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Exploring the link between home country attributes and firms' internationalisation: evidence from GEDI and WEF data

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Abstract

Purpose – This study aims to examine the degree to which a selection of home country factors affects the proclivity of firms to internationalise. The study also proposes and tests a conceptual model that fuses institutional and resource-based theories to improve our understanding of firm internationalisation.

Design/methodology/approach – The study uses cross-sectional, national-level secondary data from the 2018 Global Entrepreneurship Development Institute and World Economic Forum data sets on global entrepreneurship and competitiveness indices for 137 countries. The data is analysed using correlation and hierarchical regression analysis to test the hypotheses.

Findings – The results indicate that national income, institutions, trade openness and availability of risk capital positively influenced firm internationalisation, while home-country networking had an inverse effect. However, home country infrastructure had no statistically significant effect on firm internationalisation.

Research limitations/implications – The findings highlight the importance of considering home country attributes in understanding the internationalisation of firms.

Originality/value – This study contributes to the body of knowledge by providing empirical evidence of the role of local factors on the internationalisation of entrepreneurial ventures. It also tests a novel conceptual model that integrates institutional and resource-based theories to explain the nuances of the internationalisation of business ventures globally.

Keywords Resources, Internationalisation, Institutions, Trade openness, Networking, Risk capital, Infrastructure

Paper type Research paper

Introduction

Business organisations that engage in international business activities play a crucial role in the economic progress of their home countries (Vinhas da Silva *et al.*, 2022). The internationalisation of firms enhances the country-level competitiveness and prosperity by expanding business markets, affording access to valuable resources, risk diversification, knowledge and technology transfer, as well as promoting overall economic growth (Cuervo-Cazurra and Narula, 2015; Kahiya, 2020). In the case of developing countries, the expansion of local business entities beyond borders is an opportunity to break free from poverty and accelerate economic development through increased exports, job creation and improved living standards (Tahir and Azid, 2015).

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As a result, the internationalisation phenomenon has emerged as a prominent topic in business and entrepreneurship research.

The internationalisation of various types of business entities is increasingly important in today's globalised environment; however, the dynamic nature of the global business environment constantly disturbs and complicates the configuration of the variables affecting the internationalisation process (Vahlne, 2020). Thus, there is still a lack of consensus on the universal determinants of the internationalisation of business organisations (Jiang *et al.*, 2020; Graves and Thomas, 2008; Haddoud *et al.*, 2021; Kafouros *et al.*, 2022). In view of this, there is ample room to expand our understanding of the factors and mechanisms that affect firms' propensity to internationalise despite the extensive research already conducted on the theme. Further investigations can help narrow this knowledge gap and provide businesses with a more comprehensive understanding of this intricate process. Through a clearer and up-to-date understanding of the relevant determinants, businesses can adapt to environmental changes and make well-informed decisions regarding their internationalisation strategies.

Previous studies on the determinants of firm internationalisation, mainly those based on the strategic management perspective, have focused predominantly on the firm-level drivers such as resource endowments, capabilities and strategic orientation and downplayed local contextual factors (Barney, 1991; Peng *et al.*, 2009; Johanson and Vahlne, 2009; Oviatt and McDougall, 1994). Hence, the extant literature has not exhausted the issue of how non-firm related factors either promote or impede firm internationalisation (Adomako *et al.*, 2020). Recently, there has been a growing recognition of the importance of contexts, and some studies have explored the interplay between firm-level drivers and regional attributes (Li, 2018; Narula and Verbeke, 2015; Javalgi and Grossman, 2014). According to the institutional theory, the institutional environment in which business entities operate either discourages or inspires their decision to internationalise (Scott, 2014). Similarly, the resource-based theory suggests that a firm's resources and capabilities can either promote or restrict its ability to internationalise (Hitt *et al.*, 2021). In view of this, combining institutional and resource-based perspectives can provide a broader approach to understanding the determinants of firms' proclivity to internationalise.

Some previous studies have acknowledged home country attributes as having an impact on firms' inclination to internationalise (Yang *et al.*, 2022; Tsukanova, 2019; Cuervo-Cazurra *et al.*, 2018). For instance, higher national income, as reflected in a country's gross domestic product (GDP), has been found to have a positive influence on firm internationalisation (Aparicio *et al.*, 2021). Similarly, institutions such as legal and regulatory frameworks have been linked to the internationalisation of businesses (Moreira *et al.*, 2022). Other studies also found trade openness to have a contributing effect as it affords firms access to new markets and customers (Qamruzzaman and Jianguo, 2020; Kong *et al.*, 2021). However, the collective impact of these factors, coupled with other important variables such as infrastructure, networking and risk capital, on firm internationalisation remains relatively underexplored in the field of international business literature. While each of these aspects individually offers valuable insights into the dynamics of a firm's decision to expand into foreign markets, a comprehensive approach that considers a range of factors is necessary to achieve a more profound understanding of the phenomenon of internationalisation. Consequently, the present study aims to bridge this research gap by investigating the combined influence of domestic factors, including national income, institutions, infrastructure, networks, trade openness and the availability of risk capital, on firms' inclination to engage in internationalisation. The study adopts a country-level analysis. The investigation is guided

by the integration of institutional theory and resource-based perspective. The overarching research question is:

RQ1. To what extent do home country factors influence the propensity of firms to internationalise, and how can these factors be integrated into a broader conceptual model to enhance our understanding of firm internationalisation?

