Analyzing external environmental, strategic alliance, and strategic alliance of Kingdom of Saudi Arabia firms – an empirical research

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Abstract

Purpose – This study investigates the effect of strategic internal critical factors on strategic alliance performance in an emerging market, the Kingdom of Saudi Arabia.

Design/methodology/approach – Multivariate statistical analysis technique Partial Least Square-Squared Equation Model is used for data analysis considering a survey of 260 alliance managers.

Findings – Environmental complexity moderates the relationship between strategic internal critical factors and strategic performance. A significant positive effect of strategic internal critical factors on corporation strategic performance was found. It suggests that environment and strategic alliance enable alliance managers and decision-makers to translate alliance strategies and improve the overall organization's performance outcome, productivity, efficiency, availability of a product and profitability.

Practical implications – The findings disseminate beneficial implications for alliance managers regarding how they can best use their capability to maximize alliance performance. Realizing the antecedents of strategic alliance performance allows a manager to be sensitive about the influent factors and try to improve the alliance performance.

Originality/value – This paper shows how to create associations between interfirm coordination as a framework of new ventures for implementing radical technological change, firm performance in the post-innovation period, industry and firm innovative output.

Keywords Business environment, Emerging markets, Strategic alliance, Transaction cost theory

Paper type Research paper

1. Introduction

Alliances are important for firms as they assist them in complying with sustainable market demands (Huda *et al.*, 2019). Often, a strategic alliance is referred to as effective cooperation

between two or more firms that engage in strategic production and operations to enhance their performance, productivity and profitability (Aldakhil & Nataraja, 2014). Strategic alliances are a new practice that helps stimulate business development (Albers, Schweiger, & Gibb, 2013). Given the changing and rapidly growing markets, organizational networks, global competition, and expensive and complex technologies, the strategic value of the alliances is evident (Tjemkes, Vos, & Burgers, 2017). Strategic alliances are an important strategic alternative and an essential weapon in firms' arsenals for improving their strategic position. In recent times, building alliance portfolios has effectively achieved competitive advantages for the involved parties. Recently, it has drawn increased interest from business and finance practitioners, as well as from academicians.

Strategic alliances and business networks, and strategies are the mechanisms that drive a firm to success by enhancing its learning, efficiency of production, development of market focus, transfer of skills, and technology. The emergence of new global competition encourages firms to form alliances to share and exchange resources, join forces and complement the weakness of insufficient infrastructural facilities and financial resources (Muturi, Ho, Douglas, Muange, & Maru, 2015). Thus, creating a successful strategic alliance for attaining firms' goals is critical for advancing the overall performance of the firms.

Strategic alliances are a way to manage complex and unstable environments, which serves as a major ongoing interest in the strategic and organizational management field. Despite the growing interest, only a few studies have explored the impact of the environment on strategic alliances (Aldakhil & Nataraja, 2014). Primarily, the focus has been on the internal factors of strategic alliances and less on external factors, such as the environment. The environment has an important influence on firms that cannot be denied (Chen, Tang, Jin, Li, & Paillé, 2015). Therefore, this study bridges this gap and builds a better and advanced understanding of how external factors of strategic alliance affect strategic alliance performance.

The primary proximity dimensions are geographical, organizational and technological distance/relatedness between partners (Ardito, Messeni Petruzzelli, Pascucci, & Peruffo, 2019). The proximity between companies minimizes uncertainty and improves cooperation, allowing for interactive learning and the generation of new knowledge. Whereas closeness may result in unwanted information spillovers or a lack of flexibility and openness to distant knowledge sources, both stifle innovation (Capaldo & Petruzzelli, 2014). Hohberger (2014) showed that patents filed by local R&D collaborations tend to be cited earlier and Capaldo and Messeni Petruzzelli (2014) highlighted that the lower the geographical distance between the partners. Therefore, the greater the overall spillovers related to the innovations developed, both confirm the positive effect of geographical proximity between partnering organizations on the innovation process (Messeni Petruzzelli & Murgia, 2020).

The competition is very intense in an environment where organizations are in rapid change and complex at the same time. The essential source for enterprises to identify the possible opportunities and risks is information in such an environment dominated by uncertainties (Zhu & Yu, 2018). Businesses are needed to implement changes and upgrade information to sustain their competitive force in a rapidly changing world. Information is an emerging resource for organizations and individuals for creating adaptation, problem-solving, core competencies and learning new business forms (O'Dwyer & Gilmore, 2018). Firms should examine the external environment efficiently in terms of customers' changing needs and preferences and should modify to the market conditions. In this regard, strategic management can be considered as offering appropriate tools to ensure the adaptation of firms to the external environment (Zhao, Dong, & Xi, 2019).

