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Strategic Agility of SMEs in Emerging Economies: Antecedents, Consequences and Boundary Conditions

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Abstract
This study investigates the effects of firm-level capabilities, and their relationships with strategic agility and the international performance of small and medium-sized enterprises (SMEs). Using time-lagged data from 233 internationalizing SMEs from Ghana, we test the direct relationships between SMEs' capabilities and strategic agility. Additionally, we examine the indirect relationships between technological and networking capabilities and superior performance in international markets through the mediating mechanism of strategic agility. We also investigate the moderating effects of environmental dynamism and internationalization knowledge on the relationship between strategic agility and international performance. Our findings provide a nuanced view of the relationship between the firm-level capabilities, strategic agility and SMEs' international performance.

Key words: *Ghana; strategic agility; networking capability; technological capability; market environment; SMEs*

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1. Introduction

The paradigmatic shifts in globalization, including increasing international conflicts and trade wars, compounding global health crises, and intensifying digitalization over the last two decades have significantly affected the nature of competition that firms experience and their performance (Ghauri, Strange & Cooke, 2021; Lee & Trimi, 2021). This increasingly dynamic and complex environment requires firms to effectively and quickly respond to the changes in order to attain and sustain competitive advantage (D'Aveni, 1994). Researchers argue that firms need to develop high levels of capabilities to not only maintain their market status, but also move into new domains to exploit market opportunities (Hoonsopon & Puriwat, 2019; Weber & Tarba, 2014; Junni, Sarala, Tarba, & Weber, 2015). While a "hypercompetitive" environment presents challenges to all firms (D'Aveni, 1994), these challenges are more acute for small and medium-sized enterprises (SMEs) due to their limited financial and managerial resources (Zhang, Sarker & Sarker, 2008). Thus, it is essential for SMEs to astutely build key capabilities to handle extreme changes, survive unprecedented threats and capitalize on emerging business opportunities (Musteen & Ahsan, 2013; Singh, Garg, & Deshmukh, 2009; Sommer, 2015).

Although the importance of developing firm capabilities to enhance firm performance is widely recognized, empirical evidence remains unclear. For instance, Terziovski (2010) find an insignificant negative relationship between technological capabilities and SME performance. In contrast, findings from the information technology literature indicate that IT capabilities lead to higher SME performance (Zhang et al. 2008) and enhance firm agility (Ashrafi et al. 2019; Lu, & Ramamurthy, 2011). Consistent with these findings, Teece, Peteraf and Leih (2016) suggest that strong capabilities are essential for developing strategic agility, and agility is necessary to operate in dynamic and complex environments. In general, strategic

agility typifies the organizational ability to mobilize internal resources and expertise or devise novel business models to effectively and quickly respond to changing business circumstances (Weber & Tarba, 2014; Junni et al. 2015).

Two distinct types of capabilities are particularly important in today's globalized and digitalized world – networking and technological capabilities. Networking capability is associated with the social relations, contacts and networks across organizations (Peng & Luo, 2000). These capabilities are crucial for firms since they provide vital market mechanisms for gathering new information and gaining a deeper understanding of the changing environment, which in turn enables firms to respond to the changes and sustain competitive advantage (Mair, Marti, & Ventresca, 2012; Narooz & Child, 2017). Furthermore, the networks that SMEs develop with customers, suppliers and partners enable them to collaborate with these groups to enhance their products/services (Bradley, Meyer, & Gao, 2006; Reypens, Lievens, & Blazevic, 2016). Complementarily, technological capabilities allow firms to quickly respond to the changing environment. The term technological capabilities refer to the ability of firms to utilize relevant technologies to develop new products/services, operate facilities and conduct sales/marketing activities (Reuber & Fischer, 2011; Teece et al., 1997). Such technological capabilities are considered important strategic resources that enable firms to achieve competitive advantage within their industry (Duysters & Hagedoorn, 2000).

Together, networking and technological capabilities enable SMEs to understand and address supply-side and demand-side changes (Ngugi, Johnsen, & Erdélyi, 2010; Partanen, Kohtamäki, Patel, & Parida, 2020; Wagner, Fillis, & Johansson, 2003). Furthermore, prior research acknowledges that SMEs often take advantage of networking and technological capabilities to compete with larger firms and thrive in fast-changing environments (Mathews et al., 2016; Musteen, Ahsan, & Park, 2017; Parida & Örtqvist, 2015). This suggests that networking and technological capabilities improve SMEs' capacity to quickly respond to changes (e.g., supply chain reconfigurations, shifting customers' needs), and develop and

commercialize innovative products/services. That is, these capabilities can potentially enable strategic agility, which consequently could enhance international performance.

As strategic agility is particularly important in dynamic and complex environments, we contend that environmental dynamism serves as an important moderator in the relationship between strategic agility and international performance. Environmental dynamism is the level of volatility and unpredictability firms encounter in their business environment (Dess & Beard, 1984; Jansen, Vera, & Crossan, 2009). Scholars argue that environmental dynamism increases the level of uncertainties firms experience and this makes it challenging to quickly respond to the changes (Ahammad, Basu, Munjal, Clegg, & Shoham, 2021). Under such conditions, agile firms will likely have higher performance as they are better positioned to operate in dynamic environments. Similarly, we argue that internationalization knowledge moderates the relationship between strategic agility and international performance. Firms with internationalization knowledge can better leverage strategic agility to capitalize on opportunities and enhance their performance (Cheng, Zhong, & Cao, 2020; Nemkova, 2017).

This study combines the resource-based view (RBV) (Barney, 1991) and the capability-building perspective (Eisenhardt & Martin, 2000; Teece et al., 1997) to investigate the effect of firm-specific capabilities (i.e., technological and networking capabilities) on SMEs' international performance. Specifically, we examine the mediating role of strategic agility on the relationship between firm-specific capabilities and SMEs' international performance. Our proposition is that SMEs' technological and networking capabilities can drive the development of strategic agility, which can help SMEs to cope in today's highly uncertain, globalized and digitalized environment and enhance their international performance. Using time-lagged data from 233 internationalizing SMEs operating in Ghana, we investigate the above-proposed relationships.

This paper offers several important contributions to the literature. First, we extend our understanding of the relationship between capabilities and strategic agility. Previous studies

have primarily focused on IT capability (e.g., Lee, Sambamurthy, Lim, & Wei, 2015; Lu, & Ramamurthy, 2011). By examining networking and technological capabilities, we gain a broader understanding of the relationship between capabilities and strategic agility. It is critical to better understand this relationship as strategic agility is a key asset needed to navigate uncertain and competitive environments (Worley & Lawler, 2010) and maintain market advantages (Junni et al., 2015). Indeed, scholars have suggested that organizational survival is often predicated on developing and utilizing high levels of strategic agility (Lewis, Andriopoulos, & Smith, 2014; Weber & Tarba, 2014).

Second, we examine the mediating effect of strategic agility on the relationship between networking and technological capabilities and SMEs' international performance. Prior studies have indicated that strategic agility has a positive effect on firm performance (Queiroz et al., 2018; Weber & Tarba, 2014). However, most of the existing evidence is from studies conducted on established firms in developed economies. SMEs in developing economies differ from those in mature economies. For example, it has been established that firms in developing economies face financial resource constraints that limit their ability to internationalize successfully (Peng, 2003). Thus, the need to extend our understanding on the international performance of SMEs from a developing country context is crucial as SMEs in these contexts are rapidly internationalizing (Adomako, Opoku, & Frimpong, 2017; Lau & Bruton, 2008).

