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The Impact of Knowledge Enterprise on the Performance of Knowledge-Based Firms, Considering the Mediating Role of Competitive Strategy

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Abstract

Purpose: This study aimed to investigate the impact of entrepreneurial orientation on the performance of knowledge-based firms, considering the mediating role of competitive strategy.

Design/methodology/Approach: This applied research employed a descriptive-survey method to analyze the current situation. The study population consisted of knowledge-based firms in Tehran. The sample size was determined using Cochran's formula, and a random sampling method was used to select participants. Data was collected through questionnaires and a review of library and internet resources, including books, articles, and case studies. In the inferential statistics stage, after assessing the reliability and validity of the questionnaire, the normality of the data was checked using the Kolmogorov-Smirnov test. Then, structural equation modeling (SEM) was employed using LISREL software to test the hypotheses.

Findings: The results indicated that all hypotheses were supported, with the highest coefficient being 0.91.

Keywords: Entrepreneurial Orientation, Knowledge-Based Firm Performance, Competitive Strategy

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1. Introduction

This study utilizes Porter's competitive strategy due to its popularity and wide applicability to examine the role of entrepreneurial orientation in business performance. Porter proposes a theory outlining three generic strategies that companies can employ to achieve a competitive advantage: cost leadership, differentiation, and focus. Furthermore, the business environment plays a crucial role in entrepreneurial orientation. The environment can be viewed from two perspectives: 1) a combination of various environmental dimensions, including dynamism, complexity, diversity, etc., and 2) an institutional approach that involves analyzing the normative and cognitive rules of elements. This study focuses on the first perspective. The environment and its dimensions positively influence entrepreneurial orientation. Companies adapting to dynamic environments can capitalize on the best opportunities, ultimately leading to improved performance. Given the importance of this topic, this article will delve into the problem statement, hypotheses, research methodology, and analysis of the hypotheses.

2. Problem Statement

The most significant challenge facing knowledge-based firms today is whether entrepreneurial orientation leads to superior performance. Entrepreneurial orientation refers to the extent to which companies emphasize innovation, proactiveness, and risk-taking (Van Doorn et al., 2017). By establishing and implementing an entrepreneurial orientation, companies strive to be more innovative than their competitors, aim to gain first-mover advantages, and are willing to invest in endeavors with uncertain outcomes but potentially high financial returns. Entrepreneurial orientation is a crucial theoretical concept that underpins the encouragement, execution, and reward of entrepreneurial behavior within a company. Moreover, entrepreneurship literature suggests that entrepreneurial orientation is not only vital for a company's performance and continued survival (Morris et al., 2011) but also necessary for effective competition in today's dynamic and unstable business environment. This study conducts limited theorizing – or experimental testing – on how competitive strategy shapes the relationship between firm performance and entrepreneurial orientation. Therefore, following previous observations in the literature, our efforts more precisely illustrate the conditions under which entrepreneurial orientation impacts firm performance, specifically by focusing on the role of internal factors. Ultimately, managers seek ways to compete more effectively. While entrepreneurial orientation can lead to varying degrees of improvement or decline in firm performance, this may depend on the type of competitive strategy pursued.

3. Research Objectives

Main Objective:

To determine the impact of entrepreneurial orientation on the performance of knowledge-based firms, considering the mediating role of competitive strategy.

Sub-Objectives:

To determine the impact of entrepreneurial orientation on the performance of knowledge-based firms.
To determine the impact of entrepreneurial orientation on cost leadership strategy.
To determine the impact of entrepreneurial orientation on differentiation strategy.
To determine the impact of cost leadership strategy on the performance of knowledge-based firms.
To determine the impact of differentiation strategy on the performance of knowledge-based firms.
To determine the impact of entrepreneurial orientation on the performance of knowledge-based firms, with cost leadership strategy as a mediator.
To determine the impact of entrepreneurial orientation on the performance of knowledge-based firms, with differentiation strategy as a mediator.

