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ARTICLE

Investigating the mediating role of strategic improvisation in the relationship between entrepreneurial orientation and firm performance in Turkish micro-enterprises using PLS-SEM

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Abstract

Purpose – The main objective of this paper is to investigate the mediating effect of strategic improvisation on entrepreneurial orientation and firm performance.

Theoretical framework – This study adds to the body of knowledge on entrepreneurial orientation and firm performance and advances the resource-based theory.

Design/methodology/approach – A sample of 241 SMEs was used to establish and examine four hypotheses. Partial least squares structural equation modeling (PLS-SEM) was used for data analysis.

Findings – The empirical findings reveal that strategic improvisation behavior partially mediates the relationship between entrepreneurial orientation and firm performance as a predictor of entrepreneurs' business success in SMEs.

Practical & social implications of research – This paper may help lessen environmental uncertainty and enhance foresight. Managers and business owners need to be aware of the findings.

Originality/value – This paper fills an important gap in our understanding of the role of strategic improvisation in entrepreneurial orientation and firm performance in Asian environments, such as Türkiye, with corresponding partial mediation effects of strategic improvisation and statistically significant connections among entrepreneurial orientation, firm performance, and strategic improvisation.

Keywords: Strategic improvisation, entrepreneurial orientation, firm performance, Türkiye, micro-enterprises, PLS-SEM.

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1 Introduction

Entrepreneurship has been proven to be a powerful instrument for reducing poverty and boosting economic growth in middle-income economies. Countries particularly encourage and promote the creation and growth of small and medium-sized enterprises (SMEs) through a variety of programs (Kowo & Akanmu, 2021). However, SMEs face serious barriers to maintaining and improving their performance due to the boundless nature of globalization, the pressures of international competition, and changing customer demands (Kraus et al., 2012). A lack of funding, trained labor, productivity, managerial and digital strategies, and access to technology are just a few of the issues facing SME development worldwide (Saleh & Ndubisi, 2006; Aygün & Ecevit Satı, 2022). To overcome these obstacles, SMEs should prioritize adaptable production structures, the capacity to recognize crises and devise solutions, ease of adaptability to changes, high competitiveness, proximity to clients, and other factors (Gök, 2022). In essence, they must have an entrepreneurial mindset and be adaptable.

Middle-income economies, including Türkiye, depend on SMEs to sustain economic progress. Through higher income levels and prospects for employment development, SMEs have a substantial positive impact on the economy (Susanto et al., 2023). According to Yıldız and Vurur (2022), SMEs with fewer than 250 employees account for 99.8% of all enterprises in Türkiye, providing 73.8% of employment and 56.3% of total exports. In today's climate of rapid change and unpredictability, SMEs and other organizations must contend with unanticipated possibilities and dangers to create new goods or services, enter new markets, or maintain their position in current markets. Additionally, SMEs find it challenging to plan and foresee everything in circumstances that change quickly (Levallet, 2014). For instance, the Russian-Ukrainian war that began in February 2022 weakened the economies of Central and West Asia just as they were beginning to recover from the economic slowdown caused by the COVID-19 pandemic. Growth slowed from 5.7% in 2021 to 3.9% in 2022. Many private sector companies have suffered to varying degrees. The region's SMEs have encountered many major challenges (Asian Development Bank, 2022).

In a volatile environment, entrepreneurial orientation and strategic improvisation are crucial due to factors such as the workforce, enterprise size, financial management capability, senior leadership within the organization, the ability to apply technology and incentives, and the working environment (Tuan & Tram, 2021; Ha, 2022). SMEs must foresee challenges and opportunities in their environment and adapt to change by adopting an entrepreneurial mindset and strategic improvisation. According to Kavana and Puspitowati (2022), in the age of globalization, SMEs with an entrepreneurial orientation perform better than those without one. Being proactive, coming up with new ideas, and taking calculated risks can all help to increase firm performance.

Many have identified the ability for improvisation and strategic improvisation in volatile environments as a potential research stream. However, improvisation in the competitive settings of emerging economies remains largely unexplored (Hodgkinson et al., 2016). Compared to Europe, the Asian setting of strategic improvisation studies is particularly limited (Hodgkinson et al., 2016; Cunha et al., 2022). This study is significant since it adds to the literature on Asia (specifically Türkiye and Ardahan) and aims to extend strategic improvisation research to the unexplored competitive setting of an emerging middle-income economy (Hodgkinson et al., 2016). Additionally, it offers insights into the intrinsic value of a resource-based strategy in organizations that considers the unique characteristics of SMEs (entrepreneurial orientation, strategic improvisation, firm performance), as well as the importance of strategic investments for growth (Darcy et al., 2014). SMEs require distinctive skills to create innovative behaviors, so improvisational activity is necessary. According to the resource-based theory, innovative competencies can provide a basis for competitive advantage because they are embedded in the organizational environment and cannot be imitated (Arshad et al., 2015).

The existing literature on strategic entrepreneurship and strategic improvisation is dominated by Western theories that are often applied to non-Western regions, including middle-income Asian economies, without sufficient consideration of their fit to the local context (Hemmert, 2025). Micro-enterprises in middle-income economies encounter several barriers to gaining a competitive advantage in their markets, such as budget limitations, international sanctions, and a lack of sufficient government incentives. This is also true for Turkish micro-enterprises, as Türkiye suffers from high inflation due to increasing economic, political, and geopolitical uncertainties in the region, which has significantly affected government support for Turkish micro-enterprises in recent years. Türkiye has an

important strategic geopolitical location between Europe and Asia, with a large part of its territory located in Asia. Due to this location, the Turkish economy has remained one of the world's most fragile since Morgan Stanley coined the term "fragile five" in 2013. For these reasons, Turkish micro-enterprises face deeper budget limitations and government support issues than micro-enterprises in high-income economies. Hence, their entrepreneurial orientation, firm performance, and strategic improvisation behavior differ significantly from their counterparts in high-income economies. However, the number of studies that explore the mediating role of strategic innovation in the relationship between entrepreneurial orientation and firm performance in middle-income Asian countries, including Türkiye, is limited compared to high-income countries. This paper aims to fill this gap in the existing literature by exploring the mediating role of strategic improvisation in the relationship between entrepreneurial orientation and firm performance in Turkish micro-enterprises.

