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RESEARCH

Managerial perception of barriers to internationalization: an examination of sub-Saharan Africa SMEs along the Belt and Road

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Abstract
What barriers constrain the international trade of sub-Saharan African (SSA) small and medium-scale enterprises (SMEs) along the Belt and Road? This study examines the perceptions of international trade barriers expressed by managers and executives of SMEs in SSA. A questionnaire survey was conducted among 435 SMEs. The study focused on SMEs involved in international trade with China and other nations along the Belt and Road and are operating in the manufacturing, construction, trade, and service industries. The data was analyzed using a structural equation modeling technique. Analysis of the data revealed four significant barriers: organizational capability barriers, information/knowledge barriers, networking barriers, and governmental barriers. Furthermore, the study uncovered that SMEs in the three sectors experience varying extents of perception of the identified barriers. Surprisingly, we did not find resource-specific barriers and political-legal barriers to significantly influence the international trade of SMEs along the Belt and Road. This implies that SMEs internationalizing along the Belt and Road may not be subject to similar traditional trajectories experienced by their counterparts internationalizing outside the Belt and Road region. We discussed the theoretical, policy, and practical implications of this study.

Keywords Belt and Road Initiative · Internationalization · Barriers · Sub-Saharan Africa · SMEs

Introduction

The BRI, considered China's overarching globalization strategy, has provided both firms in China and participating countries with a new wave of internationalization (Li et al., 2019). Although the initiative is still in its preliminary stage, evidence from existing literature suggests that it has enhanced the speed of internationalization, export performance, and outward foreign investment of participating firms (Li et al., 2019; Wu et al., 2020; Yu et al., 2019). According to Johnson (2018), the BRI has provided an opportunity for many African firms to expand their international presence by participating in the second and third tiers of the initiative. However, the majority of these firms are state-owned enterprises (SOEs) and multinational firms due to the capital-intensive nature of mainstream projects (Görg & Mao, 2020). Studies on the BRI tend to overlook the challenges and the potential impact of this bilateral relationship between African SMEs and China. This is because most flagship projects and trade activities are facilitated by larger corporations.

However, SMEs in Africa contribute immensely to the economic development and stability of the continent (Zahoor et al., 2023). In the current era of globalization, they play a significant role in fostering trade cooperation among nations (Jiang & Hui, 2021), hence, the need to ascertain their prospects in the BRI. Since the BRI was proposed, the development and internationalization of African SMEs have received a lot of attention (Jiang & Hui, 2021). Like SOEs and multinational firms, SMEs also attempt to conduct business across national borders in the Belt and Road countries. Meanwhile, barriers to international trade along the Belt and Road exist (Jiang & Hui, 2021), and these barriers (either internal, external, or both) constrain the ability of these SMEs to expand overseas, especially into the Belt and Road countries.

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Current literature has enhanced our understanding of what inhibits African SMEs from international trade (Hashim, 2015; Mukherjee, 2018; Rahman et al., 2017; Roy et al., 2016; Zahoor et al., 2023). However, with the majority of African countries and firms participating in the BRI, it is expected they would be exposed to new and peculiar challenges due to the novelty of the initiative. Therefore, to guarantee value realization and easy entry into the Belt and Road markets, new models of SME internationalization must be developed. Interestingly, no study has been done to analyze the barriers to international trade of African SMEs trading along the Belt and Road.

The current study analyzed data collected from top executives and managers of SMEs from four African countries to explore the factors that hinder their participation in international activities along the Belt and Road. This study adds to the body of knowledge on BRI and international business (IB) in several folds. First, the study is intended to provide new and additional insight into the barriers that obstruct the international trade activities of African SMEs from the BRI perspective. Secondly, this paper is one of the few to study the BRI at the firm level, with a special focus on SMEs. Finally, the study presents a policy direction for SMEs and policymakers within the BRI framework and serves as a reference for future research on the BRI's effects on firms. The rest of the paper is organized as follows: The next section discusses the conceptual underpinnings of the study and the hypothesis development. The research methodology is presented in the subsequent section. Following the methodology is the discussion of the research findings. The theoretical and practical implications, as well as the conclusion of this study, are presented in the final section.

Literature review

SME internationalization and the Belt and Road Initiative

African SMEs have over the years contributed immensely to economic growth and the creation of employment. There has also been a remarkable intensification of African SMEs' internationalization over the past decade (Al-Kwifi et al., 2019). Despite this notable growth, the participation of African SMEs in international business is still limited. A plethora of studies have explored the drivers, motivations, and challenges of SME internationalization in both advanced and emerging markets (Hashim, 2015; Mukherjee, 2018; Rahman et al., 2017; Roy et al., 2016; Zahoor et al., 2023). Regardless of the extant literature, BRI opens up new research avenues in this subject matter. However, due to the novelty of the BRI, very little research has been done in this field. Notable BRI studies on SME internationalization are that of Li et al., (2019) which examined the effects of the BRI on the export performance of SMEs in the minority regions of China, and that of Alon et al. (2019) which enumerated the opportunities BRI creates for European SMEs to export to China through supply chain integration. Meanwhile, over the years, the BRI has gained popularity in most African countries, and many firms have started participating in the initiative (Jiang & Hui, 2021). It is about time researchers started contributing to knowledge building in the BRI with regard to SME integration into the initiative. It is in this direction that this study seeks to ascertain the barriers to African SMEs' internationalization in the framework of the BRI.

The BRI has been considered a home institutional force that facilitates the internationalization of firms in both China and the BRI countries (Li et al., 2019; Wang & Liu, 2022). Buckley (2020) advocated that the BRI is a policy opportunity for international business, particularly for SMEs that lack the necessary resources to globalize. According to Jiang and Hui (2021), through the joint development of African and Chinese SMEs for trade and investment markets and collaborative connections, the BRI makes international operations easier for SMEs. SME engagement expands Belt and Road beneficiaries, allowing more entrepreneurs to benefit. The Chinese government and BRI host nations have created SME platforms and SME partnership programs to attract SMEs to the BRI (Gyamerah et al., 2021).

Theoretical background

In this study, we try to draw insight from three prominent internationalization theories, including the resource-based view (RBV), the network theory, and the institutional theory to analyze the barriers to African SMEs' internationalization in the framework of the BRI.

The RBV holds that enterprises with distinctive and inimitable resources can obtain a competitive edge (Barney, 1991). Previous research has explored the utilization of the RBV framework to investigate the expansion of SMEs in global markets and their attainment of global competitiveness by leveraging their resource capacity (Banwo, et al., 2017; U Boso et al., 2017; Khavul et al., 2012; Okpara & Kabongo, 2010). Studies show that African SMEs can drive their internationalization through the possession and utilization of resource capabilities like management competencies, competent human capital, marketing capabilities, technological know-how and innovation, financial resources, and learning orientation (Boso et al., 2017; Khavul et al., 2012; Okpara & Kabongo, 2010). Any lack of these essential resources may have a negative influence on the internationalization of African SMEs in terms of expanding into overseas markets (Boso et al., 2017).