The study uses cross-sectional national-level secondary data extracted from the 2018 Global Entrepreneurship Index (GEI) and Global Competitiveness Index (GCI) data reports to test the proposed hypotheses. The findings reveal that national income, institutions, trade openness and availability of risk capital have positive and statistically significant impacts on firm internationalisation. Conversely, the effects of home-country networking were found to be negative. However, the study did not find a statistically significant effect of home country infrastructure on firm internationalisation.

The remaining sections of the paper are organised as follows. Firstly, the theoretical framework and review the relevant literature pertaining to the study variables are presented. This is followed by an explanation of the research design and methodology used. Subsequently, a discussion the study's finding and their implications follows. Finally, the paper concludes with a discussion of the practical implications, limitations and suggestions for future research.

Literature review and development of hypotheses

Theoretical framework

The present study is based on an integrated framework of the institutional theory and resource-based perspectives to provide a comprehensive theoretical base to explain firm internationalisation. The combination of the two theories is informed by the realisation that the internationalisation potential of entrepreneurial ventures can be influenced by a combination of factors, including resource endowments and capabilities as well as environmental aspects as demonstrated in the study by Peuker *et al.* (2021). Furthermore, Vinhas da Silva *et al.* (2022) posit that the complexities of the strategic internationalisation of firms can be understood better through explanatory schemata derived from combining different theoretical frameworks.

Institutional theory provides a valuable framework for understanding the influence of social, political and economic institutions on the activities and strategies of firms (Hitt *et al.*, 2021). The theory suggests that institutional factors such as government regulations, cultural norms and social norms shape how firms behave in a particular context (Gilman and Edwards, 2008). Such factors fall into two categories, that is formal and informal institutions, both of which are key components of the business environment (Scott, 2014). Formal institutions are those constituents of the business environment that are immediate to the firm and wield a direct impact on the commercial prospects accessible to a firm (Urban and Kujinga, 2017). Examples of formal institutions include laws and regulations. In contrast, informal institutions denote the contextual aspects that unofficially direct how economic agents interrelate in the pursuit of economic breakthroughs. According to Cuervo-Cazurra *et al.* (2018), a country's institutional attributes collectively shape the type and level of economic activity. Considering this, the study of the home country's effects on the inclination of firms to internationalise requires careful consideration of the formal and informal institutional factors that may influence their decisions.

The resource-based view of management strategy, on the other hand, underscores the contribution of a firm's resources and capabilities to its capacity to progress into external markets. This viewpoint postulates that a firm's resources, which can be tangible or

intangible capital, augment its distinctive competencies and lead to competitive advantage (Hitt *et al.*, 2021; Grant, 1991). Entities with a solid resource base, including financial resources, human capital and technological capabilities, are more likely to internationalise than those deficient in such possessions (Tallman and Li, 1996). This theoretical perspective also underscores that a firm's resources need to satisfy various conditions to effectively contribute to its competitive advantage. Barney (1991) postulates that resources need to be valuable, scarce, inimitable, heterogeneous, superior and not easily transferrable to rivals. The assumptions of the resource-based perspective can be used to partially explain how a country's resource endowments and capabilities can influence the extent to which entrepreneurial firms expand the scope of their activities into international markets.

The present study addresses the need for a nuanced understanding of the forces that drive the international expansion of firms. By integrating institutional theory and resource-based perspectives the study contributes to the existing literature on international business and strategy by offering insights into the complex dynamics of firm internationalisation.

Literature review and hypotheses development

The literature on the key study variables and their relationships is examined in this section, leading to the study hypotheses.

Firm internationalisation

The concept of firm internationalisation is significant in the contemporary global business landscape (Cumming *et al.*, 2016). However, defining the term firm internationalisation precisely is difficult (Üner *et al.*, 2022). The term is often used to refer to the process by which firms expand their operations across national borders, engaging in activities such as foreign market entry, cross-border investments and global supply chain integration (Loué, 2018). Because the expansion of firms into foreign markets is an outcome of deliberate strategic decision-making as leaders and managers of business ventures pursue and exploit opportunities (Yang *et al.*, 2020), understanding the determinants of firm internationalisation is crucial for both scholars and practitioners of international business. By delving deeper into the factors that drive or hinder internationalisation, researchers can provide valuable insights that can inform strategic decision-making by managers, policymakers and investors. Furthermore, as the global business environment continues to evolve rapidly, it becomes increasingly important to explore the determinants of firm internationalisation to adapt to emerging trends, such as technological advancements, shifting consumer preferences and geopolitical changes.

