The use of network options to mitigate country risk: A comparison of advanced and emerging multinational enterprises' resources and internationalisation into African countries

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Declaration

I, Nirvashnie Bagirathi, declare that this dissertation is my own work. It is hereby submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Business Administration at the Gordon Institute of Business Science, University of Pretoria. This work has not been previously submitted by me or anyone else at this or any other tertiary institution. I further declare that any and all errors are mine and mine alone. Additionally, I declare that I obtained the necessary authorisations and consent to conduct this research study.

Signature: **Date:**

Abstract

The Multinational Enterprise (MNE) is a network of equity-linked subsidiaries (intra-firm network) that also has external and non-equity-linked (extra-firm) networks. One of the ways that intra- and extra-firm networks can be understood is that each network has obligation-free rights which can be seen as options.

While options afforded by the intra- and extra-firm network have different resources and risk mitigation implications, most studies have explored MNE internationalisation using equity options akin to intra-firm network options. Yet, the lower resource commitment in the extra-firm networks is probably important for less-resourced firms.

Emerging market MNEs (EMNEs) have typically fewer resources than advanced market MNEs (AMNEs). Thus, it is likely that these MNEs will internationalise using different resource and risk mitigation options into African countries, which have varying risks associated with differing levels of institutional development.

The relationships between MNE resources, internationalisation network options and country risk, were evaluated using secondary historical data of publicly listed MNEs in African countries for the period, 1997-2021. The study makes a methodological contribution to the development of the Network Index to evaluate relative intra- and extra-firm network internationalisation options. Hypotheses were evaluated using hierarchical regression analysis.

I highlight the intra and extra-firm network options in the MNE portfolio for internationalisation. This is important in explaining AMNE and EMNE internationalisation using network options. The findings indicate support for real options theory predictions of higher firm resources association with the exercise of intra-firm network internationalisation options.

I establish the boundary of real options theory in risk mitigation predictions for internationalisation into emerging markets of African countries. Both EMNEs and AMNEs did not exercise lower-resourced, extra-firm network internationalisation options in the presence of increasing country risk. I find that risk mitigation likely involves a combination of network diversity and internalisation of institutional functions within each network. However, the use of group level MNE data may also contribute to this finding.

The study highlights management strategies for internationalisation into African countries using lower resources and risk exposure of extra-firm network options. In addition, management should note that network diversity can probably mitigate risk as it has the potential to provide institutional functions that are developing in African countries.

Keywords: Multinational, Network, Internationalisation, Real options, Emerging markets

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Abbreviations

MNE - Multinational Enterprise

EMNE - Emerging market multinational enterprise

AMNE - Advanced market multinational enterprise

FDI - Foreign direct investment

MI - Michaely Index

NI - Network Index

Internat. - Internationalisation

GDP - Gross domestic product

WGI - World Governance Indicators

WDI - World Development Indicators

USD - United States dollar

S.D - Standard deviation

Min. - Minimum

Max. - Maximum

Skew. - Skewness

VIF - Variance inflation factor

GFC - Global financial crisis

Table of contents

List of tables

List of figures

Chapter 1 Introduction

1.1 Overview

Real options theory suggests that firms mitigate risk by the exercise of obligation free rights (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017). Surprisingly, and despite the theory's risk mitigation premise, there are limited real options studies in emerging markets. Yet emerging markets are, by every parameter, risky environments.

Emerging markets are characterised by developing institutions that include poor or nascent regulatory environments, infrastructure, and incomplete or monopolistic markets (Khanna & Palepu, 1997). Such markets are typically undergoing political, regulatory, institutional and infrastructural reforms, meaning that in these aspects they lag their advanced country counterparts (Luo & Tung, 2007; Sandberg, 2013). The African continent is made up of fifty-four different emerging market countries, each with varying levels of institutional development (World Bank, 2020), making it an ideal setting for a real options study premised on the exercise of options according to changing investment risk.

Despite these scholarship opportunities for theorisation, the emerging market context has received limited scholarship attention, and the African context even less (Barnard et al., 2017; George et al., 2016; Kolk & Rivera-Santos, 2018).

Multinational enterprises (MNEs) have received extensive scholarly attention. These firms are defined as owning or having a stake in subsidiaries based in geographical locations other than their home country (Belderbos & Zou, 2007). Some scholars have expressed contrasting views about the internationalisation of emerging market multinationals (EMNEs) (Hernandez & Guillén, 2018). However, consensus exists that EMNEs typically have fewer traditional resources (such as finance, technology, established branding and knowledge) than their advanced market counterparts (AMNEs) (Luiz et al., 2017; Ozkan et al., 2022). Most studies (Cuervo-Cazurra, Mudambi, & Pedersen, 2018; Hernandez & Guillén, 2018; X. Li et al., 2018) evaluate either AMNEs or EMNEs and make inferences about the other. And more recently Liedong et al., (2020) noted the need for more research with the direct comparison of AMNE and EMNE firm resources in the same context.

Firm resources are a fundamental element of internationalisation strategies (Hill et al., 1990) but all firms have finite resources (Bajeux-Besnainou et al., 2010; Mizik & Jacobson, 2003). Networks can provide firms with access to shared resources (Lahiri et al., 2021; Nguyen et al., 2022; Provan et al., 2007). Given that options are based on a small investment that then affords the firm with obligation free rights, it follows that resources are also important in the options that a firm can exercise (Chi et al., 2019; Ragozzino et al., 2016; Trigeorgis & Reuer, 2017). Therefore, a study focussing on MNE resources and internationalisation through network options will add to the literature on emerging versus advanced market MNEs, particularly in the context of emerging markets characterised by the risks associated with developing country institutions.

Real options thinking has been extended to the MNE subsidiary network (Belderbos et al., 2020; Fisch & Zschoche, 2012a, 2012b; Trigeorgis & Reuer, 2017) as well as its external network (Bajeux-Besnainou et al., 2010). The subsidiary network provides the MNE with risk mitigation options to increase or decrease investments and/or switch the locations of investments across its geographical footprint (Belderbos et al., 2020; Song et al., 2015; Trigeorgis & Reuer, 2017). Essentially the MNE subsidiary network is a group of firms linked by equity relationships with inherent risk mitigation options. The MNE external network (extra-firm) of non-equity-linked business relationships also provides risk mitigation options by sharing costs and resources (Bajeux-Besnainou et al., 2010).

Networks allow firms to share resources (Lahiri et al., 2021; Provan et al., 2008) in ways appropriate for that specific network structure (Tunisini et al., 2023). In the same way, the MNE intra- and extra-firm network options can vary depending on the resources and the equity- or non-equity-linked structure of the entities concerned.

Conceptualising networks as options suggests MNEs use their equity-linked subsidiaries as an intra-firm network and the non-equity-linked extra-firm relationships as an extra-firm network. While there are some studies on the risk mitigation benefit afforded by MNE intra-firm network options (Belderbos et al., 2020; Fisch & Zschoche, 2011, 2012a, 2012b; Trigeorgis & Reuer, 2017), there are limited studies on the MNE extra-firm network options. Even so, there is evidence of EMNE internationalisation into African countries through the extra-firm networks (Chipp et al., 2019). For example, the South African EMNE, Imperial Logistics, mitigates challenges in market access by

internationalising with other multinationals into African countries namely Ghana and Nigeria (Chipp et al., 2019). Such collective non-equity internationalisation demonstrates the application of an extra-firm network strategy.

In terms of using intra and extra-firm networks to think about internationalisation: The phenomenon of MNE network internationalisation of government supported firms seemed to be largely limited to the Chinese context (Nuruzzaman et al., 2019). However, several studies (Barnard, 2021; Berns et al., 2021; Chipp et al., 2019; Nguyen et al., 2022; Prashantham et al., 2015) indicate that firms from other countries have also internationalised using different networks. While it is well known that MNEs use partners in internationalisation (Gaur et al., 2019; Narula et al., 2019), the network internationalisation phenomenon raises questions about the internationalisation of the firms using networks as options for resource compensation and risk mitigation.

For all these reasons, a study comparing EMNE and AMNE internationalisation through networks offers a different lens to view MNE internationalisation and an opportunity for theorisation. In addition, such a study has the potential to revisit through a fresh lens the historic debate on the value of additional MNE internationalisation studies (Shaver, 2013). This study shifts the terrain to an examination of strategies for risk mitigation and resource compensation in the context of firm networks. It employs real options theory to address under-explored research areas by linking country risk, internationalisation through networks and MNE resources.

The current study, ***The use of network options to mitigate risk: A comparison of advanced and emerging multinational enterprises' resources and internationalisation into African countries,*** addresses these areas of under-explored research by linking country risk, internationalisation through networks and MNE resources using real options theory.

1.2 Background and context

Africa has been lauded as the next investment frontier (Kolk & Rivera-Santos, 2018), but foreign direct investment (FDI) remains low by global standards (Giroud & Ivarsson, 2020; UNCTAD, 2019). This is largely attributed to the considerable, albeit varying levels of business risk (Schwab, 2019; Schwab & Zahidi, 2020) related to the different levels of

developing or limited formal institutions among the fifty-four countries on the African continent.

The fifty-four African countries have varying stages of economic, institution, infrastructure and political development (George et al., 2016). The diversity of institutional conditions and stages of development between African countries means that the associated country risk of each African country is also different. In addition, the institutional conditions are subject to change as development or setbacks occur.

Despite the poor and developing conditions, some African countries on the continent have seen growth rates that exceed that of their advanced and emerging market counterparts (Schwab, 2019; Schwab & Zahidi, 2020). Hence, there are considerable business opportunities, which tracks as both MNEs from both advanced (AMNEs) and emerging markets (EMNEs) have internationalised into African countries (Barnard et al., 2023). It follows that MNEs are likely to develop and utilise risk mitigation strategies for operation in these developing and variable conditiorens to take advantage of the substantial investment potential in the different and often risky African countries.

Therefore, the research context is well suited to a real options study where changes in investment risk can be mitigated by obligation free rights that are afforded by options. Correspondingly, I empirically compare EMNE and AMNE internationalisation using network options, into African countries with differing institutional conditions and varying risks.

1.3 Research problem

The current study assesses business networks, MNE resources and institutional country risk. Institutional theory and the resource-based view have been used in the extant literature (Kano & Verbeke, 2019; Liedong et al., 2020; Schellenberg et al., 2018; Zhao et al., 2017) to examine MNE internationalisation strategies. Real options theory provides scholars with another analytical lens to consider both the firm's resources (Trigeorgis & Reuer, 2017) and its investment options for internationalisation in markets with developing institutions (Xu et al., 2010). I focus on real options awareness (Ioulianou, Leiblein & Trigeorgis, 2021) that refers to the use of the underlying logic of the model, but without the mathematical modelling.

The options available to each firm are based on its resources (Trigeorgis & Reuer, 2017) and networks can provide MNEs with access to resources (Lahiri et al., 2021; Provan et al., 2007; Tunisini et al., 2023). This matters, because firms do not have unlimited resources (Bajeux-Besnainou et al., 2010; Mizik & Jacobson, 2003).

When the differences in the resources of the typical EMNE and AMNE (Luiz et al., 2017; Ozkan et al., 2022) are considered, these firms will likely internationalise using different network options. Thus, I investigated the influence of firm resources on internationalisation through networks of both EMNEs and AMNEs to distinguish these nuances.

Moreover, the MNE itself can be seen as a network with a portfolio of options (Kogut & Kulatilaka, 1994), which includes the equity-linked subsidiary network (Trigeorgis & Reuer, 2017) and its non-equity linked external network (Bajeux-Besnainou et al., 2010). Since there is potential to internationalise using both networks, the equity-linked, and non-equity-linked networks are conceptualised in this study as the intra- and extra-firm networks respectively.

I investigated the influence of firm resources on internationalisation through the networks of both EMNEs and AMNEs using the lens of real options theory. The internationalisation through network options as a strategy for risk mitigation and resource compensation was investigated by assessing the relationship with MNE resources in the context of internationalisation into African countries. I situated the study in the context of internationalisation into African countries. This context is relevant as the fifty-four African countries have different risks associated with developing and/or limited formal institutions which makes it an ideal setting for a study using real options theory study as the theory is premised on risk mitigation using obligation free rights.

1.4 Research questions

The research questions investigate the relationship between MNE resources, internationalisation through networks as options and country risk associated with developing and/or limited formal institutions:

1. How do MNE resources influence internationalisation through intra- versus extra-firm network options?

2. How does country risk impact the relationship between MNE resources and internationalisation through intra- versus extra-firm network options?

1.5 Research objectives

The objectives of the study include:

- Evaluation of the relationship between MNE resources and internationalisation through intra- versus extra-firm network options
- Evaluation of the effect of country risk on MNE resources and internationalisation through intra- versus extra-firm network options

1.7 Contribution

1.7.1 Theoretical contribution

Firstly, I make a theoretical contribution by the extension of real options theory to internationalisation through intra and extra-firm networks. This contribution sheds light on the relationship between MNE resources and internationalisation through intra- and extra-firm network options. I used the lens of real options theory to make predictions of risk and/or resource mitigation options of the MNE (1) equity-linked subsidiary and its (2) external non-equity-linked networks. In this manner, I contribute to the literature on the (1) differences in resources involved in internationalisation network options and (2) risk mitigation present in network options.

Secondly, I augment real options literature that has not been applied extensively in the emerging market context by offering a greater understanding of MNE internationalisation using network options into African countries. Options are particularly important in African countries as these emerging markets have risks associated with developing institutions.

Thirdly I contribute to MNE internationalisation literature by systematically assessing EMNEs and AMNEs in the same context but also across different types of firms (manufacturing, service and firms with both manufacturing and service offerings). This contribution is important because studies have evaluated either EMNEs or AMNEs and made inferences about the other. Moreover, I contribute to MNE literature on internationalisation strategies of service firms as well as those that provide both manufacturing and service offerings. This comparison adds to the internationalisation literature on the internationalisation strategies employed by different types of firms.

1.7.2 Methodological contribution

I make a methodological contribution to the quantitative measurement of MNE networks using secondary firm-level financial data. I use total equity as a proxy for the measurement of the equity-linked intra-firm network. I use costs associated with key non-equity value-adding activities (for example research and development, marketing and logistics) as a proxy for non-equity linked extra-firm networks reported in the network literature.

In addition, I make a methodological contribution with the development of a *Network Index* for the comparative measurement of the MNE equity-linked, intra- and non-equity-linked extra-firm network internationalisation. This index was necessary as both EMNEs and AMNEs were likely to have both intra- and extra-firm networks.

I make a methodological contribution by extending the application of the Michaely Index from the country to the firm level. I evaluated comparative indexes and developed the *Network Index* from the adaptation of the Michaely Index because it compares two criteria (imports and exports) relative to peers (Laursen, 2015). An index that compares two criteria was important, as I compare intra- versus extra-firm network internationalisation specialisation relative to MNE peers (EMNEs versus AMNEs) in the population.

1.7.3 Management contribution

The insights of this study will help managers with the understanding of internationalisation into African countries using the firm's equity-linked intra- and non-equity-linked extra-firm network. Both networks have resource and risk mitigation implications.

The study highlights internationalisation options in the firm's extra-firm network that are not as resource-intensive as equity-linked internationalisation. This is particularly relevant for the management of firms that intend to internationalise but have limited resources.

African countries have developing institutions and internationalisation into the countries is perceived as risky. The study highlights the potential for less resource intensive non-

equity-linked options as an internationalisation strategy to mitigate exposure to country risk.

1.8 Definition of key terms

- Networks: Groups of firms that can be linked by different relationships (Rivera-Santos & Rufín, 2010). These relationships include equity (Dubini & Aldrich, 1991) and non-equity contracted (Tan & Meyer, 2011) relationships. The study uses the term intra-firm network to define the equity-linked network and extra-firm to define the non-equity contracted network.
- Multinational Enterprise (MNE): Firms that own or have a stake in subsidiaries based in geographical locations other than their home country (Belderbos & Zou, 2007)
- Economic status of the country: Emerging markets are typically undergoing political, regulatory, institutional and infrastructural reforms and lag their advanced market counterparts (Luo & Tung, 2007; Sandberg, 2013). The economic status of countries according to emerging/developing or advanced/developed status was classified as per data from the World Development Indicator (WDI) database (Tong et al., 2008).
- MNE home country/region: MNE home country/region was determined by an assessment of the MNE country of incorporation and the country/region where the MNE generated most of its revenue. According to regionalisation advantages, MNEs generate most of their revenue in their home country/region (Rosa et al., 2020; Rugman & Verbeke, 2004).
- Classification of AMNEs and EMNEs: The economic status of the MNE's home country was used to classify MNEs as advanced (AMNEs) or emerging (EMNEs).
- Internationalisation: Execution of business activities (ranging from exporting, contractual up to and including ownership modes such as equity and acquisition) in a foreign country (Welch & Luostarinen, 1993).
- Options: Investments in either tangible or intangible assets (Chi et al., 2019) that occur in the presence of uncertainty (Ahsan & Musteen, 2011). They carry a measure of irreversible cost but they have the benefit of obligation free rights that a firm can exercise after investing (Ahsan & Musteen, 2011). These rights include further investment, deferral, staged investment, divestment, growth, scale alteration, switching (Trigeorgis & Reuer, 2017)

- Firm resources: Include tangible (financial, technology, equipment) and intangible (human resource skills, knowledge) resources which are specific to the firm (Barney, 1991).
- Country risk: Associated with “volatility of the political, economic, and social factors of the target country” (López-Duarte & Vidal-Suárez, 2010; p. 576),

1.9 Scope of research

The MNE level of analysis is chosen as both its subsidiary and external contracted firm networks benefit from options. The study is limited to the evaluation of historical equity and non-equity contracted network internationalisation into African countries by EMNEs and AMNEs at the point of entry. Thus, the assessment of investment performance is excluded from the study.

Annual firm financial reports are used to operationalise the intra- and extra-firm network. The former is based on an equity-linked network. In contrast, the extra firm network is non-equity linked but can be formally and/or informally contracted. Since informally contracted extra-firm networks are not consistently reported by AMNEs and EMNEs in the population, the scope of the study is limited to only formally contracted extra-firm networks.

Both informal and formal institutions shape the conditions in a host country. Informal institutions in the form of tribal structures (Barnard et al., 2017), informal economies (George et al., 2016) and indigenous societies (Garrone et al., 2019) are prevalent in African countries. While these informal institutions can also influence business investment, the study limited the assessment of country risk to only formal institutions.

1.10 Conclusion

This chapter highlighted the research problem of network internationalisation of EMNEs and AMNEs in African countries. The study is important as it adds to the literature on internationalisation strategies using real options theory and networks for risk mitigation and firm resource compensation. This chapter has also provided detail on the theoretical, methodological and management contributions. The scope of the research study was discussed and limited to internationalisation (at the point of entry) and evaluation of country risk only associated with the state of development of formal country institutions.

Chapter 2 Research setting

2.1 Introduction

The research context impacts theory development and extension as the phenomenon and the setting are intrinsically linked (Johns, 2006). Consequently, the understanding of the African context is essential to the current study. The importance of understanding the African context is also echoed by Kolk and Rivera-Santos (2018) in their review of African business and management research.

Africa is a diverse continent consisting of emerging market countries at different levels of development and growth (Liedong et al., 2020; Schwab & Zahidi, 2020; World Bank, 2020). Emerging markets are characterised by rapid economic growth, regulatory, economic and market reforms (Hoskisson et al., 2000) but the state of development also poses a risk for foreign investment (Barnard et al., 2017; George et al., 2016).

While institutions differ between countries (Doh et al., 2017), emerging market country institutions are often characterised by limited or developing institutions (Khanna & Palepu, 1997). These can include developing regulatory environment, infrastructure, scarcity of semi or skilled labour, unstable governments and the presence of market monopolies due to limited product and service alternatives (Khanna & Palepu, 1997). Thus, this chapter will provide an understanding of the business context in African countries by an assessment of the limited or developing state of the country's institutions. It highlights the varying state of development and the correspondingly varying risk between African countries.

As such, this chapter proceeds with a comparison of the growth opportunities and business environment characteristics of African countries with the world-, high-, low- and middle-income ranking medians in 2021. The data are sourced from the World Development Indicators, United Nations Conference on Trade and Development (UNCTAD) foreign direct investment and the TCdata360 databases (product of the World Bank Group).

The TCdata360 database is a collection of information from different country reports which include the data from the World Bank's (2019) Ease of Doing Business report and the World Economic Forum's (2019) Global Competitiveness Index. The Ease of Doing

Business report provides an annual global ranking of 190 countries' regulatory environments in terms of (1) business start-up, (2) property registration and permitting, (3) access to finance, (4) daily operations and (5) security of operation.

The World Economic Forum (WEF) provides an annual ranking of country institution criteria in comparison to the other 141 countries in its database. Since it only has data on 141 countries, and the World Ease of Doing Business has data on 191 countries there are missing data for some countries. However, to understand the research setting, the data are sufficient to indicate the differences in African countries and the rest of the world. It is worth noting that the missing countries are likely to be economically marginal, meaning that their scores/rankings are likely to be even lower, thus indicating poor conditions for business operation.

2.2 Growth opportunities

Many African countries, like other emerging countries, experience high growth rates but the growth rates are often volatile (UNCTAD, 2021). Table 1 indicates the range and standard deviation of annual gross domestic product (GDP) growth (%) and foreign direct investment (FDI) for African countries in comparison to the world-, high-, low- and middle-income country average.

In comparison to the high-, low, middle-income and world median, some African countries experience similar growth rates as advanced market countries. For example, Burkina Faso had GDP growth (%) of 1.93% in 2020 which was slightly higher than New Zealand (advanced market country) 1.86%. Yet, other African countries experience similar growth rates with transition markets, like Zambia with a GDP growth rate of negative 2.79% compared to Russia (transition economy) at negative 2.95%. Then there are some countries with GDP growth rates as low as negative 6.25% (Zimbabwe) and others as high as 6.98% (Ethiopia).

The standard deviation of GDP growth rates across African countries is 6.30%. In addition, GDP growth rate values increase or decrease quite significantly from year to year. For example, Libya's GDP growth percentage increased from negative 62.08% in 2011 up to 26.76% in 2017 and back down to negative 31.30% in 2020 (TCdata 360 database). Thus, the volatility in growth rate is indicative of markets with not only opportunities but also investment risk.

Table 1 GDP growth and FDI in 2020 (World Development Indicators 2020; UNCTAD 2021)

Region	GDP growth (%)	FDI (US$ billion)
World	-3.36	998.89
High-income country	-4.60	312.17
Low-income country	0.61	686.72*
Lower middle-income country	3.99	
Upper middle-income country	-0.71	
African countries	Range: -31.30 to 6.99 Std deviation: 6.30	Total: 39.79 Range: -1.87 to 5.85 Std deviation: 1.19
*sum of emerging (662.56) and transition market (24.16), value also includes FDI into African countries		

Furthermore, foreign direct investment (investment in a country other than the business's country of origin (López-Duarte & Vidal-Suárez, 2010) varies significantly across the African continent. This is indicative of the standard deviation of 1.19 US$ billion foreign direct investment (FDI) across African countries. Certain African countries receive the bulk of the FDI while others receive little to none (UNCTAD, 2021). During this period, Egypt and the Republic of Congo received the highest FDI inflow of 5.85 and 4.02 US$ billion, respectively. Most of the FDI into Egypt and the Republic of Congo was concentrated in natural resource sectors for example offshore oil fields in the Republic of Congo (UNCTAD, 2021).

The total FDI into Africa amounted to 39.79 US$ billion and this accounts for only 3.98% of world FDI. While the current study focuses on internationalisation (which includes all business activities in a foreign country other than the business's country of origin (Welch & Luostarinen, 1993), the low FDI and varying investment across the countries is discussed as an indication of the differences in opportunity and risk across the African countries. The section that follows unpacks the African countries in terms of institutions, infrastructure, product and labour environment and the associated impact on business operation.

2.3 Comparison of African country business environments

Table 2 indicates a comparison of African country institutional, regulatory and environmental characteristics concerning the world-, low-, middle- and high-income country medians. This comparison was conducted to show the varying levels of development between different African countries and the relative development status of their global peers. The comparisons are made in terms of the institutional, infrastructure, product and labour environment.

2.3.1 Institutional environment

The World Bank Ease of Doing Business scores indicate that African country institutions have ranked between 20 to 81.5 (out of 100) (indicated in Table 2). Mauritius scored 81.5 which is above the high-income median, but at the lower end Somalia scored 20 which is well below the world-, middle- and low-income medians. Somalia is not alone in the lower end of the scores, other examples are Eritrea (score 21.6) and Chad (score 36.9). These low scores indicate low levels of institutional development. The range of 20-81.5, indicates that there are African countries with good institutions but by far most are still in an early stage of development.

In alignment with this finding, the World Economic Forum indicates that African countries' financial systems also vary as widely in level of development. While credit access and developing financial markets are a risk for firms seeking to raise capital (Ofori-Dankwa & Julian, 2013), this is not necessarily a risk for MNEs as these firms can raise capital in other markets. But services associated with financial systems viz. tax payment, contract payment, property permitting and registrations impact directly on the ability to do business (World Bank, 2020) and are thus a risk for MNEs as well as other businesses.

Vodafone (a British, advanced market telecommunication MNE) identified regulatory and economic challenges as risks to its businesses in Tanzania, South Africa, the the Democratic Republic of Congo, Mozambique and Lesotho (Vodafone, 2019). Azukaego Chukwuelue, the Supply Chain Director of Kimberly-Clark (of the advanced market American personal care MNE) in Nigeria, noted the lack of forex as a risk to supply chain management in the country, one of the largest economies in Africa (Adekoya, 2021). These examples indicate that the developing African country institutions and financial systems pose a risk for MNE investment.

Table 2 Comparison of African country characteristics that impact business sourced from TCdata360 for 2019[#]

Region/income level median/country/continent range	Ease of doing business score*	Financial systems rank**	Infrastructure rank***	Product market rank**	Labour market rank**	Ease of finding skilled employees rank**
World median	61.5	70	68	68.5	68.7	70
High-income country	75.7	33.5	28	29	35	42
Low-income country	48.6	118	118	116	111	92
Low middle-income country	59.5	100	98	98	95	87
Upper middle-income country	65.3	70	79	75	72	86
African country range	20-81.5	19-140	40-134	22-139	36-139	22-141

[#]Data has been sourced from graphs on this database

*Ease of Doing Business report - comparison of 190 countries globally

**WEF Global Competitiveness Index - comparison of 141 countries globally

*** 2017 data was the most recent data for this criterion - comparison of 137 countries

2.3.2 Infrastructure

The most recent data for infrastructure from the World Economic Forum, Global Competitiveness Index was the year 2017. Many African countries have developing and/or limited infrastructure (Schwab, 2018) with country rank ranging from 40 to 134 out of 137 countries. In comparison, the low-income country median is 118 and the high-income country median is 28. While the dispersion of infrastructure values of 40 to 134, indicates that infrastructure in some African countries is quite limited, for example, Democratic Republic of Congo with a rank of 127, the infrastructure in other African countries is better and/or improving, for example, Egypt with a rank of 71.

The developing and/or limited infrastructure poses challenges for business operation. Evidence of these challenges is indicated in articles and MNE annual reports. An example is that of Nampak (a South African, emerging market manufacturing MNE) in Angola, where Erik Smuts, the managing director at Bevcan, a unit of Nampak was quoted on the status of infrastructure required for daily operations in Angola): *"It's a tough place to operate in. You're literally reliant on providing your own resources,"* he said. *"We cannot use the local electricity grid as it's not stable enough, so we generate all our own electricity. And there is no piped water into the factory, so we must bring that in ourselves too."* (Redvers, 2011). To deal with these challenges, Nampak installed its own water treatment plant in 2015 (Nampak, integrated financial report, 2015). In their 2020 annual financial statement, the company impaired ZAR1.2 billion in their Angolan investment citing currency devaluation, limited consumer demand and no exports due to closed border trading.

Moreover, companies from advanced markets have also reported African country infrastructure challenges. Danone, a French advanced market dairy multinational, reported electricity and water access challenges (WARC, 2012). Therefore, it is apparent that developing and limited infrastructure is indeed a risk for businesses.

2.3.3 Product market

The World Economic Forum (2019) uses several criteria to assess the level of competition in services, the extent of market dominance and trade regulations in a country. These criteria indicate the presence of the different products, services and market monopolies. In addition, it is a measure of the ease of trading within and between countries.

The product market ranking of African countries is in the range of the low-, middle-, and high-income countries and the world medians. These rankings are indicative of the variance in product markets across the continent and corresponding levels of development. Some African countries are on par with high-income countries while others are on the level of low- and middle-income countries.

Developing country product markets pose risks associated with limited technology, product and service access. Correspondingly developing country product markets result in increased costs of acquisition, operation and maintenance (Zoogah et al., 2015). The following quote indicates these challenges: "*Anyone that's ever had to clear goods from Port Authority in remote African nations can contest the fact. This affects lead times and customs clearance, often resulting in major delays and serious unforeseen costs*" (van Zyl, 2022).

2.3.4 Labour environment

Labour market regulations (including criteria such as labour rights, pay-to-productivity ratios and labour-employer relations) are measured annually for different countries by the World Economic Forum. Developing and poor labour markets are often associated with low labour costs (World Bank, 2020). African countries' rankings range between 36 to 139 out of 141 countries (Table 2). However, low labour costs are often viewed as drivers for firm investment (Belderbos et al., 2020; Belderbos & Zou, 2007; Chen & Dar-Brodeur, 2020; Rasciute & Downward, 2017).