However, many scholars have argued against the RBV's inability to consider the unique features of SMEs in terms of their small size, limited resources, and management orientation toward internationalization (Zahoor et al., 2023). In light of this flaw, prior studies have found the network theory to be highly relevant in furthering studies on African SMEs' internationalization (Johanson & Mattsson, 1988). The network approach posits that internationalization is contingent upon the interconnections and relationships among different participants in the global business environment (Johanson & Mattsson, 1988). This perspective is recognized in scholarly literature as a driving force behind the internationalization efforts of SMEs in Africa (Oehme & Bort, 2015). African SMEs establish valuable networks in the international space, allowing them to lessen the drawbacks of entering uncharted and distant markets due to their small size as well as the challenge of isolation (Amoako & Matlay, 2015; Kujala & Törnroos, 2018). Thus, the efficient utilization of networking facilitates the widespread dissemination of internationalization methods, enabling entrepreneurs to replicate the strategies employed by their networking counterparts (Milanov & Fernhaber, 2009). Therefore, the degree to which SMEs establish value-enhancing collaborations and partnerships with overseas distributors, local producers, customers, and business partners could potentially influence their performance in global marketplaces (Ahimbisibwe et al., 2020).

Nonetheless, the institutional theory has been extensively employed to elucidate the underlying factors driving the internationalization process of SMEs in Africa. This is because both the RBV and network theory fail to adequately consider the distinct challenges associated with navigating the African institutional structure (Peprah et al., 2021). African countries frequently underperform in terms of government effectiveness, rule of law, regulatory quality, and corruption control (Barasa et al., 2017). As a result, the institutional theory offers a solid framework for explaining the international conduct of African SMEs due to its emphasis on contextual elements, including country-specific and environment-specific issues (Scott & Bruce, 1994). Institutions are rules, laws, and customs that govern how people behave and interact within a community (North, 1990). Formal institutions such as social, economic, and political bodies and informal institutions, such as social norms, drive the internationalization of SMEs (Li et al., 2019; Tang & Buckley, 2020). Yeganeh (2016) posits that African economies are heavily influenced by the social and political environment; therefore, institutions heavily stimulate SME internationalization.

The preceding paragraphs show that prior research has addressed the deficiencies identified in earlier studies on African SMEs' internationalization using various theoretical models. Nonetheless, the scope of these studies has not yet covered the new opportunities and challenges the BRI poses to the internationalization of African SMEs. This research aims to bridge this gap by examining the challenges from the perspectives of networking, institutional theory, and the RBV.

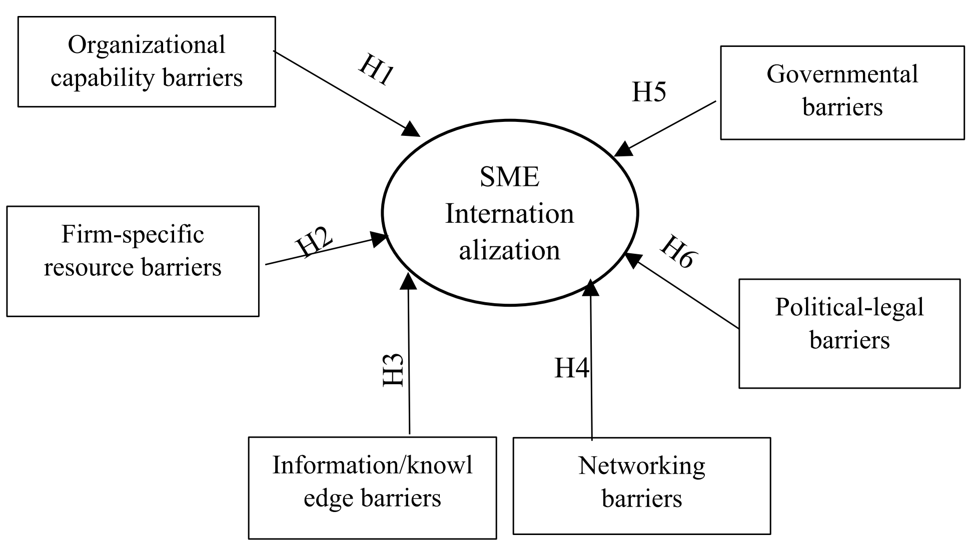
Hypothesis development

To address the aforementioned knowledge gap, the study presents a theoretical model represented in Fig. 1. The theoretical justification and explanations of the model are given in the subsequent sections.

Organizational capability barriers and SME internationalization along the Belt and Road

Organizational capability barriers include constraints related to management experience, human resources, R&D and

Fig. 1 Conceptual framework



technological competence, and the production of innovative services. Firms possessing unique capabilities are able to internationalize rapidly, while firms that lack these capabilities are hindered from actively undertaking international activities. From an organizational capability standpoint, research shows that African SMEs are limited because they typically lack the skills necessary to develop superior technology and exposure to global competition, develop and manage reputable brands, produce and supply innovative products and services, and manage world-class supply chains (Contractor, 2013). Additionally, studies show that many African SMEs lack the managerial experience and strategic tools necessary to turn their resources into value when their environment changes (Eisenhardt & Martin, 2000). It is challenging for firms to continuously create, adapt, and restructure internal competencies when they lack such essential competencies in growing markets. A lack of firm capabilities has been found to negatively influence the international activities of firms (Cahen et al., 2016; Contractor, 2013; Mukherjee, 2018). Notwithstanding, the BRI presents a new environment for internationalizing African SMEs, and participating in the initiative requires firms to develop innovative and specialized services to meet the demands of BRI projects and other services (Li, et al., 2019). However, SMEs face an unequal distribution of investment due to a lack of strategic firm resources (Al-Hyari et al., 2012), and according to Githaiga et al., (2019), SMEs are disadvantaged due to a lack of capacity to meet BRI project demands (Githaiga et al., 2019). We therefore hypothesize that:

Hypothesis 1: Lack of organizational capabilities significantly obstructs SMEs' internationalization along the Belt and Road.

Firm-specific resource barriers and SMEs internationalization along the Belt and Road

Firm-specific resource challenges include constraints related to finances, firm size, and physical assets (Githaiga et al., 2019). The capacity to create and utilize resources is intimately related to a company's ability to internationalize. On the other hand, the limited availability of resources has a detrimental impact on a firm's ability to internationalize. A firm's failure to meet the needs of international markets and its lack of physical assets indicate its inadequacy in terms of production capacity, resulting in a failure to compete internationally. A firm's inability to access sufficient export resources results in its failure to secure credit from banks to finance international activities (Yeganeh, 2016). This situation imposes strategic constraints on the firm, leading to a scenario where the corporation either chooses not to engage in international projects or discontinues existing ones (Laufs & Schwens, 2014). Studies show that the size, assets, and financial resources make a significant difference for small firms when it comes to internationalizing along the Belt and Road (Githaiga et al., 2019; Laufs & Schwens, 2014). According to Gyamerah et al. (2022), the primary focus of the BRI is on projects within the infrastructure and construction sectors, necessitating substantial allocations of both human capital and financial investments. Therefore, possessing important resources could be a driving force behind businesses' success in the initiative. However, in the framework of the BRI, SMEs have more resource limitations than large companies, therefore exhibiting a greater aversion to risk toward the initiative. Based on the foregoing paragraphs, we propose that:

Hypothesis 2: Firm-specific resource barriers significantly inhibit the internationalization of SSA SMEs along the Belt and Road.