Institutions and firm internationalisation

Institutional factors, formal and informal, shape the choices and decisions of firms and individuals in a society operating therein (Scott, 2014). Hence, the relationship between home country institutional factors and firm internationalisation is increasingly a topic of interest in the international business and strategic management literature (Estrin *et al.*, 2012; Hernández *et al.*, 2022a; Stoian and Mohr, 2016). Results from previous studies indicate that home country institutional factors may impact on a firm's decision to pursue international activities, including the method and scope of the international activities (Correa *et al.*, 2022; Gaur *et al.*, 2014; Tsukanova, 2019; Yang *et al.*, 2022). Home country institutional factors such as the quality of governance, the legal and regulatory environment, the level of economic development and the cultural norms and values of the home country create enabling or limiting conditions for firms seeking to go international (Chen *et al.*, 2019; Deng and Zhang, 2018; Estrin *et al.*, 2016; Hernández *et al.*, 2022).

Although the relationship between national institutions and firm internationalisation has received some attention in international business research, further inquiry is warranted to further validate the relationship across different temporal and spatial contexts. Thus, the following hypothesis is suggested:

H1. A conducive institutional environment in the home country has a significant positive impact on a firm's internationalisation strategy.

Trade openness and firm internationalisation

Openness to trade refers to the extent of a country's economic integration with the global economy, encompassing the exchange of goods, services, capital and labour (Gwartney *et al.*, 2016). Marceta and Bojnec (2022) equate trade openness to trade liberalisation and argue that it confers advantages on countries seeking to sell their products in foreign markets. Countries that adopt liberal trade policies tend to exhibit greater participation in international trade compared to those with more restrictive policies (Kahiya, 2013; Bas and Ledezma, 2020). Although the existing literature generally associates trade openness with economic growth (Selatan, 2010; Silajdzic and Mehic, 2018), the precise impact on firm internationalisation remains elusive. Dowricks and Golley (2004) posit a positive correlation between trade openness and firm internationalisation, asserting that a more open trade environment provides local firms with enhanced access to new markets, customers and resources.

Elewa (2019) distinguishes between the effects of domestic and foreign market openness. The scholar argues that opening domestic markets reduces trade costs and unleashes competitive forces that lead to lower selling prices and profit margins, potentially driving less productive firms out of business. However, for some firms, the increased competition in the home market is a trigger for a competitive escape into foreign markets (Cuervo-Cazurra *et al.*, 2018). Due to the mixed findings in the literature, it is evident that the relationship between trade openness and firm internationalisation remains inadequately understood, necessitating further investigation. Consequently, the following hypothesis is proposed:

H2. Greater trade openness is associated with increased firm internationalisation.

Infrastructure and firm internationalisation

Infrastructure encompasses both physical systems, such as transportation, communications, energy and financial systems, as well as institutional systems (Organisation for Economic Co-operation and Development -OECD, 2014). A large and growing body of research has investigated the link between infrastructure and firm internationalisation. Much of the research has generally concluded that these two factors are closely intertwined, as a well-developed infrastructure is seen as supporting economic activities (Duran-Fernandez and Santos, 2014; Elango and Sethi, 2007; Meersman and Nazemzadeh, 2017; Neves and Rocha, 2022). Recent evidence suggests that the level of infrastructure sophistication in a home country, among other factors, can significantly influence a firm's inclination to internationalise (Cuervo-Cazurra, 2017). According to Estrin *et al.* (2017), a robust infrastructure endowment within a country provides firms with the necessary resources and capabilities to engage in international activities. In contrast, deficient infrastructure creates barriers, increases costs and heightens risks associated with international activities, making it arduous and less appealing for firms to compete in foreign markets (Elango and Sethi, 2007; Naudé and Matthee, 2011). However, Boso *et al.* (2019) observe that the effect of poor

local infrastructure on firm internationalisation in a specific country is ambivalent. In some instances, it may act as a general constraint on firms' performance and growth, while in other instances, it may spur firms to enter foreign markets to escape local environmental challenges (Oludotun *et al.*, 2022). Given these considerations, the following hypothesis is proposed:

H3. Adequate home country infrastructure positively impacts a firm's likelihood to engage in internationalisation activities.