Identifying the level to which firms must be prepared for changing effects and stresses that come from external forces is essential. The development of adequate strategies is based on the changes to the external environment and to accomplish lasting success in firms (Drewniak & Karaszewski, 2019). On the contrary, firms need to examine the existing status

in the marketplace before developing a strategy. A fundamental function was considered by managers in the process of adaptation to the external environment. In particular, the organization's relations with the external environment should be directed by managers and an apparent relation of organization among stakeholders of the external environment should be retained (Jianyu, Baizhou, Xi, Guangdong, & Tienan, 2018). Such a close interaction will encourage managers to capitalize on opportunities and avoid risks in the external environment. Therefore, enterprise management needs to understand the attributes and variety of the external environment (Liu & Hsiao, 2019).

The increased efforts of system integration may significantly impact the nature of currently established external partnerships and interdepartmental contacts. The external environment should also influence how much performance systems integrators may extract over time (Geleilate, Parente, & Talay, 2021). The expenses associated with managing complex product systems may grow in more dynamic and competitive situations due to technological advancements and the obsolescence of other strategic resources like production and R&D operations.

The main purpose of this study is to examine whether environmental complexity plays a full or partial role as a moderator between strategic alliance and alliance performance within the context of manufacture. This research contributes to the knowledge of strategic alliance and the external environment in a manufacturing context by extending the external environment to the domain of strategic alliance and strategic alliance performance outcomes. Strategic alliance performance enables alliance managers and decision-makers to translate alliance strategies into performance outcomes, yielding superior performance and offering competitive advantages. This study also contributes to alliance-based knowledge management research by exploring the moderating impact of environmental complexity on the relation between strategic alliance and strategic alliance performance. The moderating effect of environmental complexity on this relation is inconsistent in literature, particularly for an emerging economy, as previously developed economies have been focused on (Jiang, Yang, Pei, & Wang, 2016). Primarily, there is relatively less knowledge about Gulf Cooperation Council (GCC) countries, specifically Saudi Arabia, the leading country in the region. Furthermore, GCC and Saudi enterprises have faced internal and external challenges recently. On the other hand, they need to consider transformation or technical improvement for enhancing competitiveness, cooperation or integration through strategic alliances.

This paper assesses the theory, concepts and practices associated with the goals, measured outcomes and effective strategies or practices of all three strands of literature. The approach of this paper is to assess the relationship between all three elements that have yet to be empirically reviewed in the context of Saudi Arabia. Secondly, this study evaluates the points of similarity and determines what is different between the three strands of literature. This approach assists in developing theories of context that might effectively inform differences, dissimilarities or phenomena from one to the other where applicable. Thirdly, the contribution of this paper is aimed to establish insights and empirical relationships for providing viewpoints into how external and internal environments may be enhanced through strategic alliances with local communities for updating and satiating an increasing societal hunger for a more collective instance of management in Saudi Arabia.

2. Theoretical framework

2.1 Resource-based view theory

From the viewpoint of resource-based view theory, dispersion of resources across firms is the fundamental reason for the existence of strategic alliances, where resources are explained as managerial, financial, technological and other appropriate resources. Business elements can merge their resources with competitors or depend on internal resources to enhance their

performance and develop their competitiveness (Das & Teng, 2000). Developing strategic alliances is one of the core ways to join resources. In this regard, participation is an approach to gain access to significant resources of other business elements for maximizing returns on resources of an individual in a strategic alliance. According to Lado, Boyd and Hanlon (1997), profitability is increased through alliances with competitors via mutual effects of resource sharing and learning.

Producing positive interaction impacts relies on several elements under the common aspect of resource complementarity. It links to a combination of resources to maximize performance (Eisenhardt & Schoonhoven, 1996). Therefore, generating a strategic alliance offers business components access to resources that cannot be achieved otherwise. Such resources can opt for various forms, including access to distribution channels, financial and technical resources, market position, and knowledge about the market (Whipple & Frankel, 2000). The accomplishment of synergy effects is determined by partner characteristics concerning profitability and resource complementarity. According to Luo *et al.* (2007), a strategic alliance might have a negative impact on profitability if the motivation for linking is the acquisition of resources that particularly allow independent market entry. In addition, the risk of opportunistic behavior can avoid a comprehensive linkage of resources and deteriorate the profitability of each alliance partner. Lastly, a strategic alliance's effect on its partners' performance relies on the firm's absorption competence. The competence for identifying commercialization, the potential for their application and external resources demonstrate the intensity and direction of the impact of the strategic alliance on performance.

