Entrepreneurial Competencies and Alliance Success: The Roles of External Knowledge Absorption and Mutual Trust

Abstract

Strategic alliances are an important option for small and medium-sized enterprises (SMEs) when obtaining knowledge and information. Although existing studies suggest that entrepreneurial competencies (ECs) enable SMEs to form alliances and achieve alliance success, they overlook the role played by external knowledge absorption and mutual trust. Our study was thus aimed to address this issue by *exploring and understanding the relationship between entrepreneurial competency and alliance success.* The analysis of survey data drawn from 246 UK manufacturing SMEs suggests that the absorption of external knowledge mediates the relationship between ECs and alliance success. Moreover, mutual trust enhances the strength of the relationship between ECs and external knowledge absorption. By drawing on the relational view, our study contributes to the strategic alliance and SMEs literatures and supports a moderated mediation mechanism.

Keywords: Entrepreneurial competencies, external knowledge absorption, mutual trust, alliance success, SMEs.

1. Introduction

In today's dynamic business environment, small and medium enterprises (SMEs) are a foundation for economic growth and job creation (Lewis et al., 2020; Liu et al., 2020). SMEs account for over 95% of firms and for 60%-70% of global employment (Dabić et al., 2020). SMEs support policies that tend to reduce fiscal and administrative burdens and to offer financial support, but often neglect the constraints that SMEs face when innovating and responding to opportunities in the marketplaces (De Marco et al., 2020; Nakos et al., 2019). To compensate for their liability of smallness and their lack of resources, SMEs open themselves up and embrace strategic alliances[1] with external partners (Albats et al., 2020; Radziwon & Bogers, 2019). Such alliances provide SMEs with access to the resources and tacit knowledge that enables them to navigate through the uncertainties of today's business environment (Bouncken & Fredrich, 2016; Zahoor et al., 2020). SMEs do not benefit from strategic alliances in the same ways as large firms (Hennart, 2020; Radziwon & Bogers, 2019); therefore, we cannot benchmark examples of alliance success from multinational enterprises (MNEs) to SMEs. Thus, we still lack a detailed understanding of the mechanisms and conditions under which SMEs can attain alliance success (Sakhdari et al., 2020; Tower et al., 2021).

In light of how SMEs generate added value through external relationships for alliance success and of the small number of studies conducted on SMEs and external alliances, our study was aimed at exploring and understanding the relationship between entrepreneurial competency and alliance success. By doing so, our study increased the understanding of corporate entrepreneurship in the context of strategic alliances (Bojica et al., 2017; Hong, 2020). A growing number of studies acknowledge that strategic outcomes—such as alliance success—are enabled by entrepreneurial core processes (Jiang et al., 2020; Lans et al., 2011; Sedziniauskiene et al., 2019). Specifically, entrepreneurial competencies (ECs)—which refer to the beliefs held and behaviours engaged in by SME leaders to develop and share the strategic vision of establishing alliance relationships (Khalid & Bhatti, 2015)—are vital to develop relational commitment and achieve alliance success (Srećković, 2018). ECs enable small

[1] The term 'strategic alliances' refers to cooperative voluntary agreements made between firms to share resources or co-develop products, technologies, or services (Gulati, 1998).

entrepreneurial firms to develop creativity and a risk-taking culture, which leads to the exploitation of opportunities suited to attain alliance gains (Chen & Lai, 2017; Li et al., 2017). A strategic vision enables managers to deliberately focus on structuring their joint activities in order to be able to reach objectives in strategic alliances (He et al., 2020).

Despite increasing growth, significant gaps remain in the entrepreneurship and alliance literature. First, although scholars have considered the importance of ECs for alliance success (e.g., Khalid & Bhatti, 2015; Khalid & Larimo, 2012; Son et al., 2019), the process through which ECs lead to such success remains ambiguous. The existing literature posits that ECs encourage SMEs to break any previously specified rules and procedures and provides access to any complementary knowledge resources held by partners (Forkmann et al., 2018; O'Dwyer & Gilmore, 2018). To realize the synergic effects of complementary knowledge for alliance success, SMEs need to be able to absorb external knowledge; i.e., to share, integrate, and utilize it (Yao et al., 2013). Particularly, the absorption of external knowledge—i.e., the alliance partners' ability to organize and share the existing knowledge, gather and assimilate any complementary knowledge, and collectively generate new knowledge (Hannen et al., 2019)—is required for SMEs to take advantage of ECs for alliance success. Second, scholars have indicated that ECs promote the beliefs of managers in support of an organizational culture conducive of knowledge sharing with external partners (Bresciani et al., 2018; Gast et al., 2019). However, the conditions under which ECs promote the absorption of external knowledge remain unclear (Ghouri et al., 2019; Loon et al., 2020). Mutual trust can be a vital contingent factor suited to stimulate entrepreneurial firms to invest in ECs in order to exchange knowledge and develop external knowledge absorption activities (Rungsithong & Meyer, 2020; Zahoor & Gerged, 2021). Mutual trust relates to the belief that alliance partners will behave as expected in fulfilling their obligations (Lavie et al., 2012).

This study represents an attempt to address these gaps by drawing insights from the relational view (Dyer & Singh, 1998; Dyer et al., 2018). We argued that the absorption of external knowledge is an important mediating mechanism that links ECs with alliance success. ECs act as a relation-specific asset that promotes external knowledge absorption due to presence of knowledge sharing routines—

which, in turn, lead to alliance success (Dyer et al., 2018). Furthermore, we posit that the relationship between ECs and external knowledge absorption is contingent on mutual trust. Specifically, mutual trust acts as a governance mechanism that ensures the commitment of alliance partners, and interacts with ECs to facilitate the sharing of knowledge in order to enhance external knowledge absorption (Dyer et al., 2018; Zafari et al., 2020). Against this background, we formulated our research questions as: *(i) What is the relationship between EC and alliance success? and (ii) What are the boundary conditions that underpin the relationship between EC and alliance success?* To answer these questions, we collected data from SMEs operating in the UK manufacturing industry.