Ardahan is a city with direct ties to the Caucasus and indirect ties to Asia. It has two land border crossings and an international railway. SMEs, particularly micro-enterprises, can do business at the national and international levels through these transportation channels. Micro-enterprises in Ardahan play an important role in both national and local economic development. This is because they contribute significantly to development by using local resources. Micro-enterprises that reveal and develop the value of local resources, using creativity and innovation to establish a national and global identity, should be analyzed from various perspectives. Creative industries based on the development of local resources are becoming quite strategic for the economy. Therefore, micro-enterprises in Ardahan were selected as the main subject of the study.

The remainder of this paper is organized as follows. The second section provides a theoretical framework on entrepreneurial orientation, firm performance, and strategic improvisation. The third section gives detailed information on hypothesis development. The fourth section introduces the dataset and presents the empirical findings. The paper concludes with a discussion of the empirical evidence and the limitations of the present study.

2 Theoretical framework

Since Cunha et al. (1999) published their study, few other studies have focused on the concept of organizational improvisation and its crucial role in managerial capabilities (Hadida et al., 2015; Hodgkinson et al., 2016). However, firms encountering major challenges, including global competition, digital transformation, and economic, political, and geopolitical uncertainties, benefit greatly from effective strategic improvisation skills (Mamédio et al., 2022). Previous research (Ratanavanich & Charoensukmongkol, 2024) has also shown that firms engage more actively in risk-taking and recognizing opportunities when entrepreneurs exhibit high levels of improvisational behavior. This paper addresses the potential mediating role of strategic improvisation in the relationship between the entrepreneurial orientation and firm performance of Turkish micro-enterprises. A better understanding of the detailed theoretical framework of entrepreneurial orientation, firm performance, and strategic improvisation would provide valuable information for developing appropriate hypotheses.

2.1 Entrepreneurial orientation

Entrepreneurial orientation is considered an important factor in the formation, growth, and survival of firms (Donbesuur et al., 2020). It is a concept that refers to the decision-making tendency to develop new opportunities, entrepreneurial independence in a complex and dynamic market environment, and the strategic behavior of entrepreneurs pursuing innovation (Zhou et al., 2022). It is defined as the simultaneous display of innovation, proactivity, and risk-taking tendencies (Miller, 1983; George, 2011; Gupta et al., 2020), as well as autonomy and competitive aggressiveness (Lumpkin & Dess, 1996) to recognize new business opportunities. In other words, it refers to the basic strategies and practices for improving entrepreneurial activities and decisions and the methods used by decision-makers to increase the resilience of their firms, sustain their vision, and provide reasonable benefits (Hina et al., 2021).

The existing literature often addresses the three and five dimensions of entrepreneurial orientation that can vary independently. The three dimensions are risk-taking, innovativeness, and proactivity. Later, Lumpkin and Dess (1996) added autonomy and competitive aggression to these three dimensions and suggested that the two concepts can be used together (Wales, 2016; Al Mamun et al., 2017). Risk-taking involves taking bold action in uncertain environments for a calculated outcome (Lomberg et al., 2017; Gabriel & Kobani, 2022).

It takes into account unexpected positive and negative outcomes (Thi Pham & Thi Dao, 2022). Innovativeness is defined as the intention to develop new products, services, or processes, while proactivity refers to a forward-looking perspective that seeks opportunities by engaging with the market and anticipating potential demands (Hughes & Morgan, 2007). Autonomy is defined as an individual's or team's independent action to bring about and complete a business concept or vision. Competitive aggression reflects the intensity of a firm's efforts to outperform its competitors by taking a combative stance and strongly reacting to competitors' actions (Lumpkin & Dess, 2001).

Given the above characterizations of entrepreneurship, there are multiple connections to the resource-based theory. Like the resource-based theory, entrepreneurship is about leveraging superior knowledge or insight to generate profits, preferably over a long period of time. To exploit an opportunity, an entrepreneur must assemble a set of resources, at least one of which is typically specific to the opportunity. Thus, entrepreneurs start with the resources they have "at their disposal," including network connections (Foss, 2011). Table 1 summarizes the operationalization of the variables for the entrepreneurial orientation scale utilized in the present study (Supplementary Material, Supplementary Data 1 – Variables).

As shown in Table 1, the resource-based theory can increase an organization's competitive advantage through entrepreneurial orientation. This is because the continuous use of capabilities such as innovation and proactivity causes organizations to become stronger. It will be difficult for competitors to understand or imitate the organization's footprint. Unlike organizational resources, which can be easily copied by competitors, innovative and proactive structures are more difficult to imitate, creating a highly competitive advantage for the organization (Musa et al., 2022).

2.2 Firm performance

Although firm performance is frequently addressed in the existing literature, there is no widely accepted definition of it (Taouab & Issor, 2019). Studies on firm performance have generally focused on financial and non-financial performance (Hina et al., 2021). Due to its multidimensional nature (Miller et al., 2013), earlier studies measured performance in terms of quality, time, budget, and flexibility (Neely et al., 2005). Later studies have suggested that it is represented by profitability, growth, and market capitalization (Cho & Pucik, 2005), customer and employee satisfaction, and environmental and social performance (Hina et al., 2021). Neely et al. (2005, p. 1229) define performance as "the process of quantifying the efficiency and effectiveness of action." In this context, firm performance reflects how a firm performs in some or all of its activities in a given period. Table 2 summarizes the operationalization of the variables used in the firm performance scale in the present study (Supplementary Data 1 – Variables).

The measurement items in Table 2 can be expressed as an increase in firm sales, a decrease in operating costs, an improvement in customer satisfaction, and the ability to respond to customer needs (Siagian et al., 2020). Using the resource-based theory of the firm as a theoretical framework, this study aims to determine the impact of a firm's resources (entrepreneurship) and capabilities (strategic improvisation) on firm performance.

Table 1
Operationalization of variables for entrepreneurial orientation scale

Item No	Statement No	Statements	Source
1	EO1	A strong emphasis on R&D and technological leadership	Anderson et al., 2009; Covin & Wales, 2011; Jiang et al., 2018; Lee et al., 2019
2	EO2	New product or service lines	
3	EO3	Changes in product or service lines	
4	EO4	When dealing with competitors, it typically initiates actions	
5	EO5	New products and services, administrative techniques, operating technologies, etc.	
6	EO6	Very competitive and undoes competitors' postures	
7	EO7	A strong proclivity for high-risk projects	
8	EO8	Bold, wide-ranging actions	
9	EO9	Bold, aggressive posture to maximize the probability of success	

All entrepreneurial orientation scales used in the present study are unidimensional, and the statements were measured using a five-point Likert-type scale.

