be suitable for clarifying the connections between the study variables.

Table 1: Informal Testing of Normality

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Innovativeness	445	-.282	.116	-.894	.231
Pro-activeness	445	-.372	.116	-.674	.231
Risk-taking	445	-.270	.116	-.767	.231
Family Business Involvement	445	-.358	.116	-1.066	.231
Personal Attitude	445	-.145	.116	-.936	.231
Social Norm	445	-.056	.116	-1.204	.231
Perceived Behavioral Control	445	-.158	.116	-1.165	.231
Entrepreneurial Intention	445	-.183	.116	-1.267	.231

2.5. Testing Multicollinearity Assumption

An analysis of the Variance Inflation Factors (VIFs), as presented in Table 8, for the independent variables in the study model provides important information about the multicollinearity situation. The results revealed that all VIFs corresponding to the research variables remained below the predetermined threshold of 5. This observation indicates the absence of noticeable multicollinearity among the independent variables in this analysis, thereby reinforcing the robustness and reliability of the research model.

Table 2: VIF values for Research Variables

Independent Variables	VIF
Innovativeness	3.007
Pro-activeness	2.659
Risk-taking	2.985

2.6. Testing Research Hypotheses

In this section, the study hypotheses are carefully examined using correlation and path analysis implemented within the structural equation modeling (SEM) framework. Spearman's correlation was the favored analytical technique because of the dataset's intrinsic non-normal distribution. The association matrix for the factors this study looked at is shown in Table 9.

Innovativeness is strongly and positively associated with Family Business Involvement with a p-value lower than 0.001 and ($r = 0.850$), Personal Attitude ($r = 0.806$) and p-value lower than 0.001, social norms ($r = 0.862$, $p < 0.001$), Perceived Behavioral Control ($r = 0.826$, $p < 0.001$), and Entrepreneurial Intention ($r = 0.898$, $p < 0.001$). Similarly, pro-activeness revealed a strong positive linkage with Family Business Involvement ($r = 0.843$, $p < 0.001$), Personal Attitude ($r = 0.781$, $p < 0.001$), social norms ($r = 0.823$, $p < 0.001$), Perceived Behavioral Control ($r = 0.822$, $p < 0.001$), and Entrepreneurial Intention ($r = 0.880$, $p < 0.001$). Moreover, risk taking was significantly positively correlated with Family Business Involvement ($r = 0.829$, $p < 0.001$), Personal Attitude ($r = 0.804$, $p < 0.001$), social norms ($r = 0.827$, $p < 0.001$), Perceived Behavioral Control ($r = 0.827$, $p < 0.001$), and Entrepreneurial Intention ($r = 0.884$, $p < 0.001$).

There is a significant positive link between entrepreneurial intention and family business involvement ($r = 0.943$, $p < 0.001$). Additionally, there was a strong positive association between Entrepreneurial Intention and Personal Attitude ($r = 0.885$, $p < 0.001$). Additionally, there were strong positive associations between social norms and entrepreneurial intention ($r = 0.927$, $p < 0.001$). Furthermore, there was a strong positive association between Entrepreneurial Intention and Perceived Behavioral Control ($r = 0.919$, $p < 0.001$).

Table 3: Correlation Matrix for the Research Variables

			1.	2.	3.	4.	5.	6.	7.	8.
Spearman's rho	1. Innovativeness	R	1.000							
		Sig.	.							
		N	445							
	2. Pro-activeness	R	.776**	1.000						
		Sig.	.000	.						
		N	445	445						
	3. Risk-taking	R	.806**	.777**	1.000					
		Sig.	.000	.000	.					
		N	445	445	445					
	4. Family Business Involvement	R	.850**	.843**	.829**	1.000				
		Sig.	.000	.000	.000	.				
		N	445	445	445	445				
	5. Personal Attitude	R	.806**	.781**	.804**	.834**	1.000			
		Sig.	.000	.000	.000	.000	.			
		N	445	445	445	445	445			
	6. Social Norm	R	.862**	.823**	.827**	.879**	.837**	1.000		

			1.	2.	3.	4.	5.	6.	7.	8.
		Sig.	.000	.000	.000	.000	.000	.		
		N	445	445	445	445	445	445		
	7. Perceived Behavioral Control	R	.826**	.822**	.827**	.883**	.821**	.867**	1.000	
		Sig.	.000	.000	.000	.000	.000	.000	.	
		N	445	445	445	445	445	445	445	
	8. Entrepreneurial Intention	R	.898**	.880**	.884**	.943**	.885**	.927**	.919**	1.000
		Sig.	.000	.000	.000	.000	.000	.000	.000	.
		N	445	445	445	445	445	445	445	445

The impact of the research variables was assessed using structural equation modeling (SEM) analysis, as indicated in Table 10. The SEM findings, which are described here, offer important new information on how the variables relate to one another.