However, the ease of finding skilled employees has been reported as a risk for business operation. In terms of the ease of finding skilled employees, African countries rank between 22 to 139 out of 141 countries. The range of ranking indicates that there are African countries that are on par, if not better than the high-income country median of 42 with Kenya ranked at 22. There are also African countries with a ranking close to the world median (70), like Rwanda with a ranking of 75. But more often, there are African countries with very low levels of skilled employees like Mauritania with a ranking of 111. MNEs like Vodafone, a British telecommunications multinational (Vodafone, 2019), and Siemens, a German advanced market engineering multinational (Siemens, 2019) highlighted the limited availability of skilled labour as a risk in their African operations.

2.4 Conclusion

The business opportunities and market conditions vary amongst the different countries in Africa. All African countries have developing institutions, but the varying institutional conditions pose different levels of risk for business operations.

In this chapter, MNE management accounts indicate that the developing conditions are a risk for both AMNEs and EMNEs in their respective business operations. Moreover, these accounts indicate that the risks vary between African countries. Thus, the different African countries are an ideal context for a real options theory study as the theory is premised on the mitigation of risk with options. The differences in risk between the different African countries provide the context for the investigation of relationships between MNE resources, internationalisation network options and country risk

Chapter 3 Literature review

3.1 Introduction

This chapter proceeds with a discussion of internationalisation through networks and real options theory. It is followed by the evaluation of MNE resources and internationalisation literature. An argument is then made for the conceptualisation of networks as options based on the tenets of internationalisation, MNE resources and risk mitigation.

Subsequently, the internationalisation literature on EMNEs and AMNEs is examined with respect to their resources and networks. Hypotheses are proposed based on this literature. Next, the country risk in emerging markets is reviewed concerning firm resources and internationalisation through network options. Lastly, the chapter concludes with the conceptual framework indicating the hypothesised relationships between internationalisation through network options, MNE resources and country risk.

3.2 Network internationalisation options

3.2.1 Internationalisation through networks

A network is a group of organisations that have multiple ties with the objective of achieving their own goals as well as a common goal (Provan et al., 2008). The activities of these groups have been referred to as collective action (Barnard, 2021; Lee et al., 2018; Maciel & Fischer, 2020; Percoco, 2016) and can include internationalisation (Barnard, 2021; Chipp et al., 2019).

Internationalisation involves the execution of business activities (ranging from exporting, contractual up to and including ownership modes such as equity and acquisition) in a foreign country (Welch & Luostarinen, 1993). It follows that network internationalisation will involve the execution of these business activities by groups of firms in foreign countries.

The nature of the relationships can differ amongst networks (Rivera-Santos & Rufín, 2010). Included in these relationships are equity-linked networks (Dubini & Aldrich, 1991). One of the definitions of the multinational enterprise (MNE) is that of a network of subsidiaries (Belderbos et al., 2020; Song et al., 2015; Trigeorgis & Reuer, 2017). By this definition, the MNE has an equity investment in operations that are located across

geographical locations (Belderbos et al., 2020; Song et al., 2015; Trigeorgis & Reuer, 2017). Therefore, like Dubini and Aldrich (1991)'s definition of equity-associated networks, the MNE is also a network of equity-linked firms. Moreover, there is literature (Belderbos et al., 2020; Song et al., 2015; Trigeorgis & Reuer, 2017) that has conceptualised MNE internationalisation through the lens of a network of equity-linked subsidiaries.

Amongst the non-equity linked contracted networks are research and development networks which include universities (Alinaghian & Razmdoost, 2018; Moog & Soost, 2022; Shih & Aaboen, 2019) and technology firms (Alinaghian & Razmdoost, 2018; Bajeux-Besnainou et al., 2010; Ripollés & Blesa, 2020). Other non-equity linked networks included distribution (Chipp et al., 2019; Kumar et al., 2022; Morrish & Earl, 2021), logistics (Parmigiani & Rivera-Santos, 2015), external marketing (Liu et al., 2021; Ripollés & Blesa, 2020) and promotion (Parmigiani & Rivera-Santos, 2015) firms. Non-equity networks have also been used in internationalisation and these include licensing (Surdu et al., 2019), franchising (Hajdini & Windsperger, 2019; Surdu et al., 2019) as well as but not limited to export intermediaries (Ripollés & Blesa, 2020).

The current study distinguishes between equity and non-equity-linked networks. I use the term *intra-firm network* to capture all equity networks with the MNE, and the term *extra-firm network* to capture all non-equity contracted MNE relationships. By this classification, intra-firm network internationalisation would involve formal foreign-country equity business activities. Correspondingly extra-firm network internationalisation would involve the execution of non-equity contracted internationalisation activities.

3.2.2 Real options theory and networks

Real options theory is based on the premise that firms create options by making a small investment which entitles the firm to obligation-free rights (Ahsan & Musteen, 2011). Examples of such options in the context of internationalisation include staged market entry, divestment, deferral (Trigeorgis & Reuer, 2017), expansion, acquisition of partnership shares, and switching of production across the firm's network of subsidiaries (Chi et al., 2019; Ipsmiller et al., 2019). This is of importance to the current study as real options theory studies indicate that the MNE has options in both the equity-linked

subsidiary (Chung et al., 2010; Trigeorgis & Reuer, 2017) and non-equity linked external network (Bajeux-Besnainou et al., 2010).

This section proceeds with an overview of options, their application and their similarity with networks. It then elaborates on the application of options in the MNE equity-linked subsidiary and external non-equity-linked networks.

Options arise from the choices available to the firm (McGrath et al., 2004) and are investments in either tangible or intangible assets that occur in the presence of uncertainty (Chi et al., 2019). They carry a measure of irreversible cost but they have the benefit of obligation free rights that a firm can exercise after making a small investment (Ahsan & Musteen, 2011). In this manner, the value of options lies in the flexibility that it affords the firm when risk is high (Kogut & Kulatilaka, 1994; Li & Li, 2010; Tong & Li, 2011).

When there were risks associated with high industry uncertainty (Li & Li, 2010), stock exchange volatility (Tong & Li, 2011), institutional uncertainty (Cuypers & Martin, 2010) and political risk (Reuer & Tong, 2005), firms have exercised options like lower equity modes to reduce exposure to the associated internationalisation risk in these countries. Real options theory indicates that as the uncertainty and risk abate, these firms can act on obligation free options to increase their investment, and this also holds for the converse scenario. When risk is high, firms can exercise options to start an investment, albeit limited. These firms then have the benefit of flexibility to take up higher investment should the risk abate.

Similarly, the network also offers member firms with benefits of flexibility by way of the ability to change the level of resource commitment in the network and/or network members based on the changes in the investment environment (Tunisini et al., 2023). Hence both options and networks are beneficial to firms in uncertain environments as both provide firms with flexibility.

Options provide the firm with the ability to manage downside risk and maximise upside potential as the firm has the obligation free right to act on the option by increasing, switching, staging, deferral and/or divestment depending on changes in the investment

and firm environment (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017). Networks also allow firms to limit their risk exposure by combining resources (Lahiri et al., 2021). The membership in the firm network and resource commitment are also subject to change based on variations in the investment environment (Chen, 2003; Majchrzak, 2015; Mas-ruiz et al., 2018).

Investment options include acquisitions, equity-related joint ventures and contractual modes (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017). Like options, network governance structures also include contractual and joint venture relationships (Lahiri et al., 2021).

Internationalisation options have different levels of firm resource allocation (Klingebiel & Adner, 2015). The firm resources involved in internationalisation through intra- and extra-firm networks differ as the former, per definition is linked by equity, while the latter involves non-equity relationships.

In sum, networks and options are similar in that both are subject to change due to changes in the investment environment thus mitigating risk. In addition, both networks and options governance structures vary from contractual to those of joint ventures (equity-linked) and involve different firm resources.

Previous work has been done linking the geographical diversification of the subsidiary network as a tool to reduce risk using the reduction of variance in subsidiary performance (Kogut & Kulatilaka, 1994). However, the real options approach suggests that the options in the equity-linked subsidiary network go beyond variance reduction as it also provides the ability to react to changes in the investment environment (Kogut & Kulatilaka, 1994). Decision makers have used the MNE intra-firm subsidiary network to improve operational flexibility by shifting operations based on differences in the operating costs in host locations (Fisch & Zschoche, 2011; Song et al., 2008). In addition, the MNE's network of subsidiaries provides the firm management with the advantage of viewing the network as a portfolio of options, where operations can be divested based on changes in the operating conditions in host locations (Fisch & Zschoche, 2012a). Moreover, the portfolio of options also provides the MNE management with the ability to decide on resource commitment to current subsidiaries (Song, 2014b).

The risk mitigation benefit of the MNE equity-linked subsidiary network (intra-firm network) has been reported in several studies of AMNEs. For example, a study of German manufacturing AMNEs found that the management used the subsidiary network to shift operations to other subsidiaries in the network (Fisch & Zschoche, 2011) and divested of operations (Fisch & Zschoche, 2012a) due to changes in the host country. Similarly, the management of American (Pantzalis et al., 2001) and Korean MNEs (Song et al., 2015) also utilise options in the subsidiary network to mitigate risk in the investment environment. These studies indicate that MNEs from different geographies have used the subsidiary network for risk mitigation by executing options inherent in the network.

The intra-firm subsidiary network also has options for resource commitment. This was evident in the study where French AMNEs (Procher & Engel, 2018) implemented resource commitment decisions based on the availability of resources arising from foreign or domestic investments or divestments.

Furthermore, the management of Japanese MNEs have considered the option value (flexibility, switching etc.) that investment in foreign locations adds to the portfolio (Belderbos et al., 2014; Belderbos et al., 2018, 2020; Belderbos & Zou, 2007). The management evaluated the benefit that the investment adds to the subsidiary portfolio, in terms of the host location operating costs, in their internationalisation efforts. It follows that the subsidiary network can mitigate the macroeconomic risks associated with operating in one location with another by options like changes in production location and/or suppliers.

These studies indicate that the investments in new subsidiaries are weighed against current resource commitment and option value within the intra-firm network. Thus, it follows that the MNE's equity investment in foreign locations forms part of its intra-firm network and provides obligation free options with firm resource implications.

Obligation free options have also been extended to the MNE external non-equity linked network (Bajeux-Besnainou et al., 2010). This extension was applied in the context of technology firms, where the firm networks and uncertainty were evaluated using real options theory. The firms were contextualised as interconnected nodes in a network. Each firm had the obligation free right to invest resources in other member firm/(s)

programmes based on market conditions. The extra-firm research network provided the members of the network with risk sharing options and exposure to projects of scale and risk that would otherwise be impossible as a solo firm. While the internationalisation options in the context of non-equity networks have not been evaluated, there is evidence of this phenomenon, albeit scholarship have used terminology such as business groups (Tan & Meyer, 2010), peer firms (Maciel & Fischer, 2020) and business clusters (Lei & Chen, 2011).

In sum, the MNE subsidiary and external business network real options studies indicate that both intra and extra-firm networks are associated with firm resources and can provide obligation free options. Thus, real options theory is an ideal lens for the current study which evaluates the relationship between firm resources, internationalisation network options and country risk.

3.3 Multinational Enterprise (MNE) resources

Firm resources are fundamental in internationalisation (Cuervo-Cazurra, Mudambi, & Pedersen, 2018; Gaur et al., 2014; Liedong et al., 2020). The resources can be tangible (financial, technology, equipment) and/or intangible (human resources, skills, knowledge) and are specific to the firm (Barney, 1991). Resources like technological (Buckley, Munjal, et al., 2016; Luiz et al., 2017) and financial resources (Ito & Rose, 2010) have been found to aid in internationalisation.

Other considerations in the internationalisation decision include the assessment of the risks associated with the host country's level of institutional development (Contractor et al., 2014; Demirbag et al., 2010; Liedong et al., 2020; Meyer et al., 2009). These two streams of literature indicate a pattern that firm resources influence the internationalisation strategies used by MNEs and can be used to compensate for the country's risk associated with developing institutions.

Real options literature indicates that AMNEs with significant resources (Belderbos et al., 2018; Belderbos & Zou, 2007; Tong et al., 2008) internationalise using mainly equity modes. These are similar to the equity-linked intra-firm networks conceptualised in this study. In contrast, there is a trend in the literature (Barnard, 2021; Liu et al., 2021; Rivera-

Santos et al., 2012) that indicates that EMNEs with resource constraints often internationalise with what is essentially non-equity-linked partners. This non-equity partner internationalisation is similar to that of the non-equity-linked extra-firm networks (conceptualised in this study).

Taken together, these studies paint a picture of MNEs and resources where EMNEs and AMNEs occupy different positions in the resource spectrum i.e., the former being resource-constrained and the latter with significant resources. Moreover, the resources influence firm internationalisation via intra- and/or extra-firm networks. Therefore, I argue that MNEs with significant resources are likely to follow internationalisation strategies using intra-firm networks, while those with resource constraints make greater use of extra-firm network internationalisation strategies. The sections situate this argument in the literature.

Even though all firms have finite resources (Bajeux-Besnainou et al., 2010; Mizik & Jacobson, 2003), AMNE and EMNE resources differ in quantum (Luiz et al., 2017; Ozkan et al., 2022) and type (Gaur et al., 2014). Most AMNEs have significant financial and technology resources with access to developed home financial markets (Luiz et al., 2017). In addition, most AMNEs trump EMNEs with respect to resources like brands and knowledge assets derived from technology as EMNEs develop in home markets with low or developing economic and technology environments (Estrin et al., 2017). Aligned with this research, scholars (Luiz et al., 2017; Ozkan et al., 2022) have concluded that typically most EMNEs have fewer resources than their advanced market counterparts.

In reaction to the limited resources, EMNEs largely compensate with business, government and community networks in their internationalisation strategies (Cuervo-Cazurra, Ciravegna, et al., 2018). This compensation can be executed using networks that provide member firms with access to a resource pool (Gaur et al., 2014; Selnes & Sallis, 2003). These network advantages result from operation in the developing/emerging market context (Cuervo-Cazurra, Ciravegna, et al., 2018; Cuervo-Cazurra & Genc, 2008; Gaur et al., 2014) which fundamentally gives EMNEs an advantage as they originate from markets of this nature.

AMNEs also develop external network advantages in emerging markets for example business, political (Elg et al., 2008; Lee et al., 2012), social (Elg et al., 2015), non-governmental organisation and religious networks (Ferrucci et al., 2018). However, AMNE external networks appear to be less studied (than those of EMNEs) and seem less consequential. Even though, these studies indicate both EMNEs and AMNEs make use of network advantages, it seems to be the case that the former mostly utilise these advantages for resource compensation in internationalisation.

Another way in which the differences in AMNE and EMNE resources play out is in the ownership and internalisation advantages afforded by resources. Large firms generally have more resources available for investments (Tong et al., 2008) and have been found to favour acquisitions over joint ventures (Petrou, 2009). It seems like the access to resources means that the firms can use them in ways that give them more direct control even though, the actions are more expensive. This tracks as their significant complement of resources mean that they have ownership advantages in foreign direct investment (Terpstra & Yu, 1988) and these ownership advantages include access or ownership of unique resources (Rasciute & Downward, 2017).

Since most AMNEs have more resources than the typical EMNE, it follows that they are more likely to exploit their firm-specific resources in internationalisation (Acquaah, 2009; Contractor et al., 2014). AMNEs not only use ownership but also internalisation advantages inherent in the firm (Kottaridi et al., 2019). Internalisation advantages are related to the nature of transactions and can be ownership related i.e., exploitation of resources internally versus licensing of technology (Buckley & Casson, 2009; Kottaridi et al., 2019; Rasciute & Downward, 2017). This means that because AMNEs have access to resources, they are likely to internationalise with more ownership modes akin to the equity-linked intra-firm network which in turn allows the firm to internalise the activities within this network.

In contrast, EMNEs generally lack these advantages and internationalise in the pursuit of ownership advantages (Luo et al., 2021; Luo & Tung, 2007). Accordingly, it follows that EMNEs largely lag their advanced market counterparts in internationalisation scale and scope (Luo et al., 2021; Luo & Tung, 2007). Therefore, differences in the resources

between most AMNEs and typically resource constrained EMNEs, influence their internationalisation strategies.

These studies indicate that EMNEs and AMNEs typically have firm resources that differ in scale and nature with resultant contrary advantages. This is significant, as firm resources are a key part of a firm's internationalisation strategy and the commitment thereof incurs some cost (Hill et al., 1990). Comparably firm options are an investment of some resources that incurs a measure of irreversible cost (Ahsan & Musteen, 2011) and this similarity makes sense as options are based on firm resources (Chi et al., 2019; Ragozzino et al., 2016; Trigeorgis & Reuer, 2017). Therefore, both EMNE and AMNEs should be able to acquire options but because the MNEs differ in resources, it is likely to impact their respective internationalisation options.

3.3.1 Networks and options

Networks allow member firms access to shared network resources (Jeong, 2016; Lahiri et al., 2021; Nguyen et al., 2022). Moreover, networks allow member firms to share risk (Lahiri et al., 2021).

Comparably, the real options literature indicates that non-equity linked, extra-firm networks (Bajeux-Besnainou et al., 2010) allow firms to mitigate risk through shared resources. The equity-linked intra-firm network of subsidiaries (Fisch & Zschoche, 2011) also allows firms to mitigate the risk of adverse changes in the operating location, for example by switching the location of operations.

Therefore, the networks and real options literature indicate that both options and networks allow firms to share resources and risk. The sections that follow highlight the literature on MNE resources, and equity-linked intra-firm and non-equity contracted extra-firm networks. It also indicates the associations thereof with options.

3.3.1.1 Intra-firm networks

Network literature (Berns et al., 2021; J. Li et al., 2018) indicates that MNEs have internationalised via equity-linked networks. The studies (Berns et al., 2021; J. Li et al.,

2018) also indicate that firms that internationalised using equity-linked intra-firm networks, had access to resources.

The MNE equity-linked intra-firm network has been used for risk mitigation. For example, MNEs have equity-linked intra-firm networks based in different geographical locations. The differences in the geographical economic environment provide the firm with risk mitigation options. Firms have mitigated risks associated with rising costs in one location by switching operations to another location (Fisch & Zschoche, 2011; Song et al., 2008). This ability to switch is based on the MNE's equity-linked control of the locations.

3.3.1.2 Extra-firm networks

Extra-firm networks are not equity-linked but can be formally contracted (Tan & Meyer, 2011). The literature (Barnard, 2021; Liu et al., 2021; Rivera-Santos et al., 2012) suggests that firms with resource constraints often internationalise using various non-equity linked partnerships like those of non-equity liked extra-firm networks. This means that these firms are likely to lack either the quantum of or even the ownership, location and internalisation resources used in equity-linked intra-firm internationalisation. Therefore, the differences in the MNE resources involved in the internationalisation through extra-firm networks are likely to differ quantum and/or type from those used for intra-firm network internationalisation.

In addition to the sharing of resources, extra-firm networks allow firms to share risk (Lahiri et al., 2021). The contracted nature of the extra-firm network also provides the firm with the flexibility to change networks and/or resource commitment depending on the nature of the contract (Tunisini et al., 2023). Similarly, the options of the extra-firm network (Bajeux-Besnainou et al., 2010) provide the firm with risk mitigation by way of the flexibility of resource commitment.

3.3.1.3 Summary

The differences between intra and extra-firm networks indicate that firm resources and risk mitigation are likely to vary depending on the network governance. This means that these differences result in alternative options that the firm can choose to exercise. Given

this understanding, the following section presents the conceptualisation of networks as options.

3.3.2 Conceptualising networks as options

MNEs have internationalised using equity and non-equity partnerships. While network literature views the MNEs equity partnerships as an equity-linked network (Berns et al., 2021; Kumar et al., 2022; J. Li et al., 2018), real options literature looks at it as equity options (Belderbos et al., 2018; Song, 2014a, 2014b). Similarly, the network literature looks at the MNE non-equity partners, as networks (Ferrucci et al., 2018; Rubino et al., 2019) and real options literature views it as non-equity-based options (Jiang et al., 2009; Lee & Makhija, 2009). I compare networks and real options literature in terms of internationalisation, resources and risk, in Table 3, to indicate that these views are compatible.

Table 3 Evidence linking networks to the real options literature

		Networks	Real options
Internationalisation	**Equity**	Internationalisation via equity (Berns et al., 2021; Kumar et al., 2022; J. Li et al., 2018).	Equity internationalisation options (Belderbos et al., 2018; Song, 2014a, 2014b)
	Non-equity	Internationalisation via formal contracting (Ferrucci et al., 2018; Rubino et al., 2019)	Non-equity contracting internationalisation options (Jiang et al., 2009; Lee & Makhija, 2009)
Firm resources	**High**	Intra-firm network internationalisation by firms with significant resources (Cui & Xu, 2019; J. Li et al., 2018; Ren et al., 2019)	Obligation free rights that enable downside risk mitigation (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017)
	Low	Resource-constrained firms with extra-firm networks (Cui & Xu, 2019; J. Li et al., 2018; Ren et al., 2019)	Firms with resources internationalise with equity internationalisation options (Tong et al., 2008)
Risk		Shared risk (Lahiri et al., 2021),	Obligation free rights that enable downside risk mitigation (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017)

3.3.2.1 Internationalisation

Equity internationalisation

The network literature (Berns et al., 2021; Kumar et al., 2022; J. Li et al., 2018) indicates that firms internationalise using equity. Similarly, firms also internationalise using equity-linked options (Belderbos et al., 2018; Song, 2014a, 2014b). Accordingly, it follows that networks and options are similar in that both can be used for equity internationalisation.

Non-equity internationalisation

Extant literature has indicated that firms have internationalised using the extra-firm networks where the associations are characterised by non-equity contractual modes (Ferrucci et al., 2018; Rubino et al., 2019). Firms have also internationalised using non-equity contractual options (Brouthers et al., 2008; Jiang et al., 2009; Lee & Makhija, 2009). Thus, in terms of internationalisation both extra-firm networks and options include non-equity internationalisation modes.

Therefore, both networks (intra- and extra-firm) and options are similar as scholars have theorised internationalisation using equity and non-equity modes from both perspectives.

3.3.2.2 Resources

High resources

The network literature indicates that firms with access to resources internationalised using equity-linked networks (Cui & Xu, 2019; J. Li et al., 2018; Ren et al., 2019). The real options literature indicates that large firms with access to resources also internationalised using equity modes (Tong et al., 2008). Therefore, both network and real options literature indicate that firms with access to resources, internationalised with equity modes.

Low resources

In contrast, resource constrained firms have internationalised using contracted extra-firm networks (Liu et al., 2021; Rivera-Santos et al., 2012). The real options literature (Bajeux-Besnainou et al., 2010) also suggests that firms use contracted, non-equity options to share resources and risk in the development of technology. The firms gain exposure to

technology projects that would otherwise been impossible, had they operated on their own.

Therefore, resources influence both options and networks.

3.3.2.3 Risk

Networks allow member firms to share risk (Lahiri et al., 2021) and correspondingly reduce risk exposure. Options provide firms with the ability to manage downside risk using obligation free rights (Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017). This characteristic suggests that both networks and options have risk mitigation benefits.

Summary

I compared the internationalisation, firm resource and risk characteristics of networks and options as scholars have theorised them. Considering the similarities in these characteristics, I propose the conceptualisation of intra and extra-firm networks as options for risk mitigation and resource compensation in internationalisation. The options conferred by these networks can be expected to vary amongst MNEs with different resources. Since EMNEs and AMNEs typically have different resource complements, it follows that their network options will differ. The extant literature on the network internationalisation efforts of EMNEs and AMNEs about their resources is discussed in the sections that follow.

3.3.4 EMNE resources and internationalisation through networks in emerging markets

EMNEs have internationalised using extra (Khanna & Palepu, 2000a; Lei & Chen, 2011; Li et al., 2019; Liu et al., 2021) and/or intra-firm networks (Khanna & Palepu, 2000b; Ren et al., 2019; Ricard et al., 2021) networks, but the extra-firm networks appear to be particularly important for EMNE internationalisation. These firms often follow local optimisation and brokering strategies in emerging markets to compensate for their limited resources (Barnard, 2021). The optimisation strategy involves expansion into markets with lower or similar levels of development as the firms' home country while the brokering strategy involves the operation of the EMNE in emerging markets on behalf of their

advanced market counterparts (Barnard, 2021). Both strategies are pertinent to the current study as they both involve the use of non-equity linked partnerships akin to extra-firm networks. The optimisation strategy can be supplemented with extra-firm multiple sector partnerships as these compensate for the typical EMNEs' limited traditional resources (Rivera-Santos et al., 2012). In the brokering strategy, EMNEs use their network relationships as resources to operate in emerging markets on behalf of their advanced market counterparts (Barnard, 2021).

There is evidence that EMNEs engage in emerging market internationalisation through extra firm networks, albeit the terminology used to describe the phenomenon is different. For example, Chilean (Khanna & Palepu, 2000a) diversified business groups, linked by external non-equity arrangements, internationalised together. The network of different business groups acted as informal institutions in emerging markets. Similarly, internationalisation through ethnic (extra-firm) networks facilitated transactions and services amongst the members of the network (Li et al., 2019). The term "business clusters" was used to describe firms that internationalised in similar locations and/or sectors (Lei & Chen, 2011). The non-equity linked business clusters (Lei & Chen, 2011) and ethnic networks (Li et al., 2019) aid EMNEs (with limited resources) by providing access to human resources, customer and supply networks in emerging markets. Moreover, non-equity-linked buyer and supplier firm relationships positively influenced the internationalisation of sub-Saharan African emerging market firms (Liu et al., 2021). The characteristics of the non-equity linked associations of business groups in these studies indicate that they function like the extra-firm non-equity linked network. Thus, the bulk of research suggests that a range of extra-firm networks, often with little formalisation, are important in EMNE internationalisation in emerging markets.

However, Khanna & Palepu, (2000b) also noted Indian EMNE usage of ownership-linked business groups (like equity-linked intra-firm networks in the current study) in internationalisation. Similarly, Ricard et al. (2021) found that EMNEs used "*contractual internationalisation*" which was defined as equity joint venture and minority acquisition (intra-firm network in this study). But the scholars (Ricard et al., 2021) also noted EMNEs' use of internationalisation modes such as licencing, franchising, contractual alliances, research and development contracts (extra-firm network in this study). While EMNEs have internationalised using the intra-firm equity-linked network, Ricard et al. (2021)

noted EMNEs' use of the extra firm collaborative internationalisation modes (like extra-firm networks in the current study) exceeded that of the intra-firm equity/ownership linked modes.

A pattern that emerges in literature (Cui & Xu, 2019; J. Li et al., 2018; Ren et al., 2019) is that Chinese EMNEs, with access to resources, internationalise using intra-firm networks. In these studies, the home country government networks provided EMNEs with access to funding, raw materials, infrastructure and/or host country diplomatic ties (J. Li et al., 2018; Ren et al., 2019). The firms engaged in equity linked intra-firm network internationalisation. Furthermore, state-owned (J. Li et al., 2018; Ren et al., 2019) and/or government supported (Cui & Xu, 2019; J. Li et al., 2018; Ren et al., 2019) Chinese MNEs engaged in internationalisation through equity linked intra-firm networks (J. Li et al., 2018; Ren et al., 2019). The EMNEs have access to government resources and this differentiates the firms from the typical EMNE with resource constraints.

These findings are significant as it indicates that EMNEs can internationalise using intra- and /or extra-firm networks. However, extra-firm networks were particularly important for EMNEs' internationalisation, that were not supported by home country government resources. Therefore, I propose that the distinction lies in the firm resources linked to these internationalisation options.

The network studies suggest that EMNEs' resources are related to their internationalisation network strategies. Moreover, these studies indicate a trend that typical EMNEs with limited resources have mostly internationalised through extra-firm networks in emerging markets. Therefore, I propose:

Hypothesis 1: EMNEs with their limited resources are likely to use extra-firm networks more than intra-firm network when they internationalise into African countries

3.3.5 AMNE resources and internationalisation through networks in emerging markets

Among AMNEs, internationalisation via subsidiaries i.e. equity linked internationalisation appears to be the norm. For example American (Tong & Reuer, 2007), Japanese

(Belderbos et al., 2014; Belderbos et al., 2018, 2020; Belderbos & Zou, 2007) and Greek MNEs (Kottaridi et al., 2019) have used equity linked internationalisation into emerging markets. AMNEs in these studies used lower equity as opposed to acquisition options to mitigate risk in emerging markets. These studies indicate a propensity of AMNEs to internationalise using equity.

Firm size appears to influence the resource used in internationalisation as Tong and Reuer (2007) noted larger advanced market firms' ability to deploy more resources. Similarly, Belderbos et al. (2014, 2018, 2020) and Belderbos and Zou (2007) indicated that large AMNEs were likely to possess more financial resources, supporting their ability to internationalise. Correspondingly, smaller firms with less resources are less likely to internationalise using equity modes. I found support for this as both Ferrucci et al. (2018) and Rubino et al. (2019) reported that smaller advanced market firms used network contracts which is a form of extra-firm network, to internationalise.