Table 2
Operationalization of variables for firm performance scale

Item No	Statement No	Statements	Source
1	FP1	Quick to enter new markets	Ravichandran et al., 2005
2	FP2	Introduces new products and services faster than competitors	
3	FP3	Success rates of new products and services	
4	FP4	Productivity success level	
5	FP5	Profit success level	
6	FP6	Financial performance level	
7	FP7	Financial performance success	

All firm performance scales used in the present study are unidimensional and the statements were measured using a five-point Likert-type scale.

According to the resource-based theory, a firm is a collection of resources and capabilities, and the source of competitive advantage is internal to the firm. In other words, firms accumulate unique combinations of resources and capabilities that enable them to achieve a competitive advantage (Kahveci, 2011).

2.3 Strategic improvisation

Understanding why some firms outperform others is central to strategy research. The resource-based theory posits that competitive advantages stem from possessing strategic resources (i.e., valuable, rare, non-substitutable, and inimitable assets), and researchers have extended this logic to explain performance differences. One action that managers can take to create or exploit a resource-based advantage (D'Oria et al., 2021) is strategic improvisation. Thus, strategic improvisation contributes to the resource-based theory.

According to improvisation theory, firm characteristics can drive action and execution. The theory presumes that firms with low or high improvisation share similar internal characteristics (Hodgkinson et al., 2016). The concept of improvisation is used in the sense of "preparing for," but what is meant by it is unpredictable improvisation. The characteristics inherent in improvisation in the arts have been used as a tool in management and have become a model for the global business world (Hughes et al., 2020). Since the 2000s, enormous environmental changes in business have led to an emphasis on the crucial impact of strategic improvisation on firms. Strategy refers to the means and methods used by firms to achieve better business outcomes. Firms' strategies are closely associated with their current environment in order to determine the most relevant corporate strategy, as well as perform strategic analyses on certain business problems (Yu & Yu, 2021).

Strategic improvisation involves shifting from thinking to doing while simultaneously planning and executing the motto of "timely strategy" in the face of environmental turbulence (Saihood & Jader, 2021), or integrating prediction and execution over time (Hilmersson et al., 2022). Contemporary managers often require effective improvisation skills to overcome major challenges, such as global competition and digital transformation (Mamédio et al., 2022). In the rapidly accelerating digital age, firms need to act in a more agile and creative way instead of relying on long-term plans. Strategic improvisation allows organizations to be flexible in today's turbulent economic environment, helping them maintain their competitive edge. Studies on strategic improvisation have considered three main streams of research. The first refers to a process that an organization carries out in a specific department without prior planning. The second conceptualizes improvisation as a continuous process of organizational adaptation to a changing environment. The third focuses on improvisational competencies. Firms with improvisational competencies can act quickly and mobilize even when the course of action and ultimate outcomes are not fully planned (Cunha et al., 2022). Improvisation events, whether strategic threats or opportunities, are unexpected events through which managers take spontaneous and creative actions (Hu et al., 2018; Saihood & Jader, 2021). Strategic improvisation is therefore the search for opportunity in uncertainty (Ford, 2021).

Due to competition intensity and several innovation requirements, future strategic management practices are becoming more complex, and this situation is constantly growing with the convergence of dynamic, unstructured, and fragmented information (Rossel, 2011).

Some of the strategic management issues associated with improvisation include strategic decision-making (Eisenhardt, 1997), strategic renewal (Crossan & Hurst, 2006), new product development (Akgün et al., 2007), entrepreneurship (Hmieleski & Corbett, 2008; Abu Bakar et al., 2015), research and development teams (Vera et al., 2016), and competitive advantage (Yu et al., 2021). Along with the crucial roles of planning and control in management research, earlier improvisation studies mainly concentrated on planning and action within time limitations (Cunha et al., 1999). A second emphasis is on intuitive, unplanned, and spontaneous actions during crises (Pham & Jordan, 2006; Levallet, 2014; Ciuchta et al., 2021). Since strategic planning necessitates flexibility and creativity, the concept of strategic improvisation occupies a respectable place in the existing literature. Table 3 summarizes the operationalization of the variables for the strategic improvisation scale used in the present study (Supplementary Data 1 – Variables).

As summarized in Table 3, strategic improvisation is one of the most important strategies for responding to rapidly changing environmental demands and a dynamic external environment (Shabbir et al., 2021). However, despite the positive results of improvisation for organizations, contradictory findings also exist. The existing literature is ambiguous about whether improvisation contributes to company performance (Hultman et al., 2022). In areas of accelerated digitalization, firms need to act more agilely and creatively instead of relying on long-term plans. Strategic improvisation is one of the phenomena that allows organizations to be flexible in today's turbulent economic environment, helping them maintain their competitive level. The resource-based theory conceptually describes the ability to understand the nature of the environment and its potential future as a strategic asset (Connor, 2002). In this sense, strategic improvisation is an important part of the resource-based view to improve firm performance.

3 Hypothesis development

When viewed as a sustainable, firm-level feature, risk-taking, innovativeness, and proactive behaviors are elements of entrepreneurial orientation. In this study, entrepreneurial orientation is employed to express firms' entrepreneurial qualities and philosophical inclinations, and it is regarded as an independent variable that influences firm performance (Donbesuur et al., 2020). Entrepreneurial orientation is a phenomenon that helps explain firm performance results (George, 2011) and is influenced by the organization's strategic approach toward entrepreneurship (Hina et al., 2021). Higher business performance results from the concept and technique of entrepreneurial orientation (Lumpkin and Dess, 1996; Zakariah et al., 2022). It affects managers' and employees' behavior, decision-making, and practices. In previous research (Covin et al., 2006; Engelen et al., 2015; Khedhaouria et al., 2015; Zehir et al., 2015; Yoon & Solomon, 2017; Zhai et al., 2018; Nguyen et al., 2022), an entrepreneurial approach has been linked to improved firm performance. Additionally, it has been recognized as impacting a firm's success when a small firm expands internationally (Karami & Tang, 2019). Entrepreneurial orientation has been identified as one of the key contributors to firm performance (Mustafa et al., 2019). Following earlier research, the first hypothesis of the present paper is as follows:

> H_1: An entrepreneurial orientation positively and significantly affects the performance of micro-enterprises in middle-income Asian economies.