Information/knowledge barriers and SME internationalization along the Belt and Road

Information/knowledge is essential for a business to implement effective plans in a given environment. According to Oz et al. (2014), knowledge has emerged as a prominent resource within organizations in contemporary times. For African SMEs to succeed in the global space, they must establish a framework for organizational learning that enables the critical examination and evaluation of pertinent information within their external environment (Nawaz et al., 2021). Khan et al. (2020a, 2020b) argued that market research, governmental data sources, and networking are essential sources of knowledge for SMEs to make informed decisions and develop strategies to internationalize. However, if organizations do not possess the necessary expertise or resources to engage in market research, this might be a significant obstacle to acquiring the necessary information. Therefore, in order to thrive in the realm of internationalization along the Belt and Road, SMEs must possess export knowledge that is rooted in intelligence and make informed decisions based on this knowledge. Failure to do so would significantly impede their efforts toward internationalization. Meanwhile, studies have shown that SMEs that lack the capabilities and resources to obtain the required knowledge or information may have a severe interruption in their internationalization (Khan et al., 2020b; Yeganeh, 2016). Additionally, the study by Nawaz et al. (2021) found that ignorance or absence of informed judgment on the global market negatively affects firms' internationalization. According to Huang (2016), the BRI is novel, and although studies have shown that it facilitates the internationalization of SMEs (Li et al., 2019), not much is known about how SMEs in the host countries can integrate into the initiative. This lack of information may hinder the internationalization of the majority of African SMEs along the Belt and Road. Therefore, we hypothesize that:

Hypothesis 3: Information/knowledge barriers have a significant negative effect on the internationalization of SSA SMEs along the Belt and Road.

Networking barriers and SME internationalization along the Belt and Road

As established in the aforementioned paragraph, businesses need knowledge of potential markets, consumers, suppliers, products, prices, and demand when they want to internationalize. Networking serves as an effective information-gathering mechanism for businesses (Jones & Crick, 2004; Komulainen et al., 2006). This could also include making introductions to possible international business partners (Komulainen et al., 2006). Companies that engage in global networks may experience greater ease in expanding their operations internationally through these channels compared to companies with predominantly domestic networks (Osarenkhoe, 2008). Therefore, business networking facilitates the establishment of professional contacts, resulting in intangible advantages. The BRI has facilitated the process of internationalization for both state-owned and private enterprises in China, as well as for companies operating in BRI-affiliated countries (Hin, 2020). As a result, firms in BRI nations have begun to consider how to cooperate and find common ground with both local and international firms, which frequently have robust financial and human resource capabilities to operate successfully along the Belt and Road. Hin (2020) asserts that the existence of network barriers in the BRI is higher for firms with a lower international presence than for firms with adequate international integration. This implies that African SMEs are more prone to encountering network obstacles compared to SOEs and multinational corporations. Social and business network challenges have been found to negatively influence the border activities of firms (Pierre-Philippe et al., 2003). Prior studies have also found that the internationalization of African SMEs is adversely influenced by numerous networking challenges, including a lack of knowledge of global markets, difficulties in finding and analyzing markets, inability to get in touch with possible overseas clients, and inability to recognize foreign business opportunities (Al-Hyari et al., 2012; Cahen et al., 2016; Rahman et al., 2017). In light of this, we propose the hypothesis below:

Hypothesis 4: Networking barriers negatively affect SSA SMEs' internationalization along the Belt and Road.

Governmental barriers and SME internationalization along the Belt and Road

Governments assume an active position in fostering the growth and advancement of enterprises across several African nations. Consequently, firms exhibit a proclivity toward aligning with the interests and preferences of governmental entities (Mukherjee, 2018). Government assistance provides businesses in developing nations preferential access to specific inputs, financing, subsidies, and other forms of assistance. Government assistance could take the form of export training, tax breaks, subsidies, or incentives. Peprah et al. (2021) mentioned further that a legal infrastructure that is suited to market conditions and a legislative framework that encourages the growth of entrepreneurship, as well as commodity, capital, and labor markets, are all requirements for small firms' development. However, Adomako et al. (2019) reported that institutional barriers including a lack of sound tax regulation, lack of incentives, poorly equipped licensing and registration offices, and ineffective private sector institutions obstruct the international activities of African firms. Additionally, Gurin et al. (2015) posit that the BRI is significantly impacted by legal frameworks, government policies, and political uncertainties. Consequently, small firms encounter heightened difficulties in penetrating BRI countries due to these impediments. Therefore, we hypothesize as follows:

Hypothesis 5: Governmental barriers have a significant negative effect on the internationalization of SSA SMEs along the Belt and Road.

Political-legal barriers and SME internationalization along the Belt and Road

The political and legal systems have an impact on the international business climate and the manner in which companies operate. The business environment is significantly influenced by the political and legal framework of any nation, as it entails the modification or establishment of laws, rules, and regulations (Rahman et al., 2017). Political stability exerts a favorable impact on the conduct of corporate operations. Political authorities have the potential to facilitate the international expansion of enterprises by eliminating trade obstacles and embargoes, as well as establishing a stable and conducive climate that enables businesses to function and engage in commercial activities more effectively (Rahman et al., 2017). On the other hand, other political and legal factors, such as political instability, bureaucratic legal system, corruption, and inadequate legal support, negatively affect businesses' efforts to expand internationally (Bahoo et al., 2020; Gurin et al., 2015; Rahman et al., 2017). However, the study of Okpara and Kabongo (2010) found no significant impact of political barriers on the internationalization of African firms. Meanwhile, Rahman et al., (2017) assert that the BRI introduces substantial risk to business due to the political and institutional instability in most destination countries. As a result, SMEs choosing to expand international trade in such BRI markets face a drawback due to the risks and complications they may encounter. We therefore hypothesize that:

Hypothesis 6: Political-legal barriers negatively affect the international trade of SSA SMEs along the Belt and Road.

Research method

Study setting

Over the past decade, China has strengthened its longstanding economic connections with the SSA region by means of investments in infrastructure and engagement in international trade. The BRI stands out as a prominent illustration of these investments since it has received 21% of the total funds allocated to SSA since 2013. Out of the total of 46 countries in the region, 40 have participated in the initiative by formally endorsing it through the signing of a Memorandum of Understanding with China (Runde et al., 2021). SSA recorded a 3.4% economic growth rate in 2019. This is 0.7 percentage points more than that of 2018. It is further projected that SSA will become one of Africa's fastest-growing regions against the backdrop of the BRI. Through the BRI, cross-border transportation systems have been improved. This has helped regional trade, brought in more investment, and sped up the value chain between trade in Africa and the rest of the world (Runde et al., 2021).