4. Research Hypotheses

Main Hypothesis:
Entrepreneurial orientation affects the performance of knowledge-based firms through competitive strategy.
Sub-Hypotheses:
Entrepreneurial orientation affects the performance of knowledge-based firms.
Entrepreneurial orientation affects cost leadership strategy.
Entrepreneurial orientation affects differentiation strategy.
Cost leadership strategy affects the performance of knowledge-based firms.
Differentiation strategy affects the performance of knowledge-based firms.
Entrepreneurial orientation affects the performance of knowledge-based firms, with cost leadership strategy as a mediator.
Entrepreneurial orientation affects the performance of knowledge-based firms, with differentiation strategy as a mediator.

5. Research Model
The conceptual model of the research is as follows:

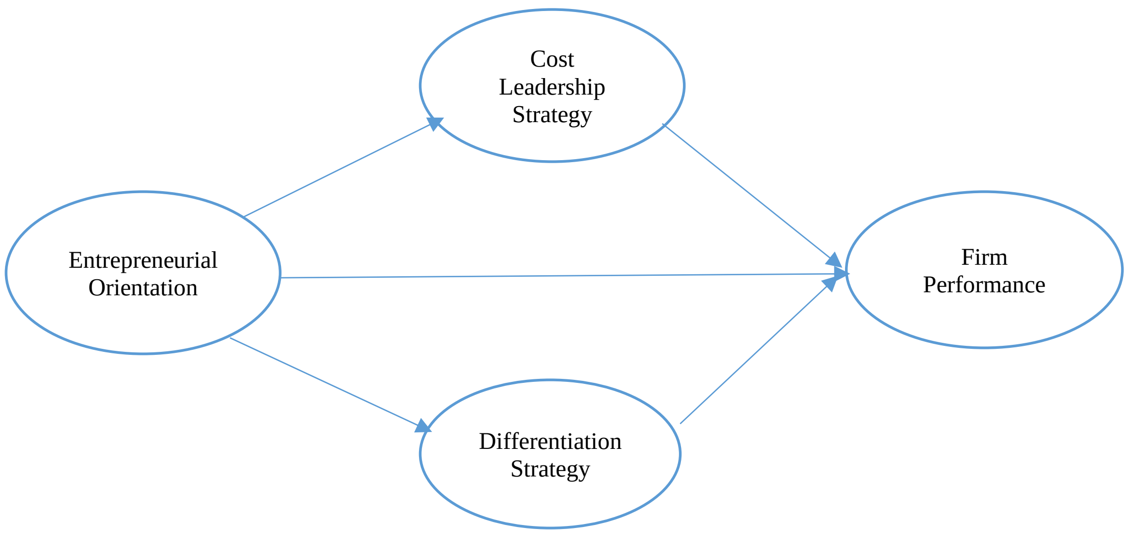

Figure 1: Conceptual Model (Source: Galbreath, 2020 & Alam, 2022)

7. Theoretical Framework

Entrepreneurial Orientation

Entrepreneurial Orientation (EO) refers to the set of actions and policies that form the basis for entrepreneurial decisions and activities within companies. Consequently, many researchers consider it a strategic orientation for achieving a competitive advantage. Companies achieve this by designing, formulating, and implementing their goals and strategies based on entrepreneurial principles. EO is also a management philosophy and a set of company behaviors associated with an entrepreneurial nature. It consists of five key elements: Innovation: Creative development and knowledge application to produce new products and services, technological leadership, and the utilization of research and development-based processes. Risk-taking: Taking bold actions based on limited resources in new and even unknown environments. Proactiveness: Opportunity seeking, identifying and anticipating future market demand, and producing products and services to meet those needs. Competitive Aggressiveness: The intensity of a company's efforts relative to competitors and aggressive responses to competitive threats. Autonomy: Independent action by leaders and entrepreneurial teams in investments and strategy implementation. EO creates a path for companies to succeed in today's dynamic competitive environment by effectively utilizing internal factors (strengths and weaknesses) and external factors (opportunities and threats). The most comprehensive definition of EO suggests that if a company consistently innovates its products, takes risks, and demonstrates proactive behavior, it possesses an entrepreneurial orientation. Researchers have defined EO as the tendency of top management to accept calculated risks, innovate, and be proactive. EO is also considered a vital organizational process that leads to the survival and improved performance of companies. As an element of strategic orientation, EO reflects the type of decision-making and creative style in action within companies. Among the main indicators of EO are proactiveness and risk-taking policies, which can help companies identify and seize new business opportunities and anticipate and discover market potential.