Risk capital and firm internationalisation

Risk capital refers to funds invested in speculative ventures, including early-stage business ventures, with the expectation of generating significant returns (Gompers and Lerner, 2001). There are suggestions that access to risk capital in the home country is integral to firms' propensity to engage in international trade. For instance, Nunes and da Silva (2019) found that where risk capital is readily available, firms tend to invest more in research and development, marketing and other initiatives that support international growth. This view is corroborated by Hitt *et al.* (2021) who postulate that such a home environment also allows firms to take risks and pursue growth opportunities that they may not have been able to otherwise. In the same vein, Zhang and Li (2020) posit that risk capital can help firms overcome the costs associated with entering new markets, complying with foreign regulations and managing currency risk. In other words, with ample financial resources, firms seeking to internationalise can invest in the resources and infrastructure needed to effectively navigate these challenges and pursue international opportunities. However, Berger and Udell (1998) point out that access to excess risk capital might lead to over-expansion and unsustainable growth, which can harm the long-term prospects of the firm. From the foregoing, the link between risk capital and firm internationalisation is a complex one, and there is still much to discover regarding this relationship. Further exploration can help firms make decisions about whether and how to internationalise. Thus, the following hypothesis is advanced:

H4. Greater availability of risk capital in the home country positively impacts firm internationalisation propensity.

Networking and firm internationalisation

Home country networks are integral to the successful internationalisation of firms as these can provide firms with valuable resources, such as information, expertise and support, that can help facilitate their international expansion efforts (Saiyed *et al.*, 2023). Home country networking in the business context refers to the connections and relationships that a firm has with individuals and organisations within its home country for the purposes of exchange of goods and services (Johanson and Vahlne, 2009). These connections may include business partners, government officials, industry associations and academic institutions.

The extant literature reveals a consistent link between network relationships and firm internationalisation. For example, Cannone and Ughetto (2014) highlight the importance of network relationships as key drivers of early internationalisation and born-globalness in the high-tech start-up sector. This finding is consistent with the findings of Cainelli *et al.* (2012), who discovered that inter-firm network relationships and agglomeration economies have a positive impact on multinational firms' international expansion and adoption of

environmental innovations. Morrish and Earl (2021) found that personal and inter-firm networks both contribute to the internationalisation of premium winegrowers when they examine the influence of network relationships and the institutional environment. Inter-firm networks assist in establishing international legitimacy, whereas personal networks are critical in establishing brand authenticity.

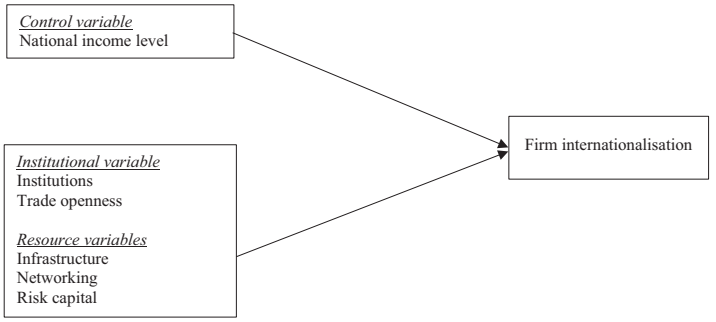
In the context of small- to medium-sized enterprises (SMEs), Che Senik *et al.* (2011) establish networking as a significant source of business expansion, particularly in emerging economies. Furthermore, Felzensztein *et al.* (2019) show how trade associations within regional wine clusters can help small winemakers go global. The presence of a reputable association in charge of cluster promotion and branding fosters internationalisation by improving collaboration and shared vision among cluster members. Dana (2001) emphasises the transformative opportunities offered by local networks for small businesses, facilitating their internationalisation. Musso and Francioni (2015) note that while local networks may not be as relevant for the development of international markets, other forms of networking play a key role in the internationalisation of Italian winemakers.

Some scholars, however, have criticised the contribution of home-country networks. According to Hennart *et al.* (2017), Belgian SMEs' over-reliance on domestic networks hampered their ability to access new and diverse information and resources in international markets. Thus, the following hypothesis is proposed:

H5. Home country networks predict firm internationalisation propensity.

A schematic representation of the proposed relationships is illustrated in Figure 1. The model distinguishes the predictors into control, institutional and resource variables. Infrastructure, networking and risk capital are classified as resource factors as they offer resources such as information, expertise, finance and other pertinent support that firms can exploit for their internationalisation endeavours. However, this classification is simplistic as these variables are multifaceted and some may have an institutional nature, contingent on the context of an investigation.

Including national income level (GDP per capita) as a control is crucial in a model that examines the relationship between home country resources and institutions and firm internationalisation. Higher national incomes in home countries have a positive impact on internationalisation by providing better access to resources and markets, as well as greater economic stability and infrastructure (Meyer *et al.*, 2009). Additionally, GDP per capita



Source: Figure by author

Figure 1.
Conceptual model of hypothesised relationships

may affect a home-country's institutional environment, including its legal and regulatory framework, influencing a firm's internationalisation strategy (Kostova, 1997). Thus, national income level is captured as a control variable in Figure 1 to enable an accurate assessment of the relationship between selected home-country factors and internationalisation propensity.