Hypothesis 1, which posits a correlation between Entrepreneurial Orientation and Family Business Involvement, Innovativeness (estimate = 0.337, p < 0.000), and pro-activeness (estimate = 0.739, p < 0.000), demonstrated a significant positive effect on Family Business Involvement as the P-values were less than 0.05, while, Risk Taking (estimate = 0.053, p = 0.513) showed an insignificant effect on Family Business Involvement as the P-value was more than 0.05. The coefficient of determination (R-square) for the dependent variable "Family Business Involvement" was 0.867. This figure shows that the independent factors in the model account for about 86.7% of the variation in family business involvement.

For Hypothesis 2, as the P-values were less than 0.05, it was evident that innovativeness (estimate = 0.369, p < 0.000), pro-activeness (estimate = 0.497, p < 0.000), and risk-taking (estimate = 0.177, p < 0.036) had a significant positive impact on personal attitude, which suggests a relationship between entrepreneurial orientation and personal attitude. At 0.807, the dependent variable "Personal Attitude" had the coefficient of determination (R-square). According to this figure, the independent variables in the model account for about 80.7% of the variation in individual attitudes.

The third hypothesis, which asserts a connection between social norms and entrepreneurial orientation, shows that risk-taking (estimate = 0.083, p = 0.513) has an insignificant impact on social norms, while innovativeness (estimate = 0.503, p < 0.000) and pro-activeness (estimate = 0.562, p < 0.000) have a significant positive impact on social norms. "Social Norm" was the dependent variable, and its coefficient of determination (R-square) was 0.868. This figure shows that the independent variables in the model account for about 86.8% of the variability in the Social Norm.

Hypothesis 4, which posits a relationship between Entrepreneurial Orientation and Perceived Behavioral Control, Innovativeness (estimate = 0.276, p < 0.000), and pro-activeness (estimate = 0.745, p < 0.000), demonstrates a significant positive effect on Perceived Behavioral Control as the P-values are less than 0.05, while, Risk Taking (estimate = 0.092, p = 0.247) showed an insignificant effect on Perceived Behavioral Control as the P-value was demonstrated to be more than 0.05. The coefficient of determination (R-square) for the dependent variable "Perceived Behavioral Control" was 0.878. This value indicates that approximately 87.8% of the variability in Perceived Behavioral Control can be comprehended by the independent variables in the model.

Given that the P-value is less than 0.05, it can be concluded that Family Business Involvement (estimate = 0.277, p < 0.000) significantly positively influences Entrepreneurial Intention, supporting Hypothesis 5, which suggests a relationship between the two.

Given that the P-value is less than 0.05, it can be shown that Personal Attitude (estimate = 0.108, p < 0.011) significantly positively influences Entrepreneurial Intention, supporting Hypothesis 6, which suggests a relationship between the two.

As the P-value is less than 0.05, it can be observed that social norms (estimate = 0.130, p < 0.009) have a substantial positive impact on entrepreneurial intention, supporting Hypothesis 7, which holds that social norms and entrepreneurial intention are related.

Given that the P-value is more than 0.05, it can be concluded that Perceived Behavioral Control (estimate = 0.107, p = 0.080) has a negligible impact on Entrepreneurial Intention, supporting Hypothesis 8, which suggests a link between the two.

According to Hypothesis 9, which states that there is a correlation between entrepreneurial orientation and entrepreneurial intention, pro-activeness (estimate = 0.181, p = 0.176) has an insignificant effect on entrepreneurial intention because the P-value is greater than 0.05, while innovativeness (estimate = 0.503, p < 0.000) and risk-taking (estimate = 0.142, p < 0.022) have a significant positive effect on entrepreneurial intention. "Entrepreneurial Intention" is the dependent variable, and its coefficient of determination (R-square) is 0.990. This value indicates that approximately 99% of the variability in Entrepreneurial Intention can be explained by the independent variables in the model.

Previous research indicates that social norms, personal beliefs, and family business involvement all significantly impact entrepreneurial intention. This suggests that entrepreneurial intention is directly influenced by social norms, personal views, and family business involvement. However, there is no discernible correlation between behavioral control and entrepreneurial intention, as evidenced by the lack of a substantial influence of perceived behavioral control on entrepreneurial intention.
The association between intention and entrepreneurial orientation is mediated by family business involvement, according to hypothesis 10. Family business involvement may act as a mediator in the relationship between innovativeness, pro-activeness, and entrepreneurial intention, as evidenced by the prior findings showing a significant impact of both traits on family business involvement.

