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Be Innovative and Resilient: Empirical Evidence from Saudi Firms on How to Translate Entrepreneurial Orientation into Firm Performance

Wassim J. Aloulou

Business Administration Department, College of Economics and Administrative Sciences, Imam Mohammad Ibn Saud Islamic University, Riyadh 5701, Saudi Arabia; wjaloulou@imamu.edu.sa

Abstract: This research seeks to investigate the relationship between entrepreneurial orientation dimensions (behavioral dimension EOBD and attitudinal dimension EOAD) and firm performance (FP) through a sequential mediation model of innovation capability (IC) and firm resilience capability (FRC) in a specific context. Sample data for this study were collected using a questionnaire survey from 225 randomly selected SMEs in Saudi Arabia and analyzed using structural equation modeling. The results revealed that there are significant relationships between EO dimensions and IC. No direct relationships were found between EO dimensions and FRC or between EOAD and FP. Therefore, IC plays a mediating role in the relationships between EO dimensions and FRC. In addition, FRC does not play a mediating role in the relationships between EO dimensions and FP. On the contrary, it plays a partial mediation between IC and FP. To our knowledge, little research has investigated simultaneously the effects of EO, IC, FRC and FP in the Saudi context. Our study contributes to the literature on entrepreneurship, innovation and resilience by providing new empirical evidence. It also contributes to managerial practices by displaying the importance of translating strategic EO dimensions into performance outcomes through IC and FRC.

Keywords: entrepreneurial orientation; innovation capability; firm resilience capability; firm performance; Saudi Arabia

1. Introduction

Firms all over the world have experienced a global pandemic of COVID-19 that affected their normal activities from supplying materials to producing and serving their markets. Consequently, most of them tried to combat this devastating crisis by adopting adequate strategies and practices to foster their resilience (Aloulou 2023; Gayed and El Ebrashi 2023). To build their resilience in the face of potential disruptions, firms should adopt strategic orientations and develop their innovation capabilities resulting from them. Thus, business firms find it tasking and more demanding to achieve their goals when confronted with other additional environmental changes caused by the ongoing Ukrainian–Russian war or climate change. Hence, there is a need for business firms to be more innovative in ways that advance their resilience and assure their survival and growth. Similarly, Saudi firms face these global disturbances and the myriad of challenges imposed by the deep transformations initiated by the country with the announcement of the Saudi 2030 Vision in 2016 for the diversification of the national economy (Aloulou 2019; Aloulou and Alarifi 2022; SCEDA 2016).

Entrepreneurial orientation (EO) has become the most well-known concept of great interest among scholars in the entrepreneurship and innovation literature (Wales et al. 2013; Wales et al. 2021). Adopting EO as a strategic orientation is the necessary resource that helps firms to foster their resilience through the creation of entrepreneurial opportunities and the allocation of essential resources to invest them for value creation (Wiklund and Shepherd 2003).

Translating this strategic resource into performance outcomes necessitates key capabilities such as innovation capability (IC) and firm resilience capability (FRC). Despite the conviction in the importance of the role of EO in improving innovation activities, building FRC and enhancing FP, little empirical research has focused on simultaneously examining relationships among EO, IC, FRC and FP (e.g., Al-Hakimi et al. 2021). Following calls from scholars to fill in the research gap in the EO–performance relationship (Rauch et al. 2009), several researchers responded to this call by exploring potential mechanisms acting as mediators between EO and FP (Wales et al. 2013; Kollmann and Stöckmann 2014). Moreover, other researchers have launched another call to fill in the research gap in the EO–firm resilience relationship by exploring IC as a potential mechanism underlining such a relationship (Al-Hakimi et al. 2021; Akman and Yilmaz 2019; Coleman and Adim 2019). In line with this, the current study focuses on IC and FRC as potential mechanisms to be investigated in the EO–performance relationship. These two mechanisms are widely considered dynamic capabilities to respond to environmental changes (e.g., Teece et al. 1997).

While there is evidence that EO is generally positively related to FP, the relationship is more complex and the mechanisms through which EO influences FP are still not fully known. Several studies have focused on some mechanisms that potentially influence this relationship and are related to learning and innovation (Aloulou 2018b; Kollmann and Stöckmann 2014; Mendoza-Silva 2021). None of the previous studies have explored the simultaneous role of innovation and resilience in this relationship. For instance, we focus on key constructs of IC and FRC as important mechanisms to show how EO is translated into FP. The literature on entrepreneurship, innovation and resilience has shown that IC and FRC are two critical factors that enable firms to innovate and stay resilient to enhance their performance. Nonetheless, current knowledge on the simultaneous effects of these two mechanisms on the EO–performance relationship remains underexplored in the Saudi context.

This study aims to explore how EO affects innovation, resilience and performance and discuss the roles of IC and FRC in mediating the relationship between EO and FP. As a theoretical foundation, the study will be based on the resource-based perspective and the conceptual framework that transforms strategic resources into performance through dynamic capabilities (Al-Hakimi et al. 2021). To test the research model, the study will be based on a quantitative study design from 225 Saudi firms randomly selected.

The study will contribute to the literature on entrepreneurship, innovation and resilience by refining our understanding of the role of IC and FRC as mechanisms in translating EO into enhanced FP and bring new insights into how EO influences IC, FRC and FP. This study will also contribute to managerial practices by showing the importance of converting strategic EO dimensions into performance outcomes through IC and FRC in an emerging country and in a specific context. In our study, IC and FRC will be considered as internal mechanisms that boost the EO–FP link. The findings confirm the importance of these two capabilities.