2.2 Transaction cost theory

Transaction cost theory refers to the question of economic organization by emphasizing the transaction as the unit of investigation. When a good or service is transmitted, a transaction occurs across a technologically separable interface (North, 1990). According to the theory, specific forms of economic organization will result from the efforts to reduce transaction costs and links to these forms of economic organization as governance structures. The core of the theory refers that the market governs those transactions that are classified by a low level of transaction-particular investments (Ghoshal & Moran, 1996). On the contrary, the hierarchy ranges from low to high. Some alliance forms can be observed to reduce the high transaction costs that influence three types of international transactions: the purchase of marketing services, the sale of intermediate services and the purchase of adversely protected technology (Yasuda, 2005).

3. Literature review

This section provides a foundation for discussing strategic alliance internal factors, environment and alliance performance outcomes through a review of relevant literature.

3.1 Strategic alliances

Strategic alliances are defined as collaborative arrangements between organizations that build value by creating competitive advantages and synergies provided by sharing resources, capabilities, skills, knowledge and risks (Shakeri & Radfar, 2017). According to O'Dwyer and Gilmore (2018), this is a collaborative arrangement between two or more organizations who share mutual input to identify better competitive performance by sharing resources while maintaining their own corporate identities. However, the question arises as to why firms want to engage in strategic alliances even with their direct competitors. Many scholars have provided several reasons for forming the alliance from a strategic perspective (O'Dwyer and Gilmore, 2018; Shakeri & Radfar, 2017).

3.2 Alliance formation motives

Strategic alliances and their motives are explored from three theoretical perspectives: transaction cost theory, strategic behavior theory and organizational learning theory. Transaction cost theory analyzes strategic alliance as an efficient settlement for the hazards of economic transactions (Henten & Windekilde, 2016). The strategic alliance is placed in the context of competitive rivalry and collusive agreements by a strategic behavior motivation approach to enhance market power. While strategic organizational learning approach views the strategic alliance as a medium through which organizational knowledge is exchanged and imitated.

Strategic alliance formation offers significant opportunities to firms, including the ability to expand their capabilities and optimize value. Thus, strategic alliances establishment is very important because it enables companies to gain rapid access to new technology, information and skills outside of organizational boundaries; gain economies of scale through pooling assets and resources; share risks for expensive projects; manage the firm's interdependencies and share strategic knowledge with partners (Mitsuhashi, 2002). Organizations pursue collaborative efforts to fulfill diverse business objectives as they have mutual interdependencies. These goals include gaining access to new technology or markets, benefiting from economies of scale, gaining complementary knowledge, sharing risks and combining strengths, and overcoming the weaknesses of firms. Some of the costs identified by Varadarajan and Cunningham (1995) are management's time spent negotiating, implementing and integrating the alliance, loss of flexibility and freedom of action in areas of common interest. It also highlighted information leakage to an alliance partner and the depletion of organizational capabilities in the areas of alliance activity given to the partner as factors that consume management time. A common explanation for the failure of alliances is that a partner's loss of core knowledge and competitive advantage to the firm will result from their opportunism (Jap & Anderson, 2003). A growing number of firms are forming strategic alliances and merging their interests, where about 50% are not performing as expected. Therefore, to study strategic alliances, the motivation behind them and their impact on business organizations, the following hypotheses are formed:

H1. The relationship between strategic motives of alliance formation and strategic alliance performance is likely to be positive.

3.3 Interfirm diversity

Strategic alliances are a variegated phenomenon, and their internal differences are important in theory-building efforts (López-Duarte, González-Loureiro, Vidal-Suárez, & González-Díaz, 2016). From the transaction cost perspective, interfirm diversity can lead to the opportunistic behavior of their partners thus negatively affecting alliance performance. While organizational learning theory suggests that similarities between partners may affect alliance performance because they facilitate the appropriate and articulated knowledge (Usman, Ahmad, & Burgoyne, 2019). The interactions between partnering firms in strategic alliances bring together people with diverse behavior and beliefs. Thus, interfirm diversity may have an important influence on the interaction process.

Maintaining an alliance culture is challenging because it combines and harmonizes two different organizational cultures. Various studies found that organizational cultures enable organizations to achieve their goals (Chatman, Caldwell, O'Reilly, & Doerr, 2014). In addition, these studies show how organizational culture significantly influences the types of behaviors known in alliances. For example, organizational culture commitment, collaboration, relational skills and leadership are critical for collaborative interactions. Furthermore, scholars have found that organizational culture significantly impacts practice, conflict management and innovation (Shanker, Bhanugopan, Van der Heijden, & Farrell, 2017).