Dimensions of Entrepreneurial Orientation

Entrepreneurship can be defined as a characteristic of managers and owners of individual businesses, where the entrepreneur confronts environmental uncertainty by developing innovative responses. One of the essential perspectives linking the entrepreneurial orientation process to organizational strategies is the concept of Entrepreneurial Orientation (EO). According to this view, every organization falls within a spectrum, ranging from passive or conservative to proactive or entrepreneurial. When an organization is proactive, it considers innovation, initiative, proactiveness, and risk-taking in its organizational strategies. Compared to passive organizations, it places greater emphasis on identifying, evaluating, and exploiting opportunities. Organizations with an EO possess characteristics such as market and product innovation, risk-taking, and initiative, which play a crucial role in achieving a strategic position in a competitive environment. Overall, EO is a key concept in understanding whether a company adopts entrepreneurial activities. Most academic studies consider EO to have a compound nature, encompassing three distinct key elements: Innovation involves an interest in new ideas, experiences, and creative processes that may result in the development and creation of new products/services or technologies. Risk-taking refers to supporting projects despite the possibility of failure. Proactiveness means taking the lead in facing potential future events and overcoming competitors' activities. Researchers have added two more elements as components of EO: Autonomy or independence in implementing new ideas or risky actions. Competitive aggressivenessa challenging attitude towards competitors who are trying to improve their position or enter new markets. In summary, entrepreneurial companies tend to develop creative and innovative projects by anticipating market opportunities and overcoming competitors. These companies have high expectations for their actions but also consider the risks. On the other hand, non-entrepreneurial companies tend towards passive reactions, conformity, and risk aversion, based on a policy of following and imitating competitors. In other words, companies without EO stand by and watch.

Firm Performance in a Competitive Business Environment

A business is competitive and possesses high competitive capabilities when it has competitive inputs, processes, and outputs. Therefore, when examining the relationship between international market orientation and competitiveness, it is necessary to investigate the relationship between international market orientation and input competitiveness, process competitiveness, and output competitiveness of the business system. However, such an extensive examination in a single study might make it unwieldy and reduce its effectiveness. Therefore, this study focuses on the relationship between international market orientation and output competitiveness. In this study, output competitiveness, which pertains to the outputs of a business, is considered equivalent to business performance. Business performance encompasses customer performance (satisfied and loyal customers), market performance (high sales volume and market share), and financial performance (profit, profit margin, and return on investment compared to competitors). To measure business performance, seven indicators are used in two categories: marketing performance and financial performance. Marketing performance includes customer retention, customer satisfaction, and trust. Financial performance includes return on investment, sales return, sales growth, and market share. Tong Zeng et al. also demonstrated in an empirical study that in many services, such as banking and medicine, where a two-way exchange process occurs directly between employees and customers, international market orientation has a significant impact on performance (Cao & Karjaluoto, 2016).