Third, we seek to extend the existing international business (IB) literature (e.g., Gölgeci et al. 2019; Lu, Zhou, Bruton, & Li, 2010) by examining conditions under which the proposed predictors of international performance may be more or less effective. Accordingly, we test the moderating effects of two important variables (environmental dynamism and internationalization knowledge of the firm) on the relationship between strategic agility and SMEs' international performance. This is important given the lack of clarity regarding the buffering factors that may affect this relationship. Since the level of environmental dynamism affects firms' and managers' behaviours (Adomako et al., 2019; Cadogan, Kuivalainen &

Sundqvist, 2009; Raven, McCullough & Tansuhaj, 1994), it is reasonable to expect that this situational variable may help to illuminate the conditions under which strategic agility influences SMEs' international performance. In addition, the inclusion of SMEs' internationalization knowledge is crucial given that it can significantly influence their strategic behaviour (Zhou, Barnes & Lu, 2010). Thus, we argue that, when the firm is experienced in the international market, the potency effect of strategic agility in driving international performance is enhanced. Thus, by examining relevant external and internal firm conditions that affect the relation between strategic agility and SMEs' international performance, this paper highlights some of the conditions that affect this relationship.

2. Theoretical background and hypotheses

2.1 Strategic agility as a dynamic capability

Strategic agility has received substantial attention in the popular business press and academic literature (Doz, 2019; Weber & Tarba, 2014; Wilson & Doz, 2011). Arguably, the concept of strategic agility reflects a firm's ability to constantly adapt to the dynamic and unpredictable business environment (Doz, 2019; Doz & Kosonen, 2008a; Junni, Sarala, Tarba & Weber, 2015). More specifically, strategic agility is grounded in the concept of dynamic capabilities, which refers to "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 516). In other words, strategic agility enables firms to quickly sense and seize opportunities. Accordingly, strategic agility is conceptualized as three meta-capabilities, entailing strategic sensitivity, resource fluidity and leadership unity (Doz, 2019; Doz & Kosonen, 2008a; 2008b).

Dynamic capabilities entail the development of capabilities across functional areas of the business to enhance the sensing, seizing and transforming capabilities in the firm's environment to enhance its market competitiveness (Teece, 2007; Teece, Peteraf, & Leih, 2016). By developing such distinctive capabilities, firms can create value by utilizing their

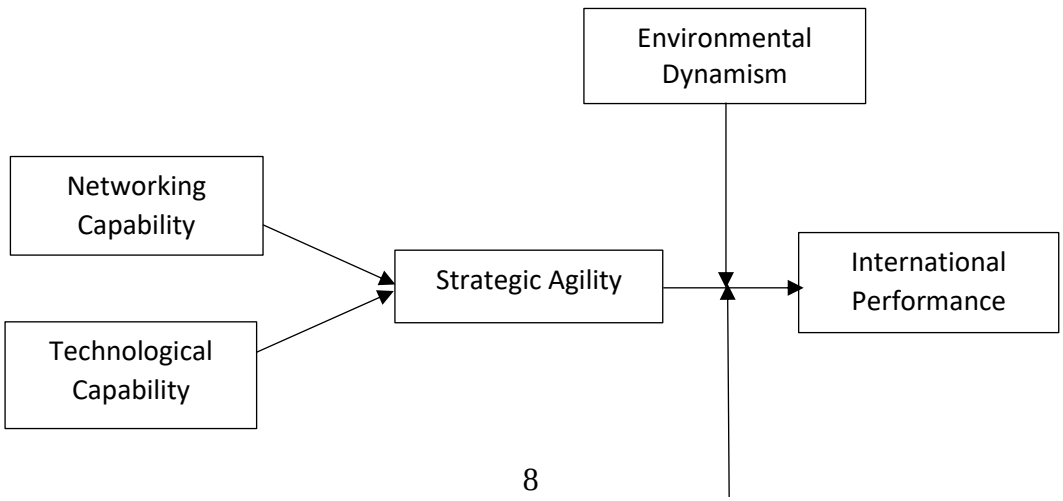
strategic assets (Helfat & Peteraf, 2009; Narayanan, Colwell, & Douglas, 2009; Teece, 2009). The ability to sense and exploit opportunities is closely linked to organizational learning, which helps put a firm on a firmer footing (Teece, 2007). Although dynamic capabilities do not just translate into improved performance (Zahra, Sapienza, & Davidsson, 2006), the utilization of the capabilities and the firm's capacity plays a key role in delivering the potential gains. One such potential gain is the development of strategic agility.

As observed by Christopher (2000), agility refers to "a business-wide capability that embraces organizational structures, information systems, logistics processes, and, in particular, mindsets" (p. 37). A pivotal feature of agile firms is flexibility in identifying and quickly responding to changing market circumstances (Christopher, 2000; Teece et al., 2016). Indeed, past studies indicate that agility is a unique capability of firms in changing and unpredictable business contexts (Junni et al., 2015). Apparently, strategic agility entails identifying and attending to multiple competing forces that affect the business and shape its interactions with different stakeholders to innovate and enrich firm competitiveness (Lewis et al., 2014). Organizational leaders play a key role in driving efforts and instituting processes, developing the knowledge base, expertise and resource commitments to aid firms to develop agility (see Lewis et al., 2014). Thus, agility is a "dynamic organization design capability" and a key pillar of firms' market competitiveness (Worley & Lawler, 2010, p. 194).

In this study, we argue that technological and networking capabilities enable strategic agility for the following reasons. First, a firm's technological capability is considered a critical strategic resource that allows the firm to achieve competitive advantage over its rivals (Duysters & Hagedoorn, 2000). For instance, firms with superior technological capabilities are more innovative in responding to dynamic environmental changes (McEvily et al., 2004), which enables them to perform at high levels. Simply put, technological capabilities allow a firm to efficiently perform various activities such as sales & marketing, product development and supply chain management. Second, SMEs' networking capability in the domestic market

allows them to gain access to network resources that facilitate firms to develop innovation (Boso et al. 2013; Li & Zhou 2010). For example, greater networking activities can enhance effective communication between an innovating firm and its partners, therefore helping efficient coordination of logistical resources (Dahlander & McFarland 2013). In addition, social capital theory suggests that relationships established through networking activities provide strategic resource for SMEs by allowing them to access the resources embedded in these relationships (Acquaah, 2007; Adler & Kwon, 2002; Bourdieu, 1986). In fact, social networks serve as pipelines for resources, opportunities and information that can all benefit firm performance (Gargiulo & Benassi, 2000), especially in SMEs given their weak resource base (Walker, Kogut & Shan, 1997).

Furthermore, we argue that, when SMEs develop new capabilities that facilitate an effective and rapid response to a changing environment, this likely enhances their performance. We also contend that when environmental dynamism and firms' knowledge of internationalization are high the benefit the SMEs obtain from their strategic agility is greater. Thus, strategic agility refers to the ability to mobilize resources and capabilities to respond to unplanned and sudden events and changing circumstances in a timely manner (Vinodh et al., 2010), whereas capabilities entail skills, operational insights, and local and international knowledge (Spanos & Prastacos, 2004). We present the foregoing argument in our conceptual model (Figure1) below:



Internationalization Knowledge

Figure 1: Conceptual model

2.2 The effects of networking capability on strategic agility

One of the key objectives of this paper is to examine whether an SME's networking capability affects its strategic agility in a less developed country context where formal institutions are weak and underdeveloped. Accordingly, we utilize insights from Nahapiet and Ghoshal's (1998) social capital theory as a guiding theoretical framework to examine this relationship. Stam and Elfring (2008) argue that social capital can increase the leverage and power of internal resources within firms, thus aiding them to build internal capabilities. We extend this logic to contend that social capital could beneficially affect strategic agility. According to Zhang, Tansuhaj and McCullough (2009, p. 298), networking capability can be defined as a firm's "ability to obtain resources from the environment through alliance creation and social embeddedness to use in its activities in foreign markets". Network competence relates to the ability to develop, maintain and nourish collaborative ties with different players (Mitrega, Forkmann, Ramos & Henneberg, 2012). In particular, we focus on SMEs' relationships with customers and partners.