The remainder of this paper is organized as follows: The next section briefly reviews the literature linking EO, IC, FRC and performance and presents the research model and hypotheses development. Section three on methods describes the research methods, including data collection procedures, measurement and strategy of analysis. In section four, the results are presented. Section five summarizes the discussion of results, addresses the implications of the findings for theory and managerial practices and suggests compelling directions for future research.

2. Literature Review

2.1. Entrepreneurial Orientation

EO has emerged as a core concept in the field of entrepreneurship (Rauch et al. 2009; Runyan et al. 2012). There is a large consensus among scholars that the main three dimensions are innovativeness, proactiveness and risk-taking. Innovativeness is the tendency to embrace new ideas, novelty, experimentation and creative processes. This can lead to

the development of new products, services or technological processes (Lumpkin and Dess 1996). Proactiveness is the ability to anticipate and respond to new developments in the business environment. It is a strategic perspective that allows firms to stay ahead of the competition and seize new opportunities (Aloulou and Fayolle 2005). Risk-taking is the willingness of a firm to engage in activities that have the potential for both positive and negative outcomes. Firms that are risk-takers are often willing to invest in new ventures, even if there is a chance of failure (Covin and Slevin 1989).

It reflects the firm's top management's willingness to engage in entrepreneurial behaviors (Aloulou and Fayolle 2005). In this study, we focus on the conceptualization of EO as referring to risk-taking as the attitudinal dimension and innovativeness and proactiveness as behavioral dimensions (Covin and Slevin 1989; Anderson et al. 2015), since similar studies conducted in Saudi Arabia validated this reconceptualization (Aloulou 2018a; Alrubaishi et al. 2021).

2.2. Innovation Capability

Innovation is defined as a process that starts with an idea, goes with its development and ends with the introduction of new products, processes and new services to the market (Calantone et al. 2002). Thus, innovation occurs if a firm has the capability to innovate. Likewise, IC refers to a firm's ability to generate, develop and implement new ideas, products/services, business models and processes that add value to the firm's stakeholders (Hult et al. 2004; Mendoza-Silva 2021; Saunila 2020). In this sense, Akman and Yilmaz (2019) defined IC as an important factor that enables innovation culture within a firm, the existence of facilitating activities and the ability to understand and respond appropriately to the external environment. It is also defined as consisting of three elements influencing the capability of a firm to manage innovation: the potential that the firm must produce innovations; systems and activities that assist the firm in enabling innovations and the results of innovation activities (Saunila 2020). All these elements can consider IC as a source of competitive advantage and the success of firms in their markets. In doing so, firms can challenge the competition (Ávila 2022).

Empirical studies on innovation have identified several conceptions/classifications of innovation in terms of type (e.g., product, process, technological or administrative) and degree of risk (incremental vs. radical) (Rajapathirana and Hui 2018). Research has shown that firms with a high level of IC are more likely to engage in innovation activities and achieve superior performance outcomes (Ávila 2022; Calantone et al. 2002; Rajapathirana and Hui 2018; Saunila 2020). IC has become critical for organizations to innovate and to sustain their FP over time.

In this study, we adhere to the definition of IC proposed by Akman and Yilmaz (2019) to cover the ideas of creating and sustaining an innovation culture, developing and implementing an innovation strategy in alignment with the overall business strategy, developing and implementing effective innovation processes and allocating and managing resources effectively to support innovation activities.

2.3. Firm Resilience Capability

To survive in uncertain environments and highly volatile times, firms must be able to handle unexpected events, react to and capitalize on them to assure their survival by building and developing a resilience capability (Duchek 2020).

The concept of "resilience" is not new but is becoming more attractive since the COVID-19 pandemic began (Aloulou 2023). Traditionally, this concept is viewed as the qualities that enable individuals, teams or organizations to cope with, adapt to and recover from adverse situations. Resilience is also viewed as a dynamic process, something to be built and developed over time.

Research has viewed FR from different perspectives: as a trait, an outcome, a process or a capability (Gayed and El Ebrashi 2023; Fiksel et al. 2015; Sabahi and Parast 2020). In this current study, we consider FRC as referring to the ability of a firm to adapt to changing

business environments and overcome challenges and setbacks. We also consider it as a firm-level capability to be sustained over time.

2.4. Firm Performance

The concept of firm performance is a broad concept that includes different dimensions of competitive, operational and managerial excellence and addresses the notion of performance over time (Chen et al. 2014; Aloulou 2019). Subjective measurements of FP have been considered an appropriate option when objective data are hard to access (Singh et al. 2016). Here, this study focuses on FP as being reflected by the top management's satisfaction with the results of their firms and impacted by strategic orientations (e.g., EO) and firm capabilities (IC and FRC).

3. Hypotheses Development

The aim of this study is to understand whether EO and IC enhance the improvement of FRC and then of FP. Considering the influence of EO (as a strategic resource) on the firm capabilities (innovation and resilience) and on firm performance, the research model is developed based on a resource-based view (Barney 2001; Zhou et al. 2005) and on dynamic capability theory (Teece et al. 1997) to explain the antecedents of capabilities and firm performance. Since EO is a strategic resource (Zhou et al. 2005), it enables the firm to develop its capabilities (innovation and resilience) and these capabilities lead to enhanced performance and can really be a source of competitive advantage (Barney 2001).

As an extension of the resource-based view of the firm, the notion of dynamic capability is suitable for innovation and resilience to solve problems, seize opportunities and mitigate threats issued from a turbulent environment (Teece et al. 1997; Sabahi and Parast 2020). It is an appropriate theoretical perspective to link innovation to resilience and to performance. In this study, we highlight the role of EO as a potential enabler for firm capabilities and performance.