Table 3
Operationalization of variables for strategic improvisation scale

Item No	Statements No	Statements	Source
1	SI1	The team's response to unexpected events	Vera & Crossan, 2005; Ibrahim et al., 2018
2	SI2	The team's ability to respond quickly to incidents	
3	SI3	The team's ability to respond quickly to unexpected events	
4	SI4	The team is trying new approaches to problems	
5	SI5	The team trials new work processes	
6	SI6	The team's willingness to take risks in generating new ideas	
7	SI7	The team's desire for originality	

All strategic improvisation scales used in the present study are unidimensional and the statements were measured using a five-point Likert-type scale.

Although the definition of entrepreneurship includes the process of seeking out, analyzing, and acting on possibilities, this definition falls short of adequately describing how entrepreneurs behave when faced with uncertainty. For instance, most firm owners who are pressed for time are open to using cognitive biases and novel approaches to tackle problems (Song et al., 2022). This willingness reminds them to improvise skillfully and make strategic decisions in times of crisis. For firm owners and managers facing novel challenges such as the COVID-19 pandemic, strategic improvisation abilities are a crucial resource (Tabesh & Vera, 2020). An entrepreneurial orientation's emphasis on action calls for quick thinking and the hunt for fresh information and resources. In this situation, entrepreneurs try to restructure available resources to find answers (Liu et al., 2022). They must improvise strategically to adapt to changes in a fluid environment. Following earlier research, the second hypothesis of the present paper is as follows:

> H_2: An entrepreneurial orientation positively and significantly affects the strategic improvisation of micro-enterprises in middle-income Asian economies.

To maintain good firm performance, organizations must be adaptable and able to recognize and make use of fresh information about their clients. According to Arshad and Hughes (2009) and Hmieleski et al. (2013), organizational improvisation positively impacts firm performance. Ahmad et al. (2015) indicated that strategic improvisation significantly influences firm performance. In their study of 147 Libyan entrepreneurs, Al Issa (2021) found a favorable correlation between improvisational habits and firm performance. Additionally, Akgün et al. (2006) demonstrated a statistically significant correlation between team improvisation and firm performance, using metrics such as product success and product development as indicators of performance. Based on earlier research, the third hypothesis of the present paper is as follows:

> H_3: Strategic improvisation has a positive and significant effect on the performance of micro-enterprises in middle-income Asian economies.

A dynamic environment is one that experiences rapid and unforeseen changes. In such an environment, entrepreneurs may find it challenging to choose the goods and services that will succeed over the long term. To thrive in such environments, organizations must make quick and frequent modifications to their operations (Hmieleski et al., 2013). Previous studies (Yu et al., 2021; Song et al., 2022) suggest that strategic improvisation is a behavioral method used spontaneously and creatively under time constraints to address unforeseen dangers and opportunities. Bari and Arshad (2020) found that improvisational activity mediates the relationship between entrepreneurial self-efficacy and social networks in Malaysian SMEs. In their study of 249 participants from firms in four different Chinese cities, Li and Yu (2024) found that defensive and creative improvisation both positively affect new venture performance and mediate it to varying degrees. In their investigation of 289 start-ups in China, Sun et al. (2023) found that improvisation mediates the relationship between entrepreneurial orientation and new venture performance.

More research is needed to determine whether strategic improvisation fills the gaps left by a design or supplements the original plan. Consequently, there is a growing interest in learning more about how strategic improvisation is conceptualized, the elements that affect it, and the effects it has on organizational outcomes (Mamédio et al., 2022). Improvisation is neither good nor harmful in and of itself. Strategic improvisation is therefore considered a mediating variable through which to study the structure of the link between entrepreneurial orientation and firm performance, as well as the boundary conditions of this relationship (Hultman et al., 2022). Along these lines, the fourth hypothesis of the present paper is as follows:

> H_4: Strategic improvisation plays a mediating role between the entrepreneurial orientation and performance of micro-enterprises in middle-income Asian economies.

Consequently, the final research model hypothesized in Figure 1 was developed based on this knowledge.

4 Research method

The data obtained were analyzed using the appropriate SPSS 25.0 and SmartPLS 4 programs. First, the data obtained from the participants were transferred to SPSS and organized. Then, the reliability and validity of each variable in the research model created in SmartPLS4 were tested. Next, the relationship between the latent variables (entrepreneurial orientation, firm performance, and strategic improvisation) was established, and the factor structure and relationship of the variables were tested.