Research indicates that networking capabilities can facilitate business activity in challenging environmental contexts such as those observed across many emerging and developing economies (Peng & Shekshnia, 2001; Zhang et al, 2015; Zhu et al, 2017). Forming relationships with suppliers, distributors and customers can help business owners/CEOs overcome supply-side and demand-side uncertainties by providing them with valuable information to quickly navigate and overcome the challenges, thus aiding the development of

strategic agility. That is, customer and partner networks are more likely to make the SMEs attentive to changes in the market, attune to changing customers' demand, and thereby enable strategic agility through the acquisition of novel knowledge. In addition, a growing body of research demonstrates that networks play an important role in equipping firms to accumulate market knowledge (Chetty & Holm, 2000; Phelps, Heidl, & Wadhwa, 2012) and identify and exploit new market opportunities (Mort & Weerawardena, 2006; Weerawardena et al., 2019). Research has shown that cultivating customer and partner networks and accompanying competences can underpin a firm's market competitiveness (Bradley et al., 2006; Mitrega et al., 2012; Phelps, Heidl, & Wadhwa, 2012). Given these privileges associated with networking activities in developing economies, the uncertainty that SMEs experience in such markets is likely to be overcome through managerial action (McMullen & Shepherd, 2006). That is, networks could help SMEs in developing economies overcome resource constraints by providing them with valuable knowledge, thereby facilitating strategic agility (Teece et al., 2016; Weerawardena et al., 2015). Thus, we suggest that:

H1a: *Networking capability is positively related to strategic agility*

2.3 The effects of technological capability on strategic agility

A firm's technological capability is considered an important strategic resource that enables the firm to achieve competitive advantage over its rivals in an industry (Duysters & Hagedoorn, 2000; Cavusgil & Knight, 2015). Technological capabilities are guided by the internal routines and procedures of firms, which are crucial for SMEs' long-term success and development of new products (Lee, Lee & Pennings, 2001; Zheng, Liu, & George, 2010). Previous studies indicate that technological capabilities encompass a broad range of technologies and processes such as technology-driven production systems, manufacturing processes, information technologies and technical/engineering acumen of the business (Parida & Örtqvist, 2015; Shin, Lee, Kim, & Rhim, 2015). Arguably, technologically advanced firms can gain efficiency by embarking on process innovation (Teece et al., 1997).

In addition, it is well established that technological capability allows firms to be efficient (Aw & Batra, 1998), innovative (McEvily et al., 2004; Teece et al., 1997) and operationally superior (Tsai, 2004). For instance, technological capabilities also allow firms to efficiently manage their supply chain and gain deeper insights on market trends (Figueiredo, 2002; Srinivasan, Kekre, & Mukhopadhyay 1994; Trainor, Andzulis, Rapp, & Agnihotri, 2014). Moreover, a firm's technological capability determines its ability to undertake R&D and thus boost its ability to develop new product categories (Weber & Tarba, 2014). Given the advantages associated with technological capability, it is reasonable to expect that it can enable SMEs to be flexible in uncertain environments as well as allow them to swiftly adjust their strategic direction to seize opportunities that create value. Hence, we hypothesize that:

H1b: *Technological capability is positively related to strategic agility*

2.4 The mediating role of strategic agility

We propose that strategic agility mediates the relationships between technological and networking capabilities and international performance. Given that strategic agility is characterized by a set of actions related to adaptability in dynamic and disruptive environments (Doz & Kosonen, 2010; Weber & Tarba, 2014), it requires different sets of actions that are new to the organization. The frequent modifications needed to business models to align strategically with the changing environment require firms to have sense-making agility to quickly identify opportunities, and, correspondingly, firms need to swiftly change their organizational and operational processes to capitalize on the opportunities. In other words, sense-making agility enables firms to quickly identify new market opportunities, and, complementarily, operational and market capitalizing agility allows them to speedily seize these opportunities.

Firms that cultivate networks with external and internal stakeholders develop vital and rich sources of new knowledge (Sumelius, Björkman & Smale, 2008; Khan et al., 2018), which enhances their ability to sense looming market issues and lucrative market opportunities (Lee et al., 2001). Thus, networking relationships provide firms with relevant knowledge and information (e.g., Sedikides & Gregg, 2003; Yang et al., 2018). By developing and nourishing such formal and informal ties with customers and partners, networking capability can serve as a mechanism for quickly sensing opportunities (Fourné, Jansen & Mom, 2014; Ozgen & Baron, 2007; Tarba, Bauer, Weber & Matzler, 2019; Yang et al., 2018), and in turn enhance firms' superior performance (Musteen, Francis, & Datta, 2010). Similarly, firms operating in foreign markets encounter varying demands and conditions, which requires them to refresh and maintain their technological capability to exploit foreign market opportunities. Firms with the requisite technological capabilities can quickly seize the foreign market opportunities. Firms that possess technological capabilities such as inventory management, production planning and advanced data analytics are likely to respond to changing market demands in a speedy manner and thus enhance their performance. Indeed, it has been established that agility has a positive

effect on firm performance (Chakravarty et al., 2013). In this study, we argue that networking and technological capabilities could enable firms to identify and quickly exploit foreign market opportunities and consequently improve their international performance (cf. Cavusgil & Knight, 2015; Weerawardena et al., 2015). We therefore hypothesize that:

> **H2a:** *Strategic agility mediates the relationship between networking capability and SMEs' international performance*
>
> **H2b:** *Strategic agility mediates the relationship between technological capability and SMEs' international performance*

2.5 Moderating effects of environmental dynamism and internationalization knowledge

As has been suggested, there are theoretical and empirical bases for arguing that strategic agility plays an important role in driving performance (Junni et al., 2015; Shin, Lee, Kim & Rhim, 2015). However, it is important to note that this relationship does not occur in a vacuum. Rather, the influence of strategic agility on international performance takes place amidst the dynamic and often turbulent environment that surrounds small venture firms in international markets. Thus, as such, the boundary conditions of the relationship between strategic agility and superior international performance are not well established in the extant literature. Environmental dynamism relates to the degree of volatility and unpredictability of the business environmental conditions (Goll & Rasheed, 2004; Dess & Beard, 1984). It may stem from new technological developments, changes in technologies and consumers' changing demand pattern (Priem et al., 1995; Jansen, van den Bosch & Volberda, 2006). Firms operating in dynamic environments are often required to innovate (Jansen et al., 2006) or risk falling behind their rivals (Garg et al., 2003).

Evidently, firms operating in dynamic environments tend to develop new business models that are agile and responsive to market sentiment to enhance their chances of success (Doz & Kosonen, 2010; Weber & Tarba, 2014). As observed by Daft, Sormunen and Parks (1988), organizational leaders of high-performing firms often tailor their resources to monitor

potential environmental uncertainties and acquire necessary data to inform decision, practices and strategy. By frequently scanning the business environment, firms enhance their understanding of uncertainty and develop their agility to spot market opportunities, which enhance their performance (Garg, Walters & Priem, 2003). Under dynamic environments, strategic agility appears associated with proactive environmental scanning activities and is essential for a firm's long-term success. Firms that are well equipped in developing agility-oriented practices are better positioned than their rivals to succeed in international markets that are often more volatile and uncertain.

In such conditions, strategic agility becomes more valuable as it allows firms to quickly gather information to identify new opportunities and take rapid action to capitalize on these opportunities (Ahammad et al., 2021). Furthermore, firms in highly dynamic environments are more likely to experience elevated levels of activation and motivation among their managers (Baas, De Dreu, & Nijstad, 2008), which likely strengthens the influence of strategic agility on performance. Thus, consistent with prior research that suggests that strategic agility enhances firms' performance in hypercompetitive environments (Lewis et al., 2014) and is less useful in stable environments (Tallon & Pinsonneault, 2011), we hypothesize the following:

> **H3a:** *The relationship between strategic agility and international performance is moderated by environmental dynamism, such that the greater the degree of environmental dynamism, the stronger the relationship between strategic agility and international performance*

We also contend that the positive effect of strategic agility on an SME's international performance is moderated by its international knowledge. An SME's international knowledge reflects the firms' international experience and capacity to engage in IB activities relative to that of the firm's relevant competitors (Zhou, Barnes & Lu, 2010; Cavusgil & Knight, 2015). Researchers contend that international knowledge is crucial for SMEs to succeed in international markets (Oviatt & McDougall, 1994; Zahra, 2005). Given that strategic agility involves a firm's ability to continually adapt to fluctuating and uncertain operating contexts

(Weber & Tarba, 2014), internationalization knowledge serves as a conduit of information for agile firms to enhance their international performance. This is typically true for SMEs in developing market contexts, who often have limited international knowledge (Pollard & Jemicz, 2006). The internationalization knowledge acquired through networks is crucial to overcome the liability of foreignness (the problems associated with competing in a new foreign market).