The studies indicate that most of the AMNEs using equity internationalisation modes had access to significant resources and thus were more likely to exploit their resources and advantages. Generally, most of the AMNEs used equity-linked internationalisation as opposed to acquisition to mitigate risk in emerging markets. The MNE equity linked network has been conceptualised as an intra-firm network in the current study. Thus, given their significant resources, the following hypothesis was proposed for AMNE internationalisation into emerging markets of African countries:

Hypothesis 2: AMNEs with their significant resources are likely to use intra-firm networks more than extra-firm networks when they internationalise into African countries

3.3.6 Summary

This section proposed hypotheses for EMNE and AMNE internationalisation using networks into African countries based on the differences in the firm resources. Both EMNE and AMNE internationalisation literature also indicated that the network also aids the firms in risk mitigation. This is relevant as African countries have developing institutions which can be a risk for business operation (as discussed in Chapter 2). In the

next section, I discuss MNE internationalisation in the context of the risks associated with the host country.

3.4 Country risk

Country risk is a multidimensional construct that is associated with *"volatility of the political, economic, and social factors of the target country"* (López-Duarte & Vidal-Suárez, 2010, p. 576). Emerging markets have developing and underdeveloped institutions which include their political, regulatory, economic and institutional, environment (Adomako et al., 2021; Manikandan & Ramachandran, 2015; Meyer et al., 2009; Rivera-Santos et al., 2012). These factors impact firm internationalisation (Brouthers, 2013a, 2013b) and business operation.

Volatility in the host country's political environments poses a risk to business investment (Buckley et al., 2020; Lahiri, 2017b; Pinkham & Peng, 2017). It can influence the quality of country governance and regulations with knock-on effects on business operations.

Host country macroeconomic uncertainty also pose a risk for businesses for example the exchange rate influences the value of the business (Cuypers & Martin, 2010).

Some key functions of institutions include access to information, ability to assess credit, access products and services, verification of authenticity facilitation of transactions and/or resolution of conflict (Dhanaraj & Khanna, 2011). These functions are often lacking or at best still developing in emerging markets (Dhanaraj & Khanna, 2011). The state of developing and/or limited intermediaries and market institutions can be risks for business as they have to incur costs to internalise these functions (Smit et al., 2017).

Governance functions are important to business operations as low country governance quality was found to be negatively associated with foreign direct investment (Slangen & van Tulder, 2009). Correspondingly, host countries with limited or developing legal and financial institutions have a negative impact on growth options as these systems are required to enforce contracts (Smit et al., 2017). Moreover, limited regulations supporting minority investor protection, also contribute to low foreign direct investment (Contractor et al., 2021).

The lack of facilitating institutional mechanisms results in market inefficiency (Liedong et al., 2020) with corresponding increases in costs related to procurement, capital, information as well other business activities (Doh et al., 2017). Examples include risks associated with the receipt and dispatch of raw materials, products and services and the lack thereof disrupts business activities (see examples of the experiences of both EMNEs and AMNEs in chapter 2).

Emerging market countries also have poor and/or developing product markets therefore access to technology is limited and costs of acquisition, operation and maintenance are high (Zoogah et al., 2015). The lack of goods in the country implies that additional costs are incurred to obtain goods from outside the country thus increasing business expenses and subsequently posing risks for business operation.

Thus, volatility and/or the low state of development in the country's political, regulatory, economic and institution environments are a risk for business operation.

3.4.1 MNE resources, internationalisation network options and developing country institutions

The international business literature indicates that firm resources are fundamental in MNE internationalisation strategies (Liedong et al., 2020), but these strategies are also impacted by limited or developing institutions (Doh et al., 2017). It follows that firms have developed specific internationalisation strategies to manage limited or developing institutions (Doh et al., 2017) and particularly noteworthy are the networks involved in these strategies.

Firms have utilised business networks to facilitate transactions in developing markets (Chung & Tung, 2013; Khanna & Palepu, 2000a, 2000b). Some firms have formally partnered with institutions to facilitate changes in host country institutions (Alaydi et al., 2021), while others have used less formal extra-firm network associations to influence change (Wang et al., 2020). These strategies involve different levels of firm resources and/or provide access to resources (Doh et al., 2017).

I have already hypothesised that the differences in resources of EMNEs and AMNEs will affect how they internationalise. The networks also aid in risk mitigation; therefore, I suggest that both EMNEs and AMNEs would be affected by country risk associated with limited or developing institutions.

3.4.2 Moderating effect of country risk on MNE resources and internationalisation network options in emerging market countries

The review paper by Liedong et al. (2020) indicates that scholarship has found negative, positive, contingent curvilinear U-shaped as well as inverted U-shaped relationships between firm resources and country risk associated with developing country institutions. The difference in these results indicates that more work needs to be done to study this effect. The section that follows, discusses literature about firm resources, network internationalisation and country risk.

When host country risk is high, the role of extra-firm networks is likely to be particularly important as they offer low firm resource internationalisation options for firms regardless of their resource complement. According to real options theory, host country risk adversely impacts MNE investment options (Belderbos et al., 2018; Li & Li, 2010; Slangen & van Tulder, 2009). Since options are based on firm resources (Chi et al., 2019; Ragozzino et al., 2016; Trigeorgis & Reuer, 2017), it follows that host country risk is likely to affect the relationship between MNE resources and options. These options also include network internationalisation as conceptualised in earlier section.

Macroeconomic and institutional uncertainty negatively impacted the foreign market entry modes of firms into China (Cuypers & Martin, 2010). The impact of host country institutions is also evident in the Smit et al. (2017) study where host country developing financial institutions had a negative effect on firm growth potential.

Furthermore, the adverse relationship between host country risk (associated with developing country institution) and foreign market entry mode was found to apply to both AMNEs (Contractor et al., 2014) and EMNEs (Contractor et al., 2014; Demirbag et al., 2010; Meyer et al., 2009). The MNEs compensated with entry modes of lower control (consequently lower firm resources) in emerging markets of India and China (Contractor

et al., 2014) and transition markets of Central Asian Republics (Demirbag et al., 2010) with high levels of institutional uncertainty. Thus, it can be concluded that country risk associated with developing institutions in emerging markets, negatively affects both AMNE and EMNE internationalisation. It follows that there is a corresponding effect on the firm resources involved in the internationalisation.

The relationship between extra-firm networks and risk has not been developed using the terminology in the current study. However as early as 1978, Leff (1978) reported internationalisation through groups of firms (networks) as a reaction to emerging markets with developing institutions. Moreover, studies indicate that the internationalisation of emerging market firms as networks, has been used to mitigate risks associated with developing institutions in emerging markets (Khanna & Palepu, 2000a, 2000b; Khanna & Rivkin, 2001).

Most EMNEs with limited resources, have mitigated risks associated with developing country institutions by using extra-firm network internationalisation strategies. The extra-firm network typically acts as an informal institution and sources of supplier, customer and human resources (Laanti et al., 2007; Lei & Chen, 2011; Li et al., 2019). Extra-firm networks which include members from multiple sectors provided functions that would otherwise be provided by good regulatory institutions (Rivera-Santos et al., 2012). These studies indicate that EMNEs with limited resources, are more likely to mitigate institutional risk with extra-firm network internationalisation strategies.

I have already hypothesised that EMNEs with their limited resources are more likely to internationalise using extra-firm network options in African countries. Thus, the presence of high risk in these markets, is likely to further cement that tendency. Hence the following hypothesis was proposed:

Hypothesis 3: Country risk negatively moderates the relationship between EMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use options of extra- rather than intra-firm networks

The risk mitigation strategy using networks is not likely to be limited to only EMNEs. This is because advanced market firm's level of equity participation in emerging markets is

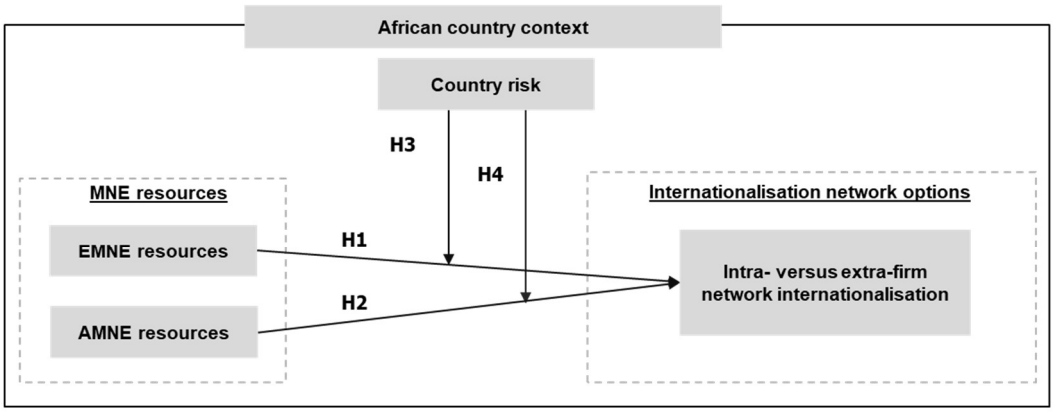
negatively affected by unfavourable institution quality (Lahiri, 2017b). Thus, country risk in emerging markets also has an adverse effect on AMNE internationalisation. The firms favoured joint venture over wholly owned subsidiary options in high-risk emerging markets (Belderbos et al., 2018; Slangen & van Tulder, 2009).

Risk increases with increasing ownership modes (Ahsan & Musteen, 2011). It follows that risk exposure is lower, with contractual modes (for example licensing, franchising, exporting). Therefore, one would expect that as country risk increases, AMNEs would also internationalise using less risky firm resource options, like low minority equity in the intra-firm network or even lower risk extra-firm networks.

According to the real options theory studies (Belderbos et al., 2018; Slangen & van Tulder, 2009), AMNEs tend to internationalise through lower equity modes to mitigate risk associated with the host country institutions. An explanation for this is that the studies focussed only on equity joint venture versus acquisition modes. Therefore, AMNES may use lower risk firm options like the extra-firm network with increasing emerging market risk. Considering the evidence from these studies, the following hypothesis is proposed:

Hypothesis 4 Country risk negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use less risky resource options of extra- rather than intra-firm networks

3.4.3 Conceptual framework



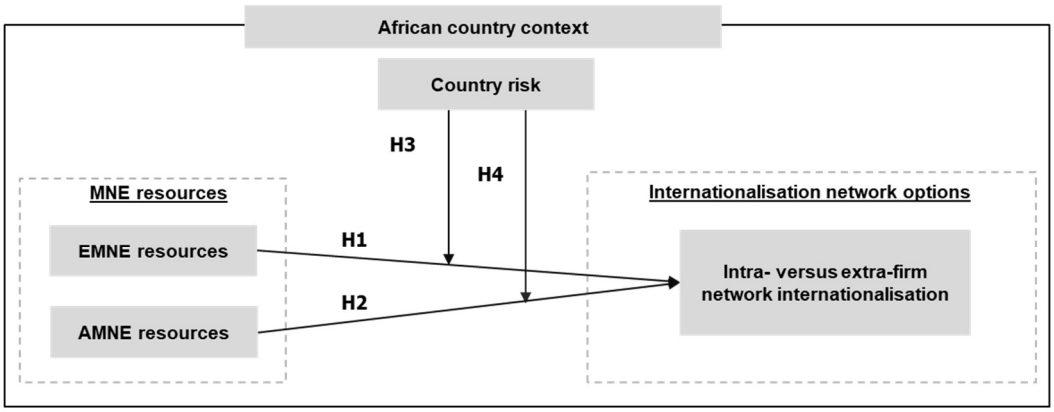
Hypothesis 1: *EMNEs with their limited resources, are likely to use extra-firm networks more than intra-firm network when they internationalise into African countries*

Hypothesis 2: *AMNEs with their significant resources, are likely to use intra-firm networks more than extra-firm networks when they internationalise into African countries*

Hypothesis 3: *Country risk negatively moderates the relationship between EMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use options of extra- rather than intra-firm networks*

Hypothesis 4: *Country risk negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use less risky resource options of extra- rather than intra-firm networks*

Figure 1 indicates the conceptual framework and the proposed hypotheses.



***Hypothesis 1**: EMNEs with their limited resources, are likely to use extra-firm networks more than intra-firm network when they internationalise into African countries*

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***Hypothesis 3**: Country risk negatively moderates the relationship between EMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use options of extra- rather than intra-firm networks*

***Hypothesis 4**: Country risk negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use less risky resource options of extra- rather than intra-firm networks*

Figure 1 Conceptual framework

3.5 Conclusion

This chapter has reviewed extant literature on network internationalisation, real options theory, MNE resources and country risk associated with developing institutions. Links between options and networks were highlighted from the review of the network internationalisation and real options theory literature. Consequently, intra- firm networks (equity linked) were conceptualised as options like the MNE equity linked subsidiary network. Similarly, extra-firm (non-equity linked) networks were conceptualised as firm options of the MNE external business network.

The literature indicated that networks provide firms with access to resources and aid in risk mitigation due to shared risk. It was also evident in studies that firm resources are important for internationalisation and strategies for risk mitigation. Correspondingly it follows that differences in firm resources also influence firm options. Since MNEs from emerging (EMNEs) and advanced (AMNEs) countries generally have different quantum and type of resources, it is expected that these firms would use different

internationalisation options. Typically, studies indicated that most EMNEs are resource constrained while AMNEs generally have more resources than their counterparts.

The network internationalisation literature indicated that MNEs with significant resources are likely to follow internationalisation strategies using intra-firm networks. In contrast MNEs with resource constraints make greater use of extra-firm network internationalisation strategies in emerging markets. A pattern was evident in the literature that EMNEs (with their limited resources) tend to internationalise through extra-firm networks while AMNEs given their more significant resources internationalise through intra-firm networks in emerging markets. Thus, hypothesis 1 and 2 was proposed, where EMNEs and AMNEs differed in resources and networks used in internationalisation into African countries.

The emerging market institution literature provided evidence that country risk (associated with developing institutions) has an impact on internationalisation resources, albeit the nature of the relationship differed, which prompts the need for further study. A review of MNE internationalisation literature indicated that EMNEs mitigated country risk with extra-firm network strategies. While AMNE use of extra-firm networks to mitigate risk has not been evaluated, I propose that AMNEs will also mitigate country risk with extra-firm network internationalisation options. Thus, the current study suggests that the relationship between EMNE and AMNE resources with network internationalisation options, could be similarly moderated where both types of MNEs use lower resource network internationalisation options, i.e., the extra-firm network rather than intra-firm network, as risk increases.

Chapter 4 Research methodology

4.1 Introduction

The literature review resulted in the conceptualisation of intra-firm networks (equity linked) as options in the MNE equity linked network. In addition, the extra-firm (non-equity linked) network was conceptualised as offering the type of options present in the MNE external business network.

A pattern was evident in the literature that the typical EMNE (with limited resources) tends to internationalise through extra-firm networks. In contrast AMNEs, given their more significant resources, seem to internationalise through intra-firm networks in emerging markets. Moreover, the literature indicated that both AMNEs and EMNEs exercised lower resource internationalisation options to mitigate country risk. Therefore, the conceptual framework, indicated in Chapter 3, was developed.

The literature review and the resultant conceptual framework was developed to address the hypotheses:

- *Hypothesis 1: EMNEs with their limited resources, are likely to use extra-firm networks more than intra-firm network when they internationalise into African countries*
- *Hypothesis 2: AMNEs with their significant resources, are likely to use intra-firm networks more than extra-firm networks when they internationalise into African countries*
- *Hypothesis 3: Country risk negatively moderates the relationship between EMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use options of extra- rather than intra-firm networks*
- *Hypothesis 4 Country risk negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries, so that as risk increases, so does the propensity to use less risky resource options of extra- rather than intra-firm networks*

This chapter outlines the research methodology used to evaluate the study's research questions and correspondingly the proposed hypotheses in the conceptual framework.

By considering the recommendations from scholars (Edmondson & McManus, 2007; Zhang & Shaw, 2012), the methodology would best address the research questions. These recommendations included consideration of the research paradigm and area of research (Wahyuni, 2012). Other factors included the alignment of the research problem and questions with corresponding literature. In addition, the study's theoretical contribution, research design (Edmondson & McManus, 2007) and method/(s) (Zhang & Shaw, 2012) were considered.

This chapter unpacks these considerations and the corresponding methodology. It proceeds with the research paradigm which provided the framework for the research design. It is then followed by the discussion of the population, measures, quality and ethical considerations.

4.2 Research paradigm

The research study commenced with an understanding of how the researcher views the research subject. This is important as the paradigm provides the framework that guides the researcher (Jonker & Pennink, 2010). The research problem under investigation, evaluates the relationships between *internationalisation network options, MNE resources* and *country risk*. Since hypotheses were proposed, to assess these relationships, the research problem is characterised as the evaluation of causal relationships.

The hypotheses were specified using the lens of an existing theory, namely real options theory. Therefore, the research problem is also characterised as one that can be explained using a deductive, measured and scientific approach. Given these characteristics, an objective stance is suitable for the evaluation of the research problem.

A review of research paradigms indicates that the characteristics of the research problem is suited to the positivist paradigm.

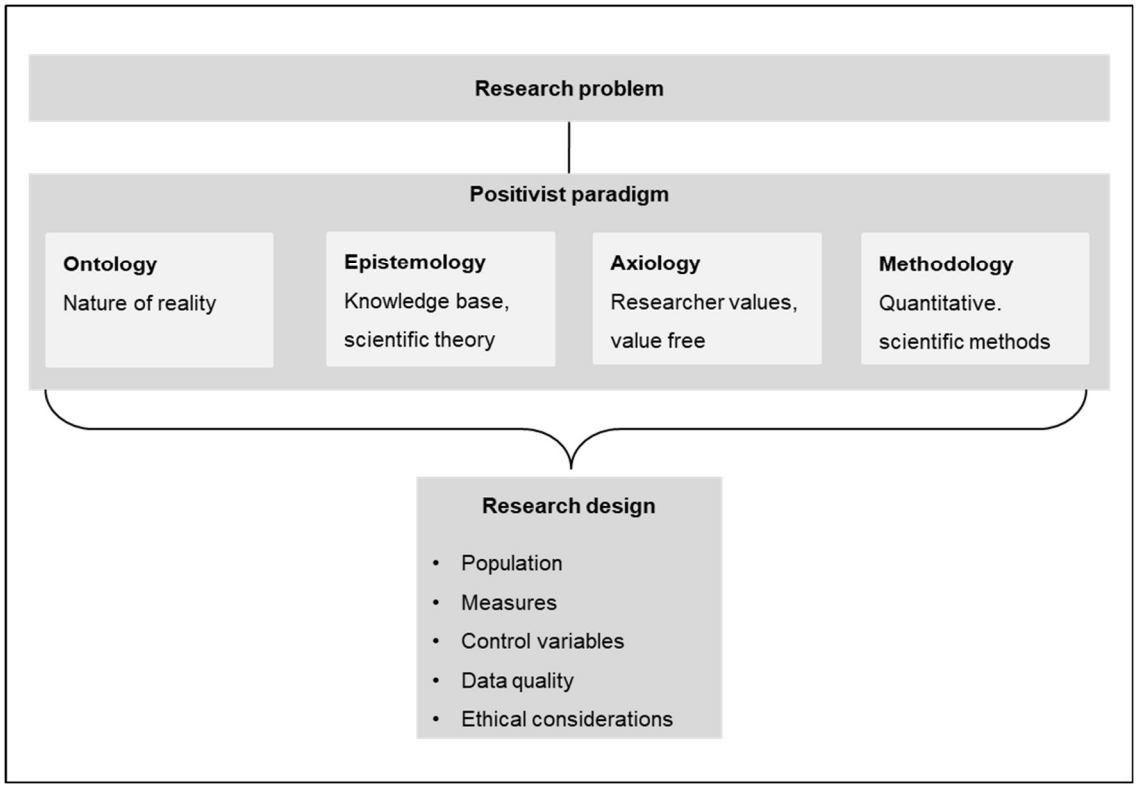

Figure **2** provides a schematic of the alignment of the research problem with the corresponding elements of positivist paradigm and how this then leads to the research design.

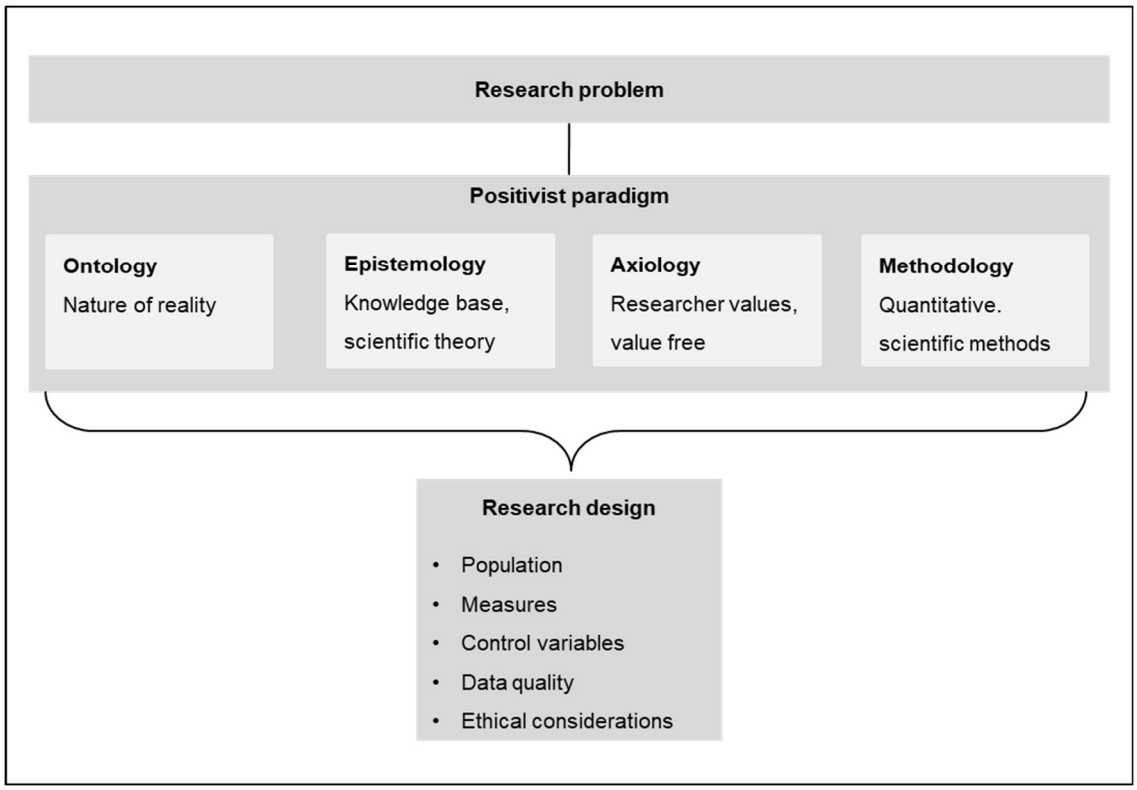

Figure 2 Research framework

The elements of a research paradigm include the ontology (nature of reality), epistemology (knowledge base) and axiology (impact of values and researcher stance on research area (Hanson et al., 2005). In addition it includes the methodology, which is the theory base of methods and principles that make up a specific body of knowledge (Bryman, 1984).

The positivist ontology is external, objective and independent of social actors (Wahyuni, 2012). The “as is” ontology links with the paradigm’s epistemology which is based on scientific and measurable facts such as country institution and firm financial data. Both the positivist ontology and epistemology are suited to the current study’s research problem as the constructs, *internationalisation network options, MNE resources* and *country risk* can be measured using factual, secondary data.

The positivist axiology is depersonalised (Chua, 2019) and value free (Wahyuni, 2012). The research problem can be assessed with measurable secondary data such as firm

financial data and country institution data. Therefore, in this aspect, the positivist axiology is also suitable.

The positivist paradigm involves the use of “law-like regularities that are testable with empirical data sets” (Lukka, 2010 p.112) and logical reasoning (Mantere, 2013). Accordingly, the methodology of the positivist paradigm involves the use of quantitative and scientific methods (Chua, 2019; Wahyuni, 2012). These methods include statistical analysis which is suitable for the assessment of causal relationships proposed by the hypotheses.

Positivism does not consider socially constructed realities that require exploration of multiple views (Antwi, 2015). While this means that the study is limited to explanation of reality as it is observed, this is not a limitation for a research problem which intends to explain, rather than explore, the relationships between *internationalisation network options, country risk* and *MNE resources*, using the lens of real options theory (existing theory). Therefore, the observed, scientific, “as is” reality of the positivist paradigm is accordingly suitable. Correspondingly this paradigm was used to provide framework for the research design.

4.3 Research design

The research design outlines the plan for the evaluation of the research questions and must be carefully considered to prevent the occurrence of incomplete results (Bono & McNamara, 2011). The elements of the research design include the consideration and alignment of research questions with the method (Zhang & Shaw, 2012). Given the use positivist paradigm, it follows that a quantitative research design was the best way to evaluate the proposed hypotheses. The high-level design is indicated in Table 4.

The research problem assesses the *internationalisation network options* of MNEs from advanced and emerging markets into African countries. Both advanced and emerging market MNEs have been found to internationalise into African countries (Barnard et al., 2023). An assessment of the MNE examples reported in the Barnard et al. (2023) study indicates that the firms are publicly listed. Therefore, it is likely that the publicly listed

MNEs population will include both AMNEs and EMNEs (see section 4.4 population) which is needed to address the research problem.

Table 4 Research design

Quantitative research design	
Element	**Description**
Population	Publicly listed MNEs
Measures	Construct operationalisation using firm and country level secondary data
Control variables	Control variables using firm and country level secondary data
Data quality	Credibility, objectivity and generalisability of secondary data
Time period	Cross sectional
Ethical considerations	Publicly available data was not limited by any privacy issues

The benefit of publicly listed MNEs is that the annual reports are publicly available. These reports are credible as they must comply with stock exchange reporting standards (IFRS, 2023). This means that the study's explanatory research questions can be evaluated using the quantitative analysis of secondary data. The use of secondary data and quantitative analysis in the research design is also aligned with most real options studies (Trigeorgis & Reuer, 2017).

Thus, data for the constructs *MNE resources* and *Internationalisation network options* were sourced from publicly available firm reports and is discussed in section 4.5 Measures.

The data for the *Country risk* construct can be sourced from different credible international databases measuring the political, social, regulatory, and economic characteristics of the country. The data source and its indexes are discussed in detail in section 4.5 "Measures", where each construct is operationalised.

The current study is assessed over a specific period which aligns with a cross sectional design as opposed to longitudinal research designs which involve collection of data over time (Bono & McNamara, 2011). The cross-sectional period of 1997-2021 is chosen as it entails the complete set of country level data available in the World Governance Indicator database at the onset of data gathering.

Because secondary data are used, the study is not limited by any privacy issues (see section 4.8).

4.4 Population

The population is the people or objects that are the subject/(s) of the research investigation (Zyphur & Pierides, 2017). In this study, the population under consideration, is publicly listed MNEs that have internationalised into African countries from 1997 till and including 2021.

The population of stock exchange listed MNEs was sourced from Osiris and Who Owns Whom (WOW). Two databases were used to ensured that the study had a comprehensive population.

Osiris provides information on listed, delisted and some unlisted companies globally. The database has been used in international business studies for the evaluation of firm data (McGuire et al., 2016). The use of this secondary data source by scholarship is an indication of the quality of the database.

However, McGuire et al. (2016) did note some statistical differences in firm data between Osiris and other similar databases such as Compustat Global and Worldscope especially for those in the emerging market context. Therefore, the current study sourced firm level data for each MNE observation directly from firm reports to mitigate for any data differences in the database.

Consequently, Osiris was only used to attain the target population and not for the individual firm financial data. Moreover, the Osiris population was cross checked against that from the Who Owns Whom (WOW) database, which specialises in companies operating in Africa.

The population from both databases was consolidated to provide a comprehensive population of MNEs that had internationalised into African countries between 1997-2021.

The Osiris search was executed by selecting stock exchange listed firms including keywords of “Africa” and excluding any with keywords “state owned” in their business reports. The keyword “Africa” in any firm’s business report would occur only if the location were relevant to its business operations. This relevance could be related to several business reasons (example the location of suppliers or customers) and not necessarily internationalisation. Therefore, each firm in the population was further assessed for African business operations.

The keyword “state owned” in business reports was set as an exclusion so that state owned firms were removed from the population due to their access to government resources (Luo & Tung, 2007). The objective of this study is to assess the relationship between *MNE resources*, *country risk* and *internationalisation network options*. Access to government resources is likely to influence firms’ ability to internationalise. Therefore, these firms were excluded.

The execution of this search strategy in Osiris resulted in a population of 2270 firms. The search from WOW yielded 1052 listed MNEs. Following consolidation between the databases, removal of any remaining state-owned firms, repeat entries and/or listed subsidiary companies, the final target population consisted of 2816 firms. The analysis of the entire target population was possible, which negated the need to select a representative sample. Table 5 systematically explains the breakdown of the companies in the target population and their subsequent evaluation.

This study compares *MNE resources* of AMNEs and EMNEs and *internationalisation network options* as well as the moderating effect of *country risk*. It follows that the MNEs must be differentiated according to their *home country economic status* (developed/advanced or developing/emerging market status). A comprehensive strategy was used where the companies in the population were assessed along three dimensions: economic status of the MNE country of incorporation, the country of origin and the economic status of the country/regions where majority of the MNE’s revenue was generated. The next paragraphs explain the approach in detail.