Previous studies have identified how dissimilarities, especially in culture and size, negatively affect the interactions between partnering firms (Parkhe, 1991; López-Duarte *et al.*, 2016). In addition to cultural differences between partnering firms, the compatibility of partners on specific organizational attributes also affects the dissolution of interfirm cooperation. Caves and Mehra (1986) indicated that firm size, a proxy measure for the number of resources available, influences entry mode selection. Following the literature, it is proposed that

H2. The relationship between interfirm diversity and strategic alliance performance is likely to be positive.

3.4 Alliance process climate

Previous researches on strategic alliances have concentrated primarily on corporations' motivations for entering strategic alliances. These focused on studying partner characteristic variables and their vital role in alliance success while deserted the more dynamic aspects of the alliance development process. Social exchange theory places the interactions between people and organizations at the core of relationships. Like any other relationship, communication is important for an alliance to succeed (Niesten & Jolink, 2015). It allows information exchange among members of the firms within strategic alliances (Mohr & Spekman, 1994). Sambasivan, Siew-Phaik, Mohamed, and Leong (2011) acknowledged that improved communication between the partners induces trust and commitment (in a positive way) and declines the possibility of emerging distrust for their partners (in a negative way).

The literature also suggests that one of the most critical factors that determine alliance performance is the degree of trust between the partners (Jiang *et al.*, 2016) because it increases a firm's access to external knowledge and strengthens its ability to conjunct with its network partner, creating a new innovative environment. It also provides efficient ways of combining existing knowledge related to capabilities and resources to extract superior rent. Most past literature affirmed that trust and harmony promote the long-term operation of an alliance. Larson (1991) and Chang (2001) also believed that trust is essential to the success of an alliance. Therefore, when enterprises attempt to launch cooperation through a strategic alliance, they must trust one another before they can share their resources and knowledge and overcome all adversities together. When partners do not trust one another, potential conflicts will develop and break out until one cannot hold it anymore (Di Pietro & Di Virgilio, 2014). Thus, this situation leads to a formed hypothesis that

H3. The relationship between strategic alliance process climate and strategic alliance performance is likely to be positive.

3.5 Environment

The environment poses both constraints and opportunities for the firms. Therefore, adapting to environmental changes is essential to determine a firm's competitiveness. When the firms face the emergence of new global competition, fast-changing technology and an increasingly uncertain business environment, firms may prefer to form relationships such as strategic alliances when the environment is complex, munificent and dynamic; the firms tend to form strategic alliances (Chen & Lin, 2004). Based on the central idea in the strategic management literature, a strategic fit between environmental conditions and organizational capabilities and resources is critical to performance. Based on these arguments, the study posits the following hypotheses:

H4. The degree of environmental complexity positively moderates the relationship between strategic motives of alliance formation and strategic alliance performance.

H5. The relationship between alliance interfirm diversity and strategic alliance performance is strengthened for organizations with the degree of environmental complexity.

H6. Environmental complexity positively moderates the relationship between alliance process climate and strategic alliance performance.

3.6 Research model
A conceptual model was developed to investigate the relationship between strategic alliance and alliance performance (Figure 1). A multidimensional approach captures the essence of the environment's effect on the relationship between strategic alliance and alliance performance. Therefore, one dimension is embraced in the environmental factor, including complexity. Based on the intensive literature review for the internal alliance factor (independent variables), three significant variables are included, i.e. strategic motives, alliance forms and alliance process climate. The dependent variable is the strategic alliance performance. The model indicates that strategic alliance factors directly affect organizations' alliance performance. Also, it suggests that the environment plays a moderating role between these determinants and alliance performance.

4. Material and methods

4.1 Sample
The sample consists of alliance managers and alliance executives representing different business firms in Kingdom of Saudi Arabia (KSA) in the context of manufacturing companies listed in the GCC stock exchange that engaged in strategic alliances. The rationale for recruiting managers is that they are responsible for overseeing and coordinating their corporations' strategic alliance and performance. The study is based on KSA as it has fertile soil for the alliance. Most firms use an intrinsic scarcity of knowledge and technologies; therefore, they must work harder to explore opportunities from the broad external environment and obtain complementary knowledge through such strategies as strategic alliances. The inclusion criteria of the study required participants to currently manage an ongoing alliance for an average period of two years.