International knowledge helps SMEs in developing economies to cope with the problems associated with small size when accessing international markets (Bohata & Mladek, 1999). Given that strategic agility requires inventing new business models to address the changing business environment (Doz & Kosonen, 2010), internationalization knowledge helps SMEs to develop new business models to cope with the obstacles related to introducing products or services in international markets (Zahra, Neubaum, & Naldi, 2007). The possession of such knowledge allows firms to deal with the uncertainty and unpredictability associated with internationalization (Liesch, Welch & Buckley, 2011). Taken together, this suggests that existing internationalization knowledge can boost the absorptive capacity of the firms (Cohen & Levinthal, 1990), thus supporting strategic agility in driving superior international performance. Therefore, we suggest that:

> **H3b:** *The relationship between strategic agility and international performance is moderated by internationalization knowledge, such that the greater the degree of internationalization knowledge, the stronger the relationship between strategic agility and international performance*

3. Method

3.1 Research context

We collected data from a sample of chief executive officers (CEOs) and finance managers of internationalizing SMEs in Ghana. We focused on Ghana for the following reasons. First, Ghana has successfully implemented an open market economy for over three decades (Ahsan,

Adomako, & Mole, 2021; Chironga et al., 2011). This offers an important context for business activities to flourish, as well as providing opportunities for SMEs to rapidly internationalize. However, as domestic businesses continue to see success, most successful firms choose foreign market locations to develop competitive advantage and earn above-average profit. This is because firms that internationalize tend to be more successful (Hsu, Chen, Cheng, 2013; Riahi-Belkaoui, 1998) given the range of opportunities that foreign markets offer to internationalizing firms. Second, the Ghanaian business environment is considered an easy place to do business in West Africa (World Bank, 2017), yet business development is constrained by several barriers, such as inadequate access to finance, shortage of skilled labour, poor quality and high cost of raw materials, regulatory corruption and various infrastructure issues (Robson & Obeng, 2008). These barriers make the process of developing a business very difficult. As such, internationalization is a viable option for firms based in Ghana to become part of the global value chains.

3.2 Sample and data collection

We tested our hypotheses using a sample of Ghana's internationalizing SMEs. The SMEs are headquartered in Ghana and they have subsidiaries in a number of foreign markets, including African regions (e.g., Economic Community of West African States, Southern African Development Community), Europe and North America. The sampling choice of SMEs consists of the following criteria: (1) independent private firms which are not subsidiaries or affiliated to another entity, (2) SMEs defined in accordance with the Ghana Statistical Service as companies with up to 250 employees (Ghana Statistical Service, 2000), and (3) firms with international sales or operating in the international market. Based on the above sampling criteria, we randomly selected 319 SMEs from the Ghana Export Promotion Authority database. We contacted the CEOs/founders of the 319 firms with a questionnaire administered in person to access information on the independent variables (T1) and received 264 responses.

We selected CEOs/founders because of their influence on the strategic decisions in SMEs (Maekelburger, Schwens & Kabst, 2012).

Subsequently, we contacted the finance managers of the 264 firms in person to capture the SMEs' international performance (T2). We discarded 31 responses because some of the finance managers were also the CEOs and some of the completed questionnaires had missing values. Hence, we used 233 matched responses from T1 and T2 for the analyses. This represents a 73.04% response rate. On average, the sampled SMEs had been in business for nine years since their inception. The SMEs had an average of 79 full-time employees with an annual turnover of US$ 99,179. The average age of the CEO/founder was 49 years. The sampled SMEs operated in two major sectors (industries) of the economy – the services (56.2%) and manufacturing (43.8%) industries.

3.3 Measures

Table 1 presents details of the measures, validity and reliability assessment. All items were measured on a seven-point Likert scale with anchors ranging from 1=strongly disagree to 7=strongly agree.

3.3.1 Networking capability

We conceptualize networking capability as a two-dimensional construct, entailing customer networking and partner networking. Customer networking was measured with three items. Based on an extensive literature review, we developed one new item and adapted two additional items from previous studies (Shin et al., 2015; Subramaniam & Youndt, 2005) to measure customer networking capability. Partner networking capability was measured with four items. We developed two new items and adapted one item each from Subramaniam and Youndt (2005) and Zhou, Barnes and Lu (2010) to capture partner networking capability. As with any multi-construct variable, the combined mean of the two dimensions captures networking capability.

3.3.2 Technological capability.

We used six items to capture a firm's technological capability. Specifically, we took two items ("Our firm adopts technology-driven production systems such as Just-in-time" and "Our firm adopts advanced production techniques such as value analysis, concurrent engineering, and modular design systems") from Shin, Lee, Kim and Rhim (2015). The rest of the items were developed specifically for this study.

3.3.3 Environmental dynamism.

The items measuring environmental dynamism were taken from Schilke (2014). The four items captured managerial perceptions of the degree of variation in their business environment.

3.3.4 Internationalization knowledge.

We measured internationalization knowledge with four items from Zhou, Barnes and Lu (2010). International knowledge signifies firms' experience and capacity to engage in cross-border activities relative to relevant competitors.

3.3.5 Strategic agility

We captured strategic agility with a three-dimensional scale entailing operational agility, sense-making agility and market capitalizing agility. Specifically, we used four items for operational agility (α=0.87) whilst three items captured sense-making agility (α=0.79). The items measuring operational and sense-making agility were taken from Lu and Ramamurthy (2011). Based on Teece, Peteraf and Leih (2016), we developed three items to measure market capitalizing agility (α=86). We also constructed an aggregated agility measure that included all dimensions (α=0.84).

3.3.6 International performance

International performance refers to the performance of SMEs in international markets (Brouthers et al., 2015; Keupp & Gassmann, 2009). The reason for using perceptual measures of performance was informed by the difficulty of obtaining adequate information about objective accounting measures in developing economies (Hoskisson et al., 2000). Although there are some problems in using perceptual measures, it has been established that managers' perception of performance or failure has critical implications for the firm (Dess & Robinson, 1984). Accordingly, we used six subjective measures from Gerschewski et al. (2015) to capture SMEs' international performance. On a seven-point scale, ranging from 1 = much lower to 7 = much higher, finance managers rated their firm's performance in foreign markets compared to that of their direct competitors over the last three-year period (Brouthers & Nakos, 2004; Brouthers et al., 2009).

3.3.7 Control variables

We controlled for five variables (firm age, firm size, firm international experience, industry and human capital capability) which were considered possible explanatory factors in the study. Firm age, measured as the year of collecting data minus the year of incorporation (Hollender et al., 2017; Zahra et al., 2000). Firm size, measured as the logarithm transformation of the number of full-time employees (Contractor, 1984). Firm international experience was also controlled for by capturing the number of years that the firm had carried out international operations (Dimitratos *et al*., 2004). Industry was measured with a dummy variable, with "1" indicating manufacturing industry and "0" indicating otherwise. Finally, human capital capability was captured with five items from Subramaniam and Youndt (2005). We asked respondents to rate on a seven-point Likert scale ("1" = "strongly disagree" and "7" = "strongly agree") the extent to which each item described the firm's level of human capital.