Table 5 Breakdown of MNEs in population and consolidation

Description	Number of companies
Osiris	2270
Who Owns Whom	1052
Total	**3322**
Less listed subsidiaries/repeats between/within databases	452
Less state owned	54
Total companies generated for analysis	**2816**
Advanced/Emerging region revenue segmentation unclear	15
Majority revenue by region/country non-compliance	9
Oil/gas/petroleum/exploration/mining/renewables	311
Financial services (including investment/stock exchange/Exchange traded funds)	402
Airlines	15
Only exports/distributors, no site	61
Platform business, no site	3
Website issues	288
No earlier annual financial statements/no reports, 27 no email contacts	233
Out of study timeline	77
No english annual financial statements, 2 no email contacts	59
No country data imputation	1
Missing country (Marriot, entry Liberia 1999, East African Cables Ltd, entry South Sudan 2010)	2
No African operations	727
African companies with no other African operations	80
African operations with unclear date of entry, email enquiries	357
Only online reports, emailed	3
Closed/business rescue/insolvent, no reports, no contacts	14
No breakdown of company expenditure	4
Total population remaining for analysis: 157 MNEs, 531 internationalisation entries	
Of the population:	
123 AMNEs, 414 internationalisation entries	
34 EMNEs, 117 internationalisation entries (removal of outlier)	

The United Nations database was used to assess the economic status of countries

according to emerging/developing or advanced/developed status as per data from the World Development Indicator (WDI) database (Tong et al., 2008).

Percentage revenue generation per country of operation was used to determine the MNE home country/region. This is because MNEs generate most of their revenue in their home country/region which corresponds to regionalisation advantages (Rosa et al., 2020; Rugman & Verbeke, 2004). Early studies by Rugman and Verbeke (2004) indicated that the revenue generation in the home country accounted for 50% of the total revenue but later studies by scholars (Rosa et al., 2020) indicate that the home country revenue generation has dropped from 50% to a majority component of the revenue generation. Therefore, the MNE home country was determined by the majority revenue generation relative to other areas of MNE operation.

Some companies reported revenue generation per geographic region such as Europe or Americas rather than by country. In these cases, the companies are classified according to the combination of the economic status of country of incorporation and the economic status of the region. For example, 4Sight Holdings is incorporated in Mauritius and reports majority revenue generation in Africa. Both the country of incorporation and region are classified as emerging markets; therefore, the company was classified as an EMNE. Similarly, Bayer is classified as an AMNE, as its country of origin and country of incorporation, Germany and region of majority revenue generation, USA are both advanced countries. Another example is Hasbro Inc which is an American company, but most of its revenue is generated in Europe. Thus, it was still classified as an AMNE.

In contrast to the above, the majority revenue per region could not be distinguished according to advanced or emerging countries for fifteen companies. Examples were, Aveva Group Plc where majority revenue is in the Europe, Middle East, Africa region and there is no further breakdown. In these cases, the region included advanced and emerging countries so the company could not be classified as either advanced or emerging using the assessment criteria. Thus, these companies were removed from the analysis.

Nine firms were removed from the population, as the economic status of their respective country of incorporation, did not match the economic status of the country/region where

the majority revenue was generated. Examples of these firms were Indorama Ventures Plc. The firm is incorporated and originates in Thailand, which is an emerging market, but majority of the firm's revenue is generated in North America, which is an advanced market.

Opaqueness in country of incorporation for EMNEs is not uncommon (Barnard, 2014) but it was also found for AMNEs. For example, Hyve Group Plc is an American firm by incorporation and origin, which would make it an AMNE, but it generates most of its revenue in Russia, which is an emerging market. Thus firms, with a mismatch between the economic status of its country of origin, incorporation and the economic status of the region/country of majority revenue generation, are removed.

Mining, energy and exploration companies (311) were removed from the population as these companies frequently only generated revenue in the country of investment. Given that these firms internationalise with the objective of natural resource access (Chari & Acikgoz, 2016) and operate differently from MNEs that internationalise for other reasons, it can be expected that their attitude to risk will be different (Aleksynska & Havrylchyk, 2013).

Financial services companies were also removed from the population due to the differences in their internationalisation strategies (Grant & Venzin, 2009) and costs when compared to other sectors (Buch & Lipponer, 2007). Since some company costs were used as proxies for extra-firm networks, the differences in financial services company costs mean that they would not be comparable with other companies in the population.

402 companies in the population formed part of the financial services sector and/or were diversified companies with financial services offerings. Examples of diversified financial services companies are Infosys and Vodacom that are primarily information technology and telecommunication companies respectively but have financial services offerings and the associated costs during the years of internationalisation entries.

229 of the 402 financial services companies were investment/exchange traded funds and stock exchanges. The investment companies were removed as these companies acquire and divest of their interests in companies according to fund objectives. The stock

exchanges were removed as these are entities that enable the purchase and sale of financial instruments.

37 MNEs had finance subsidiaries but these subsidiaries essentially provided shared services within the MNE group. This meant that these firms did not incur financial services internationalisation costs but rather internationalisation costs associated with their respective sectors of operation. Thus, these firms were included in the population for analysis. An example is Thyssenkrupp AG, an equipment manufacturer, with a finance subsidiary that provides financial services to its subsidiaries.

Fifteen companies in the population were airlines. These companies were removed as the airlines provide services in country but do not internationalise by way of subsidiaries and offices in country. Similarly, 61 companies were eliminated as the companies only generated revenue via exports or distribution and had no physical operations in African countries. This was also the reason for the removal of four platform business based MNEs. To ensure that AMNEs and EMNEs were assessed on the same basis, all companies in the population had to at least have an operating office/site in an African country.

288 companies were removed due to website related issues which included dysfunctional reports, links and unsafe websites. A further 233 companies were removed as the websites lacked a comprehensive list of, or any annual financial statements. These firms (except 27 which lacked email contact details) were emailed.

77 companies internationalised outside of the study timeline 1997 to 2021 (entry pre 1997 or post 2021).

59 companies had no English annual financial statements. These companies (except two with no email contacts), were emailed to request the respective reports but there were no responses. Although translation applications and/or software could be used to assess the non-English reports, the credibility of the generated report would be affected by accuracy of the translation. Therefore, companies with non-English reports were removed from the population.

Twelve internationalisation entries had no country risk data for the associated African countries. There were no surveys conducted by World Governance Indicators in specific years, for example 1997, 1999 and 2001. Thus, companies that internationalised to affected countries in 1998, 2000 and 2002, did not have the corresponding lagged African country data, required to measure country risk. Given that country governance is relatively stable, and following the imputation method on missing secondary data (Afifi & Elashoff, 1967; Wang et al., 1992), the mean of the preceding annual country data was calculated. For example, Acerinox SA's annual financial statements recorded South African operations in 2002, thus the average of the country data for the year 2000 and 1998 was utilised instead of the missing data for 2001 and 1990. Similarly, in cases like Continental AG's internationalisation into South Africa in 2000, the average of 1998 and 1996 data was utilised, instead of the missing 1999 and 1997 data.

However, data could not be imputed for firms that internationalised in 1998 due to the missing data of 1997, and the mean of 1996 and 1995 data could not be executed as the earliest country data available was 1996. The internationalisation entries associated with these years accounted for the removal of one company.

The internationalisation entry by the firm Omnia into Eritrea in 2013 had no country level control variable data for the lagged year 2012. In this case the data was imputed using the average of data for the years 2011 and 2010.

However, there was no country data for internationalisation entry into Liberia by Marriot International Inc, which had no World Development Indicator country control values pre-1999. Thus, data imputation could not be executed, and this entry was removed due to its missing country values. Similarly, the World Governance Indicators had no data pre-2011 for South Sudan, so the internationalisation entry by East African Cables Limited was removed due to missing data.

727 companies had no physical African country operations. Some of these firms only had projects in African countries.

80 companies were based in Africa but had no other African operations.

There were companies (357) that had annual financial reports but had unclear dates of entry into African countries. The companies were emailed but most email communication remained unsuccessful. Thus, the companies were removed from the population.

All firm reports were downloaded so that data could be assessed and cross checked. Three firms had reports that could only be viewed online, and these reports were requested via email enquiries. The email enquiry was unsuccessful. Consequently, the firms were removed from the analysis, given concerns about data entry errors as well as any changes in the website post data collection.

Fourteen firms were removed from the population as there were no reports and no contacts because the firms were either closed/insolvent/in business rescue.

Four firms had reports that did not detail a breakdown of contract expenditure in the internationalisation entry year of interest. Thus, these firms could not be assessed in terms of their extra-firm expenditure and were removed from the population. Amongst these firms were Swedish firm, H&M Hennes and Mauritz AB as well as American firm, Coca-Cola company.

Following the removal of the firms for the reasons discussed, the total number of companies that had data and complied with the research design were 157 companies. 123 were AMNEs and the remaining 34 were EMNEs. These firms had 531 corresponding African country internationalisation entries with 414 AMNE and 117 EMNE associated entries.

The sample size for real options studies using secondary data range from 125 (Song, 2013) to 1122 (Belderbos et al., 2020) MNEs. There are real options studies with 232 (Song, 2014b) up to 2160 internationalisation observations (Song et al., 2014). Thus, the current study's total population, of 157 MNEs with 531 internationalisation entries is comparable to other real options quantitative studies.

When the AMNE and EMNE individual populations are compared to the real options studies, the 414 observations in the AMNE population are well within the range of previous studies. However, the 117 observations for the EMNE population are slightly

lower than previous studies but was deemed to be adequate as the entire MNE population had been assessed. Moreover, the minimum population of 100 is generally required for most statistical analysis (Hair et al., 2018), so the 117 EMNE observations is adequate.

MNE population distribution

The distribution of MNEs according to the type of firm is indicated in Table 6. Most AMNEs and EMNEs originated from the manufacturing sector followed by firms that provided both manufacturing and service offering and lastly pure service firms.

Table 6 Distribution of AMNE and EMNE internationalisation entries according to type of business

Type of firm	Categorical variable	EMNE	AMNE
Manufacturing	00	53	153
Service	01	18	122
Both	10	46	139
Total		**117**	**414**

The MNEs were listed in 31 different stock exchanges out of a total of the 80 main stock exchanges globally (WFE, 2023). Both EMNE (Figure 3) and AMNE (Figure 4) stock exchanges originate in countries that comply with IFRS reporting requirements which not only ensures credibility but allows data comparability.

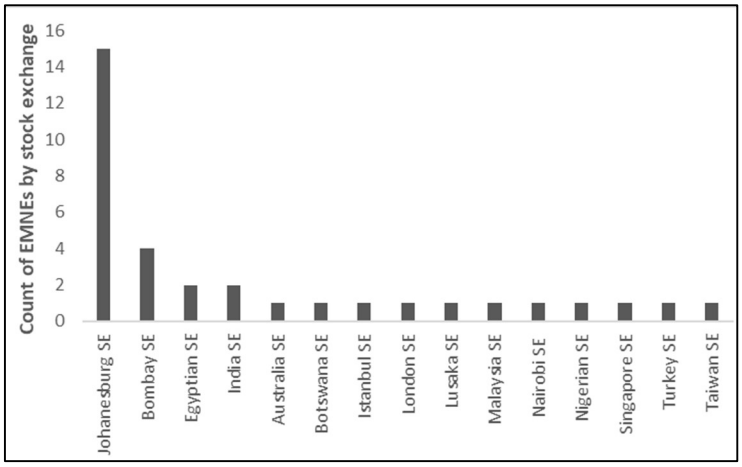

Figure 3 Count of EMNE firms according to stock exchange listing

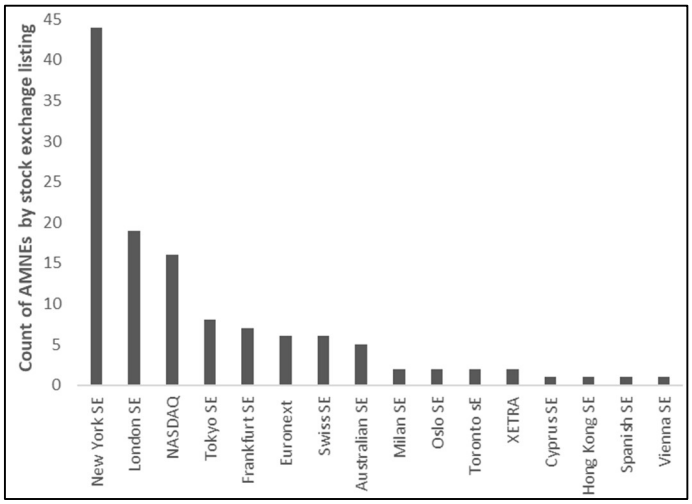

Figure 4 Count of AMNE firms according to stock exchange listing

4.5 Measures

This section unpacks the operationalisation of constructs (*internationalisation network options*, *MNE resources* and *country risk*) and control variables.

Firm annual financial reports and country data bases (World Governance Indicator and Word Development Indicator) were used to operationalise constructs. All financial data were captured in millions of United States Dollar (US$ million). In cases where the financial data were reported in alternative currencies, the values were converted to US$ (million) by using the average annual currency conversion for the relevant year obtained from Fxtop company currency conversion website (*Historical exchange-rates*). This website was used as it has historical currency data that are sourced from central banks which include the Dutch Central Bank, Deutsche Bundesbank Bank, European Central Bank, Bank of England, US federal reserve, World Bank and the Bank of Japan.

The independent variable (MNE resources), moderator (country risk) and control variables were lagged by one year (t-1) to account for the investment process (Procher & Engel, 2018).

Table 7 summarises the constructs, control variables, measures and the data sources. It is then followed by the sections detailing operationalisation of each construct and control variable.

Table 7 Construct, control variables, measures and data source

Construct/control variable	Variable	Measure	Source	Value
Network Index *(t)*	***Dependent variable*** Difference between relative intra-firm and extra-firm network spend	$Network\ index\ (NI_{ij}) = \frac{If_{ij}}{\sum_i Ifij} - \frac{Ef_{ij}}{\sum_i Efsij}\ x\ 100$ If_{ij} - Intra-firm network: total equity Ef_{ij} - Extra-firm network: sum of research and development, distribution, logistics, marketing and promotion	MNE reports	Continuous
MNE resources *(t-1)*	***Independent variable*** Total assets	Natural logarithm of total assets plus one	MNE reports	Continuous
Country risk *(t-1)*	***Moderating variable*** Aggregate of six dimensions of country governance	Average of upper and lower scores of each indicator	WGI	Continuous
Control variables *(t-1)*	***Firm level control variable***			
	Firm age	Natural logarithm of years of incorporation plus two	MNE reports	Continuous
	Firm profitability	Net income after tax	MNE reports	Continuous
	Type of firm	Manufacturing/Service/ Both	MNE reports	Categorical variable
	Country level control variable			
	Host country market size	Country population,	WDI	Continuous
		Gross Domestic Product (GDP)	WDI	Continuous
	Host market attractiveness	GDP per capita	WDI	Continuous

4.5.1 Internationalisation network options

The distinction between intra- and extra- MNE networks is core to this study. In previous work, both case study and primary survey (studies indicated in Appendix 1) methods have been used to measure networks. This study uses a different approach which allows for quantitative measurement of networks, but from secondary financial data.

4.5.1.1 Intra-firm networks

In this study, the intra-firm network is conceptualised as MNE equity associations which includes its associations with firms and/or individuals. Subsidiary equity has been measured as percentage equity ownership in real options (Belderbos et al., 2018, 2020; Song, 2013) and network (Lo et al., 2016; Shukla & Akbar, 2018) literature. But this measure could not be used, as most MNEs in the current study, did not consistently report percentage equity ownership. In addition, the company websites rarely listed subsidiary financial reports.

Therefore, the consolidated group financial reports were assessed. This is because both subsidiary and consolidated group reports capture the internationalisation activities of the MNE.

Following Cuypers & Martin (2010), *total equity* was used to measure the equity investment. The *total equity* value in the consolidated group financial reports is a measure of equity by the parent firm as well as other shareholders in the subsidiary network. By comparing the consolidated *total equity* of each firm in the population, it facilitates the measurement of each firm's relative equity investment in its subsidiaries. Therefore, the use of total rather than subsidiary-specific equity is an acceptable proxy for the equity linked, intra-firm network.

4.5.1.2 Extra-firm networks

Firms are increasingly outsourcing activities, like Information Communication and Technology (ICT) (Rangan & Sengul, 2009). The outsourced activities (Alcácer et al., 2016) or contracted activities (Laanti et al., 2007; Lei & Chen, 2011; Li et al., 2019) can be interpreted as those that reside in the firm's non-equity linked extra-firm network,

Moreover, the MNE is an entity that includes the firm (with its assets) as well as relationships and service providers associated with cross-border internationalisation (Cuervo-Cazurra, Mudambi, & Pedersen, 2018). Given this definition, I evaluated the outsourced/externalised activities reported in the MNE's annual reports. The associated costs could then be used as a proxy for the non-equity linked, contracted extra-firm network.

But not all contracted costs are a proxy of an extra-firm network internationalisation options. Therefore, only the costs associated with different types of extra-firm network identified as relevant to the competitiveness of MNEs were used. The competitiveness relevant, contractual relationships were identified by the evaluation of network literature (Appendix 1). The benefit of this approach is that it allows for the quantitative measurement of competitiveness relevant extra-firm networks. Correspondingly it enables the measurement of extra-firm network internationalisation options.

Following the research and development non-equity networks identified by scholarship (Alinaghian & Razmdoost, 2018; Bajeux-Besnainou et al., 2010; Moog & Soost, 2022; Ripollés & Blesa, 2020; Shih & Aaboen, 2019) the associated costs were used as a proxy for research and development non-equity networks. Other non-equity networks included distribution (Chipp et al., 2019; Kumar et al., 2022; Morrish & Earl, 2021), logistics (Parmigiani & Rivera-Santos, 2015), external marketing (Liu et al., 2021; Ripollés & Blesa, 2020) and promotion (Parmigiani & Rivera-Santos, 2015) firms. The costs associated with these networks were used as proxies for extra-firm networks.

While licensing (Surdu et al., 2019) and franchising (Hajdini & Windsperger, 2019; Surdu et al., 2019) have been reported as examples of extra-firm networks. The costs associated with licensing and franchising were reported in the target population's annual financial statements under amortisation of intangible assets. However, this value also includes patents, copyrights, goodwill, trade names and software, and these were not always listed separately. Therefore, it was not possible to capture the individual costs associated with the licensing and franchising extra-firm network/(s).

Auditor, related party and consultant contracted costs were not included in the analysis. Auditor fees are contracted but these costs are incurred as a regulatory requirement for all listed companies. Other contracted costs such as related party transactions, consultant and non-audit fees are reported in the annual financial statements. Related party transactions include payment of loans/leases as well as purchase agreements with customers/suppliers/partners. Consultant and non-audit fees are external contracted costs often arranged with the firms' auditing firm, which is an indication of an extra-firm network relationship. However, these relationships have not been explicitly reported as competitiveness-relevant networks. Thus, a conservative test of the proposed

hypotheses meant that only the costs associated with competitiveness-relevant networks, which have explicitly been reported in prior studies of firm networks were used.

In sum, following the networks identified by existing work, the costs associated with the research and development, distribution, logistics, marketing and promotion externalised activities, were collated. The summation of these costs was then used as a proxy for the firm's extra-firm network.

4.5.1.3 Comparative measure of intra- and extra-firm networks

Since both EMNEs and AMNEs are likely to have both intra and extra-firm networks, a comparative measure of these networks is required to test the hypotheses. Comparative measures have been used to measure country specialisation and their comparative advantage relative to other countries (Adigwe, 2022; Laursen, 2015). These measures include the Michaely index, Relative Comparative Advantage (RCA), and Chi Square measure (Laursen, 2015). I used these indexes to develop a firm-level measure.

The Michaely index (*MI*) (Laursen, 2015) measures the country specialisation in a specific sector, for example specialisation in net oil imports or exports relative to other countries. The net exports/imports MI_{ij} of a specific sector (i) in a country (j) is calculated by subtracting the percentage share of this sector in national imports M_{ij} from the percentage share of that sector in national exports X_{ij} (indicated in Equation 1)

Equation 1 $Michaely\ Index\ (MI_{ij}) = \frac{X_{ij}}{\sum_i X_{ij}} - \frac{M_{ij}}{\sum_i M_{ij}}\ x\ 100$

Essentially, *MI* provides a comparison between two characteristics, exports and imports. In contrast the Chi Square and RCA provide a view on exports of a sector relative to the total exports in a country which is principally a comparison of one characteristic. Since MNEs have both intra and extra-firm networks, the adaptation of an index that evaluates the net result of two characteristic allows for the assessment of MNE internationalisation by more intra or extra-firm network options. Thus, the *Network Index* (*NI*), was developed from the adaptation of the *Michaely Index*.

The *Network Index* (*NI*), Equation 2, compares two characteristics namely the intra- and extra-firm network of a MNE, relative to MNEs with the same home country economic status. This index provides an indication of MNE 'specialisation' in either intra-, or extra-firm network internationalisation based on their relative intra- and extra-firm spend compared to their peers (AMNEs/EMNEs).

Equation 2 $Network\ Index\ (NI_{ij}) = \frac{If_{ij}}{\sum_i If_{ij}} - \frac{Efs_{ij}}{\sum_i Efs_{ij}}\ x\ 100$

Network Index (NI_{ij}) is defined by MNE network spend (i) relative to its peers with the same country economic status (j), The index is calculated by subtracting the extra-firm network spend (Ef_{ij}), relative to the sum of extra-firm network spend of its peers (AMNEs/EMNEs, j) from the intra-firm network spend (If_{ij}) which is also ratioed relative to sum of intra-firm network spend of its peers (AMNEs, EMNEs). Positive results indicate intra-firm network specialisation due to the higher intra-firm network (equity) spend. Conversely, negative results indicate higher extra-firm network specialisation due to its relatively higher extra-firm network spend.

Hypothesis 1 predicts that EMNEs with limited resources are likely to internationalise with more extra-firm networks than intra-firm networks. Using Network index as a measurement, hypothesis 1 then predicts that EMNES with limited resources are likely to internationalise with negative network index values.

In contrast, hypothesis 2 predicts that AMNEs with significant resources are likely to internationalise with more intra-firm networks than extra-firm networks. Using the Network Index, hypothesis 2 predicts that AMNES with significant resources are likely to internationalise with positive network index values. Therefore, the hypothesis 1 and 2 predict that less/more resources are associated with negative/positive network index values respectively.

4.5.2 MNE resources

MNE resources include assets such as plant, property and equipment (Knight & Kim, 2009). Other examples of MNE resources are technological (Buckley, Munjal, et al., 2016; Luiz et al., 2017) and financial resources (Knight & Kim, 2009; Luiz et al., 2017).

Technological resources include assets that relate to technology, patents and designs and these have been found to aid in internationalisation (Buckley, Munjal, et al., 2016). Like technological resources, scholars (Ito & Rose, 2010) indicate that firms with significant financial resources are also able to take advantage of opportunities associated with internationalisation. Thus, it is evident that MNE resources aid firm internationalisation.

The *natural logarithm of total assets* has been used as a proxy for the measurement of financial resources (Choi et al., 2021). Therefore, it is an appropriate measure of firm resources and was used to operationalise construct, *MNE resources*.
Panel data is rarely normally distributed (Wooldridge, 2015), but this is an assumption for most parametric statistical tests (Pallant, 2016). Therefore, the data was transformed using the natural logarithm function.

Total assets of each firm were sourced from the firm financial reports and captured in US$ million. This meant that firms with less than one million US$ of *total assets* would be documented as a fraction and the natural logarithm of a fraction yields a negative value. Since a negative value implies negative assets or liabilities which was not a true reflection, a constant of one was added before natural logarithm transformation (Choi et al., 2021).

Because *MNE resources* would have existed before the MNE internationalised in year (*t*), the values for *natural logarithm of total assets* were lagged to the year preceding internationalisation (*t-1*). The measurement of *natural logarithm of total assets*, as the independent variable, at internationalisation year (*t-1*), accounts for the time difference between investment decision making and the investment (Procher & Engel, 2018).

In addition, lagging of the independent variable also mitigates against reverse causality between independent and dependent variables (Adomako et al., 2021; Ioulianou et al., 2017; Tajeddin & Carney, 2019). Causality refers to cause and effect relationships (Pallant, 2016), where one variable causes another. Correspondingly reverse causality is the phenomenon where the roles are swapped (Adomako et al., 2021; Estrin et al., 2017). This means that the “cause” and “effect” are reversed. By lagging the independent variable, the “cause” occurs before its “effect” (dependent variable). In this manner

reverse causality between the independent and dependent variable is therefore mitigated.

4.5.3 Country risk

The construct, *country risk*, has been operationalised by measuring risk associated with the state of development of a country's institutions (Buckley, Chen, et al., 2016). The current study follows scholarship (Buckley, Chen, et al., 2016; Buckley et al., 2020) in using measures of the state of development of country's institutions to operationalise *country risk.*

In operationalising the country risk construct, the country database was assessed for comprehensiveness, credibility and use by other scholars to measure constructs associated with country risk.

The World Governance Indicator (WGI) database uses the aggregate of data from as much as thirty-three different databases which includes data from the International Country Risk Guide, World Economic Forum, Heritage Foundation of Economic Freedom index, World Banks country policy and institutional assessment (Kaufmann et al., 2006, 2007). So, the WGI database was deemed to be comprehensive and was assessed further for operationalisation of the *country risk* construct.

Since the current study makes use of secondary data, the quality and credibility of the WGI data was assessed. The WGI data has been sourced from business providers, expert information from non-government organisations and public sector data providers (Kaufmann et al., 2007). The expert level sources add to the credibility in the assessment of the state of development of country institutions.

The WGI database measures six dimensions of a country's institutions which include *voice and accountability*, *political stability and absence of violence/terrorism*, *control of corruption, government effectiveness*, *regulatory quality* and *rule of law* (Kaufmann et al., 2007). The *voice and accountability*, *political stability and absence of violence/terrorism* and *control of corruption* dimensions are a measure of perceptions of the country's citizens (Kaufmann et al., 2007). While the *government effectiveness* and *regulatory quality* measure perceptions of quality and credibility of government services

and policies, regulations and permits that aid in private sector development (Kaufmann et al., 2007). Lastly, *rule of law* measures perceptions of the quality of legal system (e.g. contract enforcement, police and courts) (Kaufmann et al., 2007).

The different dimensions indicate that the WGI provides a view of different elements of a country's institutions rather than a database that may focus on just one dimension. Another characteristic is that the WGI data is an aggregate of data from different databases which adds the comprehensiveness of the data. This view is also supported by several scholars (Abdi & Aulakh, 2012; Cuervo-Cazurra & Genc, 2008; Fisch, 2011; Slangen & Beugelsdijk, 2010).

Moreover, scholars (see Table 8) have used one or a combination of WGI indicators to measure constructs associated with country risk. As expected, the scholars investigated variations of the research question, impact of country institutions on MNE investment, but the studies imply that the state of development of country institutions pose a risk to MNE investment. This is of benefit to this study as it indicates that the WGI dimensions can be used to measure *country risk*.

Table 8 World governance indicators in scholarship studies

World Governance Indicator	Research question	Reference
Voice and accountability, political stability and absence of violence/terrorism, control of corruption, government effectiveness, regulatory quality, rule of law	Impact of developing country institutions on emerging market MNE investment	(Cuervo-Cazurra & Genc, 2008)
Political stability	Country uncertainty on MNE investment	(Fisch, 2011)
Political stability	Impact of institutional hazard on foreign MNE activity	(Slangen & Beugelsdijk, 2010)
Regulatory quality	Moderating effect of host country institution on MNE investment	(Lu et al., 2014)
Corruption	Country uncertainty on MNE investment	(Cuervo-Cazurra, Ciravegna, et al., 2018)
Corruption	Host country government corruption on MNE investment	(Sartor & Beamish, 2018)
Rule of law	Endogenous risk on foreign direct investment	(Buckley et al., 2020)

Following these studies and given that country risk is a multidimensional construct (Feinberg & Gupta, 2009; López-Duarte & Vidal-Suárez, 2010), the current study used the aggregate of the WGI's six dimensions of country institutions.

4.5.4 Control variables

Control variables are variables that are theoretically important as these variables could influence the outcomes of the study but are not the central independent variables (Kish, 1959). In this section the firm and country level control variables that could bias results are identified based on extant literature. All control variables were lagged by a year to account for potential reverse causality (Tan & Meyer, 2010).

4.5.4.1 Firm level control variables

Firm age, profitability and type of firm were used as firm level control variables and are discussed below.

Firm age

Firm age is of theoretical interest as it has been associated with EMNE resources and internationalisation (Zhu et al., 2022). Therefore, control variables in the study include the *year of MNE incorporation* and the *year of internationalisation activity*. Firm age was determined as the difference between the *year of the MNE incorporation* and the *year of the internationalisation into African countries*.

The *year of the firm's incorporation* was determined by reviewing the firm's history for the date of incorporation. There were some cases where the company history was not reported where a firm was formed post-merger or divestment from parent company. In these cases, the date of incorporation of firms involved in the merger was compared and oldest firm was used as the date of incorporation. This is because the resources from the oldest firm pre-date the formation of the new firm. For example, the American company, Merck & Co. was founded in 1891 because the German company, Merck Group lost ownership of its subsidiaries due to changes in government policies resulting from World War 1. However, the original company's start date was 1668, which was used as initial date of founding for Merck & Co. This method is consistent with other firms in

the population, which reported the original founding firm and the subsequent acquisition, mergers and divestment.

The *year of the internationalisation into African countries* was determined by checking consecutive firm annual reports for the first mention of the African country where internationalisation occurred.