Research on the EO–FP relationship is very abundant (Rauch et al. 2009; Kollmann and Stöckmann 2014; Wales et al. 2013, 2021) and empirical evidence has shown that EO has a positive impact on FP (Wiklund and Shepherd 2003, 2005). EO dimensions (EOBD and EOAD) have some variance in connection with firm performance. Some studies have argued that firms with moderate risk-taking perform better than firms displaying a too-high or low extent of risk-taking (Begley and Boyd 1987). Previous studies have also suggested that a greater extent of innovativeness and proactiveness augment FP (Lumpkin and Dess 1996, 2001). Some others have proposed a curvilinear EO–FP relationship (Tang et al. 2008). From the above, we can state the following hypotheses:

H1. *EO has a positive relationship with FP.*

H1a. *EOBD (innovativeness and proactiveness) has a positive relationship with FP.*

H1b. *EOAD (risk-taking) has a positive relationship with FP.*

Research has shown that EO is considered a determinant of IC (Akman and Yilmaz 2019; Saunila 2020; Al-Hakimi et al. 2021). Several scholars have studied the relationship between EO and IC (Akman and Yilmaz 2019; Calantone et al. 2002; Zhou et al. 2005; Alshebami 2023). Considering the three dimensions of EO, it is argued that innovativeness represents an antecedent of innovative activity (Kollmann and Stöckmann 2014; Hult et al. 2004), proactiveness shows a strong emphasis for the firm to seek new opportunities, implement innovation in its industry ahead of competitors and act in anticipation of future (Coleman and Adim 2019; Rauch et al. 2009; Wang and Dass 2017) and taking risks means making large commitments of resources toward new projects securing high returns. To increase its chance of gaining as a first mover, a firm needs to combine proactiveness with innovativeness by introducing new and original solutions perceived as a breakthrough in

the market. Firms with higher entrepreneurial risk-taking can create innovative opportunities that contribute to innovation activities by offering new products/services to their customers (Zhou et al. 2005; Wang and Dass 2017).

Accordingly, the following hypotheses are developed:

H2. *EO has a positive relationship with IC.*

H2a. *EOBD has a positive relationship with IC.*

H2b. *EOAD has a positive relationship with IC.*

IC is considered one of the significant antecedents to accomplishing superior FP. Likewise, research has shown that firms with a high level of IC are more likely to be successful, as they are able to come up with new ideas and put them into practice (Saunila 2020; Calantone et al. 2002; Rajapathirana and Hui 2018; Gunday et al. 2011). In this light, the following hypothesis is put forward:

H3. *IC has a positive relationship with FP.*

The literature on entrepreneurship and innovation has conventionally considered innovation as the specific function of entrepreneurship (Aloulou and Fayolle 2005). IC plays a critical role in mediating the relationship between EO and FP because it enables entrepreneurial firms to generate and implement new ideas and technologies and drive them to develop new products/services or processes that meet the changing market needs. Several studies have shown that IC mediates the relationship between EO and FP (e.g., Covin and Slevin 1989; Calantone et al. 2002; Wiklund and Shepherd 2003; Alshebami 2023).

Therefore, the following hypotheses are stated:

H4. *IC mediates the EO–FP relationship.*

H4a. *IC mediates the EOBD–FP relationship.*

H4b. *IC mediates the EOAD–FP relationship.*

Research has shown that there is a positive relationship between EO and FRC. In fact, firms that are more entrepreneurial in nature are inclined to be more adaptable and flexible in the face of uncertainty and change. They are better equipped to identify and exploit new opportunities and are more likely to take risks that lead to growth and success. Considering EO dimensions, it is argued that innovativeness and proactiveness have significant positive influences on FRC in adapting to environmental disruptions (Eshegheri and Korgba 2017; Xia et al. 2022; Sabahi and Parast 2020; Golgeci and Ponomarov 2013). These two dimensions can be seen as antecedents to FRC and innovativeness as one of the key enablers of it considering the idea of opportunity-oriented and first-mover behavior within a challenging business environment (Golgeci and Ponomarov 2013; Saad et al. 2021; Zighan et al. 2022). In terms of risk-taking, research has found that resilience is a significant capability that complements the traditional risk management processes in many firms when dealing with supply chain disruptions (Fiksel et al. 2015; Al-Hakimi and Borade 2020; Mandal and Saravanan 2019; Sturm et al. 2023). More empirical evidence is needed to better explore the link between EO dimensions and FRC (e.g., Gottschalck et al. 2021; Saad et al. 2021; Zighan et al. 2022). As a result, we expect a positive relationship between EO dimensions and FRC and we put forward the following hypotheses:

H5. *EO has a positive relationship with FRC.*

H5a. *EOBD has a positive relationship with FRC.*

H5b. *EOAD dimension has a positive relationship with FRC.*

The literature on organizational resilience indicates that a firm's resilience capability influences FP in the sense of considering this firm's capability as explanatory and FP as an outcome or dependent variable (e.g., Akgün and Keskin 2014; Lengnick-Hall et al. 2011; Saad et al. 2021; Dovbischuk 2022). Firms with resilience capability can adapt to unexpected events that could jeopardize their existence by taking the necessary steps and undergoing transformation (Lengnick-Hall et al. 2011). Firms improve their performance through a better channeling of resources, practices and values into the development of new products/services (Calantone et al. 2002; Hult et al. 2004; Akgün and Keskin 2014). EO dimensions can capture how firms orchestrate these resources, practices and values to work in new (re)combinations to explore new opportunities and the pursuit of new value creation (Wiklund and Shepherd 2003; Wales et al. 2013, 2021)

Several studies have examined the link between FRC and FP in the field of supply chain management (Ambulkar et al. 2015). Other studies have examined the mediating role of FRC on the EO–FP relationship (Sturm et al. 2023). However, little research has covered this stream (Coleman and Adim 2019; Dilroshan et al. 2022; Iftikhar et al. 2021). Taking all together, we can state the following hypotheses:

H6. *FRC has a positive relationship with FP.*

H7. *FRC mediates the EO–FP relationship.*

H7a. *FRC mediates the EOBD–FP relationship.*

H7b. *FRC mediates the EOAD–FP relationship.*

Considering the direct link between IC and FRC, several scholars have emphasized the importance of innovation as a key capability in enhancing FRC in the face of disruptive conditions (Sabahi and Parast 2020; Parast et al. 2019; Akman and Yilmaz 2019; Akgün and Keskin 2014; Dovbischuk 2022). For example, Akman and Yilmaz (2019) noted that IC is linked to a firm's internal processes and to its ability to respond appropriately to environmental changes. Firms innovate continuously to find solutions to external changes. Dovbischuk (2022) found that the dynamic capability to innovate reinforces the dynamic capability of the resilience of logistics service providers during the pandemic.

Considering the mediating role of IC on the EO dimensions–FRC relationship, several studies have examined this link from a supply chain perspective (Al-Hakimi et al. 2021, 2022). Other studies have investigated and validated the mediating role of innovation in other contexts (Mafabi et al. 2015; Dilroshan et al. 2022).

Finally, considering the mediating role of FRC on the IC–FP relationship, little research has covered the link without officially stating it (Dovbischuk 2022; Sabahi and Parast 2020). From the above, these hypotheses can be stated as follows:

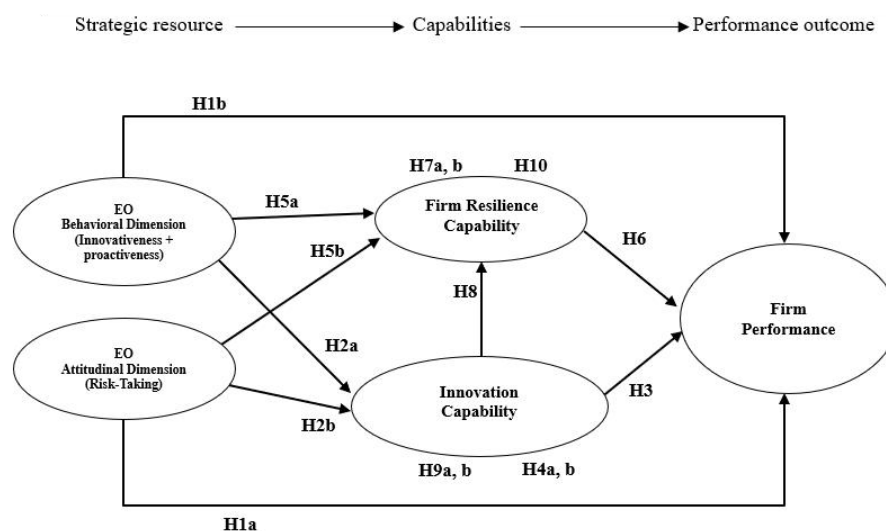**H8.** *IC has a positive relationship with FRC.*

H9. *IC mediates the EO–FRC relationship.*

H9a. *IC mediates the EOBD–FRC relationship.*

H9b. *IC mediates the EOAD–FRC relationship.*

H10. *FRC mediates the IC–FP relationship.*

The research model and hypotheses are illustrated in Figure 1.

Figure 1. The conceptual model of the study with hypothesized paths.

4. Materials and Methods

4.1. Sample and Data Collection

To gather data, we utilized a questionnaire survey method that involved an online Google form survey. The survey questionnaire included all instruments related to various constructs such as EO, IC, FR and FP, along with comprehensive information about the firms and their respondents. The original items in the questionnaire were developed based on a literature review. To ensure the accuracy and appropriateness of the language in the questionnaire, we translated the original English version into Arabic and back-translated it following Kreiser et al.'s (2002) recommendations.

We targeted a population of 384 Saudi firms according to an online sample size calculator (at least 384 observations need to be included in most studies to have s sample error of 5%). We also considered the distribution of Saudi firms across the country: about 40% of them are in Riyadh, the capital of Saudi Arabia, according to the Saudi General Authority for Statistics.

Over a period of three months from September to the end of November 2022, data were collected with the help of six final-year students who were recruited and trained as volunteer research assistants. The questionnaire link was disseminated through emails and social media platforms (LinkedIn, WhatsApp, etc.) using two nonprobabilistic sampling techniques: convenience and snowball sampling methods. These methods were used to recruit members of the management staff of Saudi firms as key informants for our study since they possess the most comprehensive knowledge about the characteristics of their organizations, their strategies and performances.

Table 1 provides a breakdown of the sample characteristics for 225 firms (with a response rate of 58.6%). It includes information on firm size, age, industry sector, firm localization, respondent's gender, function and tenure in the firm. As displayed in Table 1, more than 89% of the respondents are male. More than 64% are members from top management, 26.7% are members from middle-level management and less than 9% of respondents are firm senior consultants. A total of 89% of the respondents hold experience in the firm of more than one year. The data reveal that Saudi firms have varying sizes, with over 37% classified as small, 32% as medium and 30.7% as large. Additionally, more than 69% of the respondent firms have been operating for less than 15 years. Regarding the industry sector, 28.9% of the respondent firms are from the retail and wholesale sector, 15.6% from the manufacturing sector and 55.5% of them are from the services industry (technology, telecom and app services, tourism and hospitality, healthcare, etc.).

Table 1. Sample characteristics: firm and respondents' backgrounds (N = 225).