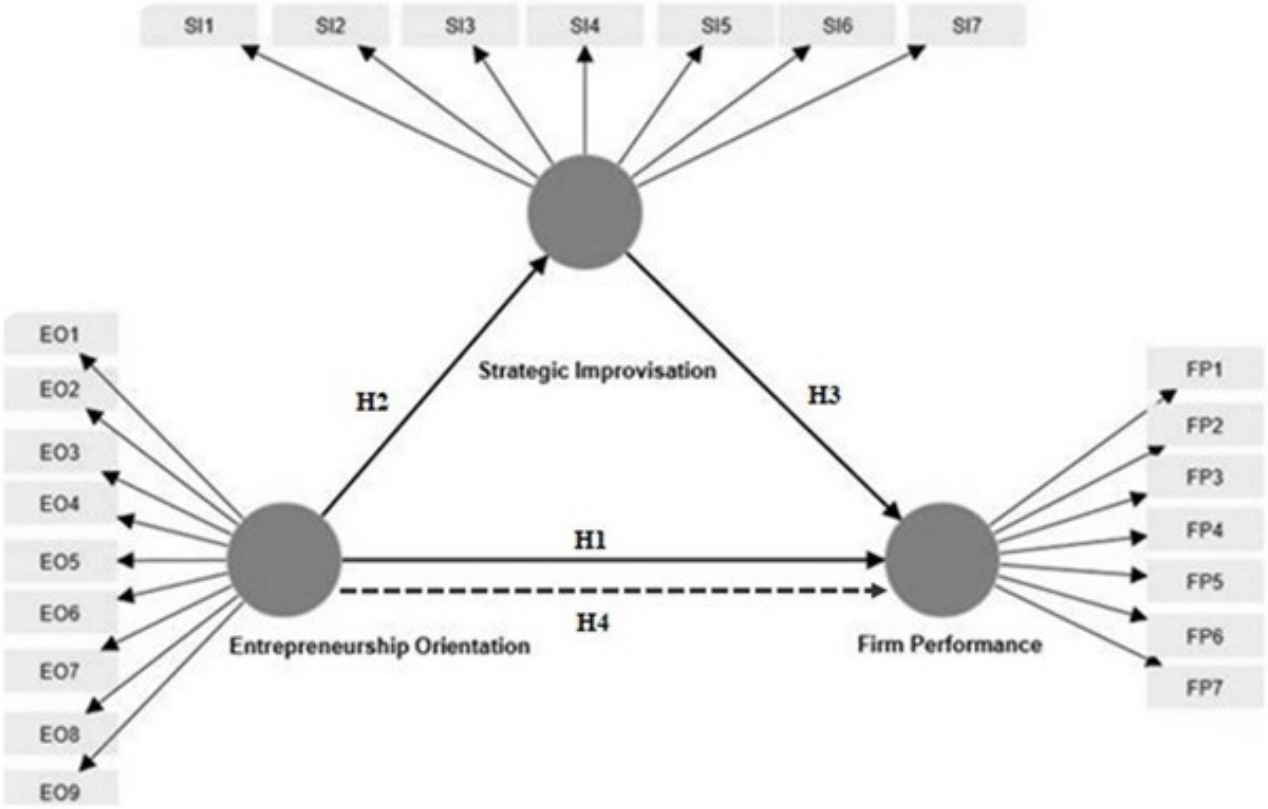

Figure 1. Research model

Adjustments were made as necessary to ensure the structural equation model best fit the relationship between the variables, thus increasing the relevance and effectiveness of this study (Supplementary Data 2 – Database).

The population of this study consists of 1014 SMEs registered with the Ardahan Union of Chambers of Artisans and Craftsmen in Ardahan Province. The minimum sample size for the questionnaire was calculated using Equation 1.

$$n = \frac{NPQZ^2}{(N-1)d^2 + PQZ^2} \quad (1)$$

where: n = sample size; N = population size; P = probability of the occurrence of a given event; $Q = 1 - P$; Z = test statistic under the $(1 - \alpha)$% significance level; and d = tolerance. The minimum representative sample size for the questionnaire using a stratified sampling method was calculated using Equation 2 below (Özdamar, 2017).

$$n = \frac{(1014)(0.8)(0.2)(1.96)^2}{(1014-1)(0.05)^2 + (0.8)(0.2)(1.96)^2} \cong 198 \quad (2)$$

As shown in Equation 2, the minimum representative sample size for the questionnaire was 198 respondents. Since many of the SMEs in this sample are micro-enterprises, P was selected as 0.80. A total of 320 SMEs were surveyed, and 241 valid questionnaires were evaluated. The response rate was 75%. Thus, the 241 respondents exceeded the minimum sample size, and the results were representative of the micro-enterprises in Ardahan. The seven-item scale used for the corresponding questionnaire is based on Vera and Crossan (2005) and Ibrahim et al. (2018). The entrepreneurial orientation scale was developed by Covin and Slevin (1989), and many recent studies have utilized the corresponding entrepreneurship scale (Anderson et al., 2009; Jiang et al., 2018; Covin & Wales, 2011; Lee et al., 2019). The firm performance scale is a seven-item scale used by Ravichandran et al. (2005). All of the scales used in this study are unidimensional, and the statements were measured using a five-point Likert-type scale.

As shown in Table 4, the sample consists of 80.5% men and 19.5% women. Of the respondents, 37.8% were between the ages of 31 and 40, while 22.4% were under the age of 30. Furthermore, 5.8% of the respondents were

over 61 years old. In terms of educational attainment, 51.5% of the respondents have a primary or high school education, 22.8% have an associate degree, and 21.6% have a bachelor's degree. The sector in which the SMEs are predominantly located is wholesale and retail trade (66.3%). Hospitality and food services follows with 10.3%. The sector with the least number of SMEs is education, at 0.83%. Furthermore, 92.1% of the SMEs have more than 10 years of experience. Additionally, 93.8% of the SMEs are micro-enterprises with 1 to 9 employees, while 6.2% are small enterprises with 10 to 49 employees. Table 5 also introduces the questionnaire used in this study.

Table 4
Descriptive statistics for micro-enterprise employees

Variables	Frequency	Percentage
Gender		
Male	194	80.5
Female	47	19.5
Age		
≤ 30	54	22.4
31-40	91	37.8
41-50	58	24.1
51-60	24	10.0
>61	14	5.8
Education Status		
Primary and high school	124	51.5
Associate degree	55	22.8
Undergraduate	52	21.6
Graduate	10	4.1
Sector (Nace Rev. 2)		
A-Agriculture, Forestry, and Fishing	5	2.07
C-Manufacturing	18	7.47
F-Construction	6	2.49
G-Wholesale and Retail Trade	160	66.3
H-Transportation and Storage	9	3.73
I-Hospitality and Food Service Activities	25	10.3
J-Information and Communication	4	1.66
M-Vocational, Scientific, and Technical Activities	3	1.24
P-Education	2	0.83
R-Culture, Arts, Entertainment, Recreation, and Sports	4	1.66
S-Other Service Activities	5	2.07
Age of SMEs		
≤ 10 years	19	7.88
11-20 years	162	67.2
>21 years	60	24.9
Number of employees		
1-9	226	93.8
10-49	15	6.2

n = 241. Source: Authors' field research between August and September 2023.

Table 5
Questionnaire used in the study

Strategic improvisation scale
I address unanticipated events on the spot.
I effectively and intelligently adjust to new developments or changing circumstances.
I immediately deal with unexpected problems.
I try new approaches to solve problems.
I identify opportunities for new ideas and processes.
I take risks to produce new ideas.
I demonstrate originality in performing my duties.
Firm performance scale
We have entered new markets very quickly.
We have brought new products and services to the market faster than our competitors.
The success rates of our new products and services have been very high.
Our productivity has exceeded that of our competitors.
Our profits have exceeded those of our competitors.
Our financial performance has been outstanding.
Our financial performance has exceeded that of our competitors.
Entrepreneurial orientation scale
Innovativeness items
In general, the top managers of my firm favor...
… a strong emphasis on marketing tried-and-tested products or services.
… a strong emphasis on R&D, technological leadership, and innovations.
How many new product or service lines has your firm marketed in the past five years (or since its establishment)?
No new lines of products or services.
Very many new lines of products or services.
Changes in product or service lines have mostly been minor.
Changes in product or service lines have usually been quite dramatic.
Proactivity items
When dealing with competitors, my firm…
… typically responds to competitors' actions.
… typically initiates actions to which competitors then respond.
… is very seldom the first business to introduce new products, services, administrative techniques, operating technologies, etc.
… is very often the first business to introduce new products, services, administrative techniques, operating technologies, etc.
… typically seeks to avoid competitive clashes, preferring a "live-and-let-live" posture.
… typically adopts a very competitive, "outdo-the-competitors" posture.
Risk-taking items
In general, the top managers of my firm have…
… a strong proclivity for low-risk projects with normal and certain rates of return.
… a strong proclivity for high-risk projects with the chance of very high returns.
In general, the top managers of my firm believe that...
… due to the nature of the environment, it is best to explore it gradually through cautious, incremental behavior.
… due to the nature of the environment, bold, wide-ranging actions are necessary to achieve the firm's objectives.
When confronted with decision-making situations involving uncertainty, my firm…
… typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly decisions.
… typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.