The difference between the *year of MNE founding* and the *year of internationalisation* lagged by one year indicates the age of firm before internationalisation. Firm age was transformed using natural logarithm (*ln firm age*). The transformation was used to prevent the clustering of data and correspondingly normalises the data distribution (Pallant, 2016).

When the *MNE's year of incorporation* and the *year of internationalisation* was the same or the firm was a year old at the time of internationalisation, the lagged firm age value resulted in negative one (one AMNE internationalisation entries) and zero (six EMNE, three AMNE internationalisation entries) respectively. Since *firm age* was transformed using natural logarithm, the zero and negative one firm age values have mathematically undefined results post transformation. Following scholarship (Choi et al., 2021), a constant was added before transformation. Choi et al. (2021) added the constant of one before transforming *firm age* but in the current study, the constant of two was added to compensate for firms with negative one age, i.e., when internationalisation into Africa began in the same year as the year the firm was founded.

Profitability

Firm *profitability* is of theoretical interest (Gaur et al., 2014; Ito & Rose, 2010) as it is used to explain the firm's financial position and consequently its ability to internationalise. Profitable firms are likely to have resources for internationalisation and following Ito & Rose (2010) *profitability* is measured as *net income after tax*.

Type of firm

The study controlled for the *type of firm* as scholars (Chung et al., 2010; Lahiri, 2017a) have noted that internationalisation behaviour differed amongst different types of firms.

The *type of firm* was measured as a categorical variable differentiating between firms that produced goods (manufacturing), provided services (service) or those that produced goods and provided services (both). The manufacturing firms were coded with the value of 00. Service firms were coded with the value 01 and firms that were classified as both manufacturing and service firms were coded with the value 10.

4.5.4.2 Country level control variables

Country level control variables like *host country market size* and *attractiveness* were also used. This is because scholars (Slangen & Beugelsdijk, 2010; Smit et al., 2017) have found that host country market influences firm internationalisation.

Host country market size was measured using the host country *population* and *gross domestic product (GDP)*. *Population* was used in addition to *GDP* as emerging markets can have large variability in size of population compared to *GDP* (Slangen & Beugelsdijk, 2010). A country can have a low *GDP* but still be attractive for investment due to the market potential represented in the population. Therefore, both *population* and *gross domestic product* (*GDP*) were used to measure *host country market size*. The data are captured in millions of people and US$ million.

GDP per capita growth is used to measure the percentage growth of the host country. Following scholarship (Slangen & Beugelsdijk, 2010) *host market attractiveness* was measured as *GDP per capita growth*

Following Slangen & Beugelsdijk, (2010), the data for country level control variables was sourced from the World Development Indicator (WDI) database. This database, like the World Governance Indicator (WGI) is a product of the World Bank and its data quality is monitored through the *Data Quality Assessment Framework* (developed by the International Monetary Fund). The framework assesses best practice and internationally accepted statistical standards.

4.7 Quality of data

Quality was assessed by the credibility of the secondary data sources and its application by scholarship. This is because quality measures for quantitative studies using primary

data such as reliability (a measure of whether the results are consistent and stable (Pratt et al., 2019) and validity (indication of degrees of correlation between constructs (Pratt et al., 2019) are not applicable for secondary data that has already been compiled.

4.8 Objectivity

A positivist paradigm was utilised in this study which means that the researcher believes the world can be represented in numerically (Antwi, 2015). It follows that researcher objectivity is fundamental to the successful execution of the study. The research design makes use of secondary data that incorporates the compiling researcher's/s' bias. Therefore, only credible sources were used.

I used data that was already in existence. This means, I was removed from the compilation of primary data, which is aligned with the detached research methodology. Moreover, quantitative methods were used, which is inherently objective due to its prescribed and structured nature (Antwi, 2015; Saunders et al., 2016).

4.9 Generalisability

The benefit of a quantitative approach is that results are generalizable. In this study, the entire MNE population was assessed, and firms were excluded systematically. Therefore, the results can be generalised.

4.8 Ethical considerations

Since all information was sourced from public databases, confidentiality or anonymity arrangements were not required. Data management will include data security and protection measures under African legislation.

4.9 Conclusion

In this chapter a quantitative research methodology was detailed for the evaluation of the relationship between *MNE resources*, *Internationalisation network options* and that of *country risk* associated with developing or limited formal institutions. An argument for the utilisation of secondary data was made based on its availability from credible sources, and the construction of the variables explained.

Chapter 5 Data analysis methods

5.1 Introduction

This chapter provides an overview of the data analysis methods used in this study. The EMNE and AMNE populations were characterised using descriptive statistics. The populations were then compared using group statistics and independent sample t-tests.

The study evaluates the relationships between *internationalisation network options* (dependent construct) and more than one predictor viz. *MNE resources* (independent construct) and *country risk* (moderator) for both the EMNE and AMNE populations. Moreover, the hypotheses involve the predictions of unmoderated relationship between *internationalisation network options* and *MNE resources* as well as the moderating effect of *country risk* on this relationship using the lens of real options theory. Therefore, hierarchical multiple regression was suitable as the first model assesses the unmoderated relationship and is followed by the second model which evaluates the effect of moderation. Correspondingly the data analysis involved the evaluation of the requirements of regression. Lastly the chapter indicates the robustness tests employed in the study.

5.2 Descriptive statistics

Descriptive statistics were used to assess the characteristics of the EMNE and AMNE populations. These tests included an assessment of the minimum, maximum, mean, median, standard deviation, skewness and kurtosis of each variable. The minimum, maximum, mean, median and standard deviation indicates the range and dispersion of values of each variable.

Skewness and kurtosis values indicate the distribution of each variable. Skewness indicates the symmetry of the distribution where values between -1.5 and +1.5 are indicative of normally distributed data (Pallant, 2016). Kurtosis is indicative of the height and width of the distribution where positive values indicate a peaked distribution with

long, thin tails (Pallant, 2016). Kurtosis values below zero are indicative of flatter distribution (Pallant, 2016).

The normal distribution assumption indicates that the sample was drawn from a normally distributed population (Desgagné & Lafaye de Micheaux, 2018). The current study utilises panel data of the entire population. Since panel data is not always normally distributed (Wooldridge, 2015), mathematical treatments (depending on the shape of the data distribution), can be used to transform data so that it is more normally distribution (Pallant, 2016).

In some cases mathematical treatments do not improve the normality of the data distribution and non-parametric statistical tests can be used as an alternative (Pallant, 2016). As a caveat, the violation of the normality assumption for parametric tests is not serious when sample size exceeds 100 (Hair et al., 2018). The population of both EMNEs and AMNEs exceeded 100, therefore any non-normal data was not considered a risk for parametric tests like independent sample t-tests, Pearson correlation and regression.

5.2.2 Scatterplots

Scatterplots were generated of Network index and total assets as well as total equity. These plots provide a visual of the relationships between the variables and differences in total equity and the proposed Network index measure.

5.2.1 Group statistics: Comparison of EMNE and AMNE populations

This study assesses the differences of EMNE and AMNE resources and the *internationalisation network options*. Therefore, independent sample t-tests are conducted. This involves the assessment of the significance of the differences in each population and is then followed by the comparison of the mean value of each variable of the respective population.

The differences in the population was assessed using Levene's test of equal or unequal variances (Pallant, 2016). There are significant differences in the variable of each group if the *p-value* exceeds 0.05 for the test of equal variances and the *p-value* or the equality of means is less than 0.05. However, the variance between group variables can be

unequal and still have significant differences. In this scenario, the test for unequal variances is assessed. There are significant differences between the groups when the *p-value* is less than 0.05 for both the test of unequal variances and the equality of means test.

The size of the effect was measured using Cohen's d. Cohen's d is based on pooled standard deviation which is the average dispersion of all data points around the group mean (Pallant, 2016). While values around 0.2 are indicative of a small effect, values of 0.5 indicates moderate effect and 0.8 indicates a large effect.

There are scholars (Hernandez & Guillén, 2018) that question the theoretical novelty of AMNE and EMNE internationalisation, suggesting that differences accrue primarily because of differences in the resources and the age of the firm, i.e., younger firms have less resources than older firms. Therefore, group statistics and independent sample t-tests were also conducted on EMNE and AMNE populations based on common age groups to assess Hernandez and Guillén (2018)'s sentiments.

5.2.2 Correlation tests

Pearson correlation tests assumes a linear relationship between two variables, but does not indicate causation (Pallant, 2016). These tests indicate the strength and direction of the relationships of predictor variables (independent, controls and moderator variables) with *Internationalisation network options* (dependent variable, *Network Index*). Values between 0.3 and 0.49 indicate moderate relationships and those above 0.5 indicate strong relationships (Pallant, 2016).

5.3 Regression analysis

This study proposed hypotheses predicting the relationships between the continuous dependent variable *Network Index* (construct *internationalisation network options*) and the independent variable natural logarithm of *total assets* (construct *MNE resources*) as well as the moderating effect of *country risk* on this relationship. Control variables were also indicated in the research design. Therefore, statistical methods for the assessment of relationship between the dependent variable and multiple predictors (independent variable, control variables and moderator) are required.

Multiple regression is a method that allows the investigation of relationships between a continuous dependent variable and more than one predictor (Pallant, 2016). Therefore, this method is appropriate for the assessment of predictive relationships.

Multiple regression is an extension of linear regression where the linear relationship between two variables is evaluated by the best fit straight-line function. This is achieved by the reduction of the sum of the squared deviations of all the data points from the line (Hair et al., 2018). The linear relationship between the dependent variable, *Network Index* (construct, *Internationalisation network options*) and the independent variable, natural logarithm of *total assets* (construct, *MNE resources*) is assessed by Equation 3, where *NI* denotes the *Network Index*, β_0 is the intercept (where the straight line crosses the y axis), β_1 is the coefficient of the independent variable and β_2 is the coefficient for *country risk*. β_{ij} is the coefficient for the different firm and country level $control\ variable_j$ and lastly the standard error for each coefficient.

Equation 3 $NI = \beta_0 + \beta_1 \ln Total\ assets + \beta_2\ country\ risk + \beta_{ij}\ control\ variable_j + standard\ error_i$

Country risk is hypothesised to negatively impact the relationship between *Internationalisation network options* and *MNE resources*. The effect of moderation is assessed by the introduction of the interaction between *country risk* and *MNE resources,* $country\ risk \times lnTotal\ assets$. The linear relationship is indicated in Equation 4.

Equation 4 $NI = \beta_0 + \beta_1 \ln Total\ assets + \beta_2 country\ risk + \beta_3 country\ risk \times lnTotal\ assets + \beta_{ij}\ control\ variable_j + standard\ error_i$

5.3.1 Reliability statistics

Regression analysis is sensitive to sample size and assumes that the data are normally distributed and homoscedastic (Pallant, 2016). The method is also sensitive to multicollinearity (Pallant, 2016).

Sample size is important in multiple regression as the generalisation and/or repeatability of results of small, skewed samples is limited (Pallant, 2016). The minimum sample size should exceed the sum of 50 and 8*m* (where *m* is the number of independent variables) (Pallant, 2016). The total the number of predictor variables in the current study are nine, thus minimum sample size will be 122 (i.e., sum of 50 and 8x9). While the AMNE population is considerably higher than 122, the EMNE population is slightly below at 117. However, this is not a risk for generalisability, as the entire EMNE population was assessed.

The homoscedasticity assumption is not applicable when panel data is used (Wooldridge, 2015). Moreover, finance-based studies (Adcock et al., 2015), similar to the current study, have been characterised by skewed normal distributions. Therefore, the lack of “normal distribution” in the panel study data is not a serious violation of the assumptions of multiple regression (Aguinis & Gottfredson, 2010).

The remaining assessment is multicollinearity, which measures the level of correlation between independent variables (Pallant, 2016). It is assessed by Variance Inflation Factor (VIF). High multicollinearity can result in unstable regression coefficients and reduces the predictive accuracy of the relationship between variables (Hair et al., 2018). Scores below three indicate low measures of multicollinearity (Hair et al., 2018) and the cut off value is ten (Pallant, 2016).

Multicollinearity is reduced when the predictor variables are mean centred (Hair et al., 2018). Therefore, each variable (except the dependent variable) was mean centred by subtracting the average from each data point for the corresponding variable. This treatment ensures that each variable has mean of zero.

The effect of moderation was assessed by the interaction between the independent variable and the moderator (Frazier et al., 2004; Memon et al., 2019). The corresponding, interaction variable, is the product of the mean centred independent variable (natural logarithm *total assets*) and the moderator, *country risk*.

5.3.2 Hierarchical regression process

The current study proposed hypotheses using the lens of real options theory. Hypothesis 1 and 2 include the assessment of the relationship between *internationalisation network options* (dependent construct) and *MNE resources* (independent construct) for EMNEs and AMNEs respectively.

Hypothesis 3 and 4 propose the moderating effect of *country risk* on this relationship for EMNEs and AMNEs respectively. This type of hypothesis testing, viz. unmoderated and moderated relationships is congruent with hierarchical regression where the variables are entered in a specific order (based on hypotheses specified by the theoretical lens). The relationship between control variables and the dependent variable was assessed by entering the firm and country level control variables on its own in the first model. It was followed by an assessment of the relationship between the control variables, *MNE resources*, *country risk* and *Network Index* (construct - *Internationalisation network options*) in the second model. The last model assessed the moderating effect on relationships between control variables, *MNE resources*, *country risk* and interaction variable with *Network Index* (construct - *Internationalisation network options*).

This means control variables were entered into block 1 (model 1), followed by *MNE resources* (mean centred natural logarithm *total assets*) and *country risk* (mean centred) in block 2 (model 2). Block 3 included the interaction variable (product of mean centred natural logarithm *total assets* and mean centred *country risk*) (model 3).

The outputs of each regression model (1, 2 and 3) include the coefficient of determination (R^2), adjusted R^2, change in R^2 between models and Durbin Watson. The coefficient of determination indicates the extent that the data fits the straight-line relationship regression (Pallant, 2016). The adjusted R^2 value considers the standard error estimate. The change in R^2, indicate the differences in the model fit that can be attributed to the introduction of additional variables in model 2 and model 3.

The regression output for each model also indicates the unstandardised regression coefficient (β), standard error, standardised regression coefficient (β), significance of the relationship (p), and the variance inflation factors (VIF) for each variable. The regression

coefficient (β) of each variable is a measure of the slope of the linear relationship with the dependent variable. While a positive regression coefficient indicates a relationship where both variables increase in the same direction, the negative regression coefficient indicates an inverse relationship between the variables. The unstandardised regression coefficient (β) differs from the standardised version as the latter includes the standard error.

The *p-value*s of each variable are assessed to determine significant relationships. Values less than 5% are indicative of significant relationships with the dependent variable *Network Index* (construct, *Internationalisation network options*) at a 95% confidence level. Values more than 5% but less than 10% are indicative marginally significant relationships.

Durbin Watson tests were evaluated to assess the measure of autocorrelation of the dependent variable. Autocorrelation indicates the extent to which the value of the variable at time (*t*) is related to its value at previous time (*t-1*). While values closer to zero indicate positive autocorrelation, values closer to four are negative autocorrelation (Saunders et al., 2016). Values closer to two indicate no autocorrelation (Saunders et al., 2016). The risk of high levels of negative or positive autocorrelation leads to inaccuracy in the estimation of standard errors and the resultant standardised coefficients.

5.4 Comparison between EMNE and AMNE regression models

The EMNE and AMNE unmoderated and moderated regression models were compared in terms of the R^2 and beta coefficients of each predictor variable.

5.5 Robustness tests

Robustness of results were evaluated by an assessment of the effect MNE home country as well as the effect global economic events.

A key challenge in the analysis lay with the economic dominance of emerging market firs originating from South African in other African countries (Barnard et al., 2023). South Africa is also one of the highest recipients of foreign direct investment (UNCTAD, 2020)

Therefore, robustness of the regression results was tested against the effect of South Africa as home and host country.

One of the major macro-economic events in the period of evaluation, 1997 to 2021 was the 2008 Global financial crisis. The event originated in United States of America but affected other countries due to their use of American financial systems (Dullien et al., 2010).

Each of the robustness tests were compared against the baseline regression results of the entire population.

5.6 Conclusion

This chapter outlined the data analysis strategy used in this study. This strategy involved the characterisation of the EMNE and AMNE populations using descriptive statistics. Since the study assessed the entire population EMNEs and AMNEs, the violation of the normality did not preclude the use of parametric tests for further analysis.

Independent sample t-tests were used to assess the differences/similarities between the EMNE and AMNE populations. To aid in resolution of the debate on age versus EMNE/AMNE resources, these tests were evaluated for common age groups in the population.

Pairwise relationships between the dependent construct, *internationalisation network options*, control variables and independent construct, *MNE resources* was evaluated using Pearson correlation tests. These tests indicate strength of relationship between a variable and *Internationalisation network options*.

This study assesses the relationships between multiple predictor variables and the dependent construct *internationalisation network options.* Therefore, regression analysis was an appropriate statistical method to evaluate these relationships. Given that the hypotheses evaluate the effect of moderation on the relationships between the independent and dependent construct, hierarchical regression analysis was used to assess the relationships.

Robustness of regression results was evaluated by the removal of South African firms, internationalisation activity into South Africa and the effect of the 2008 global financial crisis.

Chapter 6 Results

6.1 Introduction

In the previous chapter the quantitative methods used to characterise the EMNE and AMNE populations and evaluate the proposed hypotheses, was outlined.

This chapter proceeds with descriptive statistics of the EMNE and AMNE population. It is followed by comparison of EMNE and AMNE population using group statistics and independent sample t-tests. The results of pairwise correlation analysis, hierarchical regression analysis for each MNE population and the comparison thereof is then presented. Lastly the results of robustness tests are presented.

6.2 Descriptive statistics

The home, African host countries and descriptive statistics of the EMNE and AMNE populations are presented in the sections that follow.

6.2.1 EMNE home and African host countries

64% of EMNEs originated from South Africa, followed by 8.6% from Egypt and 6.8% from India (indicated in Figure 5). Chinese MNEs make up 1.7% of the EMNE population and the low representation is likely due to the removal of state owned MNEs from the population.

Seven out of the thirteen EMNE home countries were African countries. Apart from South Africa, the other African MNEs originated from Egypt, Mauritius, Zambia, Kenya, Nigeria and Botswana.

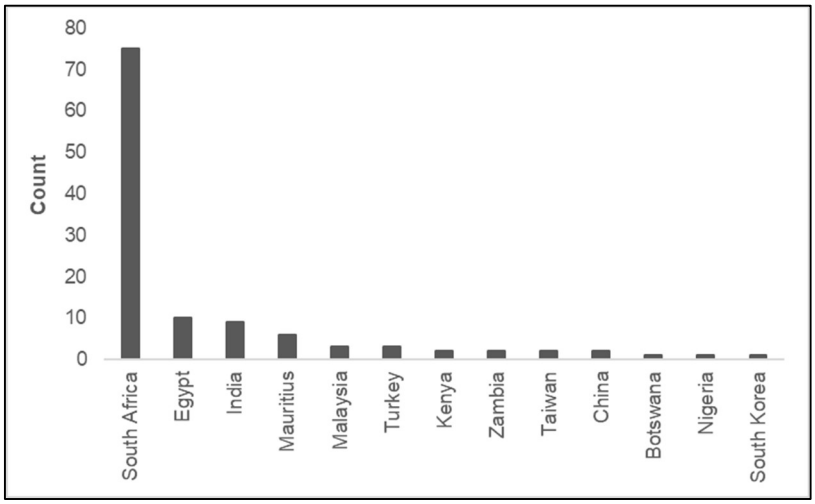

Figure 5 Count of internationalisation entries from EMNEs according to home country

As a total population, EMNEs internationalised into 35 different African countries as indicated in Figure 6.

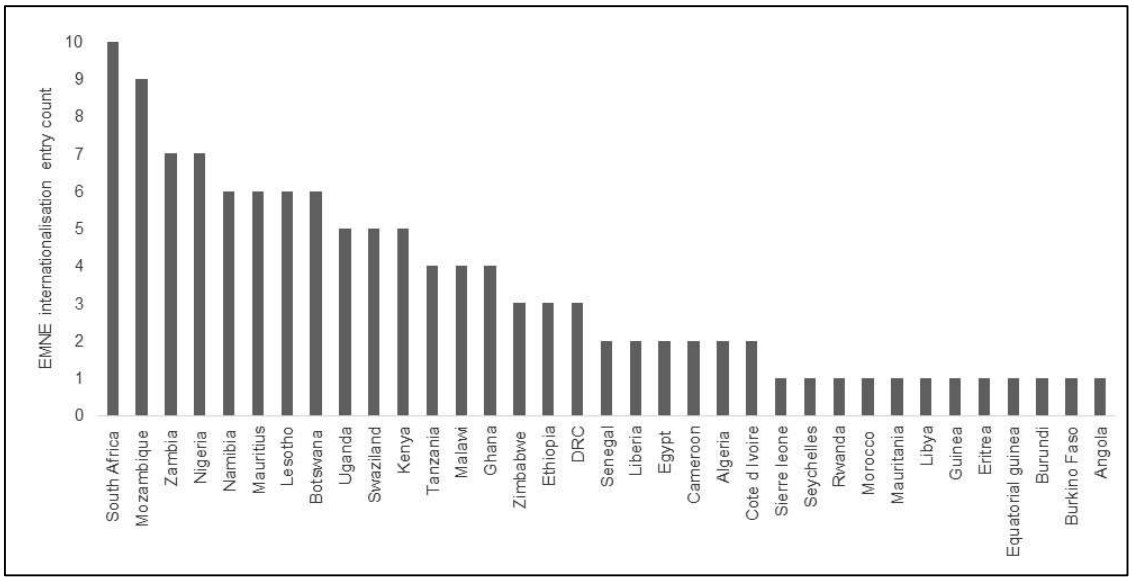

Figure 6 Count of EMNE internationalisation entries according to African host country

6.2.2 EMNE descriptive statistics

Descriptive statistics (minimum, maximum, mean, standard deviation (S.D), skewness (skew.) and kurtosis was evaluated to assess the trends and normality of the EMNE population (Table 9).

Table 9 EMNE descriptive statistics

N: 117	**Min.**	**Max.**	**Mean**	**Median**	**S.D.**	**Skew.**	**Kurtosis**
Dependent construct: 1. Internat. network options, Network Index, NI (%)	-16.45	4.47	-2.5×10^{-16}	0.05	1.72	-7.29	73.17
2. Total assets -TA (US$ million)	0.89	58200.2	1421.7	368.51	5441.4	9.97	104.6
Independent construct: 3. MNE resources (ln TA)	0.64	10.97	5.82	5.91	1.71	-0.01	-0.16
4. Country risk	4.93	76.73	39.14	37.63	19.33	0.25	-0.82
Control variables 5. Firm age (years)	0	154	53.8	43.0	40.92	1.51	1.55
6. ln firm age	0.69	5.05	3.71	3.81	0.94	-1.64	3.84
7. Profitability/(loss) (US$ million)	(24.32)	3908.8	134.9	26.91	388.58	8.15	77.86
8. Type of firm							
9. Population (million people)	0.10	176.40	31.55	19.43	39.08	2.12	4.50
10. GDP (US$ million)	1553.6	474224	73464.5	9223.37	121405	1.87	2.03
11. GDP per capita growth (%)	-7.60	18.07	3.25	3.25	3.74	1.32	5.87
Moderator 12. Interaction variable ln TA x Country risk	-34.21	37.59	1.58×10^{-4}	-1.41	19.33	0.25	-0.82

The skewness and kurtosis for the dependent construct (*internationalisation network options*) was -7.29 and 73.17 respectively. These scores indicate that the distribution of the data is negatively skewed, peaked with long, thin tails (indicative of large number of outliers). While the *profitability* variable had a similar negatively skewed distribution, the *total assets* variable was positively skewed with long, thin tails.

Natural logarithm transformation of *Network Index* and *profitability* was not viable as both these variables had high negative numbers. Consequently, natural logarithm transformation of the data would mean the addition 16.5, for *Network Index* and 24.5, for

profitability, before natural logarithm calculation. Transformation of variables is feasible when the data modification is small (Pallant, 2016). So, addition of large numbers would have a considerable change in the data. Therefore, these variables were not transformed. Since the current study assessed the entire population, the lack of non-normal distribution in these variables, was not considered to be a risk.

The distribution of *total assets* was transformed using natural logarithm function. This transformation yielded a more normally distributed variable *MNE resources (ln TA)* with skewness and kurtosis values of -0.01 and -0.16 respectively.

The average age of EMNEs was 53.8 years, with a median of 43 years. The range of EMNE firm age varied from zero year (lagged age, indicative of internationalisation at the age of one, information technology company, 4Sight Holdings) to 154 years (oldest, pharmaceutical company, Aspen Pharmacare Holdings Limited).

Profitability of EMNEs ranged from those with losses of 24.3 US$ million to profits of 3.91 US$ billion. In addition, the firms had a wide range of *total assets* with the lowest of 0.89 US$ million and the highest at 58.2 US$ billion

As covered in Chapter 2 on the African context, the African host country *GDP* and *GDP per capita growth* have a wide range of values. This is indicative of the differences in host market size and attractiveness amongst African host countries.

The African host *country risk* also had a wide range of values and is evident in the differences in the median and mean. The results are indicative of the varying state of development of institutions between African countries.

The scatterplots of Network index versus total assets and total equity are indicated in Figure 7. The data indicates significant dispersion.

Total equity is used in the calculation of the Network index, but the calculation compares the relative equity and non-equity spend of each MNE against its peers. The relative nature is evident in the scatterplot by the lack of direct relationship between total equity

and Network index. As expected, total equity and total assets are related as the data run parallel to each other.

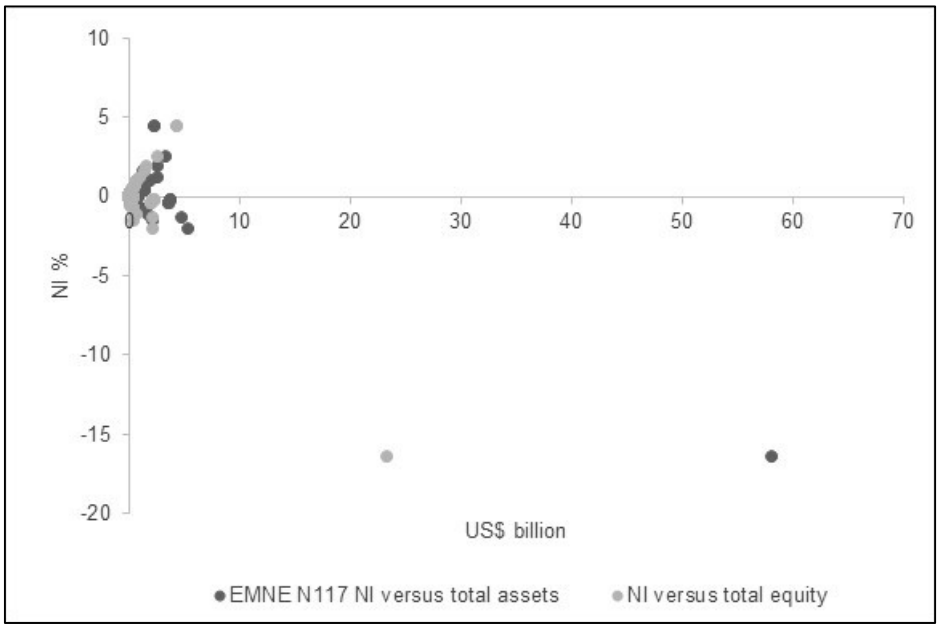

Figure 7 Scatterplot of EMNE Network Index against total assets and total equity respectively

6.2.3 AMNE home and African host countries

The AMNE population was dominated by firms from specific countries namely United States of America (USA), United Kingdom (UK) and Switzerland as indicated in Figure 8. The AMNE home country distribution differs slightly from the UNCTAD 2021 report (Barnard et al., 2023) where highest investment came from UK, France, Netherlands and then USA. The difference probably arises from the removal of MNEs from certain sectors (like finance and mining) from the AMNE population.

As a regional grouping 51.9% of the population originated from advanced market European countries. 39.6% of the population originated from USA, which means the population is representative of MNEs from mostly American and European advanced markets.

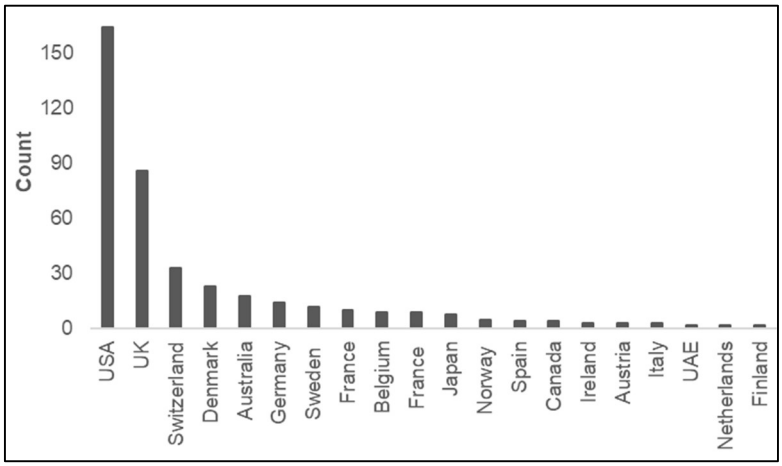

Figure 8 Count of internationalisation entries from AMNEs according to home country

The population of AMNEs internationalised into 42 of the 54 African countries (Figure 9). Most of the entries were into South Africa, Egypt, Nigeria, Morocco and Ghana.