Competitive Strategy

In the hierarchy of strategies, business strategies are positioned between two levels: the higher level and the lower level. At the higher level is the overall corporate strategy, while at the lower level are functional strategies. Therefore, business-level strategies fall between these two levels. A distinction is made between the two terms, stating that corporate-level strategy determines the overall direction and movement of the company, while business-level strategies emphasize how to achieve a sustainable competitive advantage. Business strategies contribute to achieving corporate strategies and goals. While this perspective focuses on the competitive dimension of business strategies, other researchers explicitly equate business strategies with competitive strategies. Competitive strategy is a business strategy that identifies the key forces influencing competitive position. Business strategies, sometimes called competitive strategies, can be defined by six dimensions:1**.** The markets and products in which a business wants to compete. 2.The level of investment.3**.** The functional area strategies needed to compete in that market.4**.** The strategic assets and skills crucial for the strategy and achieving a sustainable competitive advantage.5**.** The allocation of resources to business units.6**.** The development of synergistic effects between businesses. The competitive aspects of business strategies are presented in their definition as follows: Business strategies, often called competitive strategies, focus on improving the competitive position of a company's products and services within the industry or market segment in which the company operates. The four Ps framework is perhaps one of the best foundations for teaching marketing. Many marketing books use the four Ps framework to organize everyday marketing topics. However, the four Ps of marketing only relate to the functional part of marketing, specifically the controllable part of the marketing mix. This discussion neglects the major and critical parts of marketing strategies: customers and competitors. Customers and competitors are uncontrollable marketing variables that receive less attention as important elements and responsibilities of marketing. In many marketing articles and journals, numerous authors have attempted to provide a clear and concise definition of marketing strategy. In this regard, some researchers have focused on the methods**.** Many researchers have found that competitive advantage can be found in production, processes, external relationships, and horizontal relationships. Another important variable, according to Robbins, is the company itself. Analyzing a company involves considering its size and organizational mission, which reflects how the company sees itself and its role. Some companies explicitly define the scope and size of their activities. Sometimes this size is defined by technology, geographical size, or market size.

8. Research Methodology

This research is applied in terms of its objective. In terms of its nature and method of execution, it is descriptive and survey-based, with data collected through surveys. Given the research topic, which examines the relationship between variables, the research is correlational. The study population consists of knowledge-based firms in Tehran. Due to the population size, Cochran's formula is used to determine the sample size, which is then randomly selected based on accessibility. Questionnaires are distributed among these individuals. To collect research data and information, library research methods and surveys are utilized. The questionnaire questions are designed based on each of the study indicators and relevant articles, using a Likert scale format. The validity of the questionnaire is confirmed by experts, and its reliability is assessed using Cronbach's alpha coefficient. In the inferential statistics stage, after examining the reliability and validity of the questionnaire, the normality of the data is checked using the Kolmogorov-Smirnov test. Then, structural equation modeling (SEM) is employed using LISREL software to test the hypotheses.

9. **Results and Discussion:**

Descriptive Findings

The majority of respondents (80%) were male. The average age of participants was 47.67 years (SD = 3.59), with the youngest and oldest individuals being 42 and 53 years old, respectively. Most respondents were in the 35-40 year age range. The most frequent education level was a Bachelor's degree. The average work experience of the participants was 19.35 years (SD = 4.72), ranging from 12 to 27 years. In terms of education level, 64 participants (30.5%) held a Bachelor's degree, 122 (58.1%) held a Master's degree, and 24 (11.4%) held a Doctoral degree.

Inferential Findings

Research Model Tested Using Structural Equation Modeling

Hypothesis Testing Using Linear Structural Relationships

In this section, the overall research model is tested using structural equation modeling.