Background	Frequency	Percentages (%)
Firm background		
Firm size		
Less than 50 (small)	84	37.3
50–249 (medium)	72	32.0
250 and over (large)	69	30.7
Firm age		
Less than 5 years	56	24.9
Between 5 and 14 years	101	44.9
15 years and over	68	30.2
Industry sector		
Manufacturing	35	15.6
Retail and wholesale	65	28.9
Services (professional and personal)	125	55.5
Firm localization		
Riyadh region	133	59.1
Eastern region	51	22.7
Western and other regions	41	18.2
Respondents' background		
Respondents' sex		
Male	201	89.3
Female	24	10.7
Respondent' function		
Owner/Chief Executive Officer	52	23.1
Departmental Executive Officer	62	27.6
Board of Directors member	32	14.2
Middle-level management	60	26.7
Firm senior consultant	19	8.4
Respondent's tenure in the firm		
Less than 1 year	23	10.2
Between 1 and 5 years	102	45.4
Between 5 and 10	43	19.1
10 years and over	57	25.3

Source: Author's elaboration.

4.2. Measures

We collect the measures of the following constructs: EO, IC, FR and FP. Each theoretical construct is measured using a multi-item five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4.2.1. Entrepreneurial Orientation

EO is measured with 9 items from Covin and Slevin (1989). We adopted a reconceptualized construct of EO consisting of two dimensions (Anderson et al. 2015): the behavioral dimension, comprising proactiveness and innovativeness, and the attitudinal dimension of risk-taking as a managerial attitude. This reconceptualized construct was validated in previous studies in a Saudi context (Aloulou 2018a; Alrubaishi et al. 2021).

A sample item for the first dimension is: "In general, the top managers of my firm favor a strong emphasis on R&D, technological leadership and innovations". A sample item for the second dimension is: "In general, the top managers of my firm have a strong proclivity for high-risk projects (with chances of very high returns)".

4.2.2. Innovation Capability

IC is measured using the scale developed by Akman and Yilmaz (2019) and adapted by Rajapathirana and Hui (2018) to measure aspects of innovation such as innovative organizational culture, characteristics of internal processes and understanding capability of the external environment. A sample item is: "While innovation activities at your firm are carried out, our firm has an organizational culture and a management comprehension that support and encourage innovation".

4.2.3. Firm Resilience Capability

The FRC construct was originally conceptualized and measured by Ambulkar et al. (2015), then adapted by Gayed and El Ebrashi (2023) in their research on how to foster FRC amid the COVID-19 outbreak. A sample item is: "We are able to cope with changes brought by the external environmental disruption".

4.2.4. Firm Performance

FP is measured using 7 items from scales developed and adapted from previous studies (Aloulou 2018a, 2018b, 2019; Chen et al. 2014; Rajapathirana and Hui 2018). This measure exhibits attributes to assess performance, incorporates a competitive assessment and addresses the notion of performance over time (Chen et al. 2014). A sample item is: "The extent to which your firm's performance during the last 2 or 3 years, relative to all other competitors, our profitability has been substantially better" from "Much below the average" to "Much above the average".

4.3. Strategy of Analysis

We conducted an exploratory factor analysis (EFA) with SPSS software (21.0 version) to identify the latent factors that underlie the measurement items. We then conducted a confirmatory factor analysis (CFA) with AMOS software (21.0 version) to purify and empirically validate the measures in our research context.

Next, we conducted an explanatory analysis using the maximum likelihood estimation (MLE) method with AMOS software to test the hypotheses (Hair et al. 2019). Then, we chose structural equation modeling (SEM) as a suitable method to perform an analysis of both direct and indirect effects (Collier 2020) and estimate simultaneously all the hypothesized relationships in the conceptual model. A sample of 225 observations is sufficient to use SEM.

4.4. Common Method Bias

As this study undertook a survey based on self-reporting on all the variables, the issue of common method bias might arise. In line with the work of MacKenzie and Podsakoff (2012), we conducted Harman's one-factor test of all variables to measure the possible common method bias in our study.

Six factors were drawn out and the largest factor explained 43.556% (<50%) of the total variance. Therefore, no single factor has explained most of the total variance leading to the conclusion of the inexistence of common method bias.

A confirmatory factor analysis (CFA) was conducted to compare the fit indexes of a multifactor model and a single overall latent factor model in which all items designed for the questionnaire were loaded (Hair et al. 2019). The results showed that the multifactor model fits the data [$x2/DF = 1.638$; CFI = 0.951; GFI = 0.869; RMSEA = 0.053; NNFI = 0.884] considerably better than the one-factor model [$x2/DF = 4.030$; CFI = 0.759; GFI = 0.652; RMSEA = 0.116; NNFI = 0.705], indicating that no serious threat of common method bias exists in the study.

4.5. Reliability and Validity of the Measurement Model

The reliability and validity of the constructs are shown in Table 2. The findings of the exploratory factor analysis reveal that the factor loadings are significant and higher than 0.5, the KMO index is higher than 0.6 and the constructs are reliable with Cronbach's

Alphas exceeding 0.7 and composite reliability indexes exceeding 0.84. Convergent validity is also demonstrated with an average variance extracted (AVE) higher than 0.5 for each construct.

Table 2. Convergent validity and reliability of the constructs.