In SSA, SMEs assume a pivotal role in expediting economic advancement, addressing unfulfilled needs, and generating employment opportunities. They represent the majority of firms in the manufacturing, construction, services, and retail sectors. The African Review (2018) reports that SSA SMEs employ about 77% of the workforce and contribute to 50% of the gross domestic product (GDP) in some countries. Nevertheless, as stated in The Africa Competitiveness Report (2017), inadequate infrastructure continues to pose a substantial obstacle to the advancement of SMEs within the continent. In the past decades, transportation infrastructure in SSA has deteriorated by 3% while the quality of the energy supply has decreased by 6%. Inadequate infrastructure is a significant obstacle in the establishment of a robust logistics supply chain, hence impeding the development of a strong foundation for logistics services and constraining the growth potential of SMEs. Nevertheless, the BRI has provided support to SSA in enhancing connectivity between inland, hinterland, and coastal regions, hence enhancing logistical efficiency and export capabilities. Additionally, it has contributed to the reduction of transit costs and the improvement of turnover efficiency, which have helped to support the integration of SMEs in the region into the initiative (Kamel, 2018).

In recent years, there have been scores of Chinese investments in SSA SMEs, with a junk of these investments in countries including Kenya, Ethiopia, Tanzania, Djibouti, and Nigeria (Githaiga et al., 2019). This has increased the level of cross-border activities of SMEs in the region. According to Runde et al. (2021), SMEs in the manufacture of leather, textiles, and plastics received more than $10 million in investment from nine manufacturing initiatives. In the agricultural sector, Chinese companies source their goods from Tanzanian SMEs and local suppliers. Furthermore, about 400 SMEs in Kenya operating in light manufacturing, construction, natural resource extraction, and tourism have received more than $178.9 million in investment from Chinese firms leading to the acceleration of their cross-border activities (Runde et al., 2021). Furthermore, there has been a notable influx of foreign-brand goods originating from countries in SSA, such as Kenya, Djibouti, and Tanzania into the Chinese market. These goods span various categories, including beauty products, infant products, food, climbing equipment, and textiles. This entry into the Chinese market has been facilitated through the utilization of cross-border e-commerce platforms (Jiang & Hui, 2021).

Sample selection

The study sample was made up of SMEs located in Ethiopia, Kenya, Tanzania, and Djibouti. These four countries were chosen based on three primary justifications: First, it is worth noting that a total of 38 nations in SSA have officially endorsed the BRI (Green BRI Center, 2020). However, these four countries under discussion presently serve as the central nexus for BRI initiatives in the SSA region. This prominence can be attributed to their advantageous geographical positioning and favorable economic circumstances (Green BRI Center, 2020). Secondly, they share certain similar characteristics in the areas of politics, market systems, economy, and BRI projects (Githaiga et al., 2019). Thirdly, they have similar cultural values and are at comparable stages of development. These countries are widely recognized as SSA's leading investment destinations in terms of foreign direct investment (Githaiga et al., 2019). This study is primarily concerned with SMEs that are engaged in construction and infrastructure, manufacturing, trade, and service sectors. According to Hafner and Knack (2022), the primary focus of the BRI is centered on infrastructure development and the facilitation of commerce within the region and among other participating BRI nations. According to Yu et al. (2019), enterprises operating in the construction, manufacturing, trading, and other service industries tend to attract a greater volume of investment compared to firms in alternative sectors. Even among independent owner-managed businesses in these three sectors in the region, SMEs engaged in international commerce and BRI projects are common (The African Review, 2018).

We obtained a list of SMEs from various regulatory bodies in the four selected countries. The list obtained was quite voluminous, with a total of about 18,234 firms. Therefore, for an SME to be included in the sample, it had to meet certain criteria. First, the SME must be involved in cross-broader activities (e.g., exporting, joint venture, greenfield) along the Belt and Road. Second, the SME should be independent and not a subsidiary. Third, the firm had to be operating in the manufacturing, construction, infrastructure, and trade and service industries. Finally, the SMEs had to have some knowledge and interest in the BRI and be either directly or indirectly involved in a BRI project. These criteria resulted in a preliminary survey target of 1056 firms. A questionnaire was posted on the internet using Google Forms, and the link was e-mailed to these SMEs. However, only 435 were successful due to incorrect or changed emails. Our research team also made telephone calls to some of the executives/managers of the SMEs to make them aware of the survey instrument. After 4 months, we received a total of 398 responses. After the removal of outliers and missing values, a viable sample of 344 SMEs remained. The demographic result of the survey indicated that 26.4% of the firms operate in the manufacturing sector, 34.5% in the construction sector, and 39.1% in the trade and services sector. A significant proportion of the participants (57.2%) have over 5 years of international experience, whilst 42.8% have accumulated less than 5 years of experience in the field of international business.

Data collection

The primary tool employed for data collection consisted of a survey questionnaire with a total of 18 items. The questionnaire was in English. Some international business and academic personalities examined the items for validity. After that, a pre-test was carried out by requesting the top executives of three international SMEs to carefully analyze the survey for precision and applicability. We reconstructed several items as needed in response to their feedback. The survey instrument required the respondents to indicate their level of agreement on the impact of perceived barriers to their internationalization along the Belt and Road on a five-point Likert scale (1-strongly agree, 2-agree, 3-neutral, 4-disagree, 5-strongly disagree). Six internationalization barriers were taken into consideration for this study; these were adopted from previous research and modified to fit the context of this study. The six dimensions are organizational capability barriers, firm-specific resource barriers, information/knowledge barriers, networking barriers, governmental barriers, and political-legal barriers (Cahen et al., 2016; Christensen et al., 1987; Kahiya, 2013; Uner et al., 2013). Participants were assured of complete anonymity in order to allay common method variance (CMV) concerns. The participants were also urged to be honest in their responses, and it was further stated that there was no right or wrong response. These lessened the likelihood of socially acceptable and tolerant responses and decreased the executives' anxiety about being evaluated.

Data analysis technique

The research utilized a two-step structural equation modeling (SEM) methodology, namely, a measurement model and a structural model. The confirmatory factor analysis (CFA) was utilized in the measurement model. The objective of the measurement model is to establish the relationships between latent variables and their corresponding observable variables. The study employed eight principal fit indices to test the appropriateness of the model (Hair et al., 2010). These indices are Standardized Root mean square residual (SRMR), chi-square statistics (X^2), comparative fit index (CFI), Tucker-Lewis Index (TLI), Goodness-of-fit Index (GFI), Parsimony Goodness-of-fit Index (PGFI), Adjusted Goodness-of-fit Index (AGFI), and root mean square of approximation (RMSEA). The model was adjusted iteratively based on the threshold of the aforementioned indices until satisfactory fit indices were attained. Table 1 presents the final model since it satisfies the majority of the goodness of fit criteria.