Table 1: Measures and results of validity tests of multi-item constructs

Details of measures	Standardized loadings (t-values)[b]
Networking capability	
Customer networks: CR = 0.91 AVE= 0.77	
Our firm collaborates with customers to make product improvement	0.90[b]
Our firm regularly interacts with customers to develop products that fit their needs	0.93 (21.01)

Our firm partners with customers to develop new products	0.80 (16.12)
Partner networks: *CR = 0.88 AVE= 0.65*	
Our firm has well-established relationships with distributors	0.80[b]
Our firm has well-established relationships with suppliers	0.84 (14.21)
Our firm has developed cooperative relationships with business partners	0.83 (13.87)
Our firm collaborates closely with suppliers, distributors, and business partners to develop and improve products	0.75 (12.13)
Technological capability: *CR =0 .92 AVE= 0.67*	
Our firm adopts technology-driven production systems such as Just-in-time	0.81[b]
Our firm adopts internet-enabled marketing and sales technology such as email marketing and informational webpages	0.85 (14.96)
Our firm adopts advanced production techniques such as value analysis, concurrent engineering, and modular design systems	0.82 (14.58)
Our firm adopts advanced manufacturing technology such as 3D printing and industrial robots	0.82 (14.25)
Our firm adopts advanced internet-enabled marketing and sales technology such as social media, search engine optimization, and online sales	0.83 (14.61)
Our firm invests in upgrading production and inventory management systems	0.78 (13.41)
Strategic agility	
Operational agility: CR = 0.87 AVE=0 .70	
We fulfil demands for rapid-response, special requests of our customers in foreign markets whenever such demands arise; our customers have confidence in our ability	0.85[b]
We can quickly scale up or scale down our production levels to support fluctuations in demand from foreign markets	0.89 (15.26)
Whenever there is a disruption in supply from our suppliers, we can quickly make necessary alternative arrangements and internal adjustments	0.76 (12.98)
Sense making agility: CR = 0.80 AVE= 0.58	
We are able to quickly identify opportunities to develop new products	0.82[b]
We are fast in recognizing new market opportunities	0.81 (10.97)
We actively prototype and experiment to identify new opportunities	0.63 (8.96)
Market capitalizing agility: *CR =0 .86 AVE=0.67*	
We are quick to make and implement appropriate decisions in the face of market/customer changes	0.76[b]
We can rapidly reinvent/reengineer our organization to better serve our market place	0.90 (13.03)
We can quickly capitalize on opportunities that arise due to external changes	0.79 (12.46)
Environmental dynamism: *CR = 0.88 AVE= 0.66*	
The modes of production change often and in a major way	0.66[b]
The environmental demands on us are constantly changing	0.81 (10.58)
Marketing practices in our industry are constantly changing	0.89 (11.18)
Environmental changes in our industry are unpredictable	0.80 (10.39)
Internationalization knowledge: *CR = 0.87 AVE= 0.63*	
Our firms' international business experience	0.68[b]
Our firms' ability in determining foreign business opportunities	0.81 (10.63)
Our firms' experience in dealing with foreign business contacts	0.82 (10.77)
Our firms' capability for managing export business or other international operations	0.85 (11.01)
International performance: *CR = 0.86 AVE=0 .51*	
International sales growth	0.71[b]
International sales volume	0.73 (9.85)
Return on investment from international business	0.69 (8.86)
Market share in international markets	0.68 (8.83)
International profitability	0.76 (10.33)
Overall international performance	0.70 (9.89)
Human capital: *CR = 0.87 AVE= 0.69*	
Our employees are highly skilled	0.89[b]
Our employees are widely considered the best in our industry	0.85 (14.51)
Our employees are creative and bright	0.76 (13.01)
Fit statistics	
$\chi 2$/D.F.	1.72
NNFI	0.91
CFI	0.91
RMSEA	0.05

Table 2: **Descriptive statistics and correlations**

No.	*Constructs*	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	Customer networks	4.78	1.56	**0.88**												
2	Partner networks	5.18	1.22	0.56**	**0.93**											
3	Operational agility	4.81	1.32	0.31**	0.44**	**0.83**										
4	Sense making agility	4.97	1.09	0.24**	0.28**	0.36**	**0.76**									
5	Market capitalizing agility	4.83	1.32	0.19**	0.26**	0.39**	0.35**	**0.81**								
6	Environmental dynamism	4.63	1.36	0.07	0.10	0.22**	0.29**	0.30**	**0.81**							
7	Internalization knowledge	4.75	1.30	0.12	0.25**	0.31**	0.31**	0.40**	0.30**	**0.79**						
8	Technological capability	4.70	1.38	0.43**	0.38**	0.45**	0.26**	0.41**	0.24**	0.30**	**0.81**					
9	International performance	5.01	.94	0.16*	0.18**	0.21**	0.21**	0.25**	0.20**	0.13*	0.24**	**0.71**				
10	Human capital	5.15	1.39	0.23**	0.24**	0.16*	0.19**	0.20**	0.05	0.19**	0.17*	0.15*	**0.83**			
11	Firm Size	79	57.69	-0.04	-0.04	0.08	0.12	-0.03	0.08	0.02	0.00	0.06	0.00			
12	Industry [A]	---	---	0.07	-0.03	0.00	-0.06	0.11	0.15*	0.02	0.15*	0.07	0.02	0.01		
13	International experience	6.67	2.78	-0.03	0.00	0.00	-0.03	-0.07	0.02	-0.08	-0.03	-0.02	-0.17*	0.24**	-0.02	
14	Firm age	9.16	2.79	0.10	0.03	0.06	0.12	-0.03	0.07	-0.02	-0.01	0.08	-0.04	0.48**	-0.01	0.50**

Note: * = $p < 0.05$ and ** = $p < 0.01$. A = dummy variable, M = mean and SD = standard deviation. Square root of AVEs at the diagonals and in bold.

4. Analyses

4.1 Test for potential biases

We performed several tests to assess potential biases in our study. First, we addressed non-response bias by comparing the respondents with non-respondents for the final sample. Using Pearson's chi-square test for categorical data (Greenwood & Nikulin, 1996), results indicate that the respondents were not significantly different from the non-respondents in terms of firm size, firm age and CEO age. Thus, non-response bias is not considered a serious threat to our results (Armstrong & Overton, 1977).

Although the survey was answered by multiple respondents, we accounted for a potential common method bias by following the procedure by Cote and Buckley (1987) and estimated three competing CFA models. First, we estimated a *method-only* Model in which all items loading on a single factor (χ^2/d.f. = 7.25; NNFI = 0.18; CFI = 0.21; RMSEA = 0.16). Second, a *trait-only* Model was estimated where each item loading on its respective factor (χ^2/d.f. = 1.70; NNFI = 0.90; CFI = 0.91; RMSEA = 0.05). Third, we performed *method and trait* Model which combines Model 1and Model 2 (χ^2/d.f. = 1.68; NNFI = 0.91; CFI = 0.91; RMSEA = 0.05). Fit indices from the three CFA models show that Model 1 performed poorly compared to Model 2 and Model 3. However, Model 2 and Model 3 performed better than Model 1. This suggests that common method bias does pose a significant problem to our study.

4.2 Measure reliability and validity assessment

Prior to testing our hypotheses, we assessed the validity and reliability of the measurement scales for all multi-item constructs. Accordingly, we conducted confirmatory factor analysis (CFA) by following the previous research recommendations (Bagozzi & Yi, 2012; Hu & Bentler, 1999) and used approximate fit heuristics to provide a broader evaluation of the model fit. Thus, we used non-centrality-based measures such as Root Mean Square Error of Approximation (RMSEA) and relative fit indices including Non-Normed Fit Index (NNFI) and

Comparative Fit Index (CFI) to assess the model fitness. The CFA estimation provided the following model fit statistics: χ^2/d.f. = 1.72; NNFI = 0.90; CFI = 0.91; RMSEA = 0.05.

As Table 1 shows, the standardized factor loadings of all measurement items for each sample are significant (at 1% level), while the Cronbach's alpha and the composite reliability (CR) values for each construct exceed the required benchmarks of 0.70 and 0.50 respectively. This confirms internal consistency of the items used to measure the constructs (Fornell & Larcker, 1981). We further show evidence of discriminant validity of the measures as the average variance extracted (AVE) for each construct exceeds the highest shared variance (HSV) of each pair of constructs as shown by the inter-construct correlation in Table 2.