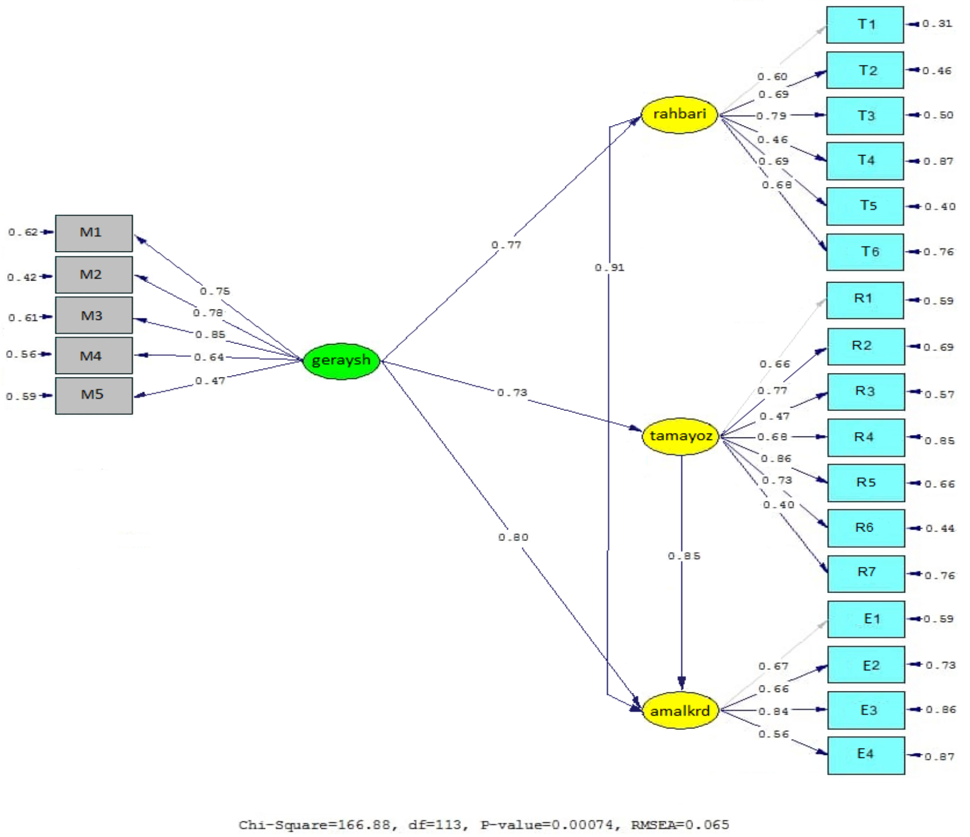

Figure 1: Estimation of Factor Loadings in the Structural Equation Modeling Analysis of the Overall Research Model

The figure above displays the structural equation model of the research with standardized coefficients estimated.