Table 1 Model fit indices

Fit Indices	Recommended value	CFA Model
X^2	$X^2 < 3.0$	2.33
P	$p < 0.05$	0.000
TLI	TLI > 0.95	0.965
SRMR	SRMR ≤ 0.05	0.051
GFI	GFI > 0.90	0.909
AGFI	AGFI > 0.90	0.903
PGFI	PGFI > 0.80	0.818
CFI	CFI > 0.9	0.936
RMSEA	RMSEA ≤ 0.08	0.065

X^2 chi-square statistics, TLI Tucker-Lewis Index, *p* p value, *SRMR* standardized root mean square residual, *GFI* goodness-of-fit index, *AGFI* adjusted goodness-of-fit index, PGFI parsimony goodness-of-fit index, *CFI* comparative fit index, RMSEA root mean square of approximation

Results

Confirmatory measurement model

The CFA was performed to validate the scale and ensure conformity to the conceptual model. In light of this, four types of validity tests were performed. These include content validity, convergent validity, nomological validity, and discriminant validity. For content validity, we performed a pre-test on the questionnaires to ensure comprehensive scrutiny of the instrument. The questionnaire was sent to three executives/managers of SMEs operating internationally. Their input was essential in modifying the final version of the questionnaire that was distributed. For convergent validity, we ensured that the factor loadings for all the variables achieved the required threshold of 0.5 and above (Hair et al., 2010). Any item that did not meet the threshold was eliminated from the construct. Furthermore, Cronbach's alpha reliability indices above 0.7 were achieved for the construct. The results of the convergent validity test are displayed in Table 2. The assessment of discriminant validity involved evaluating the extent to which a construct shares variance with other constructs in the model (Fornell & Larcker, 1981). The test was conducted by evaluating the square root of the average variance extracted (AVE) for a specific construct and comparing it to the correlation between that construct and all other constructs. The result is presented in Table 3. There is a significant correlation among all six constructs, and the AVE scores are higher than the correlations between the constructs; therefore, discriminant validity is achieved. Lastly, the nomological validity, which measures the internal consistency or unidimensionality of each construct, was tested. The nomological validity can be verified by referring to the composite reliability. Hair et al. (2010) assert, however, that the composite reliability is acceptable when the construct reliability values are larger than 0.6, and the AVE values are 0.5 or higher. Nomological validity is not a problem in this study since the values of the construct reliability and AVE in Table 2 satisfy the criteria (≥ 0.5) and (> 0.6) respectively.

Structural model and test of hypothesis

In this section, the results of the second-order CFA for the measurement model are presented. The purpose of this procedure was to conduct a cross-examination of the measured

Table 2 Psychometric properties of observed variables

Second-order construct	First-order construct	Loading	Cronbach's alpha	AVE	Construct reliability
Organizational capability barriers (OC)	Lack of management experience in BRI	0.788			
	Lack of experienced human resource	0.866			
	Lack of R&D and technological competence	0.794			
	Difficulty in providing innovative products	0.833	0.798	0.645	0.821
Firm-specific resource barriers (FB)	Small firm size	0.872			
	Lack of financial resources	0.768			
	Lack of physical assets	0.871	0.788	0.712	0.768
Information/knowledge barriers (IK)	Limited information to locate market	0.743			
	Data access difficulty	0.682			
	Lack of clarity in BRI policies	0.772			
	Inadequate knowledge of BRI	0.812	0.790	0.678	0.768
Networking barriers (NB)	Difficulty of access to business partners	0.756			
	Inability to build a relationship with decision-makers	0.832			
	Failure to build local networks	0.722	0.720	0.801	0.812
Governmental barriers (GB)	No clarity in domestic regulations	0.677			
	Complex government bureaucracy	0.568			
	Lack of incentives (tax, rebates, etc.)	0.785	0.810	0.784	0.868
Political-legal barriers (PB)	Political instability	0.662			
	Strict foreign rules and regulations	0.567			
	High tariff and non-tariff	0.778	0.687	0.672	0.634
Internationalization (IN)	Difficulty in exporting	0.833			
	Difficulty accessing BRI projects	0.884			
	Difficult to provide services overseas	0.890	0.766	0.659	0.860

AVE average variance extracted

model subsequent to the attainment of the psychometric qualities of the observed variables. The construction of the structural model was informed by the regression weights' magnitude and direction. Table 4 and Figs. 2 and 3 depict the results of the structural model.

The result depicts an established negative relationship between all the constructs except for firm-specific resource barriers and political-legal barriers. The result unveiled the following relationships: organizational capability barriers and SME internationalization ($\beta = -0.493$, $P = 0.000$), firm-specific resource barriers and SME internationalization ($\beta = -0.122$, $P = 0.103$), information/knowledge barriers and SMEs internationalization ($\beta = -0.458$, $P = 0.000$), networking barriers and SME

Table 3 Discriminant validity: correlations of the latent constructs and the square root of AVE

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Internationalization difficulty	(0.785)						
2	Organizational capability barriers	−0.308*	(0.788)					
3	Firm-specific resource barrier	−0.281**	0.353***	(0.812)				
4	Information/knowledge barriers	−0.312**	0.232*	0.098	(0.623)			
5	Networking barriers	−0.342**	0.298***	0.292*	0.231*	(0.798)		
6	Governmental barriers	−0.489*	0.501***	0.554***	0.123*	0.266**	(0.708)	
7	Political-legal barriers	−0.511*	0.422**	0.598***	0.231*	0.409***	0.339**	(0.776)

Items in parenthesis indicate the square root of AVE

***$p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 4 Path estimates and summary of hypothesis

Full sample						
Hypotheses	Regression path	Standard error	Critical ratio (CR)	Estimates (βs)	p values	Remarks
H1	IN → OC	0.015	0.234	−0.493	0.000	Established
H2	IN → FB	0.021	2.343	−0.122	0.103	Unestablished
H3	IN → IK	0.023	2.453	−0.458	0.000	Established
H4	IN → NB	0.011	3.234	−0.323	0.000	Established
H5	IN → GB	0.041	4.231	−0.210	0.000	Established
H6	IN → PB	0.021	1.254	−0.033	0.156	Unestablished

IN SME internationalization, *IK* information and Knowledge barrier, *OC* organizational capability barrier, *NB* networking barrier, *GB* governmental barriers, *PB* political-legal barriers