Our study contributes to the existing literature in several ways. First, it extends the research on alliance success by drawing insights from the relational view (Agostini & Nosella, 2019; Dyer et al., 2018; O'Dwyer & Gilmore, 2018). Although the existing literature has explored the relevance of ECs for alliance success (Khalid & Larimo, 2012), it has not examined the mediating mechanism by which such relevance is operationalised. Thus, we sought to obtain evidence relevant to this question by investigating the potential mediating role played by external knowledge absorption, which has been found to be crucial for SME alliance success (Najafi-Tavani et al., 2018; Pittz & Intindola, 2015). Second, although ECs have gathered scholarly attention (Bojica et al., 2017; Khalid & Bhatti, 2015), there is still a theoretical deficit in our understanding of the conditions needed for ECs when seeking external knowledge absorption. Against this backdrop, we considered the moderating role played by mutual trust, as a governance mechanism, in strengthening the relationship between ECs and external knowledge absorption (Bstieler et al., 2017).

The rest of this paper is structured as follows: first, the relevant theoretical developments are illustrated. Next, our study's methodological considerations are presented, followed by the findings obtained from the data. Our study's discussion, contributions, and conclusions then conclude the paper.

2. Theoretical Development

The investigation of the establishment of alliances among entrepreneurial firms has gained the attention of scholars since the early 1980s (Dwyer et al., 1987; Ghoshal, 1987). Such area of research began to

be considered important due to the increasing numbers of alliances that were being formed at the time. Strategic alliances are viewed as voluntary arrangements undertaken by firms to engage in co-developmental activities and share resources (Gulati, 1999). Such arrangements may take different forms, such as reciprocal trade agreements, research affiliations, joint ventures, and franchising (Lavie, 2006).

To explain the rationale for the formation, performance, and structure of alliances, several alliance research scholars have taken the resource-based view (RBV) (Gulati et al., 2000; Hagedoorn, 1993). These scholars arrived at the position of applying the RBV based on the resources confined within the boundaries of a firm that provide it with competitive advantage. The RBV defines resources as those tangible and intangible assets, organisational processes, capabilities, knowledge, information and attributes that are within the control of a firm and enable it to develop and implement strategies efficiently and effectively (Lavie, 2006). The limitations of the RBV lie in its conceptualisation of resources. First, the RBV characterises resources by means of four attributes—their rarity, inimitability, value, and non-substitutability (Amit & Schoemaker, 1993). Second, this characterisation of resources assumes that the focal firm owns and controls them (Barney, 1991).

Based on the understanding that the resources found within strategic alliances may span firm boundaries and be shared simultaneously among the firms involved (Lavie, 2006), our study relied on the relational view, which emphasizes the crucial role played by relation-specific assets, governance mechanisms, and knowledge sharing activities in generating relational rents (Dyer & Singh, 1998; Dyer et al., 2018). This was particularly in line with our focus on investigating the boundary conditions of the EC/alliance success nexus. ECs, as a relation-specific asset, engender an organizational culture suited to shape alliance relationships and establish knowledge sharing routines (Distel, 2017; Khalid & Bhatti, 2015). By relying on ECs, SMEs can smoothly exchange information with their alliance partners and engage in external knowledge absorption activities (Li et al., 2017; Najafi-Tavani et al., 2018). In turn, the absorption of external knowledge enables the retention of any knowledge relevant for mutually beneficial activities; thereby facilitating alliance success (Enkel et al., 2018; Mueller et al., 2020). Specifically, the absorption of external knowledge acts as a mediating mechanism linking ECs with

alliance success. Furthermore, by drawing insights from the relational view (Dyer & Singh, 1998), we considered mutual trust as an important governance mechanism promoting the linkage between ECs and external knowledge absorption. Therefore, we conceptualized the relationship between ECs, external knowledge absorption, alliance success, and the moderating effect of mutual trust, as shown in Figure 1.

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2.1 Entrepreneurial competencies and external knowledge absorption

EC reflect the "*capability of a firm's leaders to create and communicate a strategic vision for structuring both positive-sum and zero-sum interfirm relations*" (Lado et al., 1997, p. 125). SME managers hold beliefs and values that are instrumental for the creation of an organizational culture suited to develop strategic alliances (Khalid & Larimo, 2012). Based on the relational view (Dyer et al., 2018), ECs act as a relation-specific asset that enables SMEs to coordinate their alliance activities and promotes knowledge sharing routines for value creation. In this regard, prior studies suggest that ECs enable SMEs to increase their market share, enter new markets, introduce new services/products and form new relationships (Granata et al., 2017; Khalid & Bhatti, 2015; Knein et al., 2020). ECs involve the strategic renewal that enables SMEs to become better aligned with their external environments and to achieve a better predisposition towards alliance relationships (Sakhdari et al., 2020). As such, ECs have the potential to foster the external knowledge absorption of SMEs. Within the domain of strategic alliances, ECs emphasize the beliefs, values, and activities that managers employ to shape an organizational culture suited to the external sharing of knowledge (Bojica et al., 2017; Shu et al., 2014). The entrepreneurial beliefs of managers enable SMEs to better share complementary knowledge and acquire new knowledge from alliance partners. This contributes to the development of the knowledge assimilation mechanisms that enable SMEs to absorb external knowledge (Hughes et al., 2018). In addition, greater ECs may place SMEs in a good position to increase their heterogeneous external partners' willingness to share novel and complex information (Amaya Rivas et al., 2020; Khalid & Bhatti, 2015); this also increases the idiosyncratic exposure of SMEs to different interpretations, meanings, and relevance of knowledge (Mueller et al., 2020). Therefore, greater ECs could be expected

generate encounters suited to help SMEs to improve their external knowledge absorption by increasing opportunities for the external search for information and its internal application. (Ghouri et al., 2019; Scuotto et al., 2020). Entrepreneurial activities expose SMEs to alliance partners endowed with considerable information, which, in turn, enables them to be exposed to alternative explanations for such information and improve their external knowledge absorption.

H1. Entrepreneurial competencies are positively related to the external knowledge absorption of SMEs.