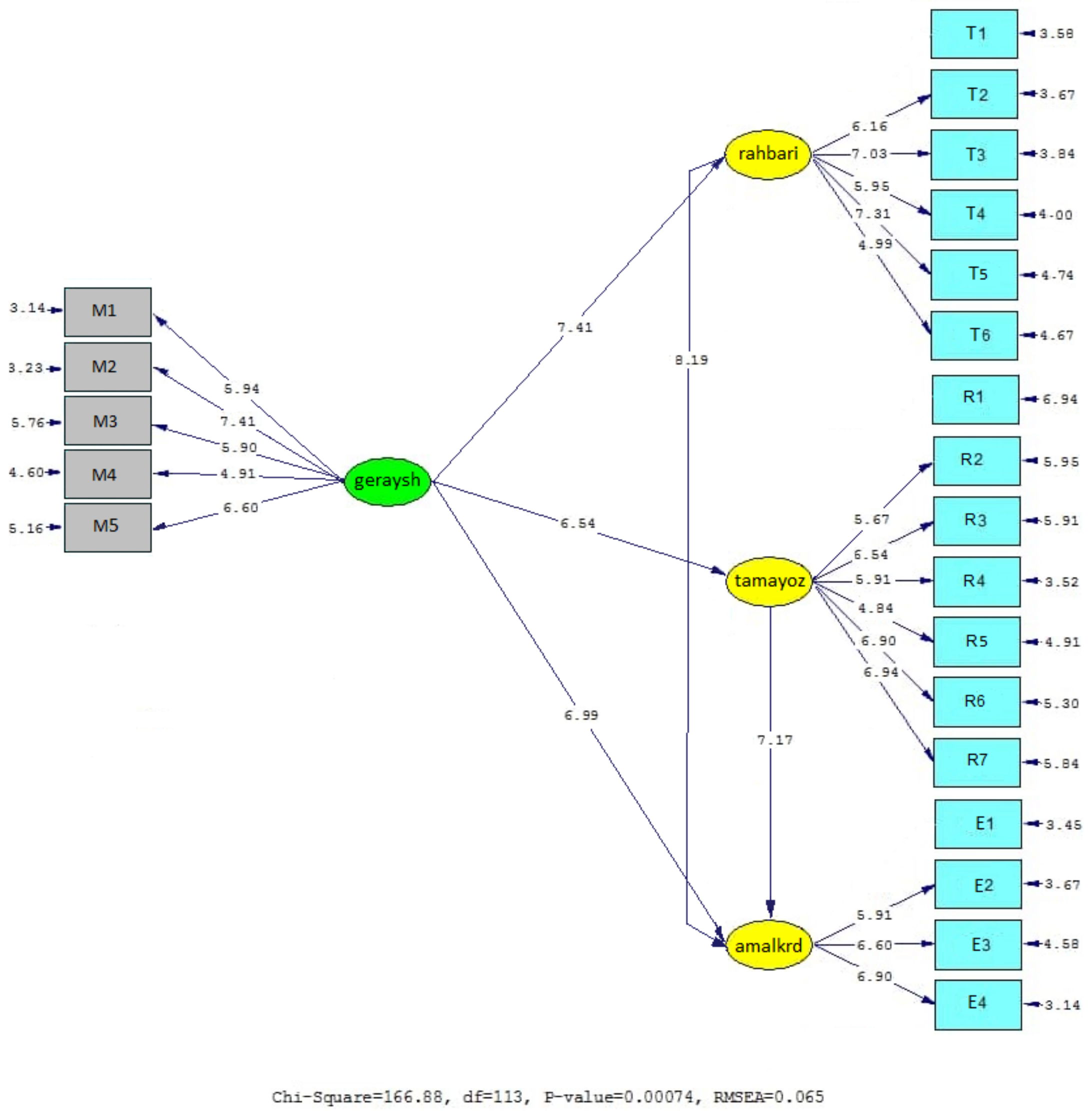

Figure 2: Measurement of the Overall Model and Hypothesis Test Results with Significance Levels

The figure above displays the structural equation model of the research with significance levels (t-values) for the path coefficients. This model tests all measurement equations (factor loadings) and structural equations using the t-statistic. According to this model, all standardized path coefficients and factor loadings are significant at the 95% confidence level. The model indicates significance if the t-statistic falls outside the range of -1.96 to +1.96, demonstrating that all factor loadings are significant at the 95% confidence level.

Interpretation and Explanation of the Model

Table: Interpretation and Explanation of the Structural Equation Model

Index Name	Original Model Estimates	Acceptable Limit
Chi-square/Degrees of Freedom (χ^2/df)	1.47	Less than 3
GFI (Goodness-of-Fit Index)	0.93	Greater than 0.9
RMSEA (Root Mean Square Error of Approximation)	0.065	Less than 0.09
CFI (Comparative Fit Index)	0.96	Greater than 0.9
NFI (Normed Fit Index)	0.91	Greater than 0.9
NNFI (Non-Normed Fit Index)	0.93	Greater than 0.9
IFI (Incremental Fit Index)	0.95	Greater than 0.9

It was observed that all indices for the research model were within the acceptable limits. Therefore, it can be confidently confirmed that the data fit this model. The following section presents the estimated correlation coefficients between the latent variables in the research model.