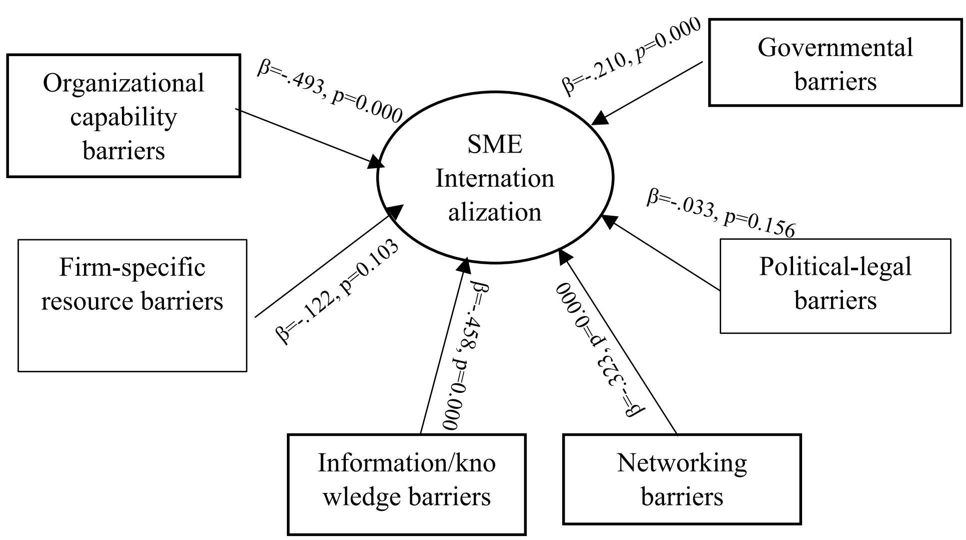


Fig. 2 Structural model

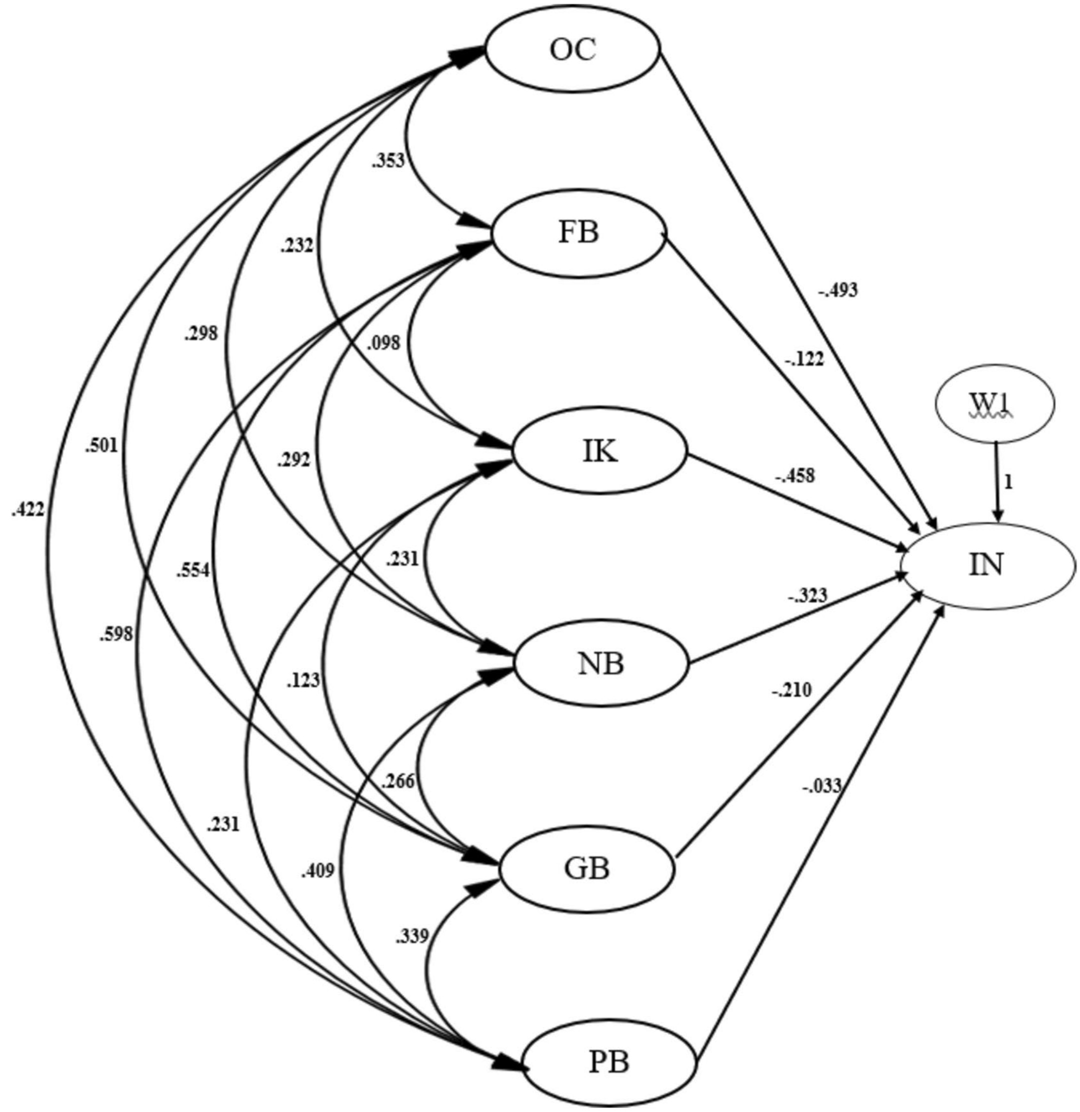


Fig. 3 Final structural and simplified best-fit model

internationalization ($\beta = -0.323$, $P = 0.000$), governmental barriers and SME internationalization ($\beta = -0.210$, $P = 0.000$), political-legal barriers and SME internationalization ($\beta = -0.033$, $P = 0.156$). Although inferences from the result suggest that four barriers had a similar significant association with SMEs' internationalization, information/knowledge barriers ($\beta = 458$) and organizational capability barriers ($\beta = 493$) demonstrated a more substantial impact on the internationalization of SMEs along the Belt and Road than the other two.

Industry analysis

For further understanding of the significant barriers, a cluster analysis was conducted. We ascertained the separate mean responses for the various industries. The aim is to identify the barriers that SME managers/executives in the three industries perceive as a high obstacle to their international trade. Significant differences were observed between the means ($p < 0.05$, ANOVA test), and the result is shown in Table 5.

First, the result shows that all three industries perceive governmental barriers as a high barrier to their internationalization. This result is not surprising considering that the BRI is a government-led initiative. Therefore, government initiatives, programs, and support for these industries are key to the successful internationalization of firms along the Belt and Road. Similar to governmental barriers, information/knowledge barriers were perceived as high barriers among all three sectors. This shows that the level of awareness and

Table 5 Mean analysis of significant industries

Factors	Means		
	Manufacturing	Construction	Trade-and-related service
Organizational capabilities barrier	4.51	3.35	2.6
Information/knowledge barriers	3.23	3.01	3.12
Networking barrier	2.05	3.84	3.50
Governmental barriers	4.23	3.95	3.87

knowledge of SME managers in the BRI is still limited. Therefore, there is a significant need for policy interventions to address and mitigate this obstacle. Third, networking barriers appear to be low for the manufacturing industries, while they are perceived as high in the construction and trade-and-related service sectors. This is surprising since the BRI is vastly concentrated in the construction industry. It was expected for SMEs in this sector to form more alliances with large firms for innovative collaboration. However, there appears to be a problem for construction firms forging relationships with BRI partners. Therefore, more innovative programs and policies on collaboration could be directed toward this industry. Last but not least, lack of organizational capability is perceived as a high barrier among the manufacturing and construction industries but appears to be low for firms in the trade-and-related service industry. This finding is expected since firms participating in the BRI need to be innovative and technologically inclined to produce innovative goods and services that meet the demands of projects, an attribute lacking in many African SMEs. In the BRI framework, firms in the manufacturing and construction industries are expected to meet this expectation more than firms in the trade-and-related service sectors.