2.2 The moderating role of mutual trust

Mutual trust refers to an alliance's partners' confidence in each other's ability to fulfil their respective obligations and behave as expected (Lavie et al., 2012). It serves as a fundamental element in determining the success of an alliance relationship because trust "*constitutes a critical ingredient by which the partners and venture managers can weather the conflicts that economic and competitive changes, as well as shifts in corporate priorities, will throw their way"* (Ariño et al., 2001, p. 125). Scholars have found that mutual trust reduces transaction costs and promotes the transfer of knowledge between partners (Bidault & Castello, 2009; Sambasivan et al., 2013; Shakeri & Radfar, 2017) because, in a trustworthy relationship, "*no party to an exchange will exploit others even if there is an opportunity to do so*" (Kale et al., 2000, p. 222). Extending this line of research, we posit that mutual trust will moderate the relationship between ECs and external knowledge absorption.

Consistent with the relational view (Dyer & Singh, 1998; Dyer et al., 2018), mutual trust acts as an effective governance mechanism that guards against misappropriation in alliance relationships. When mutual trust as a governance mechanism interacts with ECs as a relation-specific asset (Dyer et al., 2018), SMEs are better equipped to share knowledge and integrate external information (Jiang et al., 2020). In this sense, while EC encourage managers to form alliances in order to unlock new knowledge possibilities, mutual trust promotes the confidence needed to share knowledge in partners (Jakobsen, 2020; Lioukas et al., 2016). Accordingly, the comprehension of tacit knowledge can

accelerate the knowledge integration process; thereby resulting in external knowledge absorption (Siachou et al., 2021).

At high levels of mutual trust, SMEs have the confidence needed to interact with their alliance partners and commit more resources to alliances (Zahoor & Al-Tabbaa, 2021). This is particularly beneficial for high-EC SMEs, which would not gain a competitive advantage when trying to integrate knowledge in the absence of appropriate governance mechanisms (Poppo et al., 2016; Rungsithong & Meyer, 2020). Therefore, mutual trust will help establish a beneficial relationship for the sharing and accumulation of knowledge between alliance partners (Zafari et al., 2020). In this sense, a high level of mutual trust helps to support ECs, which implies that high-EC SMEs can take advantage of their managers' beliefs and behaviours to establish an organizational culture suited to support any knowledge integration possibilities, thus promoting an external knowledge absorption (Jiang et al., 2020). By deepening knowledge sharing and integration, mutual trust helps SMEs to create a platform through which high levels of ECs lead to external knowledge absorption (Khalid & Bhatti, 2015; Zahoor & Gerged, 2021). Taken together, we suggested that high levels of mutual trust positively moderate the relationship between ECs and external knowledge absorption. Thus, we postulate:

> **H2.** Mutual trust moderates the relationship between ECs and external knowledge absorption; high levels of mutual trust will strengthen the positive effect of ECs on external knowledge absorption.

2.3 External knowledge absorption and alliance success

External knowledge absorption is the ability of SMEs to absorb and exploit the knowledge held by their alliance partners (Hannen et al., 2019). It is vital for SMEs to enable joint tasks and promote alliance success (Hughes et al., 2018; Yao et al., 2013). According to the relational view (Dyer & Singh, 1998), external knowledge absorption serves as an adequate routine to share and absorb knowledge for successful alliance value creation. From this perspective, the ability to absorb and exploit knowledge is important in relation to alliance partners; this is because evaluating the relevance of knowledge for cooperative goals is often difficult (Cenamor et al., 2019). External knowledge absorption enables

SMEs to fit any newly acquired knowledge within their existing one in order to create a coherent body of knowledge (Sjödin et al., 2019). In this respect, external knowledge absorption can enhance alliance success by enabling SMEs to match their own knowledge with that of their external partners in order to facilitate joint alliance tasks (Najafi-Tavani et al., 2018; Ter Wal et al., 2017). A strong external knowledge absorption makes SMEs aware of any vulnerable opportunistic tactics of partners, particularly when external relationships are dedicated to accessing implicit knowledge and unique resources (Fredrich et al., 2019). It also enhances the sensitivity of SMEs to external resources and enables the utilisation of any knowledge absorbed from such resources for learning and competitive positioning (Peng & Turel, 2020; Pittz et al., 2019). According to Enkel et al., (2018), the ability to absorb knowledge in strategic alliances helps firms to seek and achieve an optimal level of novelty and cognitive distance with diverse partners, thereby enabling successful explorative and exploitative learning and knowledge creation. Therefore, external knowledge absorption can help SMEs to reconfigure and redeploy external and internal knowledge to recognize the learning benefits embedded in strategic alliances. We therefore propose the following hypothesis:

H3. External knowledge absorption is positively related to alliance success in SMEs.

2.4 The mediating role of external knowledge absorption

To successfully achieve the intended goals underpinning the establishment of any alliances, SMEs need to recognize and assimilate any new knowledge shared within such alliances and to apply it to commercial ends. The assimilation of new knowledge by SMEs requires in-house competencies suited to enable them to understand, interpret, and realise its usefulness (Khalid & Bhatti, 2015). Without a firm's external knowledge absorption, the success of any inter-firm alliance will be at risk. For this reason, we conceptualize external knowledge as an intervening variable suited to explain the EC/alliance success nexus.

SMEs with stronger ECs are able to accumulate large amounts of information through alliance activities (Biraglia & Kadile, 2017; Hitt et al., 2011). As knowledge is exchanged through ECs, external knowledge absorption routines are required to generate and accumulate relational rents (Yao et al.,

2013). In this sense, ECs can inform the external knowledge absorption activities of SMEs, which are then utilized in the process of enacting said ECs to the end of achieving alliance success (Gölgeci & Kuivalainen, 2020; Jiang et al., 2020). This suggests that external knowledge absorption plays a mediating role in the relationship between ECs and alliance success.