Analysis of Research Hypotheses**:**

Another type of relationship between latent variables in structural equation modeling is the direct effect**.** The direct effect is one of the building blocks of structural equation models and shows a directional relationship between two variables. This type of effect actually represents the assumed linear causal effect of one variable on another. Within a model, each direct effect specifies and expresses a relationship between a dependent variable and an independent variable. However, a dependent variable in one direct effect can be an independent variable in another, and vice versa. The results obtained from this method are as follows:

Table: Path Coefficients, t-Statistics, and Results of Research Hypotheses

Hypothesis	Path Coefficient	t-statistic	Result
Entrepreneurial Orientation affects the performance of knowledge-based firms.	0.8	6.99	Accepted
Entrepreneurial Orientation affects Cost Leadership Strategy.	0.77	7.41	Accepted
Entrepreneurial Orientation affects Differentiation Strategy.	0.73	6.54	Accepted
Cost Leadership Strategy affects the performance of knowledge-based firms.	0.91	8.19	Accepted
Differentiation Strategy affects the performance of knowledge-based firms.	0.85	7.17	Accepted
Entrepreneurial Orientation affects the performance of knowledge-based firms through Cost Leadership Strategy as a mediator.	0.7	7.8	Accepted
Entrepreneurial Orientation affects the performance of knowledge-based firms through Differentiation Strategy as a mediator.	0.62	6.85	Accepted

10. Conclusion

The results of the structural equation modeling showed that all hypotheses were accepted. The strongest effect was observed for cost leadership strategy on the performance of knowledge-based firms, with a coefficient of 0.91. This study was conducted because knowledge-based firms are now among the most important sectors for job creation, innovation, and economic growth in our country. These companies facilitate the process of transforming new ideas into usable products and services (Zarei, 1401). In knowledge-based firms, the research and development process is transformed into new products, processes, or systems through investment. Access to investment capacities for entrepreneurs and researchers is an important factor in creating innovation and utilizing technological capabilities in the national economy. The most important factor for the success and improvement of emerging knowledge-based companies is creativity, innovation, flexibility, and high motivation. Since knowledge-based companies are recognized as important sources of income, increased employment rates, and ultimately, a significant force influencing economic development (Bahmani, 1400), their presence in today's societies is crucial. Therefore, it is essential to use this study to investigate the most important factors affecting their performance. Based on the results, practical suggestions can be offered to managers of these companies to achieve positive consequences such as profitability and productivity, which are the ultimate goals of managers in any company. The following section presents the practical suggestions of this study:

11. Research Recommendations

Recommendation based on the hypothesis: Entrepreneurial orientation affects the performance of knowledge-based firms. It is recommended that company managers show more inclination towards high-risk, high-return investments. They should also place more emphasis on research and development, technology leadership, and innovation, and improve the existing infrastructure and conditions in this area.

Recommendation based on the hypothesis: Entrepreneurial orientation affects cost leadership strategy.
It is recommended that companies propose projects that effectively reduce the use of raw materials for implementation.
Recommendation based on the hypothesis: Entrepreneurial orientation affects differentiation strategy.
It is recommended that managers develop new products and services based on market needs and market research on customer and user preferences and tendencies.
Recommendation based on the hypothesis: Cost leadership strategy affects the performance of knowledge-based firms.
It is recommended that managers offer their products at lower prices than competitors in the market, as long as it does not disrupt the company's financial performance.
Recommendation based on the hypothesis: Differentiation strategy affects the performance of knowledge-based firms.
It is recommended that managers pay attention to increasing the intensity of advertising and marketing.
Recommendation based on the hypothesis: Entrepreneurial orientation affects the performance of knowledge-based firms with the mediating role of cost leadership strategy.
It is recommended that managers seriously pursue and implement raw material insurance and negotiate price reductions with suppliers. Additionally, company experts should hold periodic meetings on the topic of cost-effective and new production methods.
Recommendation based on the hypothesis: Entrepreneurial orientation affects the performance of knowledge-based firms with the mediating role of differentiation strategy.
It is recommended that managers focus on developing and training sales force and product presentation skills. They should consult with experienced marketers and sales managers in this area and choose the best approach.

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