4.3 Structural model estimation

We used structural equation modelling (SEM) and maximum likelihood estimation in LISREL8.80 as a method of estimation to test a system of nested structural models. To reduce model complexity, we created mean values for the dependent and moderating variables. Specifically, we computed averages for each multi-item construct to generate composite scores. However, for the dependent variables (strategic agility and international performance), the full information (entire indicators) approach was adopted – where the individual measurement items instead of the mean values are used for the model estimation. The use of both averages and full information approach helped mitigate a possible problem of model under-identification due to lack of sufficient information in the structural model (see Hair et al., 2017; Donbesuur et al., 2020). Again, following precedence (e.g., Cortina, Chen & Dunlap 2001), we used moderated structural equation modelling to test the hypothesized moderation relationships. Accordingly, with our two moderators (environmental dynamism and internationalization knowledge), we created the two moderating terms: (1) strategic agility *X* environmental dynamism and (2) strategic agility *X* internationalization knowledge. In order to avoid

multicollinearity issues, the constructs used to generate the moderation terms were all mean-centred before their cross-products were computed.

Collectively, we tested five models, one after the other. Model 1 has strategic agility as the dependent variable and model 2 to model 5 have international performance as the dependent variable. In Model 1, we estimated the effects of both network capability and technological capability on strategic agility. In Model 2, we tested the direct effects of network capability and technological capability on international performance. The effects of strategic agility and the moderator variables (environmental dynamism and internationalization knowledge) were added in Model 3. In Model 4, the interaction effect variables, (1) strategic agility *X* environmental dynamism and (2) strategic agility *X* internationalization knowledge, were added to the equation. Finally, we followed recent mediation estimation procedures (e.g., Zahoor & Al-Tabbaa, 2020; Hultman et al., 2019) estimated Model 5 which is the full structural model using the single model estimation procedure where both strategic agility and international performance are dependent variables. In effect, the SEM estimation procedure allowed us to simultaneously test both paths. After each model estimation, model fit indices and variations in squared multiple correlations (R^2) were reported where applicable. Figure 2 shows path estimates of the entire structural model with its associated fit indices.

Table 3: Results of structural model estimation

Independent variables	Dependent variables					
	Strategic agility	International performance			Strategic agility	International performance
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	
Control paths						
Firm size	0.10 (1.00)	0.08 (1.08)	0.07 (0.89)	0.03 (0.38)	0.08 (1.22)	0.03 (0.38)
Industry	-0.06 (-0.49)	0.04 (0.65)	0.05 (0.71)	0.08 (0.43)	-0.02 (-0.42)	0.03 (0.43)
Firm age	0.04 (0.15)	0.05 (0.62)	0.05 (0.58)	0.07 (0.83)	0.02 (0.21)	0.07 (0.83)
International experience	-0.08 (-0.47)	-0.04 (-0.48)	-0.03 (-0.39)	-0.06 (-0.75)	-0.04 (0.21)	-0.06 (-0.75)
Human capital	0.07 (1.58)	0.07 (1.33)	0.08 (1.07)	.09 (1.31)	0.10 (-0.58)	0.09 (1.30)
Direct effect paths						
Networking capability	0.20 (3.28) **	0.18 (2.29) *	0.14 (1.79)	0.11(1.48)	0.20 (3.16) **	0.11 (1.49)
Technological capability	0.31 (5.52) **	0.16 (2.15) *	0.09 (1.04)	0.11 (1.36)	0.39 (6.28) **	0.11 (1.31)
Strategic agility (STA)			0.14 (2.43) *	0.25 (2.88) **		0.25 (3.24) **
Internationalization knowledge (IKW)				-0.11 (-1.42)		-0.11 (-1.49)
Dynamic environment (DYE)				0.12 (1.71)		0.12 (1.74)
Two-way interaction paths						
STA * IKW				-0.17 (-2.31) *		-0.16 (-2.34) *
STA * DYE				0.22 (2.79) **		0.21 (2.92) **
Goodness of Fit Indices						
R^2	0.26	0.12	0.15	0.20	0.29	
ΔR^2	---	---	0.03	0.05	0.09	
χ^2/D.F.	1.62	1.49	1.43	1.34	1.92	
CFI	0.95	0.96	0.96	0.97	0.92	
NNFI	0.93	0.91	0.92	0.94	0.83	
RMSEA	0.05	0.04	0.04	0.03	0.06	

Critical values of the t distribution for α =0 .05 and α = 0.01 (two-tailed test) are * = 1.96, and ** = 2.58, respectively (T-values are reported in parentheses)

4.4 Results

Hypothesis 1 consists of two sub-hypotheses where in H1a we argue that networking capability is positively associated with strategic agility and, in H1b, that technological capability is positively associated with strategic agility. The model estimation results, as shown in Table 3, indicate that both hypotheses are supported. Thus, network capability positively relates to strategic agility ($\beta = 0.20$; $t = 3.28$; $p < 0.01$) and technological capability positively relates to strategic agility ($\beta = 0.30$; $t = 5.52$; $p < 0.01$).

Our second hypothesis consists of two sub-hypotheses (i.e., H2a and H2b). We find support for H2a that strategic agility mediates the relationship between networking capability and SMEs' international performance. Specifically, the model estimates show that networking capability positively relates to both SMEs' international performance ($\beta = 0.18$; $t = 2.29$; $p < 0.05$) and strategic agility ($\beta = 0.20$; $t = 3.28$; $p < 0.01$) on the one hand, and that there is a positive relationship between strategic agility and international performance ($\beta = 0.25$; $t = 2.88$; $p < 0.01$) on the other hand. For the second part of H2 (H2b), the analysis shows that technological capability positively relates to both international performance ($\beta = 0.16$; $t = 2.15$; $p < 0.05$) and strategic agility ($\beta = 0.30$; $t = 5.52$; $p < 0.01$); and that strategic agility positively relates to international performance ($\beta = 0.25$; $t = 2.88$; $p < 0.01$) as well. This confirms H2b: that strategic agility mediates the relationship between technological capability and SMEs' international performance.

The second part of the analysis investigates the moderating effect of environmental dynamism and SMEs' knowledge of internationalization on the relationship between strategic agility and international performance. Again, this consists of two sub-hypotheses. Thus, we argue in hypothesis 3a and hypothesis 3b that the positive relationship between strategic agility and international performance is strengthened by environmental dynamism and SMEs' knowledge of internationalization, respectively. As shown Table 3, we find evidence that the effect of strategic agility on SMEs' international performance is enhanced by environmental dynamism ($\beta = 0.22$; $t = 2.79$; $p < 0.01$). Contrary to our expectation, we find no support for an enhanced moderation

effect of SMEs' knowledge of internationalization on the strategic agility–international performance relationship, as our findings show a negative effect (β = -0.17; t = -2.31; p< 0.05). This is finding is surprising as the extant literature has overwhelming suggested that internationalization knowledge enhances firms' international operations and its performance. However, much of this research has focused on possession of internationalization knowledge rather the manner of its application (or lack of). Recent research indicates that CEOs hubris can affect firms' strategic decision (Dutta, Malhotra, & Zhu 2016), and this can consequently affect firms' performance. Such hubris would be particularly detrimental for SMEs operating in emerging economies as they face many challenges in such contexts (Adomako et al., 2021; Ahsan et al., 2021). We elaborate on this in our Discussion section below.