Discussion

Organization capabilities barriers

As rightly hypothesized, this barrier had a significant association with SMEs' internationalization along the Belt and Road. Thus, hypothesis 1 is supported. This barrier was measured with four variables: lack of management experience, lack of experienced human resources, difficulty in providing goods and services that meet the needs of BRI projects and markets, and inadequate R&D and technological competence to compete on cost and quality. Prior studies have emphasized the importance of organizational capabilities (or their absence) as a major roadblock to internationalization (Rialp & Rialp, 2006). Once again, the result of this study supports the RBV on firm internationalization. According to Yeganeh (2016), African SMEs are commonly hindered by limitations in technology and innovation required to provide standardized goods and services in the international market. Additionally, Cahen et al. (2016) assert that SMEs lack the dynamic capabilities needed to transform firm resources into new and innovative goods and services in changing environments. The aforementioned theoretical justification explains why managers of SSA SMEs believe it is challenging to participate in BRI projects or internationalize along the Belt and Road. In addition to inadequate technology and lack of innovative goods and services, the result depicts that lack of management expertise and human resources in international operations continue to pose a major problem for SSA SMEs. This finding agrees with the studies of (Al-Kwifi et al., 2019; Okpara & Kabongo, 2010; Zahoor et al., 2023). African SMEs have been considered late adopters of internationalization and therefore have not fully experienced the gradual and incremental growth in foreign markets proposed in the Uppsala model (Vahlne & Johanson, 2013). Notwithstanding, the unveiling of the BRI has generated new opportunities and challenges for firms internationalizing along the Belt and Road. The majority of SSA SMEs lack the cumulative knowledge required to access and function in these BRI markets. Due to this disadvantage, managers of these SMEs find it challenging to plan effective international strategies, which may involve gaining access to valuable technological resources, personalizing goods or services to meet BRI specifications, and effectively competing with foreign rivals.

Firm-specific resource barriers

Our result did not support hypothesis 2. Thus, firm-specific resource barriers do not significantly affect the international trade of SSA SMEs along the Belt and Road. This barrier was measured with three items: small firm size, lack of financial resources, and lack of tangible assets. This finding is quite surprising, as it does not follow the traditional trajectory of identified barriers to African SMEs' internationalization. It is widely recognized that SMEs typically have limited resources than large companies which restricts their ability to engage in international trade (Yeganeh, 2016). SMEs are more likely to experience financial and asset constraints that limit their ability to take advantage of opportunities abroad (Okpara & Kabongo, 2010). Meanwhile, the

BRI primarily emphasizes infrastructure and connectivity projects, typically necessitating substantial financial and resource investments. This characteristic is notably absent in African SMEs. This study's findings, however, portray that firm-resource barriers do not influence SMEs' participation in the BRI. This can be attributed to the fact that the BRI has distinct economic and financial dynamics that may influence the operation of firms along the Belt and Road differently. This implies that a significant portion of the SMEs in SSA who are involved in the BRI primarily operate as specialized service providers or subcontractors for major companies. In addition, Alon et al. (2019) asserted that current infrastructure development under the BRI has lowered certain logistics barriers for SMEs' exports. As a result, SMEs' involvement in the BRI or foreign activities along the Belt and Road might not be influenced by factors such as their size, ownership of assets, or financial capability.

Information/knowledge barriers

As expected, the result on the information/knowledge barriers supports hypothesis 3. This barrier relates to four items: insufficient information on foreign markets, data access difficulty, lack of clarity in BRI policies, and inadequate knowledge of BRI. The managers and executives of SMEs perceived themselves as lacking sufficient understanding of the prospective policies and markets associated with the BRI. This knowledge gap significantly hindered their efforts to expand their export operations along the BRI route. This outcome is in line with previous studies that reported informational barriers as key obstacles for SMEs in developing markets (Pinho & Martins, 2010; Suárez-Ortega & Álamo-Vera, 2005). This finding demonstrates that the majority of SSA SMEs are limited in the degree to which they can become internationalized due to their lack of knowledge of the BRI and the BRI markets. The finding is not surprising considering the novelty of the initiative. The BRI presents a range of opportunities and challenges for both large and small enterprises. However, the limited understanding and information regarding the BRI and its potential impact on firms persist as significant obstacles, particularly for SMEs (Damuri et al., 2019). This assertion is supported by the work of Johanson and Vahlne (1977) which posits that SMEs from developing countries face complexities in internationalizing and establishing a position in the international market due to a lack of knowledge of the market. According to Nawaz et al. (2021), timely access to new knowledge in the market, technology, policies, and processes about foreign markets can have a significant impact on the international performance of firms. SME managers who view a lack of information/knowledge as a major obstacle are more likely to experience poor international performance along the Belt and Road. This is because SMEs with a high level of knowledge barriers feel unsure about how to engage in BRI projects and markets. This may help to explain the negative link between information/knowledge barriers and SMEs' participation in the BRI as well as internationalization along the Belt and Road.

Networking barriers

The findings for networking barriers support our hypothesis 4. Thus, networking poses a challenge to SSA SMEs' internationalization activities along the Belt and Road. This barrier was measured with three items: difficulty identifying the right business partners in BRI markets, inability to build a relationship, and failure to build local networks. The results indicate that managers and executives of SMEs face difficulties in the initiation, development, and sustainability of relationships with business partners in markets related to the BRI. This finding is supported by the study of Tambunan (2011), which reported that SMEs have limitations in building networking with their local and international parties. Additionally, Lin and Lin (2016) reported that SMEs in developing countries are less successful in building business networks in foreign markets than those in developed countries. This finding could be linked to the lack of information on the BRI by the SME managers/executives as it has been established that information plays a pivotal role in embedding international networks and improving relationships. According to Gyamerah et al. (2022), SMEs benefit from networking by participating in the BRI; however, we found that the majority of SSA SMEs trading along the Belt and Road are unsuccessful in building relationships with the right local and international partners.

Governmental barriers

The findings also support Hypothesis 5. Thus, governmental barriers affect SMEs' participation in the BRI and international activities along the Belt and Road. This barrier relates to three items: no clarity in domestic regulations, complex government bureaucracy, and lack of support and incentives (training programs, credit lines, tax incentives). The managers of SSA SMEs perceive these governmental barriers as an influential obstacle impeding their firms' internationalization within the BRI framework. The role of government in business has been extensively researched, particularly in regard to SMEs' internationalization efforts. The finding indicates that the regulatory frameworks of both the host and home nations pertaining to the BRI pose significant obstacles for SMEs seeking to leverage the potential benefits of the BRI for international expansion. Similar to this finding, Okpara and Kabongo (2010) reported differences and ambiguous domestic rules and regulations between countries to obstruct the internationalization of SMEs. In addition, similar findings on inadequate incentives (Cahen et al., 2016) and cumbersome procedures (Morini et al., 2021) have been identified to impede the internationalization of SMEs. The BRI is a global economic project that involves bilateral agreements between the governments of the home and host nations. Hence, governmental factors exert a substantial influence on the successful implementation of the BRI. In light of that, government regulations and restrictions, taxes, and lack of incentives increase the cost of doing business in the Belt and Road markets. Additionally, inspection procedures, safety standards, and other seemingly bureaucratic practices obstruct SMEs' participation in the BRI as well as internationalization in BRI markets.