For ECs to generate alliance success, external knowledge absorption is required as an intermediary learning mode suited to make the best use of any complementary knowledge and information (Hughes et al., 2018). The knowledge created through ECs can feed into external knowledge absorption due to the ability of managers to recognize and assimilate any external knowledge found in areas with which they are familiar (Distel, 2017; Vasconcelos et al., 2018). In turn, the absorption of external knowledge acts as a mechanism suited to retain any knowledge deemed relevant to any lessons learnt from the past (e.g., trends of customer demands, moves of competitors, and market opportunities) and/or applicable to any ongoing alliance activities (Fredrich et al., 2019; Yang et al., 2016). In this sense, the absorption of external knowledge facilitates the utilization of information and knowledge to the end of performing the mutual activities needed to generate alliance success. As such, the absorption of external knowledge acts as an intervening mechanism suited to link ECs with alliance success. By engaging in external knowledge absorption activities, SMEs can more effectively and swiftly respond to the needs of external partners for alliance success, but only if the knowledge absorbed is the result of information gathered through ECs. Therefore, the impact of ECs on alliance success would be better explained if we considered external knowledge absorption as being enhanced through ECs in shaping strategic alliances. Thus, we hypothesize:

> **H4.** The absorption of external knowledge mediates the relationship between entrepreneurial competencies and alliance success.

3. Methodology

3.1 Study context

From the theoretical background, it was deduced that a positivist epistemology, along with an objective ontology, were the best options for this study. The hypothesized relationships emerging from the

theoretical background were tested in the context of SMEs operating in the UK manufacturing industry. This context was particularly appropriate for the following reasons. First, there are 5.9 million SMEs in the UK, constituting 99.9% of all private businesses in the country. SMEs bolster the UK economy by contributing 47% of total revenue and accounting for 60% of all private jobs. Second, the manufacturing industry sector makes up 70% of business research and development (R&D), directly employs 2.6 million people, and constitutes 95% of the SME sector (Manufacturer, 2019). The UK stands as the ninth largest manufacturer in the world. While the manufacturing industry is vital, SMEs often face resource constraints and the liability of smallness. In this regard, researchers and practitioners advocate the development of strategic alliances to support emerging technologies and R&D, and to improve access to finance (Huggins & Thompson, 2017; Lawson et al., 2009). Thus, UK manufacturing SMEs provided an interesting context to study the relevance of ECs, mutual trust, and external knowledge absorption in SME alliance success.

3.2 Sample and data collection

Our study's sampling frame was developed from the Financial Analysis Made Easy (FAME) database, which contains comprehensive information on UK companies—such as size, industry, ownership, and so on. Following previous studies (e.g., Parida & Örtqvist, 2015; Wiklund & Shepherd, 2011), we selected our sample based on the following criteria: (1) firms with no more than 250 employees (classified as SMEs based on the UK's legal definition)[2] (Love et al., 2016; Ward, 2021); (2) firms that were independent, and not part of any larger group (Boso et al., 2013); and (3) firms that manufactured[3] products (Ganotakis & Love, 2012; Nath & Ramanathan, 2016) The criteria yielded a list of 5,034 manufacturing UK SMEs. We then removed 1,646 firms due to the unavailability of complete contact information for their CEOs or managers. From the remaining 3,388, we finally randomly selected 1,200 manufacturing SMEs covering all major cities in the UK.

[2] The definition classifies companies with no more than 10, 50, and 250 employees as micro-, small-, and medium-sized, respectively.

[3] Our focus was on manufacturing SMEs, as defined by the UK Standard Industrial Classification of economic activities (UK SIC). We considered the UK SIC's section C—'Manufacturing'—classification, which encompasses 23 divisions (excluding the repair and installation of machinery and equipment).

We collected our data by means of an online survey designed using the Qualtrics platform by embedding our questionnaire into a sharable link. The Qualtrics platform enables the collection of a significant amount of information over a short time (Statsenko & Corral de Zubielqui, 2020) and is widely utilized by researchers for data collection (Presbitero, 2020; Seepana et al., 2020). We then emailed the survey link to our respondents in the sample firms and, in turn, received a total of 246 good and complete responses. Our effective response rate of 20.5% compared favourably with the response rate achieved by other researchers from the same type of population (e.g., Boso et al., 2016). The respondents' average tenure with their firms was 4.5 years, the average age of the firms was 20.41 years, and their average number of employees was 100.15. Our sample firms were distributed across different industrial sectors: 40.2% high-technology, 32.5% medium-technology, and 27.2% low-technology.

3.3 Measures

We first generated the items to be used to measure our study's dependent variable through a literature review. These items were then fine-tuned based on the feedback received from academics in the field of strategy and entrepreneurship, followed by a pilot survey conducted on senior managers of UK manufacturing SMEs. The finalized items, which were measured on a 7-point Likert scale, are illustrated below.

Entrepreneurial competencies

To measure ECs, we adapted four items from Khalid and Bhatti (2015). Our respondents were asked to evaluate the extent to which they had created and communicated a vision for strategic alliance structuring (Sarkar et al., 2001).

External knowledge absorption

External knowledge absorption was measured by means of six items adapted from Yao et al. (2013). This dimension pertained to the aptitude of our sample SMEs to share their existing knowledge, assimilate any complementary knowledge held by their partners, and collectively generate new knowledge (Fang & Zou, 2010; Hagedoorn et al., 2018).

Alliance success

The items used to measure alliance success were adapted from Li et al. (2017) and Schilke and Lumineau (2018). They were operationalized as the degree to which our sample SMEs had fulfilled their strategic goals after participating in alliances (Kale et al., 2002).

Mutual trust

We measured mutual trust through three items derived from Poppo et al. (2016). This scale considered the existence of a shared identity that enabled partners to trust each other's actions in an alliance (Bstieler et al., 2017).