Family business involvement was found to have a significant impact on the association between innovativeness and entrepreneurial intention, suggesting that it partially mediates this relationship. The association between pro-activeness and entrepreneurial intention was also found to be totally mediated by family business involvement, since the effect became negligible in the presence of this involvement.
For Hypothesis 11 which investigates the association between entrepreneurial orientation and entrepreneurial intention was mediated by personal attitude. The association between innovativeness, pro-activeness, and entrepreneurial intention may be mediated by personal attitude, as evidenced by the prior findings showing that innovativeness and pro-activeness have a considerable impact on personal attitude.

The linkage between innovativeness, risk-taking, and entrepreneurial intention can be seen to be partially mediated by personal attitude, as the effect is still significant when personal attitude is present. Furthermore, the association between pro-activeness and entrepreneurial intention was shown to be totally mediated by personal attitude, as evidenced by the fact that the effect was negligible when personal attitude was present.
Hypothesis 12 examines the relationship between entrepreneurial orientation and entrepreneurial intention is mediated by social norms. The association between innovativeness, pro-activeness, and entrepreneurial intention may be mediated by social norms, as evidenced by the prior findings showing a strong impact of both traits on social norms.

The association between innovativeness and entrepreneurial intention appears to be partially mediated by social norms, as evidenced by the fact that the effect is still substantial when social norms are present. Furthermore, it was found that the association between pro-activeness and entrepreneurial intention is totally mediated by social norms, as the effect became negligible in the presence of social norms.

According to Hypothesis 12, the relationship between entrepreneurial orientation and intention is mediated by perceived behavioral control. According to earlier findings, perceived behavioral control has no direct impact on entrepreneurial intention; as a result, it is unable to moderate the relationship between entrepreneurial orientation and entrepreneurial intention.

Table 4: SEM Analysis for the Research Variables

			Estimate	P	R^2
Family Business Involvement	<---	Innovativeness	.337	***	.867
Family Business Involvement	<---	Pro-activeness	.739	***	
Family Business Involvement	<---	Risk Taking	.053	.513	
Social Norm	<---	Innovativeness	.503	***	.868
Social Norm	<---	Pro-activeness	.562	***	
Social Norm	<---	Risk Taking	.083	.282	
Personal Attitude	<---	Innovativeness	.369	***	.807
Personal Attitude	<---	Pro-activeness	.497	***	
Personal Attitude	<---	Risk Taking	.177	.036	
Perceived Behavioral Control	<---	Innovativeness	.276	***	.878
Perceived Behavioral Control	<---	Pro-activeness	.745	***	
Perceived Behavioral Control	<---	Risk Taking	.092	.247	
Entrepreneurial Intention	<---	Innovativeness	.142	.022	.990
Entrepreneurial Intention	<---	Pro-activeness	.181	.176	
Entrepreneurial Intention	<---	Risk Taking	.162	***	
Entrepreneurial Intention	<---	Family Business Involvement	.277	***	
Entrepreneurial Intention	<---	Social Norm	.130	.009	
Entrepreneurial Intention	<---	Personal Attitude	.108	.011	
Entrepreneurial Intention	<---	Perceived Behavioral Control	.107	.080	

The model fit indices, including CMIN/DF (1.189), GFI (0.938), CFI (0.996), AGFI (0.924), and RMSEA (0.021), all fell within the acceptable ranges. Figure 6 shows the SEM employed to analyze the impact of the research model.