4.2 Data collection procedure
Following Sudman and Blair (1999), the data collection procedure comprised a series of activities consisting of multiple phone calls, faxes and e-mails over a month. After multiple contact attempts via e-mail to solicit their cooperation, 387 respondents were reached and
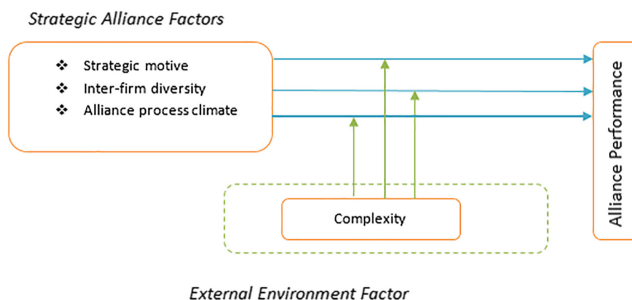

Figure 1.
Research model

judged qualified. The participants were informed that all their responses were confidential. After completing the study, they promised to be provided with a summary report to motivate the informants to participate and give true and reliable information. Of these, 260 (67%) agreed to participate, while 37 declined (14%). The survey was first prepared in English, then questionnaire items previously used in antecedent international empirical studies were translated into Arabic, reviewed by three Arabic-speaking professionals, and then translated back to English to ensure conceptual equivalence. The surveys were delivered to the 387 committed participants; however, only 260 returned questionnaires were received. Out of 260, 37 questionnaires were excluded due to missing data on measures essential for testing the research hypotheses. The useable response rate is approximately 58% and was included in the subsequent analysis.

4.3 Survey instrument development

Following recent research practices, a model based on measurement instruments for all variables used in the survey was developed per previous extensive literature reviews. Furthermore, interviews with three experts in the field were conducted to assess if the measurement scales were representative of each construct in the survey. Three academic experts also scrutinized the proposed conceptual model to refine the questionnaire and gain insights concerning how to conduct the survey. Based on the feedback, some scale items were excluded, while others were rephrased. Two pilot tests were conducted to check the reliability of the measurement items. The pilot study did not show any concern with the questionnaire's length, item ambiguity or clarity of instructions. Various statistical approaches were conducted to assess whether the measurement scales represented each construct. Also, for better results, the revised questionnaire was pretested by sending it to ten eligible informants, from which six completed questionnaires were received. These results were also excluded from the main study.

4.4 Measures

The full version of the scale consists of four variables, i.e. strategic alliance internal factors, strategic alliance performance, external environment indicator and the control variables. These variables were operationalized using their dimensions (multi-item measures), as Bagozzi, Yi, and Phillips (1991) suggested. These items were based on a five-point Likert scale (ranging from 1 strongly disagree to 5 strongly agree). Strategic alliance internal factors (independent variable) were based on prior literature. Three strategic alliances and internal factors dimensions were identified and used, i.e. the strategic motive of alliance formation (4 items), interfirm diversity (3 items) and alliance process climate (3 items).

4.4.1 Environment (moderating variables). Environmental dimensions were used to measure the effects of the environment on the relationship between strategic alliances and strategic alliance performance. The environmental dimension identified and used in this research is complexity. Complexity was assessed using a total of three items. The specific items were based on the studies of Sambasivan, Siew-Phaik, Mohamed and Leong (2013). Environment dimensions on a five-point scale (high to low level) were measured, where high scores represent a high level of complexity.

4.4.2 Strategic alliance performance (dependent variable). The area that has increasingly received more attention from researchers in strategic alliance concerns measuring alliance performance (Sambasivan *et al.*, 2011). Prior research shows significant differences in the operationalization of strategic alliance performance. No consensus on this concept's appropriate definition and measures has yet emerged. The measures of alliance performance in earlier studies could be summarized into two main categories: objective measures and subjective measures. Therefore, in this research, alliance performance was approached from subjective

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measures using goal achievement and satisfaction re-evaluation. The informants were asked to indicate the goals and objectives achieved over the past year, including six items.

4.4.3 Control variable. In common with previous recent reviews, it is found that control issues have received constant attention from the earliest literature up till now. The study included two control variables: firm size and duration, to account for additional determinants of performance in the alliance. Firm size was measured by the logarithm of the focal firm's total number of employees, while alliance duration reflects the number of years firms had used strategic alliances. This criterion is adopted from different studies (Luo, Rindfleisch, and Tse, 2007; Fink & Harms, 2012).

4.5 Data analysis

The collected data were analyzed statistically using the multivariate statistical analysis technique Partial Least Square-Squared Equation Model (PLS-SEM). PLS-SEM is a variance-based soft modeling technique, and its advantage is that it allows flexibility in multivariate normality assumptions, the ability to analyze complex models with smaller samples, use both reflective and formative constructs, can be used as a predictive tool for theory building and the ability to examine the chain of effects (Nair, Demirbag, Mellahi, & Pillai, 2018). It is commonly used in data analysis to estimate complicated connections between constructs in various topics, such as management information systems and business research (Ahammad, Tarba, Frynas, & Scola, 2017). Furthermore, PLS-SEM allows for investigating indirect and total effects, allowing for the simultaneous assessment of correlations between multi-item constructs and the reduction of overall model error (Astrachan, Patel, & Wanzenried, 2014).