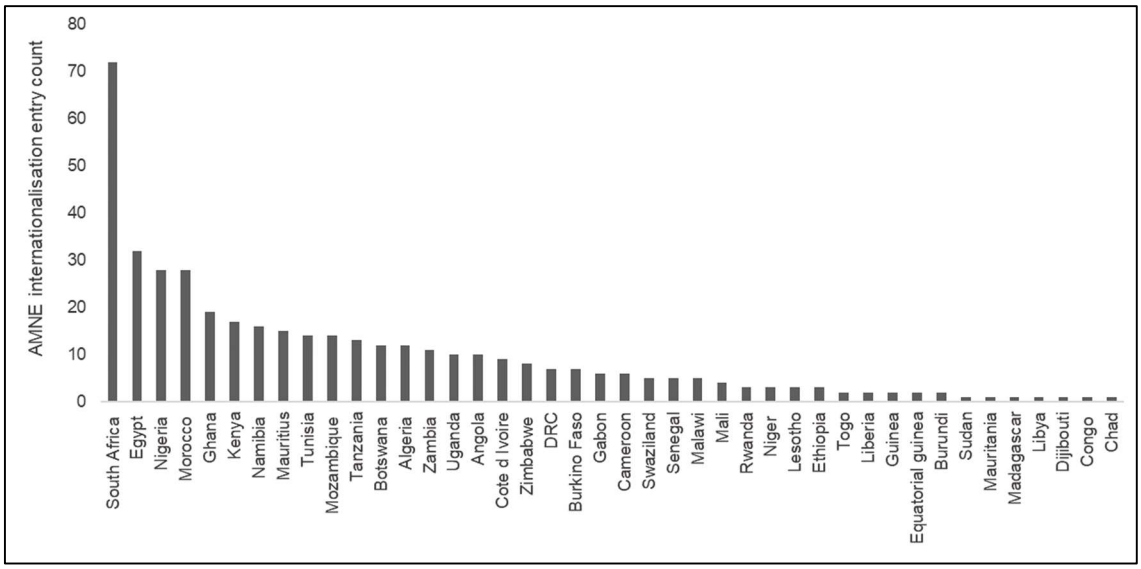

Figure 9 Count AMNE internationalisation entries according to African host country

6.2.5 AMNE descriptive statistics

Descriptive statistics, skewness, kurtosis was evaluated to assess the normality of the AMNE population, indicated in Table 10. Most variables had a normal distribution. However, the *Internationalisation network options* variable had a kurtosis value of 8.32 which is above the upper limit of normal distribution value of 7.5.

Like the EMNE population, *profitability* and *total assets* variables were considerably non-normally distributed. Only the *total assets* data were transformed using natural logarithm as the transformation of *profitability* would have resulted in considerable modification of the data.

Table 10 AMNE descriptive statistics

N: 414	**Min.**	**Max.**	**Mean**	**Median**	**S.D.**	**Skew.**	**Kurtosis**
Dependent construct: 1. Internat. network options, Network Index, NI (%)	-1.96	1.24	$1.5x10^{-16}$	0.043	0.42	-2.58	8.32
2. Total assets -TA (US$ million)	0.73	180782	22187.3	8282.18	31758	2.32	5.36
Independent construct: 3. MNE resources (ln TA)	0.55	12.11	8.98	9.022	1.70	-0.82	1.62
4. Country risk	3.53	76.82	40.15	39.186	18.32	0.06	-1.02
Control variables 5. Firm age (years)	-1	344	98.3	100	60.9	0.60	0.85
6. ln firm age	0	5.85	4.34	4.625	0.86	-1.38	2.92
7. Profitability/(loss) (US$ million)	(2185)	32009.1	1374.45	334.80	2957.7	4.44	31.15
8. Type of firm							
9. Population (million people)	0.91	206.14	42.13	31.164	42.65	1.97	4.10
10. GDP (US$ million)	1612.1	502942	127699	9223.37	143240	1	-0.38
11. GDP per capita growth (%)	-14.9	26.36	1.96	1.876	3.51	0.63	8.55
Moderator 12. Interaction ln TA x Country risk	-156.4	87.91	-7.27	-1.580	30.96	-1.03	3.76

The average age of AMNEs was 98.3 years, with median of 100 and standard deviation of 60.9. The range of AMNE age varied from -1 year (lagged age, indicative of internationalisation in the year of incorporation, company was water treatment

technology company Xylem Inc) to 344 years (oldest firm being, Merck and Company (Merck, 2023).

The profitability of AMNEs ranged from those with losses of 2.19 US$ billion to profits of 32.01 US$ billion. Similarly, there was a wide range of values for *total assets* which ranged from 0.73 US$ million to 180.8 US$ billion.

The scatterplots of Network index versus total assets and total equity are indicated in Figure 10. As expected, total equity and total assets are related as the data run parallel to each other.

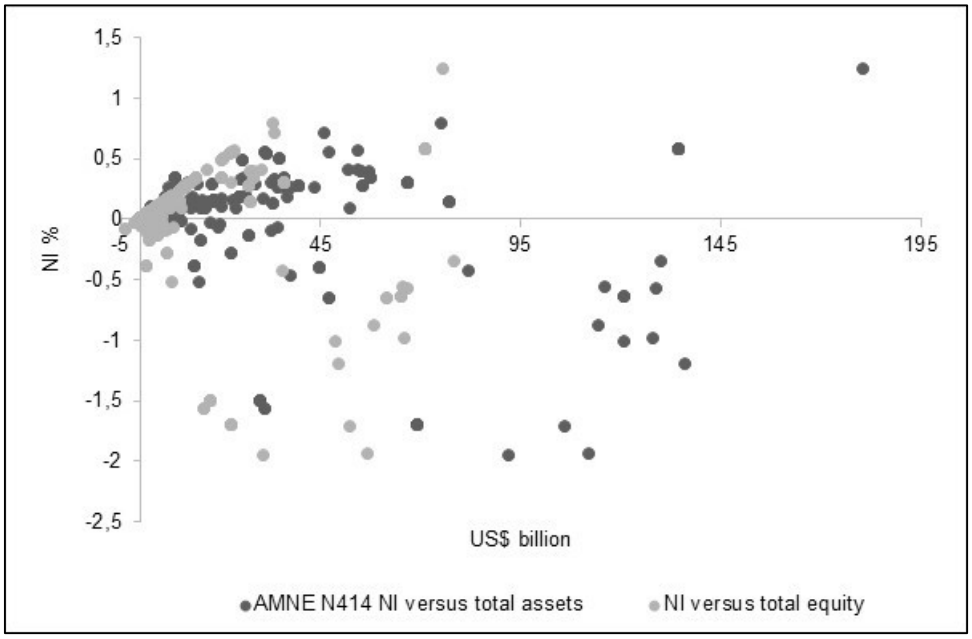

Figure 10 Scatterplot of AMNE Network Index against total assets and total equity respectively

6.3 Comparison of EMNE and AMNE populations

6.3.1 African host countries

17% of AMNEs and 10% of EMNEs internationalised into South Africa (Figure 11). While AMNEs internationalised into 42 African countries, EMNEs internationalised into 35 African countries.

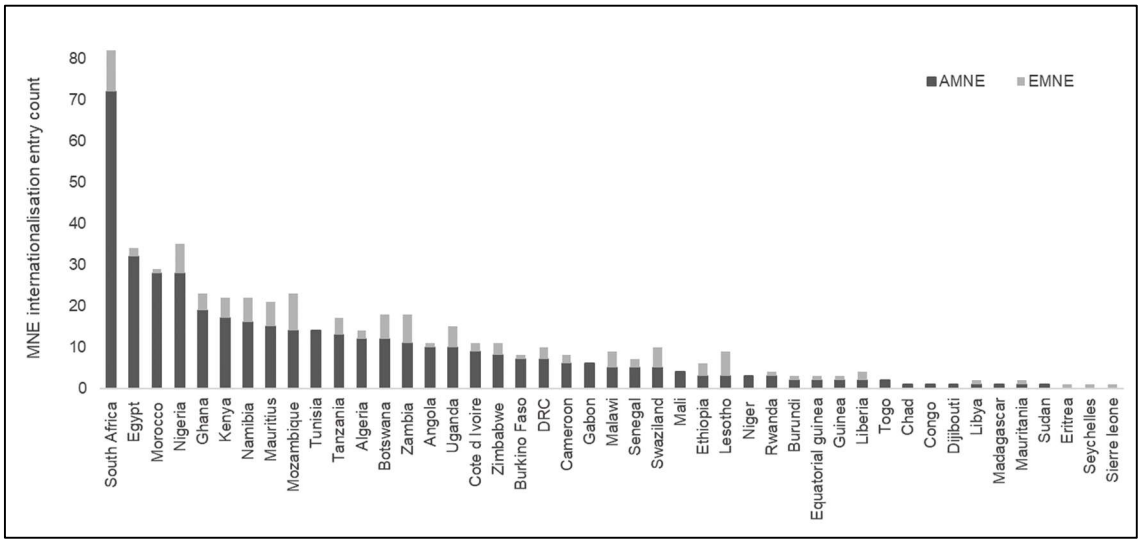

Figure 11 Count of AMNE and EMNE internationalisation entries per African country

AMNEs and EMNEs differed in a few African host countries. While EMNEs internationalised into Eritrea, Seychelles and Sierra Leone, only AMNEs internationalised into Tunisia, Gabon, Mali, Niger, Togo, Chad, Congo, Dijibouti, Madagascar and Sudan. But the majority of AMNEs and EMNEs internationalised into similar African countries as indicated in Table 11.

Table 11 Key MNE home and host countries (68.5% of sample)

	African host countries															
MNE home countries	AMNE internationalisation (*N* = 290, 70% of AMNE population)															
		South Africa	Nigeria	Egypt	Morocco	Mauritius	Ghana	Algeria	Kenya	Uganda	Namibia	Tunisia	Botswana	Mozambique	Zambia	Tanzania	Zimbabwe
	USA	31	17	16	13	9	8	8	6	6	6	5	4	4	4	4	3
	UK	11	6		6	2	5	1	4	1	5	5	3	2	2	2	2
	Germany	8		1	2				1				1				
	Switzerland	3	1	2	1		2	1	2			2		1	1	1	
	Denmark	1	2	1		1	1		1	1	1		1	1	1	1	1
	Belgium	1	1				1			1			1	1	1	1	1
	Spain	1			1				1								1
	Sweden		1			1	1	1			1		1	1		1	
	Australia	4				1					1		1	1	1		
	Japan	4		1					1							2	
	France			1	1	1			1	1	1			1			
	EMNE internationalisation (*N* = 73, 62.4% of EMNE population)																
	Malaysia	1	1														
	Turkey	1		1				1									
	China	1									2						
	India	4	1	1	1	1											
	South Africa		3			5	2		4	5	3		5	8	5	3	3
	South Korea	1															
	Egypt	2	1				1	1							1	1	
	Morocco																
	Mauritius								1		1		1		1		

6.3.2 Group statistics and independent sample t-tests

Group statistics and independent sample t-tests were used to evaluate the differences/similarities between EMNE and AMNE populations. Firstly, the results of the entire population are presented. This is then followed by the comparison of EMNE and AMNE population based on common age groups.

While the AMNE firm age ranged from negative one to 344 years, the EMNE firm age ranged from zero to 154 years. Considering the EMNE firm age range, the group

statistics and independent sample t-tests were evaluated based on common age groupings of 50-year increments. Correspondingly, tests were evaluated in age groups of less than 51 years, 51 to 101 years and above 101 years.

6.3.2.1 Comparison of the total EMNE and AMNE population

The group statistics and independent sample t-tests of the total EMNE and AMNE populations are indicated in Table 12. There are significant differences in *firm age* (p = <0.001, mean difference of -0.629) and EMNEs are on average younger than AMNEs.

The independent sample t-tests indicate that there is no significant difference between the AMNE and EMNE *internationalisation network options*. However, EMNE *internationalisation network options* (mean of -2.3×10^{-16}, standard deviation (S.D) of 1.72) is on average lower than that of the AMNEs (mean of 1.9×10^{-16}, S.D 0.42).

There are significant differences in *MNE resources* (*ln TA*) (p = <0.001, mean difference of -3.16) and *profitability* (p = <0.001, mean difference of -1239.5 US$ million) between the EMNE and AMNE populations. Therefore, EMNEs lag AMNEs in *MNE resources* and are on average less profitable.

Table 12 Group statistics and independent sample t-tests

Variables	EMNE/ AMNE	*N*	Mean	S.D.	Std error mean	Levene's Test		t test for equality of means		Mean difference	Std error difference	Cohen's d
							Sig.	One sided *p*	Two-sided *p*			
Firm age (years)	EMNE	117	53.79	40.92	3.78	Equal variances not assumed		<0.001	<0.001	-44.55	5.976	-0.780
	AMNE	414	98.33	60.85	2.99							
Dependent variable Internat. options, Network Index, NI (%)	EMNE	117	-2.3×10^{-16}	1.72	0.16	Equal variances not assumed		0.500	1.000	<0.001	0.161	-4.7×10^{-16}
	AMNE	414	1.9×10^{-16}	0.42	0.02							
Total assets (TA) US$ million	EMNE	117	1421.6	5441.3	503.1	Equal variances not assumed		<0.001	<0.001	-20765	2950.1	-0.737
	AMNE	414	22187.3	31757.6	1560.8							
Independent variable MNE resources (lnTA)	EMNE	117	5.82	1.71	0.16	Equal variances assumed	0.287	<0.001	<0.001	-3.161	0.178	-1.859
	AMNE	414	8.98	1.70	0.08							
Profitability (US$ million)	EMNE	117	134.9	388.6	35.9	Equal variances not assumed		<0.001	<0.001	-1239.54	149.74	-0.473
	AMNE	414	1374.5	2957.7	145.4							

6.3.2.2 Comparison of firms with age less than 51 years

The group statistics and independent sample t-tests for firms with age less than 51 years are indicated in Table 13. There is a marginally significant difference in firm age (one sided $p = 0.075$, mean difference of 2.90). Because the relationship is marginal, firm level variables were still assessed on the assumption of mostly common firm age.

There is no significant difference in the *internationalisation network options* of EMNEs and AMNEs. Unlike hypothesised, both EMNEs and AMNEs in this age group internationalised on average with intra-firm network options (positive *Network index* values).

There are significant differences in *resource*s (*ln TA*) ($p = <0.001$, mean difference of -3.69) and *profitability* ($p = <0.001$, mean difference of -616.84 US$ million) between EMNE and AMNE populations. EMNEs lag AMNEs in *resources* and *profitability.*

Table 13 Group statistics and independent sample t-tests for MNEs with firm age less than 51 years

Variables	EMNE/ AMNE	*N*	Mean	S.D.	Std error mean	Levene's Test		t test for equality of means		Mean difference	Std error difference	Cohen's d
							Sig.	One sided *p*	Two-sided *p*			
Firm age (years)	EMNE	72	30.99	13.77	1.623	Equal variances assumed	0.886	0.071	0.149	2.896	1.996	0.220
	AMNE	122	28.09	12.84	1.162							
Dependent variable Internat. options, Network Index, NI (%)	EMNE	72	0.30	0.82	0.097	Equal variances not assumed		0.008	0.016	0.257	0.09	0.422
	AMNE	122	0.05	0.44	0.039							
Total assets (TA) US$ million	EMNE	72	420.46	684.43	80.66	Equal variances not assumed		<0.001	<0.001	-23116.39	3409.11	-0.773
	AMNE	122	23536.8	37644.3	3408.2							
Independent variable MNE resources (lnTA)	EMNE	72	5.02	1.46	0.172	Equal variances not assumed		<0.001	<0.001	-3.685	0.260	-1.916
	AMNE	122	8.70	2.15	0.195							
Profitability (US$ million)	EMNE	72	57.924	140.48	16.56	Equal variances not assumed		<0.001	<0.001	-616.84	139.09	-0.508
	AMNE	122	674.76	1525.35	138.1							

6.3.2.3 Comparison of firms with age from 51 to 101

The group statistics and independent sample t tests for firms with age from 51 to 101 years old are indicated in Table 14. EMNE and AMNE firm age differed significantly at the 95% level for both the one-sided and two-sided *p* values. Therefore, firm variables cannot be compared based on the assumption that EMNEs and AMNEs had similar firm age.

Table 14 Group statistics and independent sample t-tests for MNEs with firm age from 51 to 101 years

Variables	EMNE/ AMNE	*N*	Mean	S.D.	Std error mean	Levene's Test		t test for equality of means		Mean difference	Std error difference	Cohens d
							Sig.	One sided *p*	Two-sided *p*			
Firm age (years)	EMNE	30	60.27	7.36	1.344	Equal variances not assumed		<0.001	<0.001	-16.814	2.104	-1.239
	AMNE	87	77.08	15.09	1.618							
Dependent variable Internat. options, Network Index, NI (%)	EMNE	30	-0.49	3.10	0.566	Equal variances not assumed		0.170	0.339	-0.550	0.566	-0.352
	AMNE	87	0.06	0.14	0.015							
Total assets (TA) US$ million	EMNE	30	3067.8	10491.1	1915.4	Equal variances assumed	0.151	0.008	0.016	-5097.246	2083.372	-0.518
	AMNE	87	8165.0	9610.5	1030.3							
Independent variable MNE resources (lnTA)	EMNE	30	6.72	1.30	0.237	Equal variances assumed	0.511	<0.001	<0.001	-1.650	0.266	-1.314
	AMNE	87	8.37	1.24	0.133							
Profitability (US$ million)	EMNE	30	225.6	704.5	128.62	Equal variances assumed	0.469	0.174	0.348	-123.088	130.681	-0.199
	AMNE	87	348.7	584.9	62.71							

6.3.2.4 Comparison of firms with age more than 101 years

The group statistics and independent sample t-tests for firms with age exceeding 101 years are indicated in Table 15. There is no significant difference in *firm age* in this group, therefore firm level variables can be compared based on common *firm age*.

There is a significant difference in the *Internationalisation network options* between EMNEs and AMNEs (p = 0.001, mean difference of -0.41). Aligned with the proposed hypothesis, EMNEs internationalised on average with more extra-firm networks (negative *Network index* values) than AMNEs.

There are significant differences *resources (ln TA)* (p = <0.001, mean difference of -1.65) *and profitability* (p = <0.001, mean difference of -1891.2 US$ million). EMNEs lagged AMNEs in *profitability* and *resources*.

Table 15 Group statistics and independent sample t-tests for MNEs with firm age above 101 years

Variables	EMNE/ AMNE	*N*	Mean	S.D.	Std error mean	Levene's Test		t test for equality of means		Mean difference	Std error difference	Cohen's d
							Sig.	One sided *p*	Two-sided *p*			
Firm age (years)	EMNE	15	150.27	7.82	2.020	Equal variances not assumed		0.298	0.595	1.820	3.414	0.047
	AMNE	208	148.45	39.69	2.752							
Dependent variable Internat. options, Network Index, NI (%)	EMNE	15	-0.47	0.26	0.066	Equal variances assumed	0.952	0.001	0.001	-0.412	0.126	-0.873
	AMNE	208	-0.053	0.48	0.034							
Total assets (TA) US$ million	EMNE	15	2935.1	1243.5	321.08	Equal variances assumed	0.151	0.008	0.016	-5097.246	2083.372	-0.777
	AMNE	208	27176.9	32224.3	2234.35							
Independent variable MNE resources (lnTA)	EMNE	15	7.86	0.56	0.145	Equal variances assumed	0.511	<0.001	<0.001	-1.650	0.266	-1.106
	AMNE	208	9.40	1.43	0.099							
Profitability (US$ million)	EMNE	15	323.1	192.5	49.7	Equal variances not assumed		<0.001	<0.001	-1891.193	268.869	-0.513
	AMNE	208	2214.3	3810.9	264.24							

6.3.2.5 Summary of EMNE and AMNE age group comparisons

Table 16 indicates a summary of the group statistics and independent sample t-tests. When the entire population is compared, EMNEs differ significantly in age compared to AMNEs. There were no significant differences in *internationalisation network options* between the total EMNE and AMNE population. EMNEs are on average younger than AMNEs and lag AMNEs in *resources* and *profitability*.

Table 16 Summary of independent sample t-tests for EMNE and AMNE population

Age (years) **Non-significant difference (x)**	**<51**	**51 -100**	**>101**	**Total population**
Firm age	EMNE>AMNE (margin. sig. difference)	EMNE<AMNE	EMNE>AMNE (x)	**EMNE<AMNE**
Internat. network options, Network Index, NI (%)	EMNE>AMNE	EMNE<AMNE (x)	EMNE<AMNE	**EMNE<AMNE (x)**
Total assets (TA) (US$ million)	EMNE<AMNE	EMNE<AMNE	EMNE<AMNE	**EMNE<AMNE**
MNE resources (ln TA)	EMNE<AMNE	EMNE<AMNE	EMNE<AMNE	**EMNE<AMNE**
Profitability (US$ million)	EMNE<AMNE	EMNE<AMNE	EMNE<AMNE	**EMNE<AMNE**

Firm age differs marginally in the less than 51-year group. In the above 101 years group there is no significant difference in firm age. Comparison of the rest of the variables in these age groups could then be made on the basis that the firm age of EMNEs and AMNEs were mostly similar.

There were significant differences in *internationalisation network options* between EMNEs and AMNEs in these age groups. In the less than 51-year age group, EMNEs internationalised with more extra-firm networks than AMNEs. This result is aligned with the proposed hypotheses. However, in the firm age group above 101 years, EMNEs internationalised with more intra-firm networks than AMNEs, which is not aligned with the hypotheses.

In contradiction to Hernandez & Guillén (2018) sentiments, EMNEs still lag AMNEs in *resources* and *profitability*. This means that EMNEs differ from AMNEs even in the same age groupings.

6.4 Correlation matrix

6.4.1 EMNE correlation matrix

The EMNE correlation matrix (Table 17) indicates significant pairwise relationships between the dependent construct *internationalisation network options* and control variable *profitability* (value, -0.75), *total assets* (value, -0.867), *MNE resources (lnTA)* (value, -0.205) and *interaction variable* (value, -0.303). The pairwise relationship between *internationalisation network options* and *profitability is* stronger (value, -0.75) than the pairwise relationship with *MNE resources* (value, -0.205).

In addition, there are pairwise relationships between control variables (*ln firm age* (value, 0.553), *profitability* (value, 0.544), *type of firm* (value, -0.292) and the independent construct (*MNE* resources). The result is suggestive of collinearity, but this risk can be managed by mean centering of the variables in preparation for regression analysis (Hair et al., 2018).

Table 17 EMNE correlation matrix

Number of observations - 117	1	2	3	4	5	6	7	8	9	10	11	9
1.**Dependent construct:** Internat. network options, Network Index, NI (%)	1											
2. Total assets - TA (US$ million)	-0.867**	1										
Independent construct 3. MNE resources (ln TA)	-0.205*	0.455**	1									
4. Country risk	-0.087	0.105	-0,072	1								
Control variables 5. Firm age (years)	-0.136	0.169	0.609**	-0.048	1							
6. ln Firm age	-0.099	0.154	0.553**	-0.121	0.795**	1						
7. Profitability/(loss) (US$ million)	-0.750**	0.966**	0.544**	0.125	0.241**	0.201*	1					
8. Type of firm	0.074	-0.155	-0.292**	0.096	-0.317**	-0.073	-0.216*	1				
9. Population (million people)	0.039	0.070	0.073	-0.407**	0.039	0.076	0.089	-0.133	1			
10. GDP (US$ million)	-0.082	0.194*	0.032	-0.068	-0.059	-0.007	0.221*	-0.129	0.800**	1		
11. GDP per capita growth (%)	0.030	0.034	0.157	-0.208*	0.073	0.171	0.070	0.034	0.038	-0.103	1	
Moderator 12.Interaction (mean centralised) lnTA x Country risk	-0.303**	0.361**	0.237*	-0.001	0.085	0.110	0.383**	-0.062	-0.033	-0.046	0.243**	1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

6.4.2 AMNE correlation matrix

The correlation matrix (Table 18) indicates low to moderate strength pairwise relationships between *internationalisation network options* and *firm age* (-0.156), *profitability* (-0.415), *MNE resources (ln TA)* (0.145) and interaction variable (0.119). There is a stronger relationship between the *internationalisation network options* and *profitability*, than that with independent construct, *MNE resources*.

There are significant relationships between control variables (*ln firm age*, *profitability* and *GDP*) and *MNE resources*, which indicates collinearity. This is a manageable risk which can be mitigated with mean centering of the variables (Hair et al., 2018).

Table 18 AMNE correlation matrix

Number of observations – 414	1	2	3	4	5	6	7	8	9	10	11	12
1. **Dependent construct:** Internat. network options Network Index, NI (%)	1											
2. Total assets - TA (US$ million)	-0.145**	1										
Independent construct 3. MNE resources (ln TA)	-0.088	0.729**	1									
4. Country risk	0.054	-0.145**	-0.234**	1								
Control variables 5. Firm age (years)	-0.156**	0.081	0.202**	-0.112*	1							
6. ln Firm age	-0.139**	-0.049	0.116*	-0.095	0.888**	1						
7. Profitability/(loss) (US$ million)	-0.415**	0.691**	0.514**	-0.196**	0.279**	0.183**	1					
8. Type of firm	0.084	-0.085	-0.022	-0.085	0.139**	0.174**	-0.035	1				
9. Population (million people)	0.040	-0.066	-0.012	-0.370**	0.036	0.016	-0.012	-0.041	1			
10. GDP (US$ million)	0.092	-0.113*	-0.132**	-0.006	-0.034	-0.055	-0.087	-0.059	0.813**	1		
11. GDP per capita growth (%)	-0.054	-0.082	-0.095	0.015	0.006	0.030	-0.047	-0.026	-0.037	-0.123*	1	
Moderator 12.Interaction (mean centralised) lnTA x Country risk	0.119*	-0.027	0.251**	-0.037	0.033	0.054	-0.150**	0.039	-0.001	-0.059	0.023	1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

6.4 Reliability statistics

Normality (Table 9 and Table 10) and multicollinearity were assessed before regression analysis. While some variables in both populations did not have normal distribution, this was not considered a serious violation for regression analysis (Aguinis & Gottfredson, 2010).

Multicollinearity was calculated using Variance Inflation Factor (VIF) scores. The scores are below 3 for all variables with exception of host country *GDP* and *population* in both EMNE and AMNE models (Table 19 and Table 20). Both these variables have scores slightly above 3 but below 5 indicating moderate collinearity (Hair et al., 2018). Since these variables are not used in the calculation of the independent and dependent construct, the multicollinearity was not considered a violation for regression analysis.

6.5 Hierarchical regression results

The results of the hierarchal regression models are first presented for the unmoderated regression (results in section 6.5.1) and is then followed by the effect of moderation (results in section 6.5.2).

6.5.1 Unmoderated regression results

6.5.1.1 Hypothesis 1

Hypothesis 1 suggests that the typical EMNE with lower resources, is likely to use more extra- rather than intra-firm network internationalisation. The regression results (Table 19) indicate significant relationships between the dependent construct, *internationalisation network options* (variable *Network Index*) and the independent construct *MNE resources (variable ln TA)* (β = 0.360 , p =<0.001). The positive beta values indicate that for one standard deviation decrease in EMNE resources, there is a corresponding 0.360 decrease in *internationalisation network options.* This means that EMNEs with resource constraints are more likely to internationalise with non-equity linked extra-firm network options (negative network index values). The regression result

indicates lower resources are associated with lower network index values. Therefore, the results indicate support for hypothesis 1.

There were relationships between *profitability*, *firm age* and *country risk* with *internationalisation network options* respectively. The results were not expected and deserve further attention.

There is a marginal (p = 0.099) positive relationship between *country risk* (β = 0.119) and *internationalisation network options*. This means that EMNEs internationalise with higher intra-firm network options with increasing country risk.

There is a marginal (p = 0.099) negative relationship between *firm age* (β = -0.115) and *internationalisation network options*. The negative beta values indicate an inverse relationship. This result means that younger EMNEs are more likely to internationalise with equity-linked, intra-firm network options.

There is a significant negative relationship between *internationalisation network options* and the control variables *profitability* (β = -0.972, p =<0.001). This means that less profitable EMNEs internationalise with increasingly intra-firm networks (increasing *Network Index* values).

Table 19 Regression results - EMNE population

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 1 - Unmoderated regression**				**Hypothesis 3 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.329	0.140			0.630	0.131			0.654	0.132	
MNE resources (lnTA)					0.360	<0.001	0.084	2.179	0.359	<0.001	0.084	2.179
Country risk					0.119	0.099	0.006	1.602	0.118	0.101	0.006	1.602
ln firm age	0.036	0.571	0.117	1.095	-0.115	0.099	0.127	1.508	-0.115	0.100	0.127	1.508
Profitability	-0.801	<0.001	0.000	1.203	-0.972	<0.001	0.000	1.652	-0.961	<0.001	0.000	1.861
Type of firm	-0.093	0.142	0.023	1.066	-0.043	0.476	0.022	1.141	-0.043	0.482	0.022	1.142
Population	0.051	0.636	0.005	3.075	0.116	0.328	0.005	4.396	0.117	0.326	0.005	4.397
GDP	0.056	0.609	0.000	3.232	0.042	0.710	0.000	3.908	0.038	0.738	0.000	3.934
GDP per capita growth (%)	0.089	0.166	0.030	1.098	0.088	0.142	0.028	1.122	0.094	0.129	0.028	1.171
Interaction variable lnTA x Country risk									-0.027	0.674	0.003	1.260
Number of observations	117											
R^2	0.590				0.657				0.658			
Change in R^2	0.590				0.067				0.010			
Adjusted R^2	0.568				0.632				0.629			
Durbin – Watson									1.178			

6.5.1.2 Hypothesis 2

Hypothesis 2 suggests that the typical AMNE with access to resources, is likely to use more intra- rather than extra-firm network internationalisation. The regression results (Table 20), indicate significant positive relationship between the dependent construct *internationalisation network options* and *MNE resources* (β = 0.179, *p* = 0.001).