Methodology

This section presents the study's design, sample selection approach, data gathering procedure, statistical analyses and ethical considerations.

Design and population

This study employed a quantitative approach and cross-sectional survey design to investigate the impact of home-country national institutions, infrastructure quality, trade openness, networking and the availability of risk capital on firm internationalisation, while accounting for the effects of varying national income levels. This approach is appropriate for this type of research because it allows the researchers to collect data, test hypotheses and make inferences about the population. By controlling for the effects of varying national income levels, the study isolated the influence of economic development on firm internationalisation. This enabled the analysis to focus on the impact of main factors under investigation and assess their significance in explaining internationalisation patterns.

These variables are key components of the GEI and the GCI, both of which are provided by Global Entrepreneurship Development Institute (GEDI) and World Economic Forum (WEF), respectively. As a result, the analysis uses country-level secondary data gathered from the 2018 databases of GEDI and WEF, which includes 137 countries. The list of countries whose data is analysed can be found in Appendix. The GEDI data set has been collected since 2006, and the GCI data set has been collected since 1979. In addition, the GEDI data set is updated annually, while the GCI data set is updated every three years.

The GEDI and WEF data were chosen because they are comprehensive and up-to-date and reflects the latest trends in entrepreneurship and competitiveness. In addition, the GEI and GCI offer readily available and regularly updated datasets that cover a wide range of countries. This facilitates data collection for the study, reducing the time and resources required for gathering primary data. Notably, the GEI and GCI are widely used by policymakers, governments and international organisations to assess and benchmark countries' entrepreneurial and competitive environments. By incorporating variables from these indices, the study's findings can directly inform policy discussions and recommendations.

Sampling

No data sampling was performed; all countries included in the GEDI (2018) data set were used. However, some of the countries on the GEDI list did not appear on the WEF list and, as a result, had missing data for the trade openness, infrastructure and institutions variables. To maximise the use of available data, retain statistical power and avoid bias that might arise due to data imputation, pairwise deletion of data was used when testing hypotheses. The GEDI and WEF Web pages explain the procedure used to compile the data for different countries.

Measurement instrument

The study comprised one dependent variable (i.e. firm internationalisation), five independent variables (institutions, infrastructure, trade openness, risk capital and

networking) and one control variable (national income level). Composite scores were obtained for each of the seven variables from the applicable database, between the GEDI and WEF databases. The internationalisation score (from GEDI) relates to the following question: Do entrepreneurs want to enter global markets and is the economy complex enough to produce ideas that are valuable globally? The institutions' score (from WEF) was derived from the institutions pillars of the GCI and related to the conduciveness of the following public and private institutions: property rights, undue influence, ethics and corruption, government efficiency, security, corporate ethics and accountability; the infrastructure score (from WEF) was derived from the GCI and relates to the quality of infrastructure in the following aspects: transport, electricity and telephony. The networking score (from GEDI) addresses the question: Do entrepreneurs know each other and how geographically concentrated are their networks? The risk capital score (from GEDI) addressed the: "Is capital available from both individual and institutional investors?". The control variable, national income level, was evaluated using the categorical item "WEFIncREV" (from WEF), which had four response categories, namely, 1 = low income, 2 = lower middle income, 3= higher middle income and 4 = high income.

Statistical procedure

The purpose of the study was to evaluate correlational and predictive relationships. Consequently, the following statistical tests were deemed appropriate for the research objective:

- Pearson correlation analysis to test for association between the firm internationalisation variable and the proposed predictors; and
- a hierarchical regression analysis to assess for a possible influence of the different categories of the proposed predictors on the firm internationalisation variable.

Ethical considerations

During the study, data was not collected directly from human participants. Instead, secondary data was sourced from publicly available information on the GEDI and WEF websites. In accordance with ethical guidelines, the sources of this secondary data have been properly acknowledged in the reference list. The researcher obtained ethics approval from their affiliated institution to use secondary data from reputable institutions such as the World Bank, Global Entrepreneurship Monitor, WEF and the Global Entrepreneurship and Development Institute.

Results

Table 1 shows the descriptive statistics for the participants' national income level, trade openness, institutions, infrastructure risk capital and firm internationalisation. The mean national income level was 2.89 (SD = 1.05), ranging from 1 to 4. It is important to note, however, that mean for ordinal data may not always be the most appropriate measure of central tendency to use, and thus, a mode is a better indicator. The modal category was 4, with a frequency of $n = 51$ (37.2%). The frequencies for the other national income categories were as follows: 1 (n = 18, 13.1%), 2 (n = 30, 21.9%) and 3 (n = 38, 27.7%). For trade openness, the mean was 88 (SD = 55.8); for institutions, the mean was 55.8 (SD = 11.3); for infrastructure, the mean was 66.6 (SD = 15.5), for networking the mean was 0.384 (SD = 0.226), for risk capital the mean was 0.357 (SD = 0.3), and lastly, for firm