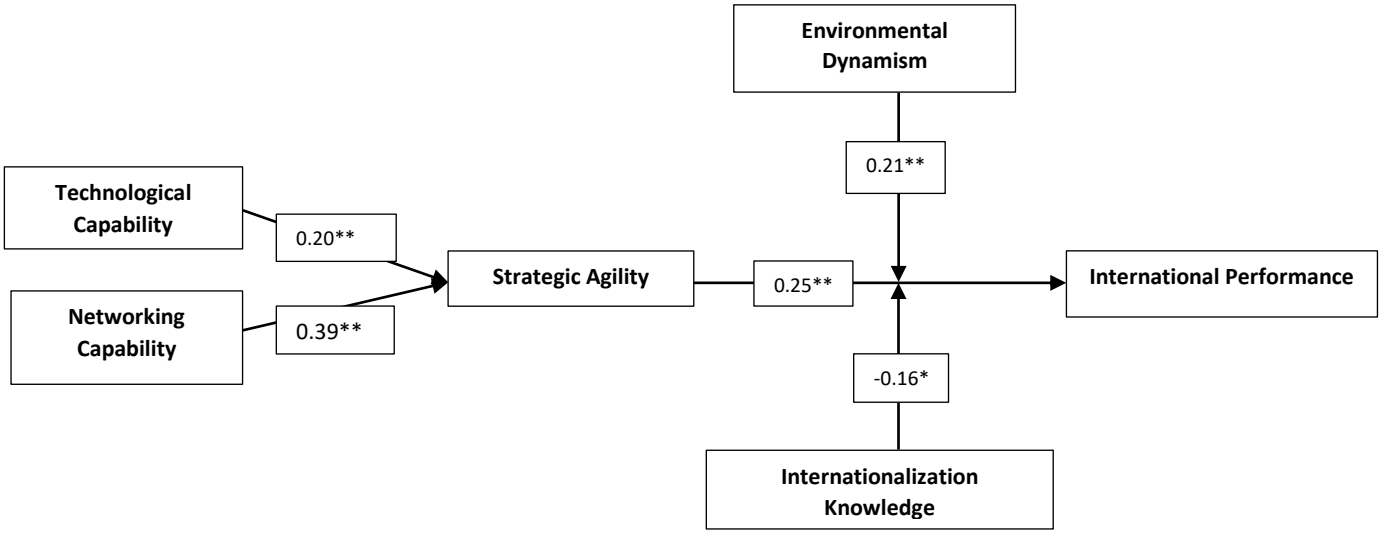


Figure 2: Path estimates of entire model as shown by Model 5 in Table 3. Goodness of fit indices: χ^2/d.f. = 1.92; NNFI = 0.83; CFI = 0.92; RMSEA = 0.06.

4.5 *Robustness checks*

To provide additional insights regarding the results reported in this article, we performed supplementary analyses to substantiate the robustness of our model. First, we performed a post hoc test using a process macro procedure (Hayes, 2013). The results provide support for H2a. Specifically, we find positive and significant effects of network capability on both international

performance (b_3 = 0.17; t = 3.25; p< 0.01) and strategic agility (b_1 = 0.27; t = 5.17; p< 0.01) on the one hand, and a positive significant effect of strategic agility on international performance (b_2 = 0.21; t = 3.06; p< 0.01) on the other hand. Further, we find significant total effect of network capability on international performance through strategic agility with a corresponding lower bound of 0.07 and an upper bound of 0.27 using a bootstrap-estimated 95% confidence interval. In addition, we follow same process macro procedure to test the indirect effect technological capability on international performance through strategic agility (H2b). Accordingly, we find significant effects of technological capability on both international performance (b_3 = 0.14; t = 3.25; p> 0.01) and strategic agility (b_1 = 0.31; t = 7.92; p< 0.01), on the one hand, and a significant effect of strategic agility on international performance (b_2 = 0.20; t = 2.80; p< 0.01) on the other hand. Similarly, we find a significant total effect of technological capability on SMEs' international performance through strategic agility with a corresponding lower bound of 0.06 and upper bound of 0.21 using a bootstrap-estimated 95% confidence interval.

For the moderation hypotheses (H3a and H3b), we tested for the conditional indirect effect of both technological and network capabilities on international performance through strategic agility, with strategic agility as the focal predictor variable (while controlling for SMEs' networking and technological capabilities). We also used a PROCESS macro to perform a test of conditional effect of one standard deviation below the mean (-1 standard deviation), at the mean (mid-point) and one standard deviation above the mean (+1 standard deviation) of the two moderators (environmental dynamism and internationalization knowledge), relative to the mediator variable (strategic agility). In this case, the focal predictor variable relative to the moderation analysis is strategic agility. Depending on the mean values of the moderators, we find that the positive relationship between strategic agility and international performance is moderated by both environmental dynamism (positive moderation) and SMEs' knowledge of internationalization (negative moderation). Table 4 provides detailed results of the analysis from the PROCESS macro.

Second, in T2, we collected two-year objective international sales growth data from 58 firms and used that as our dependent variable. Finance managers were asked to state the sales from international market operations from 2017 to 2018 (N=58). Sales growth in the international market was measured using a two-year cumulative percentage in sales during 2017 and 2018. Using the approach suggested by Mishina et al. (2004), international sales growth was calculated using the following equation:

$$International\ sales\ growth = \frac{Sales_{t+1} - Sales_{t-1}}{Sales_{t-1}}$$

where $t - 1$ is the end of year 2017 and $t + 1$ is the end of year 2018. Because the data was collected at the end of each year, the international sales growth measure consisted of a two-year time period. Though we could have employed other measures of growth (e.g., profitability), our respondents were unwilling to provide information on these variables. The correlation between sales growth and the subjective evaluation of sales growth (i.e., international sales growth) was 0.29 ($p < 0.01$), and the correlation between objective measure of international sales growth and the factor score of the subjective international performance items was 0.33 (p <0 .01). These correlations suggest that our subjective performance measure is valid in capturing our dependent variable.

4.6 Assessment of endogeneity bias

We assume a potential endogeneity bias between the independent variables (technological and network capability) and the mediator (strategic agility) – hence this may bias our estimates and findings. To assess this, we adopted the instrumental variable approach (Wooldridge, 2012) by selecting instruments (experience with network activities; and percentage of employees with an IT background) that directly correlate with network and technological capability but do not correlate with strategic agility directly. First, we found significant correlation between experience with network activities and network capability ($r_w = 0.25$, $p < 0.01$) but no significant relationship with strategic agility ($r_w = 0.02$, n.s). Second, the percentage of employees with an IT background was significantly correlated with the firms' technological capability ($r_w = 0.18$, $p < 0.05$) but not

strategic agility (r_w = 0.05, n.s.). Next, the Durbin-Wu-Hausman test using both instruments did not suggest any evidence of endogeneity. Lastly, when the instruments were used in a two-stage least squares (2SLS) regression analysis, we still found that both network and technological capability were positively related to strategic agility – indicating endogeneity is not a serious concern.

Table 4: Conditional effect of strategic agility on international performance at values of environmental dynamism and internationalization knowledge

Environmental dynamism	International knowledge	Indirect effect	LLCI95% [a]	ULCI95% [a]
-1 SD	-1 SD	0.27	0.08	0.45
-1 SD	Mean	0.13	-0.02	0.29
-1 SD	+1 SD	0.04	-0.14	0.22
Mean	-1 SD	0.39*	0.18*	0.60*
Mean*	Mean*	0.26*	0.10*	0.42*
Mean	+1 SD	0.17	-0.01	0.34
+1 SD*	-1 SD*	0.52*	0.25*	0.78*
+1 SD*	Mean*	0.38*	0.17*	0.59*
+1 SD*	+1 SD*	0.29*	0.08*	0.50*

*Indicates non-zero within the boundaries (significant); LLCI=Lower-level confidence interval; ULCI=Upper-level confidence interval; [a]95% confidence intervals presented.