4.1 Measurement model

An exploratory factor analysis was conducted to test the construct validity of the scales. Outlier loadings that distorted the factor loadings were removed from the analysis. These were EO1, EO2, and EO3 for the entrepreneurial orientation scale and SI6 for the strategic improvisation scale. In addition, the variance inflation factor (VIF) was examined to assess multicollinearity in the data. A VIF value of 5 or more indicates serious multicollinearity among the indicators. An appropriate VIF value should be close to 3 or lower (Purwanto, 2021). There was no multicollinearity problem among the variables used in this study (for brevity, the VIF table is not presented). In addition, a one-factor blend test was used to measure common method bias (Podsakoff et al., 2003). The total variance explained is 36%, which is lower than the recommended standard of 50%. This means that there is no significant method bias problem in the data.

Table 6 shows the internal consistency coefficients for the overall measurement, as well as the convergent validity, validity, and reliability of each construct. The table shows that the AVE value of the model for all constructs is higher than the recommended AVE threshold of 0.5. The composite reliability values range from 0.865 to 0.913. The Cronbach's alpha and rho A values are above the threshold of 0.70 (Hair Jr. et al., 2020).

The Fornell-Larcker test was used to assess discriminant validity, for which the square root of the AVE for each latent variable must be greater than the correlations among the latent variables (Fornell & Larcker, 1981). Table 7 shows that the AVE root values are 0.776, 0.719, and 0.720. The AVE root values are greater than the correlations between them: 0.683, 0.524, and 0.496.

Table 6
Evaluation of factor loadings, internal consistency, and convergent validity of variables

Factors	Statements	Loadings	VIF	α	rho_A	CR	AVE
Firm Performance	FP1	0.739	1.865	0.889	0.891	0.913	0.602
	FP2	0.797	2.443				
	FP3	0.825	2.380				
	FP4	0.724	1.701				
	FP5	0.758	1.989				
	FP6	0.789	2.706				
	FP7	0.795	2.733				
Entrepreneurial Orientation	EO4	0.691	1.633	0.812	0.812	0.865	0.517
	EO5	0.687	1.612				
	EO6	0.718	1.777				
	EO7	0.801	2.140				
	EO8	0.727	1.607				
	EO9	0.684	1.460				
Strategic Improvisation	SI1	0.661	1.565	0.813	0.819	0.865	0.518
	SI2	0.809	2.198				
	SI3	0.694	1.551				
	SI4	0.761	2.074				
	SI5	0.698	1.585				
	SI7	0.685	1.539				

FP = Firm Performance; EO = Entrepreneurial Orientation; SI = Strategic Improvisation.

Table 7
Discriminant validity results

	Firm performance	Entrepreneurial orientation	Strategic improvisation
Firm performance	0.776		
Entrepreneurial orientation	0.683	0.719	
Strategic improvisation	0.524	0.496	0.720

According to Fornell and Larcker's criterion, therefore, the analysis meets the requirements of discriminant validity.

Another criterion related to the measurement of discriminant validity is the heterotrait-monotrait ratio (HTMT) value. Based on previous research results, Henseler et al. (2015) suggest a threshold value of 0.90 for conceptually similar constructs and 0.85 for conceptually different constructs. In other words, an HTMT value that exceeds the relevant threshold for two constructs indicates a lack of dissociation (Ringle et al., 2023). As can be seen in Table 8, all the HTMT values in this sample are below the 0.85 criterion, indicating that there is no problem with divergence validity.

4.2 Structural model analysis

A positive and statistically significant role of a construct can be evaluated in three main steps (Preacher & Hayes, 2008; Shujahat et al., 2019). In the first step, the total effect of the independent variable(s) on the dependent variable and its significance value are evaluated (Table 9). In the second step, the indirect effect, i.e., the effect of an independent variable on the dependent variable through a mediating variable, is considered if the value calculated in the first step is statistically significant and positive (Table 10). In this case, either full or partial mediation is evaluated; otherwise, there is no mediation effect. In the final step, the direct effect of the independent construct(s) on the dependent construct is evaluated to determine the full or partial mediation relationship (Table 10 and Figure 2). If the direct effect is statistically significant and the path coefficient value decreases in relation to the total effects, partial mediation exists. Otherwise, full mediation is considered. After these three steps, the hypotheses of this paper are tested.

H_1 proposes that entrepreneurial orientation has a positive and significant effect on firm performance. The total effect of entrepreneurial orientation on firm performance is positive and significant ($\beta = 0.683$, $p < 0.05$; Table 9). Therefore, H_1 is accepted. To improve firm performance, SMEs need to adopt an entrepreneurial approach to help them innovatively achieve their goals. They can also invest to hire young people with entrepreneurial skills to bring new solutions to the business. Furthermore, SME employees should be motivated to contribute entrepreneurial ideas to solve the firm's problems and support its goals (Susanto et al., 2023). Previous studies have also shown that entrepreneurial orientation is positively related to firm performance (Covin et al., 2006; Engelen et al., 2015; Zehir et al., 2015; Yoon & Solomon, 2017; Zhai et al., 2018; Nguyen et al., 2022).

H_2 proposes that entrepreneurial orientation has a positive and significant effect on strategic improvisation.