Control variables

We included several control variables to test their influence on our study's variables. First, we included *firm size* due to its potential to affect the level of a firm's alliance activities (Bstieler et al., 2017). It was measured as the natural logarithm of a firm's total number of employees. Second, we controlled for *firm age* because older firms might have possessed stronger ECs and relied on alliance practices (Jiang et al., 2016). This control variable was captured as the natural logarithm of the number of years that had passed since a firm's founding. Third, we accounted for *industry type* because firms in different industrial sectors possess distinctive competencies and skills. It was measured by means of a dummy variable set as follows: 1 = high-technology; 2 = medium-technology; 3 = low-technology. Finally, we controlled for *alliance experience* because firms with greater alliance experience might have been more successful (Schilke & Goerzen, 2010). It was assessed by the number of previous strategic alliances formed by a firm.

4. Analysis

4.1 Potential biases, reliability and validity assessment

We assessed any potential non-response bias by comparing the early and late response groupings (Armstrong & Overton, 1977). The independent T-test revealed that the two groups did not differ in relation to their industry, firm size, and other important constructs (e.g., ECs and alliance success).

Thus, we concluded that non-response bias had had no influence on our study's results (Armstrong & Overton, 1977; Rogelberg & Stanton, 2007). We also verified the respondents' knowledgeability by asking them to rate, on a 7-point Likert scale, the extent to which (1) they were familiar with their firms' alliance practices; (2) they were confident in answering the questions; and (3) they were providing accurate information (Konadu et al., 2020). Such knowledgeability analysis yielded mean scores of 6.4 for familiarity with alliance practices, 5.8 for confidence in answering the questions, and 5.5 for accuracy of information. Overall, these results suggested that informant bias was not an issue in our study.

As we relied on single informant data, it was vital to address the issue of common method bias (CMB) (Podsakoff & Organ, 1986). Following Podsakoff et al. (2003), we controlled for CMB by using ex-ante procedures such as: (1) counterbalancing the order of questions; (2) defining the key terms; (3) avoiding double-barrelled questions; (4) protecting the anonymity of our respondents; and (5) assuring our respondents that there were no right or wrong answers. We also used ex-post statistical remedies to control for CMB. First, we checked for Harman's single factor by performing an exploratory factor analysis (EFA) (Podsakoff et al., 2003); had common method bias been present, a single explanatory factor would have emerged from the EFA (Podsakoff & Organ, 1986). The EFA performed using unrotated factor solutions yielded no such single factor, and no factor was found to explain more than 33.25% of the variance (Li, 2014). Furthermore, following prior studies (e.g., Adomako et al., 2020; Carson, 2007), we performed a confirmatory factor analysis (CFA) to estimate three competing measurement models: (1) a method model (M1), in which all the items were loaded on a single latent construct: $\chi 2/df = 856.34/99 = 8.65$; RMSEA = 0.18; SRMR = 0.15; NFI = 0.59; and CFI = 0.62; (2) a trait model (M2), in which all the items were loaded on their respective latent constructs: $\chi 2/df = 104.49/93 = 1.12$; RMSEA = 0.02; SRMR = 0.04; NFI = 0.95; and CFI = 0.99; and a trait-method model (M3), in which a common factor linked all the items: $\chi 2/df = 84.21/81 = 1.04$; RMSEA = 0.01; SRMR = 0.03; NFI = 0.96; and CFI = 0.99. The results of the CFA of the three competing models showed that M2 and M3 were superior to M1, and that M3 was not materially superior to M2; thus, suggesting that CMB was not an issue in this study.

The psychometric properties of all our measures were assessed by performing a CFA by means of the AMOS 26.0 software and maximum likelihood estimation procedures. Table 1 provides the list of items, their respective factor loadings, and the results of the reliability and validity tests. The overall fit of the measurement model was considered acceptable: $\chi 2/df = 104.49/93 = 1.12$; RMSEA = 0.02; SRMR = 0.04; NFI = 0.95; and CFI = 0.99. The results confirmed the convergent validity of the measures, as the factor loadings of all the items were found to be positive and significant (Kline, 2015). In addition, the convergent validity of the items was confirmed as each factor loading was found to exceed the minimum cut-off criteria of 0.40 (Anderson & Gerbing, 1988). Furthermore, the results of Cronbach's alpha and composite reliability tests enabled acceptance because their indices were found to be higher than the suggested minimum cut-off thresholds of 0.70 and 0.60 respectively (Bagozzi & Yi, 2012; Hair Jr et al., 2017). The discriminant validity of each construct was tested using two methods. First, by means of the heterotrait-monotrait (HTMT) test (Henseler et al., 2015), which is based on the ratio between the within-construct and between-construct correlations. The HTMT test values are expected to be lower than 0.85 for theoretically dissimilar constructs and lower than 0.90 for theoretically similar constructs (Henseler et al., 2015). As Table 2 shows (above the diagonal), all constructs of our study passed the HTMT ratio test, as their values were found to fall well below the 0.80 threshold. Second, we assessed discriminant validity following the approach suggested by Fornell and Larcker (1981). As a rule of thumb, the square root of the AVE should be greater than the inter-construct correlations; as Table 3 shows, such condition was met. Thus, the results of both tests suggested satisfactory discriminant validity. The descriptive statistics and correlation estimates are provided in Table 2.

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4.2 Hypotheses testing

The hypotheses were tested utilizing the AMOS 26.0 software. The mediation hypothesis was tested by taking multiple approaches: (1) Baron and Kenny's (1986) four-step criteria, (2) the statistical significance of the indirect effect and confidence intervals (CI) (MacKinnon & Dwyer, 1993; Zhao et al., 2010), and (3) Sobel's (1982) test. When testing the moderating hypothesis, we mean-centred the

variables involved in the interaction. Multicollinearity was found to not be a threat because the highest variance inflation factor was 1.91, which fell well below the maximum threshold value of 10 (e.g., Hair et al., 2018).