5. Results and discussion

5.1 Measure reliability

The reliability test was estimated following the instructions suggested by Anderson and Gerbing (1988). Initially, a series of exploratory factor analyses was performed. Results demonstrated that factor solutions were consistent with theoretical expectations. Cronbach's α coefficient scores were used to test the main study constructs for inter-item constancy reliability. The values of Cronbach's α coefficient of latent variables and observed variables all exceed 0.80, and that of some constructs even exceed 0.87. Furthermore, the composite reliability (CR) test and average variance extracted (AVE) were checked for each construct, equal to or above 0.50 and 0.6, respectively. Thus, the measurements were found sufficiently reliable. Alpha scores, AVEs and CR are reported in Table 1. An overall five-factor confirmatory measurement model

Constructs	Sub-construct	No. of items	Cronbach's α	Composite reliability (CR)	Average variance extracted (AVE)
Strategic alliance (SA)	Strategic motive of alliance formation (SMAF)	4	0.834	0.91	0.54
	Interfirm diversity (ID)	3	0.842	0.80	0.58
	Alliance process climate (APC)	3	0.833	0.79	0.65
Environment (ENV)	Complexity	3	0.801	0.95	0.51
Alliance performance (AP)	Goal achievement (GA)	3	0.878	0.81	0.52
	Satisfaction from re-evaluation (SFRV)	3	0.821	0.93	0.58

Table 1.
Reliability and validity test of strategic alliance (SA), environment (ENV) and alliance performance (AP) constructs

was estimated, such as each measurement item was linked to its corresponding construct, and the covariance among the constructs was freely estimated. The results of confirmatory factor analysis indicated that the measurement model fitted the data reasonably well (χ^2/df = 2.36, CFI = 0.96, NNFI = 0.95, SRMR = 0.049, RMSEA = 0.078).

5.2 Common method bias

Numerous scholars (Kang, Hur, & Kim, 2014; Kock, 2015) have corresponded that common method variance is a potentially serious threat to bias in behavioral research, especially with single-informative surveys. Thus, it was sought to reduce common method bias (CMB) through procedures integrating controls using procedural and statistical remedies as Podsakoff, MacKenzie, and Podsakoff (2012) recommended. Therefore, procedural remedies were introduced by assuring the informant's anonymity, reverse coding some items and avoiding double-barreled, complex and abstract questions. Nevertheless, the correlation-based marker variable technique was used to detect the presence of CMB. Specifically, a marker variable (i.e. job experience) was used. Since it is theoretically unrelated to all dependent variables, CMB was detected by observing the correlation value(s) between the marker variable and the theoretically unrelated variable(s) in the mode. This correlation was used to calculate a CMB-corrected matrix consistent with Malhotra, Kim and Patil (2006). The statistical procedures proved that CMB did not seriously threaten the study results.

5.3 Hypothesis testing

Table 2 shows the correlation matrix for the key constructs. It was observed that the motive of alliance formation, interfirm diversity and alliance process climate are positively and significantly correlated with strategic alliance performance. Furthermore, job experience, the market variable for method bias procedure, is positively relevant to alliance performance. Structural modeling was utilized to estimate the hypotheses since it authorized the study to test all the proposed hypotheses simultaneously by estimating multiple dependent relationships between the variables. The structural model anticipated the strength and direction of relationships between variables. The strategic alliance performance is a dependent variable in the proposed model (Figure 2). Data analysis indicated that the proposed model satisfactorily fits the data. Both the absolute and incremental fit indices are above the commonly acceptable level of 0.90 (χ^2 = 72.441, GFI = 0.93, CFI = 0.94 and NFI = 0.93) and the Chi-square is nonsignificant at $p < 0.01$. As far as the structural parameters are investigated in Table 3, the structural model results show the following:

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1. Goal achievement	4.22	1.81	1								
2. Satisfaction from re-evaluation	4.24	1.52	0.68**	1							
3. Motive of alliance formation	4.09	1.93	0.62**	0.55*	1						
4. Interfirm diversity	4.00	0.88	0.46**	0.64**	0.54**	1					
5. Alliance process climate	4.07	1.26	0.54**	0.22**	0.72**	0.87*	1				
6. Job experience (MARKET)	4.58	1.75	0.04*	0.12**	0.10**	0.09*	0.05*	1			
7. Complexity	3.69	1.66	0.60	0.37**	0.39**	0.42**	0.47**	0.43**	0.62**		
8. Firm size	4.18	1.02	−0.05	0.06	0.03	−0.02	0.06	0.04	0.01	1	
9. Duration	3.99	3.50	−0.01	0.05	0.03	−0.01	−0.04	−0.03	−0.07	0.01	1