5. Discussions and implications

In this study, we set out to examine the mediating influence of strategic agility on the relationship between technological and networking capabilities and internationalizing SMEs' superior international performance. In addition, we tested the boundary conditions of the observed relationship by examining the moderating effects of home country dynamic environment and firms' international knowledge. We validated our model with time-lagged data from 233 internationalizing SMEs originating from Ghana, a fast-growing developing economy. The findings indicate that strategic agility plays an important mediating role, acting as a significant intermediate variable between technological and networking capabilities and SMEs' international performance. Although extant studies emphasize the role of capabilities in the internationalization and resultant superior performance of SMEs (Weerawadena et al., 2015), the specific linkages

between such capabilities and strategic agility are not well established. Thus, by linking technological and networking capabilities with strategic agility and examining the mediating role of strategic agility on SMEs' international performance, we extend our understanding on the relationship between SMEs' capabilities, strategic agility and performance. The findings also show that the degree of environmental dynamism enhances the relationship between strategic agility and SMEs' international performance. Contrary to what we hypothesized, we found that SMEs' international knowledge negatively moderates the relationship between strategic agility and international performance. That is, possessing internationalization knowledge does not necessarily strengthen the relationship between strategic agility and SMEs' international performance. Interestingly, recent research suggests that agility is driven both by experience and cognitive capability (Ferraris et al., 2022), and CEOs' cognitive capabilities can affect strategic decisions and outcomes. SMEs' internationalization knowledge (experience) might give CEOs a false sense of confidence, which could lead them to underestimate the changes required to quickly capitalize on the emerging opportunities. As the primary decision-maker in SMEs, CEOs play a critical role in developing and implementing strategic decisions. This is particularly true in developing economies like Ghana, where SMEs are primarily operated by owners and a greater power disparity exists between the owner-CEOs[7] and employees (Adomako & Ahsan, 2022; Ahsan, Adomako, Donbesuur, & Mole, 2022). In such situations, the dark characteristics of CEOs could affect firms' strategic decision as it leads them overestimate their capability and chances of attaining success. Indeed, findings indicate that key decision-makers' narcissism and overconfidence can adversely affect internationalization decisions (Dutta, Malhotra, & Zhu, 2016; Fung, Qiao, Yau, & Zeng, 2020; Oesterle, Elosge, & Elosge, 2016).

5.1 Theoretical implications

[7] All the SMEs in our sample are led by owner–CEOs.

These findings yield several contributions to the IB literature. First, our paper extends the studies that used the RBV as a theoretical lens in the IB literature (e.g., Camisón & Villar, 2009; Graves & Thomas, 2006; Lu, Zhou, Bruton & Li, 2010). Specifically, our study extends these studies by considering the potential role of technological and networking capabilities in enhancing SMEs' competitive advantage in international markets. In doing so, we emphasize the importance of firm-level capabilities to SMEs in developing economies, which mainly rely on networking capabilities for resource exchange (Acquaah, 2007; Peng & Luo, 2000; Khan et al., 2018). Furthermore, in contrast to Terziovski (2010), we find a positive relationship between firm capabilities and performance and provide additional support for this important relationship.

Second, our study contributes to the IB literature by explaining the mechanism through which technological and networking capabilities influence the international performance of SMEs in an emerging market. Although scholarly effort in understanding the consequences of strategic agility has been established (Junni et al., 2015; Weber & Tarba, 2014; Cunha, Gomes, Mellahi, Miner, & Rego, 2019), the extant IB literature has offered limited insights on how strategic agility affects international performance (for a noteworthy exception see Ahamaad et al., 2021). In particular, the relationship between firm capabilities, strategic agility and international performance is lacking in the extant literature. This contribution is an important extension of the strategic agility and internationalization literatures because past studies have failed to pay attention to the mechanism through which firm-level capabilities could influence performance outcomes of SMEs in the international market. This is surprising given that firm-level resources and capabilities have been found to influence the SME internationalization process (Lu, Zhou, Bruton, & Li, 2010; Newbert, 2008).

Third, we extend existing IB literature by examining the specific conditions under which strategic agility may be more or less effective in enhancing the relationship between strategic agility and SMEs' international performance. Specifically, we sought to answer the following question: *What are the conditions under which strategic agility enhances SMEs' international*

performance? We consider this an important question because prolonged investment in firm capabilities may increase the financial and emotional costs of managers if their businesses eventually fail. Therefore, this enquiry adds to the IB literature by examining two potential moderators (environmental dynamism and international knowledge).

Finally, the literature on strategic agility is growing rapidly, yet studies that address strategic agility in developing economies are scarce. Given the institutional challenges in developing countries, we validated our conceptual model in a context not studied by previous research (Ghana, a sub-Saharan African economy). In doing so, we extend the scope of previous agility and IB research beyond mature economies. This consideration is an important addition to both the strategic agility and IB literatures because very little effort has been devoted to examining how strategic agility serves as a mediating mechanism in the relationship between capabilities and international performance of SMEs originating from developing economies. Thus, we deepen our understanding of the development of strategic agility by focusing on internationalizing SMEs in a developing economy context rather than large firms from developed economies.

5.2 Practical implications

Apart from the theoretical contributions, the study also highlights practical contributions. First, the findings of this study indicate that both technological and networking capabilities indirectly drive SMEs' international performance. Thus, from a practical standpoint, managers and policymakers in developing countries can encourage SMEs to develop networking and technological capabilities as doing so can positively affect their strategic agility. For instance, governments in developing economies should design programmes such as international trade fairs that help facilitate interactions between domestic SMEs and foreign companies. Such initiatives can help SMEs in developing their networking capabilities. Second, the findings related to the effects of moderating factors (environmental dynamism and international knowledge) on the relationship between strategic agility and SMEs' international performance, highlight important

areas that entrepreneurs can focus on to increase SMEs' chances of success in foreign markets. For instance, entrepreneurs operating in a context of high environmental dynamism must actively seek to leverage their firm's strategic agility to identify and exploit opportunities in their dynamic environment in order to develop competitive advantage and superior international performance. Third, for SME CEOs in developing economies, findings from the present study suggest that they should develop technological and networking capabilities to build agile businesses that can compete in highly competitive international markets. SMEs' CEOs can achieve these capabilities by investing in new technologies and collaborating with customers, suppliers and partners.

6. Limitations and future research

Despite our methodological rigour (i.e., we collected data on the dependent and independent variables from separate sources) allowing us to avoid spurious correlations mostly found in single-source data (Podsakoff et al., 2003), our study has some limitations that open up avenues for future research. First, even though we collected time-lagged data between the dependent and independent variables, our failure to manipulate variables or use randomly assigned techniques prevented us from making causal claims. Future research could address this limitation by adopting a longitudinal design over multiple years. Second, we used subjective measures to capture international performance. In view of this, there is a potential that the perceptual measures of performance from individual finance managers could be biased. Future research could address this issue by collecting objective data in context, where this is possible. Third, we did not examine how CEOs' characteristics affects SMEs' strategic decisions and performance. For example, CEOs' hubris could be particularly detrimental for SMEs operating in emerging economies as they face many challenges in such contexts (Adomako et al., 2021; Ahsan et al., 2021). Future research could examine how CEOs' characteristics, such as narcissism and overconfidence, affects the relationship between firms' strategic agility and performance in varied contexts. Fourth, we collected data from a single country to test our research model, which limits the generalizability

of the findings. Even though the study setting shares many common characteristics of other developing economies, these markets are not entirely homogenous. Thus, future investigations can be conducted in other country settings with unique and varied contextual idiosyncrasies, within which the drivers of SMEs' international performance can be further explored. For example, future studies may examine how information asymmetry and national cultural factors affect the strategic agility and performance of SMEs. In addition, we encourage future research to adopt a multi-country study design to further deepen our understanding and contribute to the strategy and IB literature. Finally, this study focuses on well-established SMEs, which could limit generalizability of our findings. Future research can extend our findings by examining other types of firms such as early stage ventures and non-SMEs.

In conclusion, our study investigates the impact of technological and networking capabilities on the performance of internationalizing SMEs through strategic agility. We also examine the moderating effects of environmental dynamism and internationalization knowledge on the relationship between strategic agility and SMEs' international performance. Our findings contribute to the burgeoning IB literature in emerging markets and offer practical implications for managers. We hope that our research inspires scholars to build on the findings of this study.

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