The results of the hypothesized structural model suggested a good model fit: $\chi 2/df = 26.14/18 = 1.45$; RMSEA = 0.04; SRMR = 0.02; NFI = 0.96; and CFI = 0.98. Next, we employed two groups of structural models, as shown in Table 3. The first group included Models 1 to 3, with external knowledge absorption as the dependent variable, while the second group encompassed Models 4 to 7, with alliance success as the dependent variable. Models 1 and 4 were the base-line models that contained all the control variables. Model 2 added an explanatory variable to test whether ECs were associated with external knowledge absorption. ECs were found to be positively and significantly related to external knowledge absorption ($\beta = 0.38$, $p < 0.001$), thus providing support for H1. Model 3 added entrepreneurial competence, mutual trust, and interaction term to test the moderating effect. Mutual trust was found to positively and significantly moderate the relationship between ECs and external knowledge absorption ($\beta = 0.20$, $p < 0.01$), thus supporting H2. The results yielded by Model 5 ($\beta = 0.32$, $p < 0.001$) provided support for H3, which proposed that external knowledge absorption is correlated to alliance success.

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H4 posited that external knowledge absorption mediates the relationship between ECs and alliance success. Model 6 was found to suggest that ECs are positively and significantly related to alliance success ($\beta = 0.22$, $p < 0.01$), thus supporting the first condition of Baron and Kenny's (1986) mediation. The second and third conditions of Baron and Kenny's (1986) mediation are supported in Models 2 and 5, respectively. The results yielded by Model 7 were found to further show that the significance of the effect of ECs on alliance success is disappeared ($\beta = 0.12$, $p < 0.10$) when external knowledge absorption is included and has a positive effect on alliance success ($\beta = 0.28$, $p < 0.001$); thereby satisfying the final condition of Baron and Kenny's (1986) mediation. These results informally support H4. Furthermore, as shown in Table 3, the bootstrapping results were found to indicate that the indirect effect of EC on alliance success is 0.11. Furthermore, for the 95% confidence interval (CI), the

lower limit (LL) was found to be 0.05, and the upper limit (UL) 0.21. The Sobel test also confirmed the significance of the indirect effect ($Z = 3.27$, $p < 0.01$). Together, the results confirm that external knowledge absorption mediates the relationship between ECs and alliance success, thus formally supporting H4. Overall, all the hypotheses of our study were found to be supported. The results are summarized in Table 4.

---- *Table 4 About Here* -----

To check the robustness of our study's findings, we further estimated the moderation and mediation effects using the PROCESS macro software (Hayes, 2013). First, we identified a significant ECs x mutual trust interaction ($\beta = 0.14$, $p < 0.01$, LL = 0.05, UL = 0.22). This confirmed the moderation effect wielded by mutual trust on the relationship between ECs and external knowledge absorption. To further interpret this moderation effect, we followed previously recommended practices (Aiken & West, 1991; Cohen et al., 2003) and plotted the effect of the interaction between ECs and mutual trust on external knowledge absorption at ±1 standard deviation from the moderator. Figure 2 provides the graphic representation of this analysis and shows that external knowledge absorption increases with high levels of both ECs and mutual trust.

---- *Figure 2 About Here* -----

Second, we estimated the mediation mechanism using a 5,000-bootstrap sample at the 95% CI. We found that ECs have positive and significant effects on both alliance success ($\beta = 0.12$, $p < 0.05$) and external knowledge absorption ($\beta = 0.37$, $p < 0.001$). In turn, external knowledge absorption was found to be positively related to alliance success ($\beta = 0.31$, $p < 0.001$). More importantly, the indirect effect was found to be significant (Effect = 0.12, and the LL was found to be 0.05 and the UL 0.21. As the 95% CI was found to not contain 0, we concluded that ECs had a significant indirect effect on alliance success through external knowledge absorption.

5. Discussion

This study sought to examine ECs as enablers of alliance success in SMEs. We examined how and when ECs enhance the degree to which SMEs achieve alliance success by exploring the mediating role

played by external knowledge absorption and the moderating role played by mutual trust. We found that ECs promote the external knowledge absorption of SMEs. This is consistent with previous studies, which suggest heterogeneity among SME managers when considering their cognition and behavioural traits account for knowledge integration and absorption (Distel, 2017; Schweisfurth & Raasch, 2018). ECs shape the beliefs and visions of entrepreneurs in relation to the establishment of strategic alliances aimed at the sharing of knowledge and promote external knowledge absorption (Klofsten et al., 2021; Vasconcelos et al., 2018). In addition, our study showed that mutual trust moderates the impact of ECs on external knowledge absorption. This finding is in line with those of the extant research, suggesting that mutual trust acts as a governance mechanism (Dyer et al., 2018; Zafari et al., 2020). This is vital to encourage SMEs to cultivate ECs to the end of ensuring the smooth exchange of information and the enhancement of external knowledge absorption (Ebers & Maurer, 2014; Najafi-Tavani et al., 2018).

Our results further show that external knowledge absorption is positively related to alliance success. As suggested by previous studies (Fredrich et al., 2019; Gölgeci & Kuivalainen, 2020; Santoro et al., 2020), the absorption of external knowledge enables SMEs to combine it with their existing knowledge portfolios and perform with their partners joint activities that are conducive of alliance success. More importantly, our findings confirm that the absorption of external knowledge mediates the relationship between ECs and alliance success. By drawing on ECs as a relation-specific asset, SMEs can establish knowledge sharing routines suited to promote the absorption of external knowledge, thereby leading to the attainment of relational rents in the form of alliance success (Dyer et al., 2018).

5.1 Implications for theory

The objective of this study was to investigate the boundary conditions that underpin the relationship between ECs and alliance success. Such an investigation is important because the relationships between alliance partners may be complex and intense (Meschi & Norheim-Hansen, 2020). Our findings are robust and premised on various statistical tests, thus making significant contributions to the interfirm alliance debate. First, although existing studies do suggest that ECs may foster alliance success, the mechanisms that underpin this relationship remain unexplored (Khalid & Bhatti, 2015; Wittmann et al., 2009). We contributed to the literature by drawing on the relational view to suggest a complex

relationship between ECs and alliance success that is explained by mediating factors. Specifically, we hypothesized and found that the absorption of external knowledge represents a vital mediating mechanism that underpins the relationship between ECs and alliance success. This suggests that the beliefs and vision of entrepreneurs to establish alliances are not the main factor conducive to their success; rather, it is their ability to recognize, assimilate, and absorb the available external knowledge in order to perform joint activities (Kotabe et al., 2011; Sjödin et al., 2019; Zahoor & Gerged, 2021).