Table 8
HTMT analysis

	Firm performance	Entrepreneurial orientation	Strategic improvisation
Firm performance			
Entrepreneurial orientation	0.795		
Strategic improvisation	0.602	0.603	

Table 9
Total effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Entrepreneurial Orientation -> Firm Performance	0.683	0.685	0.040	17.067	0.000
Entrepreneurial Orientation--> Strategic Improvisation	0.496	0.503	0.054	9.110	0.000
Strategic Improvisation--> Firm Performance	0.246	0.252	0.056	4.369	0.000

The total effect of entrepreneurial orientation on strategic improvisation is positive and significant (β = 0.496 $p < 0.05$; Table 9). Therefore, H_2 is accepted. Ratanavanich and Charoensukmongkol (2024) stated that entrepreneurs with high levels of improvisational behavior play a more active role in their firms' risk-taking and opportunity recognition than those with low levels of improvisational behavior. The role of entrepreneurs' improvisational behavior in their effectiveness at managing the firm is emphasized here (Charoensukmongkol, 2022). Similar results were obtained in previous studies (Tabesh & Vera, 2020; Liu et al., 2022). Entrepreneurs need to incorporate strategic improvisation into their actions to adapt to changes in a dynamic environment.

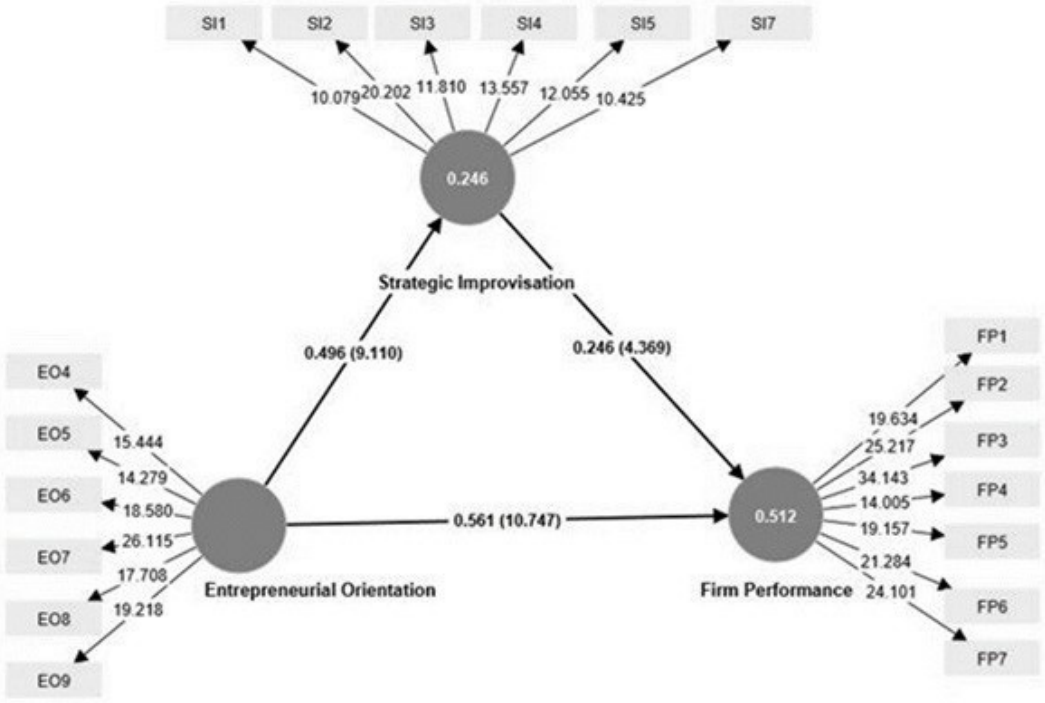

Figure 2. Structural model

Table 10
Direct and indirect effects

Indirect effects	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	***t* statistics (|O/STDEV|)**	***p* values**
Entrepreneurial Orientation--> Strategic Improvisation--> Firm Performance	0.122	0.127	0.032	3.766	0.000
Direct effects	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**t statistics (|O/STDEV|)**	**p values**
Entrepreneurial Orientation -> Firm Performance	0.561	0.558	0.052	10.747	0.000
Entrepreneurial Orientation--> Strategic Improvisation	0.496	0.503	0.054	9.110	0.000
Strategic Improvisation--> Firm Performance	0.246	0.252	0.056	4.369	0.000

Source: The authors

H_3 proposes that strategic improvisation has a positive and significant effect on firm performance. The total effect of strategic improvisation on firm performance is positive and significant ($\beta = 0.246$, $p < 0.05$; Table 9). Therefore, H_3 is accepted. This finding suggests that strategic improvisation contributes to firm performance. It can increase the flexibility and adaptability of micro-enterprises in situations that require corrective action, a scenario in which most SMEs find themselves. In addition, creativity and intuition in strategic decision-making can be a source of competitive advantage as they affect performance in changing business environments. For these reasons, Turkish micro-enterprises should encourage strategic improvisation activities to improve operational efficiency and organizational performance, as well as sustain competitive advantage (Abu Bakar et al., 2015). Financial and human resources are potential internal factors, while competitive intensity is an external factor affecting the degree to which strategic improvisation increases firm performance (Charoensukmongkol, 2022). These findings are similar to those of previous studies (Arshad & Hughes, 2009; Hmieleski et al., 2013; Ahmad et al., 2015).

H_4 proposes that strategic improvisation mediates the relationship between entrepreneurial orientation and firm performance. The indirect effect of entrepreneurial orientation on firm performance is positive and significant through strategic improvisation ($\beta = 0.122$, $p < 0.05$; Table 10). Thus, there is the possibility of either full or partial mediation. Next, the direct effect was assessed. After including strategic improvisation as a mediating variable, the direct effect of entrepreneurial orientation on firm performance became positively significant ($\beta = 0.561$, $p > 0.05$; Table 10; Figure 2). Therefore, after its inclusion in the model, the mediating variable partially reduced the effect between entrepreneurship and firm performance. Thus, partial mediation is concluded and H_4 is accepted. Based on this evidence, strategic improvisation and entrepreneurial orientation can be considered two crucial indicators of Turkish micro-enterprise performance. In competitive and dynamic environments, firm owners/managers must develop an entrepreneurial orientation and strategic improvisation to adapt to the environment with limited resources (Abu Bakar et al., 2016). Entrepreneurs' improvisational behavior has been shown to mitigate unpredictability in a turbulent environment, and firms perform well (Ratanavanich & Charoensukmongkol, 2024). These findings are consistent with those of previous studies (Bari & Arshad, 2020; Li & Yu, 2024).