Note(s): *significant at 1%, **significant at 5%

Table 2.
Means, standard deviation and correlations between variables
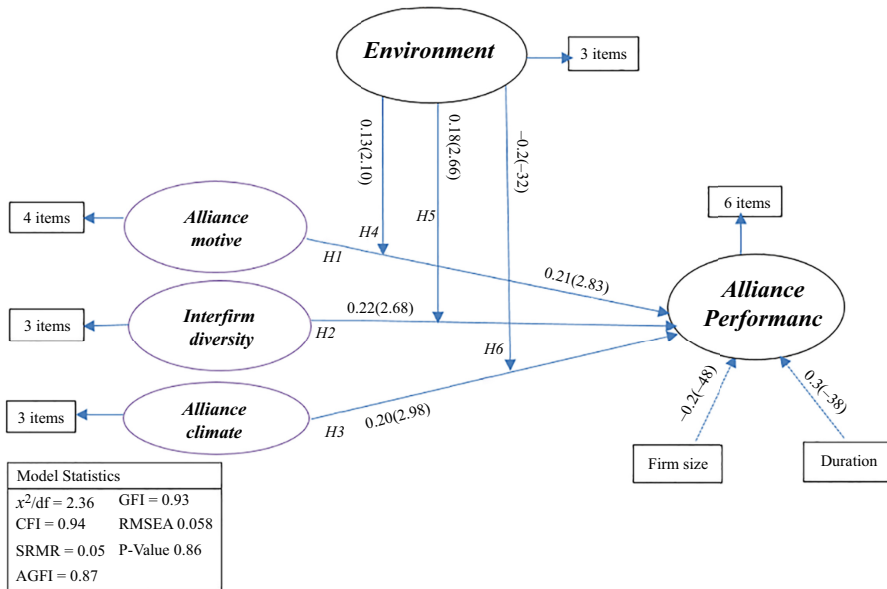
Figure 2.
Structural model result

Factors and items	Parameter estimate	t-value
Strategic motive of alliance formation (SMAF)		
SMAF 1	0.89	15.58
SMAF 2	0.80	13.44
SMAF 3	0.64	10.15
SMAF4	0.71	12.82
Interfirm diversity (ID)		
ID1	0.92	15.77
ID2	0.99	16.07
ID3	0.99	15.89
Alliance process climate (APC)		
APC1	0.64	10.02
APC2	0.80	13.42
APC3	0.89	15.54
Environment (ENV)		
ENV1	0.76	14.57
ENV2	0.91	14.60
ENV3	0.96	17.52
Strategic alliance performance (SAP)		
SAP1	0.93	16.30
SAP2	0.90	15.64
SAP3	0.90	15.96
SAP4	0.94	17.48
SAP5	0.88	14.01
SAP6	0.89	16.32

Table 3.
Measurement model
result

(1) With H1, a positive relationship between strategic motives of alliance formation and strategic alliance performance was considered. The results support H1 ($b = 0.21$, $t = 2.83$, $p < 0.01$). This implies that enough motives are the first and very important determinants of the success of strategic alliances. Firms with huge incentives would overcome difficulties that happened during the cooperation period.

(2) The result also shows that H2 and H3 were both confirmed in the analysis as the study deals with a positive relationship between interfirm diversity ($b = 0.22$, $t = 2.68$, $p < 0.01$), alliance process climate ($b = 0.20$, $t = 2.98$, $p < 0.01$) and strategic alliance performance.

(3) With H4, the degree of environmental complexity positively moderates the relationship between strategic motives of alliance formation and strategic alliance performance. The results provide support for H4 ($b = 0.13$, $t = 2.10$, $p < 0.01$).

(4) Similarly, in H5, the degree of environmental complexity positively moderates the relationship between strategic interfirm diversity and strategic alliance performance. The results support H5 ($b = 0.18$, $t = 2.66$, $p < 0.01$). These findings support the arguments that viewed the environment as a contingency variable with moderating effects between the predictor and dependent variables.

(5) However, with H6, the results did not provide support for this relationship; instead, it was revealed that the process degree of environmental complexity is negatively moderate linked between alliance process climate and strategic alliance performance ($b = -0.02$, $t = -0.32$, $p < 0.01$). None of the two control variables included in the model has significant links to performance.

6. Conclusions and implications

The central idea for this research was to examine the effect of strategic alliance critical internal factors on strategic alliance performance outcomes and investigate the moderating effect of environmental complexity on the relationship between strategic alliance critical internal factors and strategic alliance performance outcomes. The study tested six hypotheses employing a structural equation. The model found relatively strong empirical support for the factors and relationships affecting strategic alliance performance in the GCC manufacturing sector. Overall, the analysis supported the hypotheses proposed in the study, except for the hypothesis that environmental complexity positively moderates the relationship between alliance process climate and strategic alliance performance.