The positive beta values indicate that there is a proportional relationship between AMNE resources and *internationalisation network options*. Therefore, AMNEs with high *MNE resources* are more likely to internationalise with equity-linked, intra-firm network options, indicating support for hypothesis 2.

There were relationships between *profitability*, *firm age* and *type of firm* with *internationalisation network options* respectively. The results were not expected and deserve further attention.

There is a marginal negative relationship between firm age and internationalisation network options (β = -0.078, *p* = 0.087). This means that younger AMNEs were more likely to internationalise with more intra-firm network options.

There is a significant negative relationship between *profitability* and *internationalisation network options* (β = -0.487, *p* = <0.001). The negative beta values indicate that less profitable AMNEs internationalise with increasing intra-firm network options.

In addition, there is a marginal positive relationship between *type of firm* and *internationalisation network options* (β = 0.084, *p* = 0.064). This result implies that AMNEs with both manufacturing and service offerings are more likely to internationalise with intra-firm network options.

Table 20 Regression results - AMNE population

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 2 - Unmoderated regression**				**Hypothesis 4 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.251	0.024			0.239	0.024			0.272	0.025	
MNE resources (lnTA)					0.179	<0.001	0.013	1.429	0.174	0.002	0.014	1.668
Country risk					-0.031	0.597	0.001	1.740	-0.031	0.593	0.001	1.742
ln firm age	-0.076	0.103	0.023	1.080	-0.078	0.087	0.023	1.081	-0.079	0.086	0.023	1.085
Profitability	-0.396	<0.001	0.000	1.060	-0.487	<0.001	0.000	1.407	-0.483	<0.001	0.000	1.590
Type of firm	0.082	0.071	0.004	1.040	0.084	0.064	0.004	1.047	0.083	0.066	0.004	1.049
Population	-0.016	0.839	0.001	3.048	-0.087	0.379	0.001	5.014	-0.088	0.374	0.001	5.026
GDP	0.060	0.449	0.000	3.121	0.135	0.145	0.000	4.433	0.137	0.143	0.000	4.446
GDP per capita growth (%)	-0.061	0.178	0.005	1.036	-0.041	0.363	0.005	1.057	-0.042	0.359	0.005	1.059
Interaction variable lnTA x Country risk									0.011	0.819	0.001	1.220
Number of observations	414											
R^2	0.190				0.214				0.214			
Change in R^2	0.190				0.024				0.000			
Adjusted R^2	0.178				0.198				0.197			
Durbin – Watson									0.575			

6.5.1.3 Comparison of EMNE and AMNE unmoderated regression models

There is a positive relationship between *MNE resources* and *internationalisation network options* in both EMNE and AMNE models. However, the relationship between *MNE resources* and *internationalisation network options* is more positive for EMNEs than AMNEs with beta values of 0.360 versus 0.179 for the latter. This means for one standard deviation decrease in *MNE resources*, there is a 0.360 decrease in *internationalisation network options* EMNEs versus 0.179 for AMNEs. Therefore, EMNEs with resource constraints are more likely to internationalise with extra-firm network options than AMNEs.

In both EMNE and AMNE models, *firm age* was related to *internationalisation network options*. The marginal relationships were negative, but EMNE beta values (-0.115) were more negative than AMNEs (β = -0.078). The result indicates younger EMNEs are more likely to internationalise with more intra-firm network options than younger AMNEs.

In both EMNE and AMNE models, there is an inverse relationship between *profitability* and *internationalisation network options*. But the relationship is again, more negative for EMNEs (β = -0.972) than AMNEs (β = -0.485). This means that less profitable EMNEs are more likely to internationalise with more intra-firm network options versus AMNEs.

While AMNE *internationalisation network options* were not related to *country risk*, EMNEs were more likely to internationalise with more intra-firm networks in the presence of increasing *country risk*.

EMNEs also differed from AMNEs as there was a marginal relationship between *type of firm* and *internationalisation network options* for AMNEs. This means AMNEs with both manufacturing and service offerings are more likely to internationalise with intra-firm network options compared to firms with only service or only manufacturing offerings.

6.5.2 Moderated regression results

6.5.2.1 Hypothesis 3

Hypothesis 3 suggests that *country risk* negatively moderates the relationship between EMNE resources and internationalisation through network options into African countries. This means that EMNEs would be more likely to internationalise with extra-firm network options into countries with higher *country risk*.

There is no support for hypothesis 3 as indicated in Table 19.

6.5.2.2 Hypothesis 4

Hypothesis 4 suggests that *country risk* negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries. This hypothesis means that as risk increases, so does the AMNE propensity to use extra-firm network internationalisation options versus that of intra-firm networks.

There was no support for hypothesis 4 as indicated in Table 20.

6.5.2.3 Comparison of EMNE and AMNE moderated regression models

There is no support for moderation in both EMNE and AMNE regression models.

6.5.3 Summary of regression results

The summary of the regression results of both populations are indicated in Table 21. The relationship between *MNE resources* and *internationalisation network options* is significant for EMNEs and AMNEs, indicating support for hypothesis 1 and hypothesis 2. However, the relationship between *MNE resources* and *internationalisation network options* is more positive for EMNEs than AMNEs. This means that EMNEs with limited resources are more likely to internationalise with extra-firm network options than AMNEs.

Both younger EMNEs and AMNEs are more likely to internationalise with more intra-firm network options. However, the relationship was stronger for EMNEs than AMNEs, which

means that younger EMNEs were more likely to internationalise with more intra-firm network options than AMNEs.

In both populations, *profitability* has a significant negative relationship with *internationalisation network options*. But like the relationship with *firm age*, the relationship is more negative for EMNEs that AMNEs. The results means that less profitable EMNEs were more likely to internationalise with more intra-firm network options than AMNEs.

AMNEs differed from EMNEs in that AMNE *type of firm* was positively related to *internationalisation network options*. Correspondingly, AMNEs with both manufacturing and service offerings were more likely to internationalise with intra-firm network options compared to firms with only services or only manufacturing offerings.

In addition, AMNEs differed from EMNEs in that EMNEs internationalise with more intra-firm networks with increasing country risk.

There is no support for hypothesis 3 and 4 which proposed negative moderation of EMNE and AMNE resource relationship with internationalisation network options respectively.

Table 21 Summary of regression results

Dependent construct: Internationalisation network options	**Control variables**				**Unmoderated regression**				**Moderated regression**			
	EMNE *N*=117		**AMNE *N* =414**		**EMNE *N*=117**		**AMNE *N* =414**		**EMNE *N*=117**		**AMNE *N* =414**	
	β	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**
Constant		0.329		0.251		0.630		0.239		0.654		0.272
MNE resources (lnTA)					0.360	<0.001	0.179	<0.001	0.359	<0.001	0.174	0.002
Country risk					0.119	0.099	-0.031	0.597	0.118	0.101	-0.031	0.593
ln firm age	0.036	0.571	-0.076	0.103	-0.115	0.099	-0.078	0.087	-0.115	0.100	-0.079	0.086
Profitability	-0.801	<0.001	-0.396	<0.001	-0.972	<0.001	-0.487	<0.001	-0.961	<0.001	-0.483	<0.001
Type of firm	-0.093	0.142	0.082	0.071	-0.043	0.476	0.084	0.064	-0.043	0.482	0.083	0.066
Population	0.051	0.636	-0.016	0.839	0.116	0.328	-0.087	0.379	0.117	0.326	-0.088	0.374
GDP	0.056	0.609	0.060	0.449	0.042	0.710	0.135	0.145	0.038	0.738	0.137	0.143
GDP per capita growth (%)	0.089	0.166	-0.061	0.178	0.088	0.142	-0.041	0.363	0.094	0.129	-0.042	0.359
Interaction variable lnTA x Country risk									-0.027	0.674	0.011	0.819
R^2	0.590		0.190		0.657		0.214		0.658		0.214	
Change in R^2	0.590		0.190		0.067		0.024		0.010		0.000	
Adjusted R^2	0.568		0.178		0.632		0.198		0.629		0.197	
Durbin - Watson									1.178		0.575	

6.6 Robustness tests

Robustness tests were conducted to assess the dependence of results on dominant population characteristics. The number of South African MNE internationalisation entries in the EMNE population was 75 (out of the total EMNE population of 117). In addition, South Africa as a host country accounted for most of the AMNE and EMNE internationalisation entries. Therefore, the influence of South Africa as home and host country was assessed (see section 6.6.1 to 6.6.3).

In some studies, (Belderbos et al., 2018; Zhu et al., 2022) with time-based data, the robustness tests evaluate any changes resultant of macro-economic events. Examples of events included changes in country foreign direct investment policy (Zhu et al., 2022) or stock market crashes (Belderbos et al., 2018). The period of assessment was 1997 till 2021. While there were several macro- economic events in this period, the 2008 Global financial crisis (GFC) could have impacted MNE internationalisation into African countries.

The event originated with the downturn in housing market in USA and had an associated effect on the USA financial sector. However, the crisis also had an impact on other countries and their economies by way of their links with global financial systems (Dullien et al., 2010). Therefore, the robustness of results was assessed by evaluating the internationalisation entries pre-2008 (pre-GFC) versus those that occurred from 2008-2021 (post-GFC). Therefore, the robustness of results was assessed for the influence of the 2008 GFC (See section 6.6.4).

6.6.1 South African MNEs

South African MNEs internationalised into 28 different African host countries (Figure 12). Recent work (Getachew et al., 2023) on inter African FDI, also noted the dominance of South African MNEs accounted in inter-African internationalisation activities.

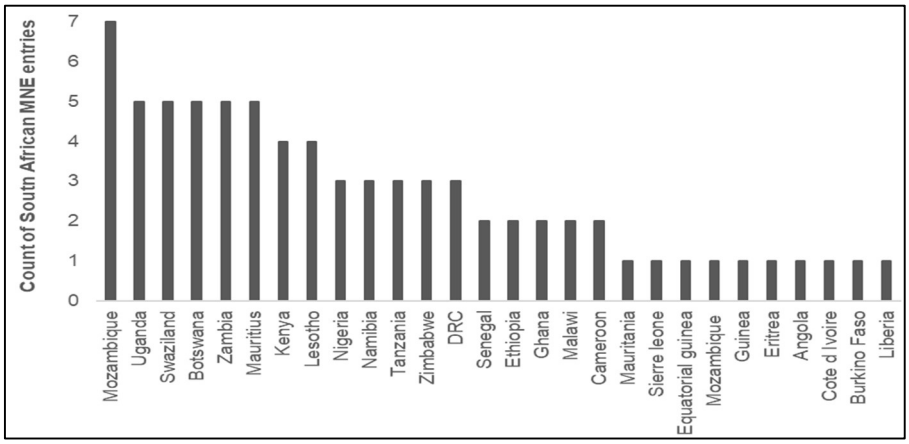

Figure 12 South African MNE internationalisation entries

EMNE regression results - South African MNEs

Unlike the base case, the regression results (Table 22) indicate that there are no significant relationships between *internationalisation network options*, *MNE resources* and *country risk* for South African MNEs.

Yet, there is a significant negative relationship between *firm age and internationalisation network options*. This relationship is stronger for South African MNEs (β = -0.547, p = <0.001) compared to the EMNE base case where the relationship between *firm age* and *internationalisation network options* is only marginally significant. This means that younger South African MNEs are more likely to internationalise with equity-linked, intra-firm network options.

There is a positive relationship between *type of firm* and *internationalisation network options* (β = 0.309, p = 0.007) which is not present in the base case. This result means that, South African MNEs that offer both manufacturing and service offerings are more likely to internationalise with equity linked intra-firm network than service firms followed by manufacturing firms. This is an effect that has not been observed and deserves further attention.

Table 22 South African MNEs investing into wider Africa

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 1 - Unmoderated regression**				**Hypothesis 3 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.133	0.060			0.157	0.062			0.168	0.063	
MNE resources (lnTA)					-0.063	0.709	0.037	3.231	-0.063	0.708	0.037	3.231
Country risk					0.009	0.941	0.002	1.545	0.011	0.926	0.002	1.554
ln firm age	-0.566	<0.001	0.068	2.104	-0.547	<0.001	0.074	2.440	-0.550	<0.001	0.075	2.462
Profitability	0.204	0.139	0.000	2.203	0.232	0.152	0.000	2.956	0.237	0.149	0.000	3.001
Type of firm	0.322	0.003	0.007	1.268	0.309	0.007	0.008	1.404	0.306	0.008	0.008	1.413
Population	-0.111	0.589	0.002	4.957	-0.098	0.667	0.002	5.902	-0.099	0.665	0.002	5.905
GDP	0.070	0.734	0.000	4.930	0.056	0.792	0.000	5.216	0.060	0.780	0.000	5.241
GDP per capita growth (%)	0.123	0.195	0.008	1.050	0.129	0.194	0.008	1.112	0.136	0.189	0.008	1.199
Interaction variable lnTA x Country risk									-0.026	0.792	0.001	1.129
Number of observations	75											
R^2	0.427				0.428				0.429			
Change in R^2	0.427				0.001				0.001			
Adjusted R^2	0.376				0.359				0.350			
Durbin – Watson									0.941			

6.6.2 Non-South African EMNEs

The population of non-South African EMNEs only accounted for 42 out of 117 cases. Therefore, regression was not evaluated given that accuracy of results is low with small populations (Hair et al., 2018).

6.6.3 Removal of South Africa as host country

In general, FDI into African countries is low, however certain African countries, like South Africa receive the bulk of the FDI (UNCTAD. 2020). By removing internationalisation entries into South Africa, the robustness of results could be assessed for EMNE internationalisation into the other African countries in the population.

6.6.3.1 EMNE population - removal of South Africa as host country

After removing South Africa as a host country from the EMNE population, South African EMNEs still dominate the EMNE population (75 out of total population of 107 firms (Figure 13).

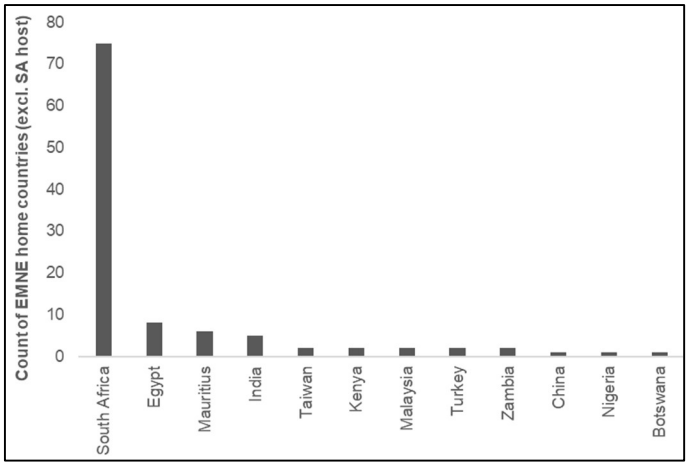

Figure 13 Count of internationalisation entries (excluding entries into South Africa) by EMNEs

In this population, the EMNEs internationalised into mostly Mozambique, Nigeria and Zambia (Figure 14).

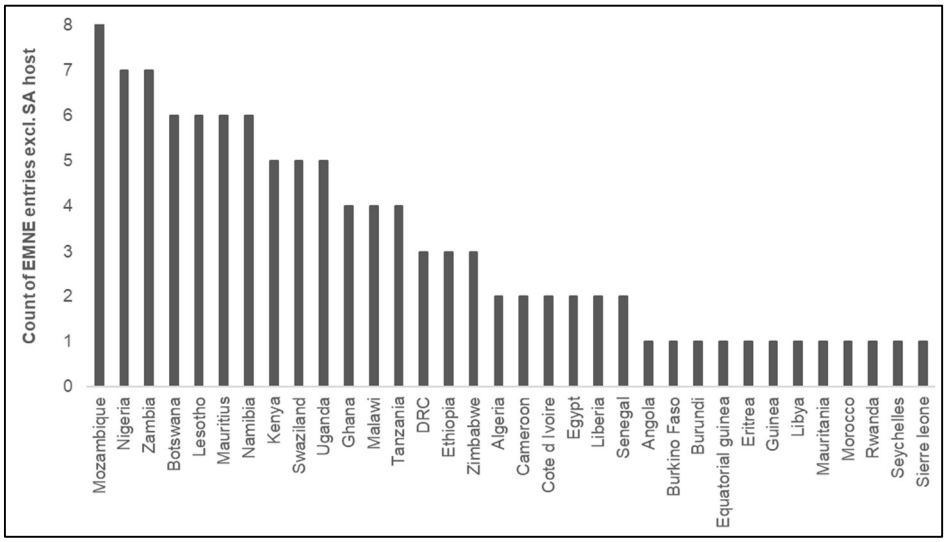

Figure 14 Count of African host country entries (excluding entries into South Africa) by EMNEs

EMNE regression results - removal of South Africa as host country

The hypothesised relationships are not robust against the removal of South Africa as the host country (Table 23). The result suggests a sensitivity of results to South Africa as host country. However, there are significant relationships between *profitability* and *firm age* with internationalisation network options respectively.

The relationship with *profitability* is reversed compared to the base case, i.e., it moves from a negative beta value of 0.972 to positive 0.478. This means that increasingly profitable EMNEs are likely to internationalise with more equity-linked, intra-firm networks into African countries excluding South Africa.

The relationship between *firm age* and *internationalisation network options* moves from marginally significant in the base case to significant at the 95% level with negative beta value of 0.351. The result suggests that younger EMNEs internationalise with more equity-linked, intra-firm networks into African countries excluding South Africa. The difference in the relationships suggests an avenue for further research.

Table 23 Removal of South Africa as host country entries for EMNE population

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 1 - Unmoderated regression**				**Hypothesis 3 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.157	0.100			0.159	0.106			0.161	0.106	
MNE resources (lnTA)					-0.010	0.945	0.074	2.732	-0.015	0.921	0.075	2.786
Country risk					0.033	0.760	0.005	1.549	0.033	0.762	0.005	1.549
ln firm age	-0.358	<0.001	0.082	1.252	-0.351	0.002	0.092	1.574	-0.350	0.002	0.093	1.580
Profitability	0.480	<0.001	0.001	1.487	0.478	<0.001	0.001	2.430	0.481	<0.001	0.001	2.460
Type of firm	0.154	0.110	0.016	1.212	0.147	0.145	0.016	1.293	0.146	0.150	0.017	1.295
Population	0.080	0.700	0.004	5.645	0.104	0.644	0.004	6.484	0.102	0.650	0.004	6.487
GDP	0.087	0.676	0.000	5.708	0.079	0.712	0.000	5.831	0.079	0.713	0.000	5.831
GDP per capita growth (%)	0.076	0.406	0.019	1.103	0.082	0.386	0.019	1.143	0.087	0.373	0.020	1.206
Interaction variable lnTA x Country risk									-0.021	0.824	0.003	1.089
Number of observations	107											
R^2	0.243				0.244				0.244			
Change in R^2	0.243				0.001				0.001			
Adjusted R^2	0.198				0.182				0.174			
Durbin – Watson									1.016			

6.6.3.2 AMNE population excluding South Africa as host country

The population is dominated by AMNEs from USA followed by UK (Figure 15).

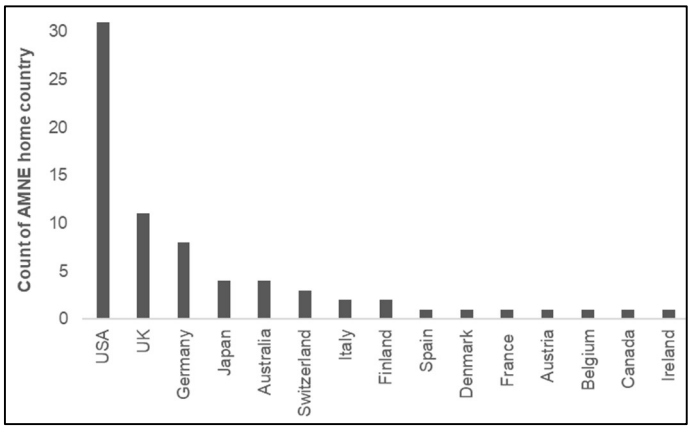

Figure 15 Count of internationalisation entries from AMNE home country excluding entries into South Africa

In this population, the AMNEs internationalised mostly into Egypt, Morocco and Nigeria (Figure 16).

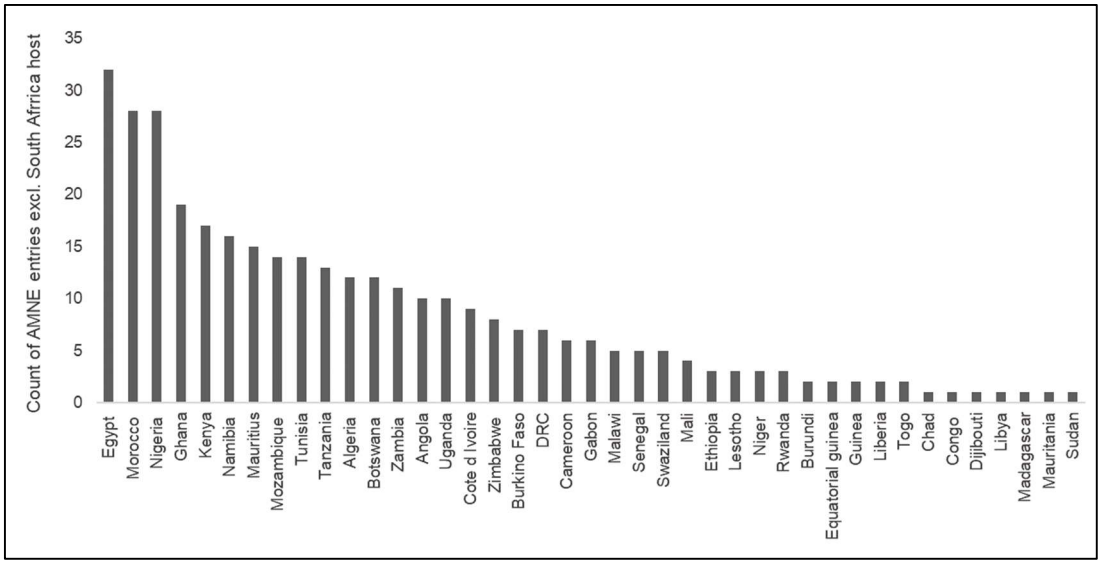

Figure 16 Count African host country entries by AMNEs excluding South Africa as host country

AMNE regression results - removal of South Africa as host country

The results of base case for *profitability* and *MNE resources* and *type of firm* remain robust even when internationalisation into South Africa is removed (Table 24). However, the marginal relationship with *firm age* in the base case becomes insignificant.

Table 24 Regression results for AMNE population excluding South Africa as host country

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 2 - Unmoderated regression**				**Hypothesis 4 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.214	0.031			0.099	0.031			0.079	0.031	
MNE resources (lnTA)					0.147	0.010	0.017	1.479	0.148	0.010	0.017	1.479
Country risk					-0.052	0.347	0.001	1.408	-0.050	0.371	0.001	1.410
ln firm age	-0.078	0.115	0.027	1.091	-0.068	0.166	0.026	1.097	-0.066	0.177	0.026	1.098
Profitability	-0.473	<0.001	0.000	1.076	-0.562	<0.001	0.000	1.543	-0.580	<0.001	0.000	1.661
Type of firm	0.085	.0079	0.005	1.041	0.089	0.063	0.005	1.051	0.090	0.062	0.005	1.051
Population	0.060	0.641	0.001	7.383	0.016	0.906	0.001	8.281	0.015	0.911	0.001	8.281
GDP	-0.034	0.793	0.000	7.440	-0.016	0.903	0.000	7.604	-0.013	0.921	0.000	7.607
GDP per capita growth (%)	-0.076	0.115	0.006	1.029	-0.055	0.248	0.006	1.052	-0.055	0.248	0.006	1.052
Interaction variable lnTA x Country risk									-0.054	0.273	0.001	1.119
Number of observations	342											
R^2	0.255				0.272				0.275			
Change in R^2	0.255				0.017				0.003			
Adjusted R^2	0.241				0.255				0.255			
Durbin – Watson									0.588			

6.6.3.1 Comparison between EMNE and AMNE models (excluding South Africa as host country)

There was no support for the hypothesis 1 and 3, i.e. EMNE proposed relationships. In contrast, the results of the AMNE base case remained robust after the removal of internationalisation entries into South Africa with exception of the relationship with *firm age* which became insignificant.

Like the base case (main analysis), the robustness tests indicate that the relationship between *internationalisation network options* and the control variable *profitability* is significant for both EMNE and AMNE populations. While the negative relationship in the base case remains consistent for the AMNEs, it becomes positive for EMNEs internationalising into African countries other than South Africa.

The EMNE *firm age* relationship with internationalisation network options becomes more significant in this model, indicating that younger EMNEs are more likely to internationalise with intra-firm network options. The AMNE *firm age* relationship becomes insignificant. These results indicate avenues for future research.

6.6.4 Macro-economic event - Global financial crisis (GFC)

6.6.4.1 EMNE population - internationalisation pre-GFC

The number of internationalisation entries pre-GFC were 18. Therefore, regression analysis was not viable.

6.6.4.2 EMNE population – internationalisation post-GFC

The EMNE population consisted of 99 EMNE entries which were dominated by South African MNEs (Figure 17).

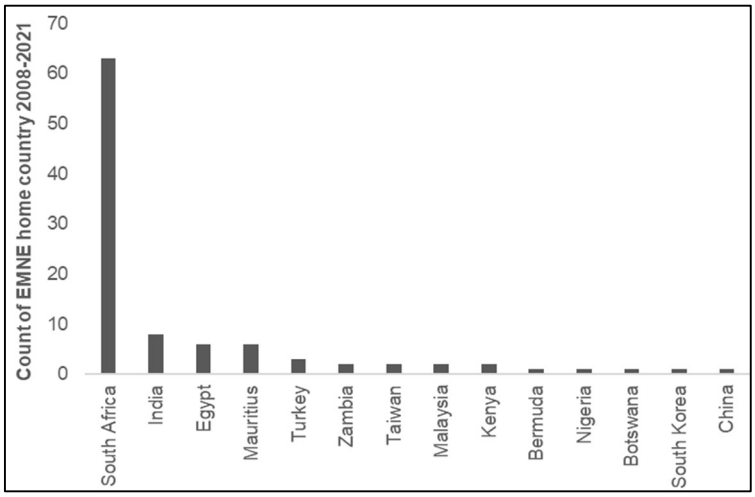

Figure 17 Count of internationalisation entries from EMNE home country post-GFC

The EMNE population internationalised into 32 different African countries (Figure 18).

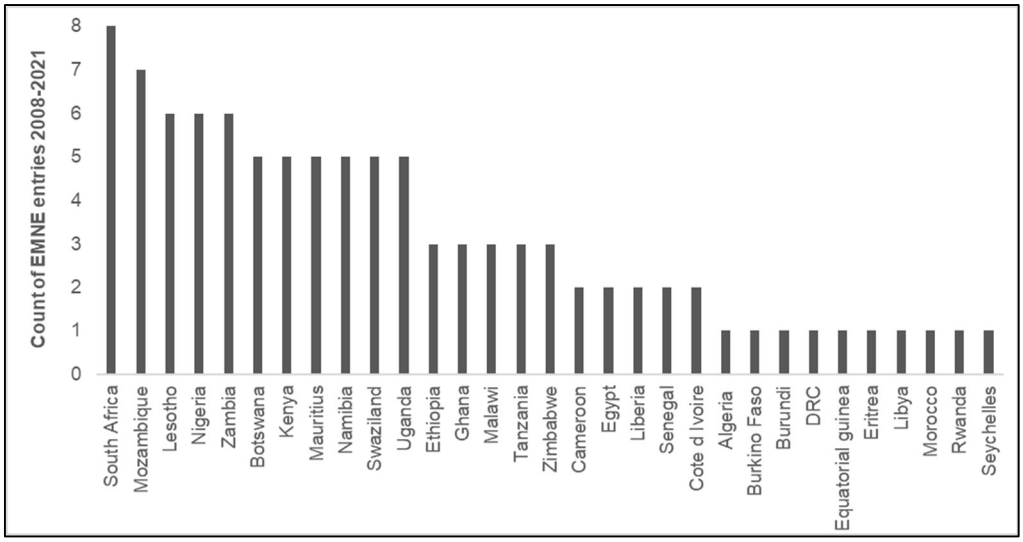

Figure 18 Count of EMNE internationalisation entries according to African host country post-GFC

6.6.4.3 EMNE regression results post-GFC

The regression results (Table 25) indicated significant relationships between *MNE resources* and *internationalisation network options* (hypothesis 1). This result is aligned

with the base case. However, the relationships between EMNE *resources* and *internationalisation network options* (hypothesis 1) are slightly more positive (β = 0.363) when compared to the base case (β = 0.360). This increase could be associated with availability of more resources post crisis.