Statistic	National income level	Trade openness	Institutions	Infrastructure	Networking	Risk capital	Firm internationalisation
N	137	126	127	127	137	137	137
Missing	0	11	10	10	0	0	0
Mean	2.89	88.0	55.8	66.6	0.384	0.357	0.376
Standard deviation	1.05	55.8	11.3	15.5	0.226	0.300	0.289
Minimum	1	26.6	27.3	34.1	0.0350	0.0280	0.00500
Maximum	4	377	81.0	95.7	1.00	1.00	1.00

Note: Table by author

Table 1.
Descriptive analysis

internationalisation, the mean was 0.376 (SD = 0.289). Note that some countries had missing data on the institutions, infrastructure and trade openness variables.

A Pearson product-moment r correlation was conducted to assess the relationship between firm internationalisation and the following variables: risk capital, national income level, trade openness, home country institutions and infrastructure. Pearson r correlation is a bivariate measure of association between two variables. The results from the test are summarised in Table 2.

The results of the test demonstrate that all the pairs of relationships tested were statistically significant at the 0.001 level, and positive. The correlation coefficients are interpreted using Cohen's standard where 0.10 to 0.29 represents a weak association, 0.30 to 0.49 represents a moderate association and 0.50 or larger represents a strong association (Cohen, 1988). Based on the criteria, the association between firm internationalisation and networking was moderate ($r = 0.461$; $p < 0.001$), between firm internationalisation and risk capital was strong ($r = 0.675$; $p < 0.001$), between firm internationalisation and National income level was strong (0.728; $p < 0.001$), between firm internationalisation and trade openness ($r = 0.513$; $p < 0.001$), between firm internationalisation and institutions was strong ($r = 0.737$; $p < 0.001$) and between firm internationalisation and infrastructure was strong ($r = 0.727$; $p < 0.001$).

Following the confirmation of the associations between the variables by the Pearson test, a hierarchical regression analysis was conducted to determine the predictive ability of the independent variables on firm internationalisation. The first step included only the control variable (national income level), while the second step added the institutional factors (institutions and trade openness) and the third step added the resource factors (infrastructure, local networking and risk capital). Checking whether the assumptions of normality of

Table 2.
Pearson correlation test results

Pairs of variables		Count	Pearson's *r*	*p*-values
Networking	Internationalisation	137	0.461	<0.001
Networking	Risk capital	137	0.601	<0.001
Networking	National income level	137	0.603	<0.001
Networking	Trade openness	126	0.250	0.005
Networking	Institutions	127	0.618	<0.001
Networking	Infrastructure	127	0.613	<0.001
Firm internationalisation	Risk capital	137	0.675	<0.001
Firm internationalisation	National income level	137	0.728	<0.001
Firm internationalisation	Trade openness	126	0.513	<0.001
Firm internationalisation	Institutions	127	0.737	<0.001
Firm internationalisation	Infrastructure	127	0.727	<0.001
Risk capital	National income level	137	0.650	<0.001
Risk capital	Trade openness	126	0.372	<0.001
Risk capital	Institutions	127	0.725	<0.001
Risk capital	Infrastructure	127	0.772	<0.001
National income level	Trade openness	126	0.384	<0.001
National income level	Institutions	127	0.686	<0.001
National income level	Infrastructure	127	0.838	<0.001
Trade openness	Institutions	119	0.423	<0.001
Trade openness	Infrastructure	119	0.408	<0.001
Institutions	Infrastructure	127	0.816	<0.001

Note: Table by author

residuals, linearity of residuals, homoscedasticity, multicollinearity and independence of observations were satisfied formed part of the analysis.

Firstly, a normal probability plot of the residuals was examined, and it showed that the residuals were approximately normally distributed as the residuals followed a straight line with no significant deviations from normality. This finding is supported by a Shapiro–Wilk statistic of 0.990 and $p = 0.511$. Secondly, the residuals were randomly scattered around zero with no distinct pattern, indicating that there was no evidence of heteroscedasticity. Collinearity diagnostics were also examined and the variance inflation factor (VIF) for all the variables was less than 10 (Table 3), indicating no evidence of multicollinearity. Lastly, the Durbin–Watson Test confirmed the absence of autocorrelation as the test statistic was within the acceptable range of 1.5 to 2.5 (D-W statistic = 2.11, $p = 0.538$).

As shown in Table 4, in the first step, the control variable accounted for a significant amount of variance in firm internationalisation, $F(1, 117) = 132.8$, $p < 0.001$, $R^2 = 0.532$. National income was a statistically significant predictor ($\beta = 0.729$; $p < 0.001$), with higher national income being associated with higher scores on firm internationalisation.