Second, we contributed to the alliance literature debate by highlighting the importance of mutual trust among alliance partners. ECs specifically pertain to the purposeful ability of entrepreneurs to create a vision, beliefs, and values for structuring alliances (Amaya Rivas et al., 2020; Dutta & Hora, 2017). However, SMEs might be reluctant to invest in ECs due to the perils inherent in strategic alliances, which include the risk of opportunistic behaviours and difficulties in coordinating tasks (Al-Tabbaa et al., 2019; Dubey et al., 2021). Mutual trust acts as a governance mechanism between alliance partners, reducing any tendencies to engage in opportunistic behaviours and encouraging the sharing of information among partners (Sheng et al., 2018). In the presence of high levels of mutual trust, ECs enable SMEs to establish an organizational culture of information sharing with their alliance partners, which will ultimately result in external knowledge absorption (Aliasghar et al., 2019; Xie et al., 2018). Stated differently, mutual trust strengthens the relationship between ECs and external knowledge absorption, with high degrees of mutual trust facilitating the high levels of ECs suited to facilitate the absorption of external knowledge.

5.2 Implications for practice

Our study has significant implications for practitioners. First, understanding that SMEs are limited in their ability to deploy innovative responses to the challenges and opportunities presented by the market, it highlights the importance of alliance networks as a source of knowledge for SMEs. Second, it highlights the importance absorbing external knowledge for the success of an alliance. Our model suggests that alliance partners should continue to develop their competencies in relation to the identification, exploitation, and embedding of the knowledge available in their alliance network. Third, it cautions SMEs in regard to forming relationships with heterogeneous alliance partners. This is

because the desirability of alliances resides in the reciprocity of knowledge. SMEs need assurance that their alliance partners are able to contribute knowledge that is relevant to any issues affecting the alliance. Consequently, alliance partners should seek to build mutual trust before proceeding with knowledge sharing, as this will determine the value of any knowledge shared and received in strategic alliances.

6. Conclusion

Our study was aimed at exploring and understanding the relationship between ECs and alliance success. Our results suggest that, in the presence of suitable ECs, SMEs are able to engage in successful strategic alliances. Our results further highlight the mediating role played by external knowledge absorption in the ECs-alliance success relationship. Our findings contribute to the interfirm alliance literature by explaining the dynamic complex relationship that manifests itself as a moderated mediation of mutual trust and knowledge absorption effectiveness. With SMEs continuing to face the challenge of independently navigating the perils of the business environment, and given the increasing calls for strategic alliances, our study draws the attention of scholars and practitioners to the boundary conditions that underpin successful alliances relationships.

Some limitations are associated with our research. For example, external knowledge absorption and mutual trust may be influenced by time; hence, our use of cross-sectional data drawn from a single source may be a limitation. Also, our cross-sectional approach may have limited our ability to establish causality. Thus, our recommendation is for future studies to utilise data drawn from multiple sources and, if possible, to provide a longitudinal aspect to this subject. It is also worth noting that, although our quantitative methodological approach highlighted a complex dynamic ECs/alliance success nexus, the underpinning rationale for such relationship is limited. Thus, we call for future qualitative studies to provide a deeper understanding of our findings. We are also aware of the existence of other attributes that may influence the success of an alliance, such as leadership skills. This is thus an area that could be explored further in the future.

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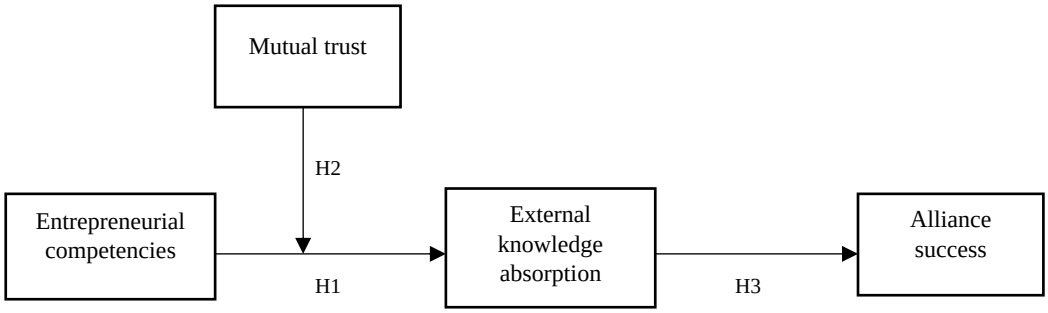

Figure 1. Conceptual model.

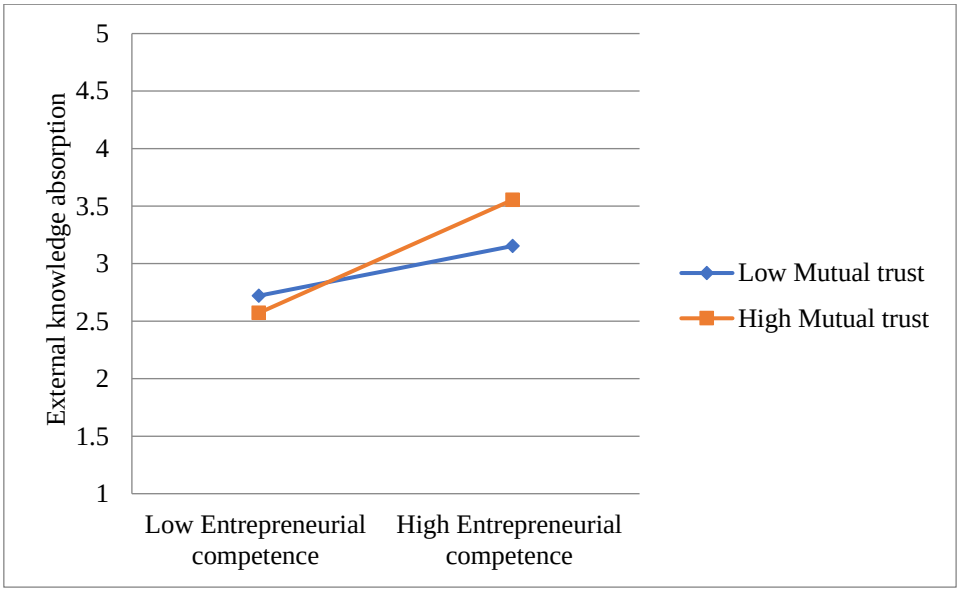

Figure 2. Interaction between entrepreneurial competencies and mutual trust.