Construct	# Items	Factor Loadings	% Variance	KMO	Cronbach's Alpha	CR	AVE
Dependent variable							
Firm performance (IP)	FP1	0.797	63.865%	0.887	0.903	0.925	0.638
	FP2	0.822					
	FP3	0.864					
	FP4	0.738					
	FP5	0.842					
	FP6	0.759					
	FP7	0.763					
Mediators							
Innovation capability (IC)	IC1	0.811	66.256%	0.874	0.897	0.924	0.668
	IC2	0.847					
	IC3	0.834					
	IC4	0.847					
	IC5	0.795					
	IC6	0.768					
Firm resilience capability (FRC)	FRC1	0.881	72.398%	0.817	0.869	0.913	0.724
	FRC2	0.902					
	FRC3	0.863					
	FRC4	0.749					
Independent variable: entrepreneurial orientation dimensions							
Entrepreneurial orientation behavior dimension (EOBD)	Innov1	0.805	64.546	0.857	0.889	0.916	0.645
	Innov2	0.838					
	Innov3	0.857					
	Proact1	0.723					
	Proact2	0.824					
	Proact3	0.765					
Entrepreneurial orientation attitudinal dimension (EOAD)	RiskT1	0.773	64.414	0.673	0.723	0.844	0.644
	RiskT2	0.801					
	RiskT3	0.832					

Source: Author's elaboration.

The EFA results showed that the measurement items loaded on their theoretically prescribed factors, except for EO. The EO construct consists of two factors: the EO behavioral dimension (EOBD) and the EO attitudinal dimension (EOAD) that are validated in the literature (George and Marino 2011; Anderson et al. 2015) and replicated in a Saudi context (Aloulou 2018a; Alrubaishi et al. 2021). This is considered as important to distinguish the attitudinal from the behavioral aspects of EO (Miller 2011).

In addition, the CFA results showed that the measures were unidimensional, reliable and had convergent and discriminant validity.

The mean, standard deviation and correlation coefficient of all variables involved in this study are shown in Table 3. The results of the correlation analysis showed significant correlations between constructs of the study (EO dimensions, IC, FRC and FP). All the correlations between variables are significant at level 0.01 (2-tailed).

Table 3. Assessment of reliability, convergent and discriminant validity and HTMT ratio test.

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)
(1) EOBD	3.702	0.8109	**0.803**	*0.730*	*0.750*	*0.671*	*0.716*
(2) EOAD	3.559	0.8504	0.623 **	**0.802**	*0.676*	*0.462*	*0.513*
(3) IC	3.764	0.8511	0.675 **	0.576 **	**0.850**	*0.715*	*0.740*
(4) FRC	3.700	0.8372	0.527 **	0.401 **	0.634 **	**0.817**	*0.733*
(5) FP	3.849	0.747	0.645 **	0.446 **	0.668 **	0.657 **	**0.799**

Notes: S.D. = standard deviation; ** correlation is significant at the 0.01 level (2-tailed); diagonal elements (bold) are the square root of the AVE. Off-diagonal elements are correlations between constructs; true correlations of main constructs for HTMT ratio test are presented (italics) at the upper triangle of the matrix (<0.9).

From Table 3, the discriminant validity was demonstrated in two ways. First, the square root of the AVE estimated for each construct is verified to be greater than the correlation between that construct and all other constructs in the model (Fornell and Larcker 1981). Second, to avoid any ineffectiveness from the Fornell and Larcker criterion (1981) when the constructs are perfectly correlated, we used the heterotrait–monotrait ratio (HTMT) statistic to derive an estimate of the true correlations of the main constructs that must be below the threshold value of 0.9 (Henseler et al. 2015).

5. Structural Model Results

Multicollinearity and autocorrelation were correctly examined (the variance inflation factor was < 3 for all the independent variables; the tolerance indicator for predictor variables was > 0.1; the Durbin–Watson value was near the value of 2.0). An SEM analysis was performed to test the research model illustrated in Figure 1 after the satisfactory measurement model was obtained. AMOS 21.0 was used to test the hypotheses of the research model. The results from the fitting indexes indicated that the research model has a good model fitting degree [$x2/DF$ = 1.638; CFI = 0.951; GFI = 0.869; RMSEA = 0.053; NNFI = 0.884].

The first analysis concerned the test of a direct relationship among the studied variables. Then, the second analysis concerned the test of indirect relationships for mediation. The specific analysis results of the SEM are shown in Tables 4 and 5 and Figure 2.
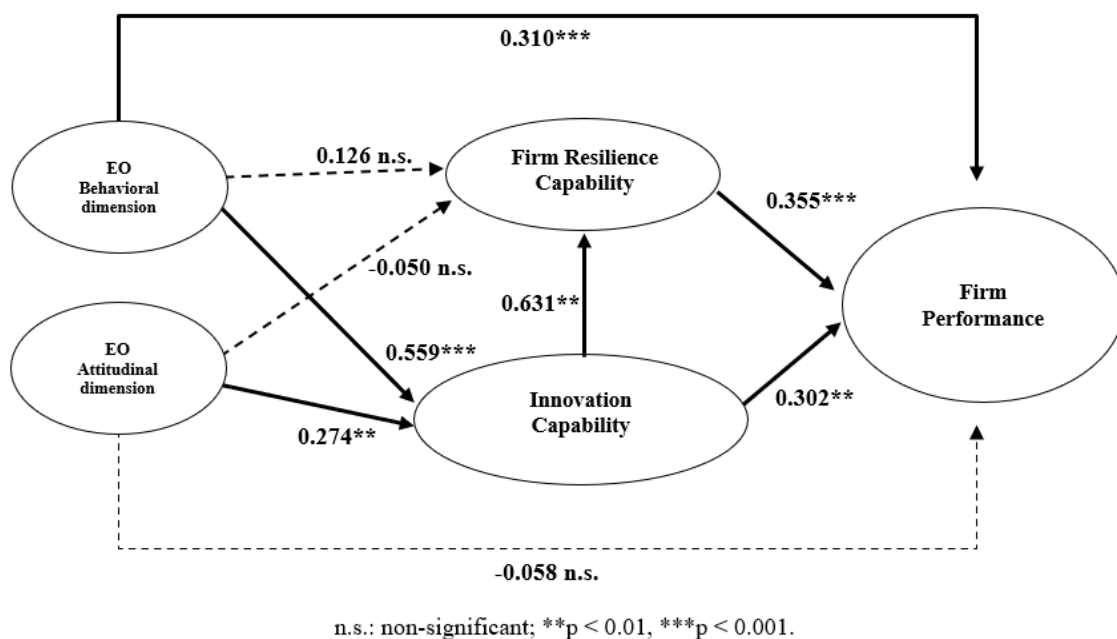
Table 4. Path analysis.