In the second step, the addition of the institutions and trade openness variables significantly improved the model's fit, $F(2, 115) = 21.23$, $p < 0.001$, $\Delta R^2 = 0.1263$. Both variables were significant predictors of the dependent variable, institutions ($\beta = 0.369$;

Variables	VIF	Tolerance
National income level	3.86	0.259
Institutions	3.52	0.284
Trade openness	1.25	0.797
Infrastructure	5.81	0.172
Networking	1.91	0.523
Risk capital	2.85	0.351

Note: Table by author

Table 3. Collinearity diagnostics

Variables	Model 1	Model 2	Model 3
Control variable			
National income level	0.729***	0.387***	0.451***
Independent variables			
Institutions		0.369***	0.3486***
Trade openness		0.207**	
Infrastructure			−0.0581
Networking			−0.1788*
Risk capital			0.2360**
R^2	0.532	0.658	0.688
Adjusted R^2	0.528	0.649	0.673
Change in R^2	–	0.1263	0.0303
F-value	132.8***	73.7***	41.2***

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
Source: Table by author

Table 4. Determinants of firm internationalisation: hierarchical regression model estimating the direct effects

$p < 0.001$) and trade openness ($\beta = 0.207$; $p < 0.001$). The addition of the variable increased the overall explained variance to $R^2 = 0.658$.

In the third step, the addition of the infrastructure, networking and risk capital variables significantly improved the model's fit, $F(3, 112) = 3.65$, $p > 0.015$, $\Delta R^2 = 0.0303$. Overall, the final model including all variables explained a significant amount of variance in firm internationalisation, $F(1, 112) = 41.2$, $p < 0.001$, $R^2 = 0.688$. Two of the predictors added in the third step had a statistically significant effect on firm internationalisation (networking 0.1788 $p < 0.05$, and risk capital $\beta = 0.2360$ $p < 0.01$), while the influence of infrastructure was not statistically significant ($\beta = -0.0581$ $p = 0.649$). Thus, *H1*, *H2*, *H4* and *H5* was accepted, while *H3* was rejected. The results suggest that the institutional factors collectively had more positive effects on internationalisation than the resource factors.

Discussion

The study examined the influence of home-country institutions, infrastructure quality, trade openness, networking and the availability of risk capital on firm internationalisation. The study drew on the institutional and resource-based theoretical perspectives and used secondary data from the GEDI and WEF.

The results confirmed a positive direct relationship between national institutions and firm internationalisation. This corroborates previous studies that underscored the importance of supportive institutions to firms' internationalisation decisions (Gaur *et al.*, 2014; Deng and Zhang, 2018; Estrin *et al.*, 2016). Furthermore, it provides empirical evidence form global data to the assumptions about the importance of formal and informal institutional factors to the activities of social and economic agents.

The study also confirmed a positive relationship between trade openness, an institutional factor, to the propensity of firms to internationalise. This finding is consistent with the results from some prior research that confirmed a similar pattern of results (Gwartney *et al.*, 2016; Bas and Ledezma, 2020; Marceta and Bojnec, 2022). The result suggests that a country's positive attitude towards international trade encourages entrepreneurial ventures' propensity to expand into foreign markets.

In addition, contrary to expectations, the study found that home country infrastructure did not have a statistically significant relationship with firm internationalisation. Some previous studies have found a positive relationship between infrastructure quality and internationalisation (Cuervo-Cazurra, 2017; Estrin *et al.*, 2017). This finding implies that other factors, such as institutional quality and trade openness, maybe more important determinants of firms' internationalisation decisions. It could be that while infrastructure may be an important factor for firms' operational efficiency and productivity, it may not be a critical determinant of their internationalisation strategies.

Furthermore, the study found that the availability of risk capital in the home country had a positive and statistically significant effect on firms' propensity to internationalise. This result validates previous research that stresses the key role of financial resources in the internationalisation of firms (Berger and Udell, 1998; Zhang and Li, 2020; Hitt *et al.*, 2021). It also substantiates the resource-based view which contends that firms with a stronger resource base are more inclined to internationalise than those without (Hitt *et al.*, 2021). The finding can be explained by the reason that convenient access to risk capital enable firms to overcome barriers to internationalisation (Nunes and da Silva, 2019).

Finally, it was found that networking had a negative relationship with firms' propensity to internationalise. This is inconsistent with Cainelli *et al.* (2012) and Cannone and Ughetto (2014) who found a positive relationship between networking and firm internationalisation. However, this finding suggests that excessive dependence on local networks may impede

firms' internationalisation efforts. It might be that strong local networks become a hindrance rather than a facilitator of internationalisation beyond a certain threshold.

Theoretical and practical implications

The current research makes some contributions to the literature on international business. It augments previous research on the intricacies underlying firm internationalisation by examining the collective influence of home country institutional and resource-related variables. The integration of the resource-based view and institutional theory enabled the development of a more comprehensive and nuanced understanding of firm internationalisation.