Table 1. Constructs, measurement items, and reliability and validity tests.

Description	Standardized factor loadings
Entrepreneurial competencies (CA = 0.85; CR = 0.86; AVE = 0.62)	
The marketing personnel in our firm interact frequently with others such as distribution, finance, and manufacturing, discussing customers' future needs.	0.73
We periodically organize inter-function meetings to analyse all important market information.	0.82
The sense around here is that employee learning is an investment, not an expense.	0.90
The collective wisdom in our firm is that, if we quit learning, we endanger our future.	0.70
External knowledge absorption (CA = 0.91; CR = 0.91; AVE = 0.63)	
Our firm has been very effective in transferring knowledge among different alliance partners.	0.73
Our firm effectively acquires knowledge held by other partner firms.	0.75
Our firm effectively integrates the knowledge held by different alliance partners.	0.84
Our firm has developed a shared understanding of the knowledge held by different partners.	0.82
Our firm effectively utilizes integrated knowledge for alliance objectives.	0.80
Our firm can effectively deploy integrated knowledge into alliance activities.	0.81
Mutual trust (CA = 0.82; CR = 0.83; AVE = 0.62)	
We let our partners make decisions because we think like one another.	0.91
We feel confident that our interests are fully protected because we share a common identity.	0.72
Both parties can effectively act for the other because they share an understanding of what matters.	0.71
Alliance success (CA = 0.83; CR = 0.83; AVE = 0.62)	
Our company has achieved primary objectives by forming this alliance.	0.76
Our firm's competitive position has been greatly enhanced due to entering the alliance.	0.86
We have been successful in learning some critical skill(s) or capabilities from our partner.	0.74

Note. CA = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted.

Table 2. Correlation estimates and descriptive statistics.

No.	Construct	M	SD	1	2	3	4	5	6	7	8
1	Entrepreneurial competence	5.19	0.94	**0.78**	0.40	0.07	0.24				
2	External knowledge absorption	4.99	0.98	0.36***	**0.79**	0.13	0.38				
3	Mutual trust	4.32	1.29	0.06	0.11^	**0.79**	0.06				
4	Alliance success	5.08	1.15	0.20**	0.33***	0.05	**0.79**				
5	Firm size#	4.27	0.93	0.10	-0.02	0.01	-0.11^	1			
6	Firm age#	2.78	0.68	0.03	0.03	0.03	0.03	0.18**	1		
7	Industry†	1.87	0.81	0.02	0.06	0.19**	0.16*	0.05	0.00	1	
8	Alliance experience	1.97	0.65	0.03	0.01	-0.05	-0.04	0.15*	0.68***	-0.01	1

Notes: Square-root of AVE in bold on the diagonal; correlations between constructs below the diagonal; HTMT values are above the diagonal; M = Mean; SD = Standard deviation; # = Natural logarithm transformation of the original values; † = dummy variable; *** P < 0.001; ** p < 0.01; * p < 0.05; ^ p < 0.10.

Table 3. Results of the structural model estimation.

Independent variables	Dependent variables						
	External knowledge absorption			Alliance success			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control paths							
Firm size	-0.11 (-1.56)	0.14* (-2.16)	-0.12^ (-1.87)	-0.16* (-2.36)	-0.14* (-2.10)	0.19* (-2.72)	-0.15* (-2.32)
Firm age	0.06 (0.64)	0.06 (0.67)	0.03 (0.36)	0.12 (1.26)	0.11 (1.22)	0.12(1.30)	0.11 (1.24)
Industry	0.07 (1.08)	0.07 (1.17)	0.05 (0.80)	0.18* (2.58)	0.16* (2.42)	0.18* (2.66)	0.16* (2.49)
Alliance experience	-0.02 (-0.24)	-0.03 (-0.34)	-0.01 (-0.08)	-0.11 (-1.16)	-0.11 (-1.21)	-0.11 (-1.23)	-0.11 (-1.25)
Direct effect paths							
Entrepreneurial competencies (ECs)		0.38*** (5.66)	0.35*** (5.36)			0.22** (3.22)	0.12^ (1.73)
Mutual trust (MT)			0.10 (1.54)				
External knowledge absorption					0.32*** (4.72)		0.28*** (3.86)
Interaction paths							
EC x MT			0.20** (3.13)				
Goodness-of-fit statistics							
$\chi 2$/df	1.20	1.24	1.07	1.10	1.55	1.25	1.48
RMSEA	0.03	0.03	0.02	0.02	0.04	0.03	0.04
SRMR	0.03	0.03	0.03	0.02	0.02	0.02	0.02
NFI	0.97	0.97	0.96	0.97	0.97	0.97	0.97
CFI	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Indirect effect	***Estimate***	***95% confidence interval (CI)***	
		CI lower bound	***CI upper bound***
	0.12	0.05	0.21

Notes: Standardized coefficients are reported with T-values in parentheses; *** P < 0.001; ** p < 0.01; * p < 0.05; ^ p < 0.10.

Table 4. Summary of the hypotheses results.

Structural paths	Standardized path coefficient	*p*-Value	Conclusion
H1: Entrepreneurial competencies → External knowledge absorption	0.38	< 0.001	Supported
H2: Entrepreneurial competencies * Mutual trust → External knowledge absorption	0.20	< 0.01	Supported
H3: External knowledge absorption → Alliance success	0.32	< 0.001	Supported
H4: Entrepreneurial competencies → External knowledge absorption → Alliance success	0.28	< 0.001	Supported