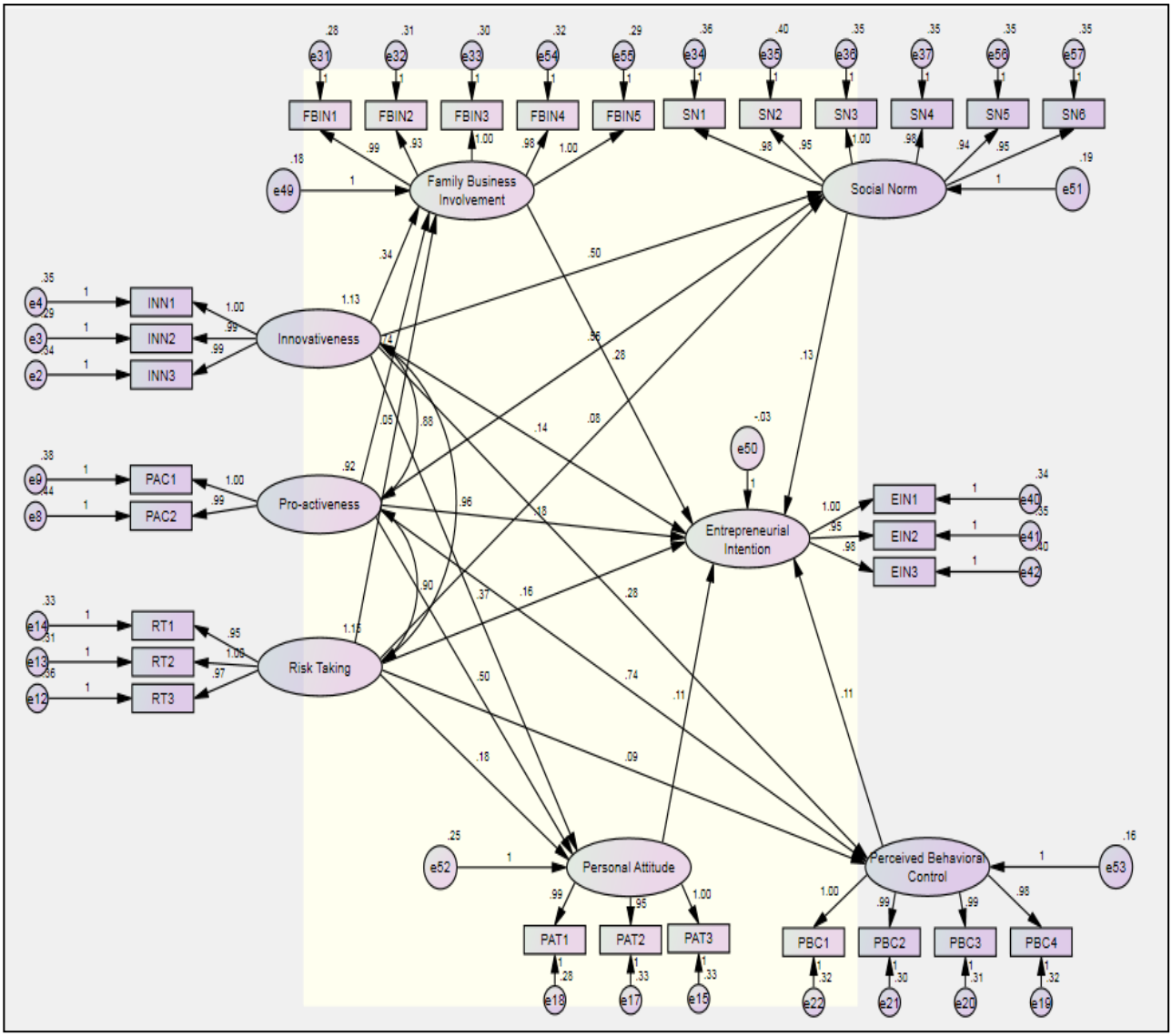


Figure 6: SEM for the Research Variables

3. Research Discussion and Conclusion

In this section, the results of the hypotheses tested using a correlation matrix and Structural Equation Modeling (SEM) are discussed.

4.1 Research Discussion

The results of the first hypothesis reveal that innovativeness and pro-activeness have significant positive effects on family business involvement, therefore, the first hypothesis is partially supported. These findings are consistent with those of Arzubiaga et al. (2018), Glowka et al. (2021), Dos Santos et al. (2022), Kalali (2022), Moreno-Menéndez et al. (2022), and Jocic et al. (2023). Otherwise, the results of the second hypothesis proved that all three dimensions had significant positive effects on personal attitudes, therefore, the second hypothesis is fully supported. These results align with those of Zollo et al. (2021) and Hwang et al. (2021). The findings of the third hypothesis clarify that innovativeness and pro-activeness have significant positive effects on social norms, accordingly, the third hypothesis is partially supported. The results are consistent with those of Ekpe and Mat (2012) and Bagis (2022), but inconsistent with those of Awang et al. (2016).