The study tested also a novel and detailed conceptual model of determinants of firm internationalisation using global data from GEDI and WEF. This approach recognises that various configurations of factors shape internationalisation. The testing of different hypotheses using data from GEI and GCI data provides empirical support for an integrative perspective on the determinants of internationalisation, contributing to theoretical advancement in the field of international business. The use of data from recognised global indices ensures the generalisability and replicability of research findings. The data is based on rigorous methodologies, regularly updated, making them reliable sources of data for testing theoretical propositions.

The results of this study also had implications for policy and practice. Firstly, the positive link between home-country institutions and firm internationalisation implies that policymakers and practitioners in countries with obstructive institutions should work to create an environment that is supportive of internationalisation. This can involve implementing policies and practices that promote economic growth, innovation and stability, as well as reducing institutional barriers that may inhibit firms' internationalisation efforts.

Secondly, policymakers and practitioners should consider trade policy as a critical factor in promoting firms' internationalisation. This entails effecting policies and practices that advocate trade openness, reduce trade barriers and inspire firms to engage in cross-border trade. Such policies can help firms to access new markets, gain new customers and enhance their competitiveness.

Thirdly, the non-significant relationship between home country infrastructure and firm internationalisation suggests that policymakers and practitioners can concentrate on other factors, such as institutional quality and trade openness, to promote firms' internationalisation. Investing in infrastructure alone may be inadequate to encourage firms to expand internationally, and a more wide-ranging promotion approach is needed.

Fourthly, firms as well as policymakers need to be circumspect about over-dependence on local networks and should look at alternative sources of information and opportunities for internationalisation. This finding also suggests that firms should seek to diversify their networks beyond the home country to increase their access to international markets.

Lastly, policymakers need to support the accessibility of risk capital by applying policies and programmes that foster entrepreneurship and venture capital investment. On the other hand, practitioners can use the information from the finding confirming the risk capital availability-firm internationalisation link to strategically allocate financial resources and seek out investment opportunities that can provide the necessary resources for internationalisation.

Limitations and areas for future research

The study has some shortcomings that provide guidelines for further research. Firstly, the study is based on cross-sectional national-level secondary data, which restricts the ability to

make causal inferences. Secondly, the study only covers 137 countries whose data was used to compile the 2018 GEI and GCI, which may limit the generalisability of the findings to other countries across the world. Thirdly, the study excluded firm-level characteristics such as firm size, age and ownership structure due to the non-availability of cross-national data related to these variables, which could affect firm internationalisation.

To have a deeper understanding of firm internationalisation, future studies should consider the role of firm-level variables in a cross-national context. In addition, longitudinal studies could also be carried out to better understand the causal link between the determinants found in this study and firm internationalisation. Furthermore, qualitative studies could be done to gain more in-depth discernment into the institutional factors affecting firm internationalisation in different contexts.

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Appendix

Table A1.
List of 137 countries

Albania	Burkina Faso	Ethiopia	Israel	Malaysia	Poland	Switzerland
Algeria	Burundi	Finland	Italy	Mali	Portugal	Taiwan
Angola	Cambodia	France	Jamaica	Mauritania	Puerto Rico	Tajikistan
Argentina	Cameroon	Gabon	Japan	Mexico	Qatar	Tanzania
Armenia	Canada	Gambia, The	Jordan	Moldova	Romania	Thailand
Australia	Chad	Georgia	Kazakhstan	Montenegro	Russia	Trinidad and Tobago
Austria	Chile	Germany	Kenya	Morocco	Rwanda	Tunisia
Azerbaijan	China	Ghana	Korea	Mozambique	Saudi Arabia	Turkey
Bahrain	Colombia	Greece	Kuwait	Myanmar	Senegal	Uganda
Bangladesh	Costa Rica	Guatemala	Kyrgyz Republic	Namibia	Serbia	Ukraine
Barbados	Côte d'Ivoire	Guinea	Lao PDR	The Netherlands	Sierra Leone	United Arab Emirates
Belgium	Croatia	Guyana	Latvia	Nicaragua	Singapore	UK
Belize	Cyprus	Honduras	Lebanon	Nigeria	Slovakia	USA
Benin	Czech Republic	Hong Kong	Liberia	Norway	Slovenia	Uruguay
Bolivia	Denmark	Hungary	Libya	Oman	South Africa	Venezuela
Bosnia and Herzegovina	Dominican Republic	Iceland	Lithuania	Pakistan	Spain	Vietnam
Botswana	Ecuador	India	Luxembourg	Panama	Sri Lanka	Zambia
Brazil	Egypt	Indonesia	Macedonia	Paraguay	Suriname	
Brunei Darussalam	El Salvador	Iran	Madagascar	Peru	Swaziland	
Bulgaria	Estonia	Ireland	Malawi	Philippines	Sweden	

Note: Table by author