Political-legal barriers

Similar to firm-specific resource barriers, our result does not support hypothesis 6. Thus, political-legal barriers do not obstruct the internationalization of SSA SMEs along the Belt and Road. The findings pertaining to political-legal barriers demonstrate a slight deviation from prior research, which has predominantly underscored the significance of political-legal issues in influencing firms' internationalization efforts (Kapri, 2019; Witte et al., 2020). For example, Cahen et al. (2016); Morini et al. (2021); Omokaro-Romanus et al. (2019) reported that political instability in foreign markets is a major barrier to SMEs' internationalization. In addition, recent studies have reported that countries in the SSA region (for example, Ethiopia and Kenya) have recently experienced political and ethnic tumults, and according to Cheru (2016), political instability in the region has affected BRI projects like the cessation of the Addis Ababa-Djibouti railway project. Hence, the conflicting outcomes pertaining to political instability indicate that businesses, notably SMEs, perceive the BRI as primarily an economic integration initiative rather than a geopolitical one. Additionally, Buckley (2020) and Van Assche and Lundan (2020) posit that despite the prevailing political and institutional instability in a significant number of destinations associated with the BRI, this initiative is being promoted as an IB policy solution. This is particularly relevant given the current rise in protectionist sentiments and the trend towards deglobalization.

Conclusion, implications, limitations

Conclusion

The barriers to SME globalization have been thoroughly examined in the IB literature. The majority of these studies have primarily focused on firms in developed and emerging markets (Al-Hyari et al., 2012; Cahen et al., 2016; Chaplin, 2013; Jabeen, et al., 2021; Okpara & Kabongo, 2010; Rahman et al., 2017; Roy et al., 2016; Uner et al., 2013). Although there is a plethora of research on the internationalization barriers of SMEs, this study is among the first to address these barriers among SSA SMEs in the BRI framework. It further investigated the dynamic effects of the variables on various industry types. The primary motivation is to ascertain the obstacles to SME internationalization within the BRI framework, while also highlighting the practical and policy implications that can be of value to SME managers and policymakers. The results align with three well-established theoretical frameworks: institutional theory, resource-based view, and networking theory. The findings make valuable contributions to the literature on the obstacles to international trade within the context of the BRI. The study also adds to the discussions on the firm-level impact of the BRI, and it also responds to calls for further studies to develop models for SME integration into the BRI (Alon et al., 2019; Li et al., 2020). In light of this, our theoretical model provides an integrative and comprehensive set of both external and internal factors that obstruct the international activities of SMEs in the framework of the novel BRI. Specifically, the findings indicate that SSA SMEs along the Belt and Road perceive four major obstacles to internationalization: organizational capability barriers, information/knowledge barriers, networking barriers, and governmental barriers. Further industry analysis suggests that the effect of these barriers varies among industry types. Contrary to our expectations, firm-specific resources and political-legal barriers were found not to significantly obstruct the international activities of SSA SMEs.

Policy implications

The BRI is a grand and long-term project of China that still needs a redefinition of many aspects by the Chinese government. Undoubtedly, African counterparts, industries, and businesses from both the host and home countries should participate in influencing these criteria. The primary focus of this study was to investigate the trade barrier that SSA SMEs encounter while trying to reach the Chinese market and other BRI markets within their jurisdiction. Our research findings indicate that effective national and international policies are unquestionably needed to support SMEs engaged in trade along the Belt and Road. This study, therefore, makes the following suggestions to guide policymakers in alleviating such barriers. To begin with, Li et al. (2019) posit that SMEs participate in the BRI if they receive substantial government funding and support. Therefore, we suggest that governments from both sides ensure that SMEs are given the necessary incentives and supports (credit lines, training programs, tax incentives), access to government programs and interventions is made less bureaucratic, and clarity in both local and BRI regulations should be a priority to the government. Secondly, networking and cooperation are critical in the development of firms within the BRI framework. These activities enable firms to explore new opportunities and engage in collaborative efforts, hence facilitating the integration of SMEs into the global market. Therefore, policymakers should facilitate the establishment of more avenues via which SMEs engaged in trade along the Belt and Road can foster partnerships with firms undertaking large projects. This collaborative approach should aim at promoting innovation and mutually beneficial cooperation. Finally, SMEs are vulnerable due to changes in the global business environment, especially when they lack the necessary information and knowledge to integrate into the business environment. Realizing that the BRI is novel, governments from both sides should enhance information networks on both international and national basis. Governments and non-governmental organizations (NGOs) from various nations could establish multiple specialized or comprehensive platforms aimed at facilitating the exchange of information, technology, and talent. These initiatives can serve to amplify advantages and foster the dissemination of successful development strategies.

Managerial implications

Business managers or executives of SSA SMEs must understand what obstacles can obstruct their international trade along the Belt and Road. This information will guide internal decisions and aid in a realistic assessment of the company's capacity for expansion and international competition. Based on our research, managers/executives of SSA SMEs are enlightened to recognize barriers originating from a country's institutional structure, businesses' capacity for networking, firms' degree of information and expertise, or the extent of firms' organizational capabilities. Employing managers with extensive international experience and knowledge in the BRI, for example, is a good way to curb information and network barriers. Managers can also invest in creating an internationalization-friendly culture throughout all divisions. The key to improving human resources within the organization is to provide top and mid-level managers with the necessary training (either internally or through consultants) to get them ready for global operations along the Belt and Road. Innovation and technology are considered the core parts of international trade along the Belt and Road (Masood, 2019). Therefore, SME managers should take advantage of technology transfer initiated under the BRI framework to upgrade the technological skills of their firms in order to produce innovative and quality goods and services that satisfy the needs of international markets. To minimize or overcome the institutional or external barriers, SME managers operating in nations participating in the BRI may begin by contemplating methods to engage in collaboration, establish strategic alliances, and identify shared interests with their Chinese counterparts. It is worth noting that Chinese counterparts typically possess substantial financial and human resources, as well as knowledge of trading within the Belt and Road region (Hin, 2020). Furthermore, the managers can establish a better relationship with the government of the host country in order to receive government support and incentives such as credits, tax rebates, training, and loans, among others.

Limitations and future research

This study has certain limitations that can help guide future research. First, the study is based on data gathered from SME managers/executives in four SSA nations. This limits the generalization of the results to SMEs in other regions of Africa. Future studies need to explore these firm barriers in additional BRI countries/regions in Africa for more meaningful insight. The examination of data from other BRI nations can perhaps enhance comprehension of the primary challenges in specific circumstances. Furthermore, the study uses cross-sectional data in testing our model. However, a cross-sectional study fails to consider the gradual process of management perception formation. Therefore, future studies can examine the barriers through a longitudinal study. Moreover, different data collection methods, such as personal interviews and secondary data, could also be used in future studies to provide an in-depth and robust insight. Notwithstanding, future studies should consider incorporating external measurements, such as the global competitiveness index or governance indices provided by the World Bank to assess institutions effectively. It is vital to highlight that this study centered on SMEs that operate in three distinct sectors, namely, manufacturing, construction and infrastructure, trade, and the service industries. However, companies that are involved in internationalization efforts along the Belt and Road are spread across several industries, each of which may necessitate unique information, technology, skills, capabilities, and resources in order to effectively conduct trade. Further investigation is warranted to explore the variations in the perception of barriers across different industries.

Author contribution SG conceived the idea and wrote the introduction, methodology, and data analysis. EEG drafted chapter two. ZH assisted in the review of the work.

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Data availability Data would be made available upon request.

Code availability Not applicable.

Declarations

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