Path			Estimate	Standardized Estimate	S.E.	C.R.	*p*	Hypothesis	Result
FP	<---	EOBD	0.288	0.310 ***	0.086	3.332	***	H1a	Supported
FP	<---	EOAD	−0.069	−0.058	0.103	−0.676	0.499	H1b	Not supported
IC	<---	EOBD	0.569	0.559 ***	0.095	5.991	***	H2a	Supported
IC	<---	EOAD	0.359	0.274 **	0.121	2.957	0.003	H2b	Supported
FP	<---	IC	0.276	0.302 **	0.094	2.928	0.003	H3	Supported
FRC	<---	EOBD	0.114	0.126	0.101	1.135	0.256	H5a	Not supported
FRC	<---	EOAD	−0.059	−0.050	0.122	−0.480	0.631	H5b	Not supported
FP	<---	FRC	0.364	0.355 ***	0.081	4.518	***	H6	Supported
FRC	<---	IC	0.561	0.631 ***	0.104	5.398	***	H8	Supported

Note(s): SE: Standard errors; ** $p < 0.01$, *** $p < 0.001$. EOBD: entrepreneurial orientation behavioral dimension; EOAD: entrepreneurial orientation attitudinal dimension; IC: innovation capability; FRC: firm resilience capability; FP: firm performance.

Table 5. Summary of results of the mediating analysis.

Hypothesis	From IV	Mediation	To DV	Direct Effect	Indirect Effect	Total Effect	Mediation Test
H4a	EOBD	IC	FP	0.310 *	0.207 *	0.517 *	Partial mediation
H4b	EOAD	IC	FP	−0.058	0.130	0.072	Full (indirect-only mediation)
H7a	EOBD	FRC	FP	0.310 *	0.105	0.415 *	No mediation
H7b	EOAD	FRC	FP	−0.058	−0.021	−0.079	No mediation
H9a	EOBD	IC	FRC	0.126 *	0.353 *	0.479 *	Partial mediation
H9b	EOAD	IC	FRC	−0.050	0.173 *	0.123	Full (indirect-only mediation)
H10	IC	FRC	FP	0.302 *	0.224 *	0.527 *	Partial mediation

Notes: * $p < 0.05$. For the mediation analysis, bootstrapping was performed. The number of bootstrap samples is 5000 with 95 bias-corrected confidence intervals.

Figure 2. Standardized coefficients of the path analysis model.

From Table 4, EOBD has a positive and significant impact on FP (SEstimate = 0.288, $p < 0.001$), while EOAD has a negative and not significant impact on FP (SEstimate = −0.058, $p = 0.499$). Therefore, H1 is partially supported (H1a: supported, H1b: not supported). Moreover, EO dimensions have a positive and significant impact on IC (EOBD: SEstimate = 0.288, $p < 0.001$; EOAD: SEstimate = 0.288, $p < 0.001$), which is verified by H2 (H2a and H2b were supported). In addition, IC has a significant positive impact on FP (SEstimate = 0.302, $p < 0.01$). This result supports H3. However, EO dimensions do not have a significant impact on FRC (EOBD: SEstimate = 0.126, $p = 0.256$; EOAD: SEstimate = −0.050, $p = 0.631$), Hence, Hypotheses H5a and H5b were not supported. Finally, FRC has a positive and significant impact on FP (SEstimate = 0.364, $p < 0.001$) and IC positively and significantly influences FRC (SEstimate = 0.631, $p < 0.001$). These two results support H6 and H8.

In this study, there are two sequential mediating variables: IC and FRC. To test the mediation hypotheses, we followed the procedure of Zhao et al. (2010) and Collier (2020). According to them, it was necessary that all variables included in the mediation must correlate with each other. Accordingly, we used the bootstrapping technique to observe the indirect effects of EO dimensions on IC and on FP and of IC on FP. Then, the examination of the sequential mediation model in SEM led to the results that are presented in Table 5.

The findings uncover that IC partially mediates the relationships between EO and FP (partial mediation between EOBD and FP and full mediation between EOAD and FP). Thus,

Hypotheses H4a and H4b were (partially) supported. In contrast, the findings also reveal that no mediation of FRC was found in the relationships between EO dimensions with FP since these dimensions have no direct effects on FRC. Consequently, Hypotheses H7a and H7b were not supported. Finally, the findings reveal a full mediation played by IC on the relationship between EOAD and FP and a partial mediation on the relationship between EOBD and FP. This partially supports H9 (H9a: partial mediation, H9b: full mediation). Finally, FRC plays a partial mediation role in the relationship between IC and FP. Hence, Hypothesis H10 is partially supported.

Figure 2 displays the significant and nonsignificant paths between the main variables of the final model. Likewise, the path analysis results underlined support for Hypotheses H1a, H2a, H2b, H3, H4a, H4b, H6, H8, H9a, H9b and H10, except for H1b, H5a, H5b, H7a, H7b (expressed with dashed lines).