6.1 Theoretical contributions

The concept of strategic alliance and alliance performance outcome has been popular in literature (Li, Jiang, Pei, & Jiang, 2017). This study made several theoretical contributions to the existing literature on strategic alliance. In this study, these relationships were identified in-depth to fill the deficiency in the literature.

The conceptual model also provided a better understanding of the factors that affected the performance of strategic alliances in the KSA manufacturing context. The findings support other empirical studies on the strategic alliance field. The presented model not only presents suggestions tested to increase knowledge regarding the influence of relating factors on strategic alliance but also highlights how the constructs often researched empirically are separately integrated into the theoretical rationales' researchers posit with the variation in theoretical foundations in the literature. Specifically, this study clarified the relationship between strategic alliance and strategic alliance performance outcomes and highlighted the important role of environmental complexity in this relationship.

Strategic alliances might be demonstrated in a framework where access to the assets must be on a continuous but mutual basis regardless of destroying economic rents. Other forms might be explained on a spot basis undertaking input/output aspect. The maintenance of a broad area of coordination and cooperation is mutually associated with the prospect of the identification of significant economic rents throughout an alliance. On the contrary, international strategic alliances may also comprise explicit strategies for different national markets, which include the destruction of competition between the firms in particular markets, partially or completely. Therefore, these cooperation agreements should be considered economically or restrict competition between firms formerly working in a domestic regulated environment. A possibility cannot be ruled out that the alliance might be attempting to reduce the competence in a predefined market and artificially prevent the technological development level. On the contrary, this needs a specific investigation of the actual and future market structure, scope of current agreements, and real and potential competitors in different markets. Strategic alliances can minimize the transaction cost while conserving economic rents under specific conditions.

6.2 Managerial implications

Strategic alliances are a significant component of firms' critical strategies used by the business manager to achieve competitive advantages (Siew-Phaik, Downe, & Sambasivan, 2013). In this research, the findings disseminate beneficial implications for alliance managers regarding how they can best use their capability to maximize alliance performance. Realizing the antecedents of strategic alliance performance allows a manager to be sensitive about the influent factors and try to improve the alliance performance. It implies allowing a manager to be proactive about dealing with conflict and misunderstandings that indeed emerge during an alliance. As alliances are effective learning platforms, the lesson for alliance managers is obvious: they need to work actively at choosing fit (complement and compatible) partners, developing the routines and mechanisms to facilitate the articulation, codification, sharing and internalization of alliance know-how between alliance partners, extend firm's alliance capabilities and developing trustworthiness among firm's partner through increasing the number of prior experiences with specific or general partnering that lead to reducing the likelihood of opportunistic behavior among the alliance partners.

The contribution of this paper depends on order to create associations between interfirm coordination as a framework of new ventures for implementing radical technological change, firm performance in the post-innovation period, industry and firm innovative output. The findings have supported the idea of incumbent survival via complementary assets and the significance of distinguishing between market and technological-related abilities when implementing new technology. Viewpoints into the importance of interfirm coordination for research are offered based on extensive empirical analyses of Saudi firms. Developing interfirm collaborative relations is essential as commercial firms become more autonomous from academic research.

Saudi firms specialize in specific research areas compared to universities and research institutes. Therefore, specialization for Saudi firms for entering into alliances with other firms to achieve access to complementary technological awareness throughout the industry. Similarly, specialization encourages Saudi firms to access technological, market, manufacturing and financial resources. This is also the cause for Saudi firms to enter alliances with firms compared to generating their operations.

6.3 Study limitations and direction for future research

The study suggests exploring other control variables that affect strategic alliance and alliance performance. Secondly, this study has made a conscious attempt to investigate the

effect of the strategic alliance on strategic alliance performance, as well as examine the interaction effect of the environment on this relation in the KSA manufacturing context. It would be worthwhile to explore the more systematic impact of these relations in the service context; therefore, future research on manufacturing versus service industry comparison would be an interesting study and may result in some interesting findings. Third, KSA represents a unique economy heavily influenced by complicated culture. This raises the question of whether relationships between the internal alliance factors of this research and strategic alliance performance outcome would predict the same effects in a more open economy with a tradition of meritocracy (e.g. USA, UK). Therefore, it is hoped that this research will fuel more significant interest in forming a strategic alliance in a different culture. Finally, in common with most alliance studies, the main research variables were measured by relying on survey data, which carries the potential for self-serving bias. Future research could use longitudinal data to validate the results further. Thus, the study encourages future empirical research to facilitate greater managerial understanding, particularly the moderating effect of the environment, which would be a fruitful extension of this work.

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