Moreover, the results of the fourth hypothesis proved that innovativeness and pro-activeness had significant positive effects on perceived behavioral control, therefore, the fourth hypothesis is partially supported. The results are consistent with Munir et al. (2019), but inconsistent with those of Awang et al. (2016). While the findings of the fifth hypothesis illustrate that family business involvement had a significant positive influence on entrepreneurial intention, hence, the fifth hypothesis is fully supported. The findings contradict those of Zaman et al. (2020), but they are in line with those of Wang et al. (2018), Onjewu et al. (2022), Xu et al. (2022), and Chaudhuri et al. (2023). Examining the sixth hypothesis, the findings show that entrepreneurial intention is significantly positively impacted by personal attitude; as a result, the sixth hypothesis is fully supported. The findings contradict those of Saeed et al. (2019), but they are in line with those of Miralles et al. (2016), Dinc

and Budic (2016), Al-Jubari et al. (2019), Gieure et al. (2020), Jena (2020), Zovko et al. (2020), Kusumawardhany and Dwiarta (2020), Vamvaka et al. (2020), and Tausif et al. (2021).
Since the seventh hypothesis's findings demonstrated that social norms significantly increased entrepreneurial intention, it is fully supported. There is a discrepancy between the findings of Zovko et al. (2020) and Al-Jubari et al. (2019), Saeed et al. (2019), Gieure et al. (2020), Vamvaka et al. (2020), and Tausif et al. (2021). The eighth hypothesis was not supported by the results of the test, which showed that entrepreneurial intention was positively impacted by perceived behavioral control in a negligible way. In contrast to Miralles et al. (2016), Dinc and Budic (2016), Al-Jubari et al. (2019), Saeed et al. (2019), Cynthia (2020), and Tausif et al. (2021), the results are in agreement with Zovko et al. (2020). However, the results of the ninth hypothesis showed that risk-taking and innovativeness significantly increased entrepreneurial intention; as a result, the ninth hypothesis has some support. The findings contradict those of Efrata et al. (2021) and Twum et al. (2021), but they are in line with those of Mandongwe and Jaravaza (2020), Wathanakom et al. (2020), Chafloque-Cespedes et al. (2021), Hassan et al. (2021), and Singh and Mehdi (2022).
The tenth hypothesis is partially supported by the findings, which show that family business involvement fully mediates the relationship between pro-activeness and entrepreneurial intention and partially mediates the relationship between innovativeness and entrepreneurial intention. According to the findings of the eleventh hypothesis, pro-activeness and entrepreneurial intention are totally mediated by personal attitude, whereas innovativeness, risk-taking, and entrepreneurial intention are somewhat mediated by personal attitude. The results of the twelfth hypothesis, however, show that social norms entirely moderate the association between pro-activeness and entrepreneurial intention and somewhat mediate the relationship between innovativeness and ambition. Lastly, a test of the thirteenth hypothesis showed that the connection between entrepreneurial orientation and entrepreneurial intention was not mediated by perceived behavioral control.

4.2 Research Recommendations and Limitations

This research provides detailed recommendations for various stakeholders and future research. For decision-makers and enterprise owners, it is recommended to prioritize innovativeness and pro-activeness, as these dimensions significantly influence family involvement within businesses, social norms, and perceived behavioral control. Additionally, focusing on all three dimensions of entrepreneurial orientation (including risk-taking) is crucial because they collectively have a strong impact on personal attitudes. To enhance entrepreneurial intentions among potential entrepreneurs, especially within family enterprises, these elements should be integrated into business strategies and organizational cultures.
Academic institutions and educators of entrepreneurship should develop clear and comprehensive curricula that thoroughly explain the concepts of family business involvement, personal attitudes, and social norms. These ideas are important since they have a big impact on the aim of entrepreneurs. A thorough understanding of these factors gives students the information and abilities they need to launch their enterprises successfully and make wise judgments.
This research suggests focusing more on the independent variables of EO (innovativeness, pro-activeness, and risk-taking) as key factors influencing entrepreneurial intention. Researchers should investigate additional EO dimensions of entrepreneurial orientation to provide a broader understanding of its impact. Future research should apply similar studies in other developing countries to compare results and gain a global perspective on the factors influencing entrepreneurial intention. Comparative studies between industrialized and emerging nations are also advised to comprehend the variations and parallels in entrepreneurial approach and intention across various economic circumstances. Increasing the sample size and prolonging the study period will contribute to more strong and generalized findings. Future studies should also look into additional potential moderators and mediators, such as cultural elements, governmental contexts, and economic circumstances, that may impact the relationship between entrepreneurial orientation and intention.
Several limitations were identified in this research. The timing of data collection was limited, suggesting that future research should include a longer period to capture more comprehensive data. The study sample, consisting of 445 respondents from Egypt, may not be representative of other contexts, indicating the need for a larger and more diverse sample in future studies. The focus on Egypt as the sole case study also limited the generalizability of the findings. Comparative studies involving multiple developing countries and those that compare developed and developing countries are recommended to provide a holistic understanding of the phenomena under investigation.

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