6. Discussion and Implications

6.1. Discussion

This study aimed to investigate the effects of EO dimensions on IC, FRC and FP. Conceptual arguments were developed to support the idea that the attitudinal (risk-taking) and behavioral (proactiveness, innovativeness) dimensions of EO should influence FRC. Empirically, the findings revealed that EO dimensions have a direct impact on IC, but an indirect one on FRC through IC. EO dimensions directly influence IC in line with previous studies (Akman and Yilmaz 2019; Calantone et al. 2002; Zhou et al. 2005; Coleman and Adim 2019; Wang and Dass 2017; Wiklund and Shepherd 2003).

Surprisingly, only EOBD, not with EOAD, is still needed to enhance FP because of its direct impact on it. Thus, EOAD has an indirect influence on FP through only IC. This may be a specificity found among Saudi firms to manifest their entrepreneurial behaviors through proactiveness and innovativeness in enhancing IC and FP. Their attitude toward risk-taking is only, however, needed to engage in innovation activities and is neither manifested in FRC nor in FP. Here, EO through its dimensions is manifested in a different way and this is useful because it allows scholars to continue theorizing about entrepreneurial firms in emerging markets (Miller 2011; Anderson et al. 2015). The manifestation of EO in two behavioral and attitudinal dimensions is specific to the Saudi context in accordance with previous studies (Aloulou 2018a; Alrubaishi et al. 2021).

The study findings also revealed that IC mediates the EO–FRC relationship and EO dimensions have indirect effects on FRC through IC. This is in line with previous studies (Al-Hakimi et al. 2021) but not with studies arguing for a direct effect (Saad et al. 2021; Zighan et al. 2022; Gottschalck et al. 2021). Once again, these divergences in findings may be credited to the distinct entrepreneurial behaviors manifested by Saudi firms' top management. Here, IC has used the full effects of EO to enhance FRC. This confirms the importance of this capability for firms that are entrepreneurially oriented.

Regarding the IC–FP relationship, our results convey that FRC partially mediates the relationship between IC and FP. This research fact increases our understanding of the influences of dynamic capabilities such as IC and FRC. As an effective mechanism, IC plays its role in improving FRC, which is in accordance with some previous studies (Ambulkar et al. 2015; Mafabi et al. 2015; Sabahi and Parast 2020; Al-Hakimi et al. 2021).

6.2. Implications for Theory and Practice

6.2.1. Theoretical Implications

This paper examines unexplored issues and suggests a new model that offers a broader view of the EO–FP relationship through IC and FRC for Saudi firms in an emerging market. It considers the key dimensions of EO in the analysis: behavioral and attitudinal dimensions.

Theoretically, the current study contributes to the literature on entrepreneurship, strategic management and innovation by examining the synergy of EO and IC on FRC and on FP. The findings show that EO (dimensions) has (have) an indirect impact on

FRC and IC fully mediates the EO–FRC relationship, but partially mediates the EO–FP relationship. As a result, IC is the critical factor in enhancing FRC for Saudi firms with an entrepreneurial focus. Moreover, the mediating effects of IC on the EO–FRC relationship have not been explored, which acts as a major contribution to this research work. The decision to invest in innovation activities is largely induced by EO dimensions to enhance FRC. The contribution has answered the question of how firms benefit from strategic resources and dynamic capabilities to adapt to disruptions and influence their performance. The effects of EO dimensions (EOBD and EOAD) as strategic resources and innovation and resilience as dynamic capabilities on FP were carefully addressed.

6.2.2. Managerial Implications

The research has yielded a series of findings that are relevant to managers. In today's fast-paced business environment, numerous Saudi firms are working hard to implement entrepreneurial orientation to stay afloat. Being entrepreneurially oriented, managers of Saudi firms should benefit from their entrepreneurial behaviors to improve IC and then FRC.

Managers should recognize the potential benefits of EO dimensions in terms of innovating and being resilient toward disruptive changes. They can achieve this by being proactive in seizing opportunities, introducing new products/services and taking risks with venture investments. It is important to note that EO dimensions, particularly the behavioral aspect, should be viewed as a means for enhancing innovation and resilience in the face of changing environmental conditions. To improve their performance, top managers of Saudi firms should invest more in their innovation and resilience capabilities by developing a culture of innovation, experimentation and learning, allocating the needed resources for R&D activities, leveraging the adequate technology to streamline processes for innovation and resilience.

7. Conclusions, Limitations and Directions for Future Research

Despite its valuable contributions, this study has some limitations that lay the foundation for future research. These limitations may affect the generalizability of the study findings. They are about the sample size and its geographical scope. For convenience, the researcher was able to reach 225 firms. Future research should consider more sampling units, opt for probability sampling techniques and target a large sample of Saudi firms in other regions of the country. Future research can explore the replication of the research model conceived by gathering and analyzing data from other similar countries regionally and globally. This study is a cross-sectional one in which key relationships were demonstrated at a single point in time and causal relationships among main research model variables may not be reflected. Future research should consider a longitudinal perspective to explore the dynamics of constructs over time.

The research findings should be interpreted with caution, owing to the subjective measures used for key constructs and data collection from a single informant. Future research should consider data collection procedures from multiple sources reflecting the involvement of respondents in making strategic orientations for their firms in innovation and resilience activities to reduce any potential biases.

This study addressed both innovation as a mediator of the EO–FRC relationship and of the EO–FP relationship, so, future research may consider other factors that may mediate these relationships. Nonetheless, this study did not consider the nature of the environment and its potential effects on the relationships identified in the conceptual model. Future research should focus on the role of the environment and consider the dimensions and characteristics that matter most in the EO–FRC and EO–FP relationships from a contingency perspective. Investigating contingency factors that influence their relationships as moderators can be a fruitful avenue for research (i.e., technology turbulence, market turbulence, digitalization or digital transformation). Ideally, future research should

consider controlling some other variables that may influence the relationships in our model (age, size, etc.).

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