5 Conclusion

In complex and ever-changing environments, SMEs often need strategic improvisation to respond to unpredictable events. Strategic improvisation can promote both sustainability and development. A significant gap in the existing literature is the lack of research examining the mediating effects of strategic improvisation on firm performance. Although much research on entrepreneurial orientation and firm performance has been done in industrialized economies, fewer studies have examined middle-income economies. Therefore, this paper aims to contribute to the understanding of strategic improvisation by partially compensating for the lack of a resource-based perspective. This study adds to the body of knowledge about middle-income economies like Türkiye, which are characterized by unpredictable environmental changes (Ibrahim et al., 2018). The study contributes to the existing literature on entrepreneurial orientation and firm performance and advances the resource-based theory. Research is ongoing on ways to boost firm performance and convert available resources into long-lasting competitive advantages. The paradigm suggested in this study supports the idea, derived from the resource-based theory, that entrepreneurial orientation affects firm performance and that strategic improvisation mediates this relationship. According to previous research (Hughes et al., 2018; Irawan et al., 2023), companies that are more inventive, proactive, and willing to take risks perform better. Additionally, the study offers fresh perspectives that broaden our understanding of entrepreneurial theory and practice (Susanto et al., 2023).

The ability to manage uncertainty, respond to new opportunities and threats, and predict the direction and nature of change are just a few of the entrepreneurial orientation skills that are essential for SME survival and sustainability in the face of rapidly changing business environments (Abu Bakar et al., 2015). The execution of an entrepreneurial orientation and its translation into firm performance can be improved by partly mediating the role of strategic improvisation. Entrepreneurs should manage fault tolerance to improve strategic improvisation in order to respond to the numerous demands and opportunities in an uncertain competitive environment and attain optimal firm performance (Crossan & Hurst, 2006).

By fostering strategic improvisation, firms can avoid wasting their limited resources in ineffective ways (Al Issa, 2021). The empirical findings of this study suggest that strategic improvisation partially mediates the relationship between entrepreneurial orientation and firm performance. This finding responds to Mamédio et al.'s (2022) question of whether strategic improvisation acts as a complete substitute for or a complement to the initial design during action. Micro-enterprises in middle-income economies, including Türkiye, can benefit from strategic improvisation to understand the relationship between entrepreneurial orientation and firm performance in future actions. In addition, they can use strategic improvisation as a competitive advantage in their existing markets for entrepreneurial orientation and firm performance. Since the entrepreneurial orientation and firm performance of micro-enterprises significantly contribute to economic growth, government authorities, such as the Small and Medium Enterprises Development and Support Administration in Türkiye, can encourage Turkish micro-enterprises to concentrate on strategic improvisation through relevant support programs to promote successful entrepreneurial orientation and increase firm performance. Future attempts should also periodically monitor the strategic improvisation of micro-enterprises to improve their entrepreneurial orientation and firm performance. This can be accomplished through continuous communication between micro-enterprises and government authorities.

According to prior research (Hemmert, 2025), there are major cross-regional differences in the economic, political, cultural, and entrepreneurial contexts of micro-enterprises in Asian economies. Micro-enterprises in middle-income economies in Asia, including Türkiye, are significantly affected by economic, political, and geopolitical uncertainties in their region while trying to survive in their market and gain a competitive advantage. The empirical findings of the present study reveal that strategic improvisation plays a crucial role for micro-enterprises in the Asian environment and partially mediates the relationship between entrepreneurial orientation and firm performance in Turkish micro-enterprises. This partial mediation of strategic improvisation can probably be attributed to the various barriers that Turkish micro-enterprises encounter while trying to survive in their market. Earlier research (Cerviño et al., 2025) found that managerial capabilities and supply chain problems could explain the performance of small firms in a highly dynamic environment. Similarly, other prior studies (Asif & Abu Bakar, 2025; Cheng et al., 2025) have shown that environmental uncertainty has a statistically significant impact on the entrepreneurial orientation of SMEs in middle-income economies. Hilmersson et al. (2022) revealed that improvisation plays a mediating role in firm performance in unpredictable markets, while Hu et al. (2018) highlighted that environmental turbulence plays a significant role in entrepreneurial improvisation in an Asian context. Similarly, Yu et al. (2021) found that there is a positive relationship between strategic improvisation and competitive advantage in a middle-income Asian economy.

Turkish micro-enterprises have fewer government incentives than micro-enterprises in high-income economies, which makes it harder for them to offset the negative impacts of economic, political, and geopolitical uncertainties. Therefore, Turkish micro-enterprises must work harder to survive in a highly dynamic market than their counterparts in other regions where uncertainty is lower. In a sense, the financial constraints of Turkish micro-enterprises in this more competitive market can prevent them from having sufficient entrepreneurial orientation and firm performance levels, thus obscuring their actual strategic improvisation capabilities. Turkish micro-enterprises lacking sufficient managerial capabilities and facing supply chain problems may not be able to demonstrate their actual strategic improvisation performance due to insufficient financial incentives. More research is needed on different samples and regions in Türkiye to better understand the partial mediating role of strategic improvisation in the entrepreneurial orientation and firm performance of Turkish micro-enterprises. Additionally, Ratanavanich and Charoensukmongkol (2024) found that firm size negatively impacts improvisational behavior. The partial mediating impact of strategic improvisation on the relationship between entrepreneurial orientation and firm performance in this study can also be associated with firm size, since this paper mainly focuses on Turkish micro-enterprises. On the one hand, this paper fills an important gap in our understanding of the role of strategic improvisation in entrepreneurial orientation and firm performance in an Asian environment (i.e. Türkiye), with corresponding partial mediation effects of strategic improvisation and statistically significant connections among entrepreneurial orientation, firm performance, and strategic improvisation. On the other hand, the present paper provides empirical evidence of different micro-enterprise behaviors in a middle-income Asian economy compared to high-income counterparts.

This paper has several limitations. While this study has all the hallmarks of a cross-sectional research design, future studies could use longitudinal research techniques to look at the interactions between factors that provide feedback related to improvisation over time, such as entrepreneurial self-efficacy, absorptive capacity, product innovation, and environmental factors. Our study model does not include contingency considerations. The findings of this study are consistent with those of earlier research on the factors mediating the link between entrepreneurial orientation and firm performance. Future studies should conduct more in-depth analyses of the context and effects of improvisation in family firms operating in various industries. According to SME researchers, studies on the efficacy and efficiency of SMEs in middle-income economies could be scaled up to account for the complexity and variety of environmental factors. Due to the small and restricted sample obtained from Ardahan, Türkiye, the results should be viewed as indicative rather than conclusive. Future research should consider using a larger, more representative sample of Türkiye's regions.

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