Like the base case, the control variables, *profitability* and *firm age* have negative relationships with *internationalisation network options* respectively. Albeit the *profitability* relationships have a slightly more negative beta value (-0.988). *Firm age* is still marginally significant but has a more negative beta value of 0.135. This result means that less profitable EMNEs internationalised with more intra-firm network options. In addition, younger EMNEs internationalised with more intra-firm network options. The results could be due to the global market recovery over time that spurred investment.

Like the base case there is no support for the moderation hypothesis 3.

Table 25 EMNE internationalisation entries post-GFC

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 1 - Unmoderated regression**				**Hypothesis 3 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.167	0.168			0.609	0.161			0.637	0.165	
MNE resources (lnTA)					0.363	<0.001	0.105	2.389	0.363	<0.001	0.105	2.389
Country risk					0.093	0.223	0.008	1.545	0.095	0.222	0.008	1.577
ln firm age	0.019	0.784	0.129	1.103	-0.135	0.081	0.143	1.561	-0.134	0.083	0.144	1.562
Profitability	-0.808	<0.001	0.000	1.233	-0.988	<0.001	0.000	1.778	-0.983	<0.001	0.000	2.090
Type of firm	-0.110	0.111	0.026	1.083	-0.058	0.377	0.025	1.137	-0.056	0.399	0.026	1.166
Population	0.087	0.470	0.006	3.333	0.094	0.477	0.006	4.668	0.095	0.476	0.006	4.674
GDP	0.025	0.841	0.000	3.540	0.066	0.600	0.000	4.242	0.064	0.619	0.000	4.312
GDP per capita growth (%)	0.095	0.178	0.033	1.133	0.083	0.212	0.031	1.161	0.085	0.211	0.032	1.194
Interaction variable lnTA x Country risk									-0.012	0.873	0.004	1.400
Number of observations	99											
R^2	0.604				0.664				0.665			
Change in R^2	0.604				0.061				0.000			
Adjusted R^2	0.578				0.635				0.631			
Durbin – Watson									1.182			

6.6.4.3 AMNE population - internationalisation pre-GFC

Most of the AMNEs in this population, originated from USA followed by UK (Figure 19).

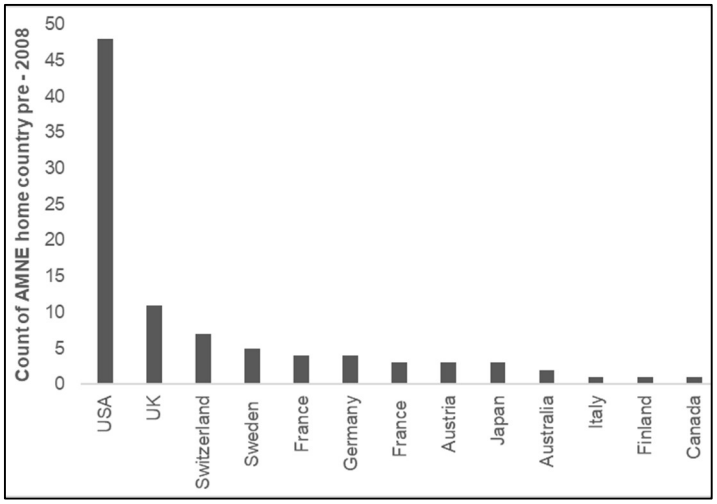

Figure 19 Count of internationalisation entries from AMNE home country pre-GFC

During this period, the AMNEs internationalised mostly into South Africa, followed by Egypt and Morocco (

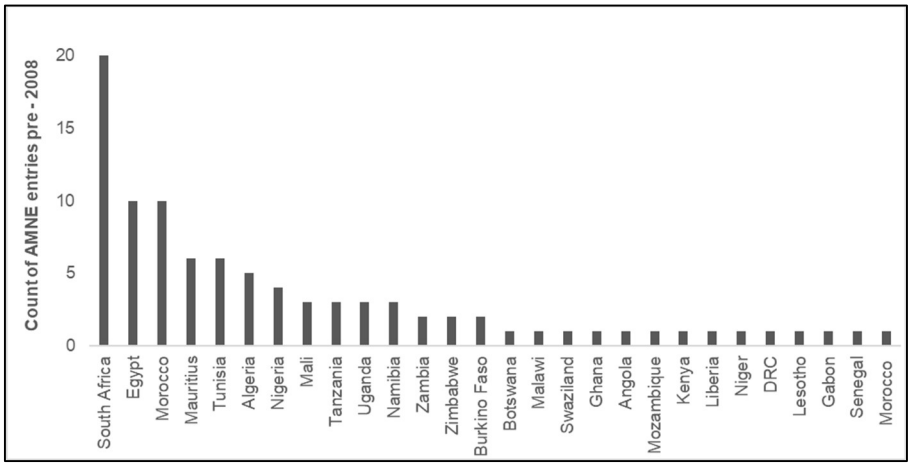

Figure 20).

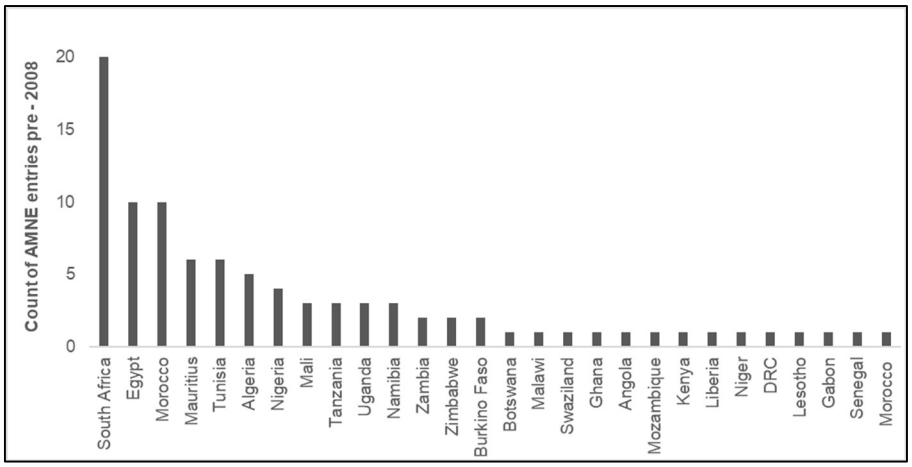

Figure 20 Count AMNE internationalisation entries according to African host country pre-GFC

AMNE regression results pre-GFC

The number of internationalisation entries for AMNEs pre-2008 was 93. The results of the base case remain robust (indicated in Table 26) with exception of the *firm age* relationship which becomes insignificant.

Table 26 AMNE internationalisation entries pre-GFC

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 2 - Unmoderated regression**				**Hypothesis 4 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.977	0.041			0.923	0.042			0.698	0.046	
MNE resources (lnTA)					0.210	0.081	0.023	1.678	0.157	0.270	0.028	2.353
Country risk					-0.076	0.602	0.003	2.534	-0.065	0.662	0.003	2.566
ln firm age	-0.096	0.330	0.049	1.112	-0.107	0.281	0.049	1.149	-0.112	0.261	0.050	1.156
Profitability	-0.384	<0.001	0.000	1.133	-0.525	<0.001	0.000	1.838	-0.479	0.001	0.000	2.344
Type of firm	-0.205	0.033	0.008	1.048	-0.183	0.057	0.008	1.071	-0.188	0.052	0.008	1.076
Population	-0.096	0.500	0.002	2.329	-0.229	0.265	0.002	4.951	-0.238	0.250	0.002	4.970
GDP	0.140	0.333	0.000	2.413	0.248	0.200	0.000	4.391	0.273	0.167	0.000	4.535
GDP per capita growth (%)	-0.011	0.908	0.008	1.017	0.021	0.827	0.008	1.063	0.006	0.953	0.008	1.116
Interaction variable lnTA x Country risk									0.084	0.484	0.001	1.672
Number of observations	93											
R^2	0.264				0.294				0.299			
Change in R^2	0.264				0.030				0.004			
Adjusted R^2	0.213				0.227				0.223			
Durbin – Watson									0.651			

6.6.4.4 AMNE internationalisation post-GFC

As per the other robustness tests, most of the AMNEs originated from USA and UK (Figure 21).

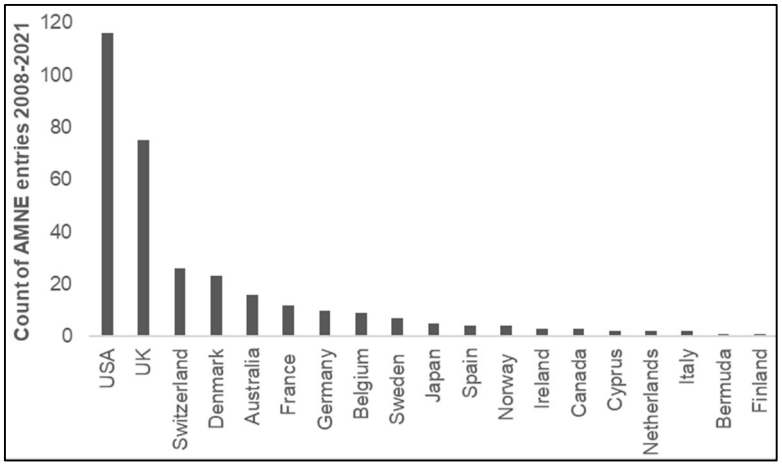

Figure 21 Count of internationalisation entries from AMNE home country post-GFC

Most of the AMNE internationalisation entries were into South Africa (Figure 22)

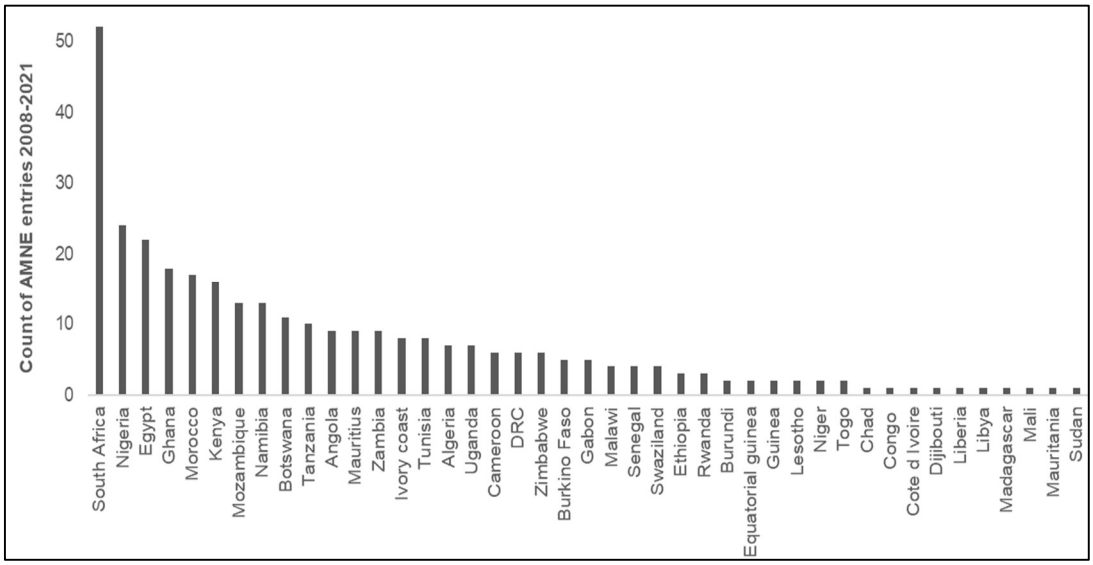

Figure 22 Count of AMNE internationalisation entries according to African host country post-GFC

AMNE regression results post-GFC

The results (Table 27) indicate that the base case results remain robust except for firm age which became insignificant.

Table 27 AMNE regression results post-GFC

Dependent construct: Internationalisation network options	**Control variables**				**Hypothesis 2 - Unmoderated regression**				**Hypothesis 4 - Moderated regression**			
	β	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**	***β***	**Sig. (*p*)**	**Std errors**	**VIF**
Constant		0.164	0.030			0.120	0.030			0.126	0.030	
MNE resources (lnTA)					0.172	0.004	0.016	1.398	0.172	0.007	0.017	1.577
Country risk					-0.031	0.630	0.002	1.660	-0.031	0.631	0.002	1.670
ln firm age	-0.074	0.156	0.026	1.078	-0.075	0.151	0.026	1.079	-0.075	0.152	0.026	1.085
Profitability	-0.393	<0.001	0.000	1.060	-0.478	<0.001	0.000	1.385	-0.478	<0.001	0.000	1.550
Type of firm	0.134	0.010	0.005	1.045	0.134	0.009	0.005	1.049	0.134	0.009	0.005	1.050
Population	-0.003	0.972	0.001	3.178	-0.070	0.533	0.001	5.047	-0.070	0.534	0.001	5.060
GDP	0.037	0.684	0.000	3.279	0.113	0.287	0.000	4.517	0.113	0.288	0.000	4.527
GDP per capita growth (%)	-0.080	0.123	0.007	1.057	-0.065	0.207	0.007	1.067	-0.065	0.208	0.007	1.068
Interaction variable lnTA x Country risk									0.000	0.996	0.001	1.182
Number of observations	321											
R^2	0.199				0.222				0.222			
Change in R^2	0.199				0.022				0.000			
Adjusted R^2	0.184				0.202				0.199			
Durbin – Watson												

6.6.4.5 Comparison of pre- and post-GFC with AMNE base case

Pre-GFC the relationship between AMNE *resources* and *internationalisation network options* (hypothesis 2) are marginally significant (p = 0.081). However, the relationship is slightly more positive (β = 0.210) when compared to the base case significant relationship and beta values of 0.179. Post-GFC, the relationships between AMNE *resources* and *internationalisation network options* (hypothesis 2) drop down to beta values of 0.172

The marginal negative relationship between *firm age* and *internationalisation network options* in the AMNE base case, became insignificant pre- and post-GFC.

There is marginally significant positive relationship between *type of firm* (β = 0.084, p = 0.064) and *internationalisation network options* in the base case. The result meant that firms with both manufacturing and service offerings were more likely to internationalise with intra-firm network options than manufacturing only and service only firms. In contrast, pre-GFC, the relationship is reversed (β = -0.183, p = 0.057). The negative result implies that pre-GFC, AMNEs with only manufacturing and only service firms were more likely to internationalise with more intra-firm network options compared firms that offered both manufacturing and service offerings. Post-GFC, the relationship became positive again but significant as opposed to marginal significance in base case. Therefore, the differences in the relationships between *type of firm* and *internationalisation network options* varies between base case, pre- and post-GFC. The mixed results indicate a need for additional research focussed on this relationship.

The negative relationship between *profitability* and *internationalisation network options* is more negative pre-GFC with beta values of -0.525, compared to -0.478 post-GFC and the base case of -0.487. These results could be due to a more cautious investment approach post crisis given that the population is dominated by AMNEs from USA and the crisis originated in USA.

Like base case, there is no support for hypothesis 4 pre- and post-global financial crisis.

6.6.4.6 Comparison between EMNE and AMNE post-GFC regression results

The relationship between *MNE resources* and *Internationalisation network options* remains stronger for EMNEs than AMNEs, with beta values of 0.363 versus 0.172. This means that EMMEs with resource constraints are more likely to internationalise with extra-firm internationalisation network options than AMNEs.

The negative relationship between *profitability* and *internationalisation network options* remains for both AMNEs and EMNEs but the relationship for EMNEs is more negative with beta values of -0.988 compared -0.478 for AMNEs.

The AMNE and EMNE models differed in that there is a marginal negative relationship with EMNE *firm age* and *internationalisation network options*. In addition, there is a significant relationship between AMNE *firm type* and *internationalisation network options* which is not present in the EMNE model.

6.6.5 Summary of robustness results

The results are summarised with comparisons to the base case firstly for EMNEs, then AMNEs and concludes with a comparison of the EMNE and AMNE robustness models.

6.6.5.1 EMNE summary

The summary of the EMNE regression results compared to the base case is indicated in Table 28. The significant relationship between *MNE resources* and *internationalisation network* in base case becomes insignificant South African MNEs.

Control variables *firm age* and *type of firm* have a significant relationship with *internationalisation network options*. The relationship between *internationalisation network options* and *firm age* moves from marginally significant in the base case to significant for South African MNEs. This means that younger South African MNEs are more likely to internationalise using intra-firm networks.

Table 28 Summary regression results for EMNEs

	Dependent construct: Internationalisation network options	**Base case *(N=117)***		**South African MNE (*N*=75)**		**Excl. South African MNEs (*N=42*)**	**Excl. South Africa host country (N=107)**		**Pre-GFC (*N=18*)**	**Post-GFC (N =99)**	
		β	**Sig. (*p*)**	***β***	**Sig. (*p*)**		***β***	**Sig. (*p*)**		***β***	**Sig. (*p*)**
1	Constant		0.630		0.157			0.159			0.609
	MNE resources (lnTA)	0.360	<0.001	-0.063	0.709		-0.010	0.945		0.363	<0.001
	Country risk	0.119	0.099	0.009	0.941		0.033	0.760		0.093	0.223
	ln firm age	-0.115	0.099	-0.547	<0.001		-0.351	0.002		-0.135	0.081
	Profitability	-0.972	<0.001	0.232	0.152		0.478	<0.001		-0.988	<0.001
	Type of firm	-0.043	0.476	0.309	0.007		0.147	0.145		-0.058	0.377
	Population	0.116	0.328	-0.098	0.667		0.104	0.644		0.094	0.477
	GDP	0.042	0.710	0.056	0.792		0.079	0.712		0.066	0.600
	GDP per capita growth (%)	0.088	0.142	0.129	0.194	***Small sample size N/A***	0.082	0.386	***Small sample size N/A***	0.083	0.212
	R^2	0.657		0.428			0.244			0.664	
	Change in R^2	0.067		0.001			0.001			0.061	
	Adjusted R^2	0.632		0.359			0.182			0.635	
2	Constant		0.654		0.168			0.161			0.637
	MNE resources (lnTA)	0.359	<0.001	-0.063	0.708		-0.015	0.921		0.363	<0.001
	Country risk	0.118	0.101	0.011	0.926		0.033	0.762		0.095	0.222
	ln firm age	-0.115	0.100	-0.550	<0.001		-0.350	0.002		-0.134	0.083
	Profitability	-0.961	<0.001	0.237	0.149		0.481	<0.001		-0.983	<0.001
	Type of firm	-0.043	0.482	0.306	0.008		0.146	0.150		-0.056	0.399
	Population	0.117	0.326	-0.099	0.665		0.102	0.650		0.095	0.476
	GDP	0.038	0.738	0.060	0.780		0.079	0.713		0.064	0.619
	GDP per capita growth (%)	0.094	0.129	0.136	0.189		0.087	0.373		0.085	0.211
	ln TA x country risk	-0.027	0.674	-0.026	0.792		-0.021	0.824		-0.012	0.873
	R^2	0.658		0.429			0.244			0.665	
	Change in R^2	0.010		0.001			0.001			0.000	
	Adjusted R^2	0.629		0.350			0.174			0.631	

There is an additional positive significant relationship in the South African MNE model between *type of firm* and *internationalisation network options*. This result means that South African MNEs that have both manufacturing and service offerings, are more likely to internationalise with intra-firm networks. There is no support for moderation by *country risk.*

The base case *MNE* and *internationalisation network options* results are also not robust when South Africa as host country is removed. Combined these results suggest that there is a South African/non-South African EMNE and South African host country dimension to the relationship between EMNE *resources* and *internationalisation network options*. However, the *firm age* relationship moves from marginal significance to negatively significant.

The regression results for EMNE internationalisation post-GFC, remain robust against the base case. The negative relationship between *firm age* and *internationalisation network options* remains.

The relationship between *profitability* and *internationalisation network options* is insignificant in the model with just South African EMNEs. It becomes positive when South Africa as a host country is removed. Post-GFC, the relationship becomes negative like the base case. This mixed result suggests a need for further research.

6.6.5.2 AMNE summary

The summary of the AMNE regression results compared to the base case are indicated in Table 29. There is no significant relationship between *firm age* and *internationalisation network options* in robustness models.

The results for the relationship between *MNE resources* and *internationalisation network options* remain robust for the models that exclude South Africa as host country and internationalisation entries post-GFC.

Table 29 Summary regression results for AMNEs

	Dependent construct: Internationalisation network options	**Base case (*N=414*)**		**Excl. South Africa host country (*N=342*)**		**Pre-GFC *(N=93)***		**Post-GFC (*N=321*)**	
		β	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**	***β***	**Sig. (*p*)**
1	Constant		0.239		0.099		0.923		0.120
	MNE resources (lnTA)	0.179	<0.001	0.147	0.010	0.210	0.081	0.172	0.004
	Country risk	-0.031	0.597	-0.052	0.347	-0.076	0.602	-0.031	0.630
	ln firm age	-0.078	0.087	-0.068	0.166	-0.107	0.281	-0.075	0.151
	Profitability	-0.487	<0.001	-0.562	<0.001	-0.525	<0.001	-0.478	<0.001
	Type of firm	0.084	0.064	0.089	0.063	-0.183	0.057	0.134	0.009
	Population	-0.087	0.379	0.016	0.906	-0.229	0.265	-0.070	0.533
	GDP	0.135	0.145	-0.016	0.903	0.248	0.200	0.113	0.287
	GDP per capita growth (%)	-0.041	0.363	-0.055	0.248	0.021	0.827	-0.065	0.207
	R^2	0.214		0.272		0.294		0.222	
	Change in R^2	0.024		0.017		0.030		0.022	
	Adjusted R^2	0.198		0.255		0.227		0.202	
2	Constant		0.272		0.079		0.698		0.126
	MNE resources (lnTA)	0.174	0.002	0.148	0.010	0.157	0.270	0.172	0.007
	Country risk	-0.031	0.593	-0.050	0.371	-0.065	0.662	-0.031	0.631
	ln firm age	-0.079	0.086	-0.066	0.177	-0.112	0.261	-0.075	0.152
	Profitability	-0.483	<0.001	-0.580	<0.001	-0.479	0.001	-0.478	<0.001
	Type of firm	0.083	0.066	0.090	0.062	-0.188	0.052	0.134	0.009
	Population	-0.088	0.374	0.015	0.911	-0.238	0.250	-0.070	0.534
	GDP	0.137	0.143	-0.013	0.921	0.273	0.167	0.113	0.288
	GDP per capita growth (%)	-0.042	0.359	-0.055	0.248	0.006	0.953	-0.065	0.208
	ln TA x country risk	0.011	0.819	-0.054	0.273	0.084	0.484	0.000	0.996
	R^2	0.214		0.275		0.299		0.222	
	Change in R^2	0.000		0.003		0.004		0.000	
	Adjusted R^2	0.197		0.255		0.223		0.199	

Pre-GFC, there is a deviation from the base case, with the move from significant to marginally significant positive relationship between AMNE *resources* and *internationalisation network options*.

The negative relationship between *profitability* and *internationalisation network options* remains significant and negative for all AMNE models.

There is a marginally significant positive relationship between AMNE *type of firm* and *internationalisation network options* in the base case. This relationship remains positive and marginal in model excluding South Africa as a host country but becomes significant post-GFC. However, pre-GFC, the relationship is still marginal but negative which means that firms with manufacturing only and service only firms were more likely to internationalise with intra-firm network options compared to firms that have both manufacturing and service offerings. The mixed results suggest avenues for future research direct at internationalisation and network diversity.

6.6.5.3 Comparison of EMNE and AMNE robustness tests

Younger EMNEs were more likely to internationalise with intra-firm network options in African countries when South Africa was removed. While this relationship remained for EMNEs in all models, it became insignificant for AMNEs in the robustness models. The result suggest that *firm age* is relevant in understanding EMNE internationalisation using network options

When South Africa as host country was removed, the relationship between *type of firm* remained for AMNEs. There was no relationship between *type of firm* for EMNEs in the base case and the model excluding South Africa as host country. This result suggests the *type of firm* is important for AMNEs, as AMNEs with both manufacturing and service offerings were more likely to internationalise with intra-firm network options than their manufacturing only and service only counterparts.

Post-GFC, the relationship between *MNE resources* and *internationalisation network options* has higher beta values for EMNEs than AMNEs. This means that EMNEs with limited resources internationalise with more extra-firm network options than AMNEs.

In addition, the relationship between *profitability* and *internationalisation network options* has lower beta values for EMNEs than AMNEs. Therefore, less profitable EMNEs were more likely to internationalise with more intra-firm network options than less profitable AMNEs.

The EMNE and AMNE models (post-GFC) also differ in the significant relationships between *firm age* for the former and *type of firm* for the latter. While younger EMNEs were more likely to internationalise with intra-firm network options, AMNEs with both manufacturing and service offerings were more likely to internationalise with intra-firm network options.

6.7 Conclusion

64% of EMNEs originated from South Africa, 19% from other African countries and remaining 17% originated from six different emerging markets. Most of the AMNEs originated from USA and Europe.

EMNEs and AMNEs internationalised into 32 similar African countries. While EMNEs internationalised into 3 other African countries, AMNEs internationalised into an additional 10 African countries.

Independent sample t-tests indicated that AMNEs in the population had significantly higher firm resources than EMNEs. This result remained for EMNEs and AMNEs in the *firm age* groups less than 51 years and the age group more than 101 years. In the firm age group, less than 51 years, EMNEs internationalised with more extra-firm network options than AMNEs. In contrast, EMNEs internationalised with more intra-firm networks than AMNEs in the firm age group, above 101 years.

The regression results indicated support for hypothesis 1 (EMNEs) and 2 (AMNEs). While EMNEs with limited resources internationalised with more extra-firm network options, AMNEs with resources internationalised with more intra-firm network options. However, the beta values for EMNEs were higher than those for AMNEs. This means that EMNEs with limited resources internationalised with more extra-firm network options than AMNEs.

In addition, less profitable EMNEs and AMNEs were more likely to internationalise with more intra-firm networks than their counterparts. However, like the *resource* relationship, the *profitability* relationship is more negative for EMNEs than AMNEs.

The relationships between *internationalisation network options* and *type of firm* as well as *country risk* were different for EMNEs and AMNEs respectively. While EMNEs were more likely to internationalise with more intra-firm networks with increasing country risk, there was no relationship for AMNEs. AMNEs that had both manufacturing and service offerings were more likely to internationalise with intra-firm networks than firms with only manufacturing or only service offerings. In contrast there was no relationship between *type of firm* and *internationalisation network options* for EMNEs in the base case.

Hypothesis 3 suggested that EMNEs would mitigate *country risk* by internationalising using lower resource commitment non-equity linked extra-firm networks. There was no support for hypothesis 3.

Hypothesis 4 suggested that AMNEs would mitigate *country risk* by internationalising with lower resource commitment, non-equity linked extra-firm networks. There was no support for hypothesis 4.

Robustness tests indicated that there was no support for hypothesis 1 and 3 for South African MNE internationalisation. In addition, there was no support for hypothesis 1 and 3 when internationalisation entries into South Africa are removed. Compared to the base case that had support for hypothesis 1 and no support for hypothesis 3, the result

suggests a sensitivity for internationalisation of South African MNEs and EMNE internationalisation into South Africa. This implies that there is a home/host country influence on EMNE internationalisation using network options.

The robustness of EMNE results was evaluated for the effect of the 2008 global financial crisis (GFC). The population of EMNEs that internationalised pre-GFC was not sufficient for accurate regression analysis. Post-GFC, like base case, hypothesis 1 was supported and hypothesis 3 remained unsupported.

The EMNE *firm age* relationship with *internationalisation network options* remained negative but the significance level did change amongst the different robustness models. EMNE *profitability* remained negative in both the base case and post-GFC analysis but was insignificant in the South African MNE model. The relationship became positive in the model excluding South Africa as host country.

AMNE base case results remained robust for all variables except for the relationship between *firm age* and *internationalisation network options* which changed from marginally significant to insignificant in the remaining models. There appeared to be a cautious approach to internationalisation post-GFC, as the beta values for *MNE resources* and *internationalisation network options* were lower when compared to each other and the base case.

Additional significant relationships were *type of firm* which is positively related to *internationalisation network options* in only the EMNE robustness model for South African EMNEs. Yet, the relationship was significant for AMNEs in all models except that of internationalisation pre-GFC. The positive relationship implied that firms with both manufacturing and service offerings were more likely to internationalise with more intra-firm networks than only service firms and only manufacturing firms.

Pre-GFC, the relationship between *type of firm* and *internationalisation network options* is reversed where AMNEs with only manufacturing or only service firms were more likely to internationalise with more intra-firm network options than firms with both offerings.

The unexpected and sometimes varying results for firm age, profitability, type of firm and country risk in the different EMNE and AMNE models, suggests a need for further research.

Chapter 7 Discussion of results

7.1 Introduction

The current study assessed the relationships between MNE resources, internationalisation using networks and institutional country risk, using the lens of real options theory. The research problem was situated in the context of internationalisation using network options into African countries. The state of development of institutions differs between the different African countries, which makes it an ideal setting for a real options study. This is because options provide the firm with obligation free rights that can be exercised based on changes in the investment environment.

Using the real options theory lens, I proposed that the MNE is a network that has options via its equity-linked firms but also through the non-equity linked firms. The MNE non-equity linked extra-firm network, conceptualised in this study, has not been investigated as internationalisation options. But it too, has resource and risk mitigation options.

I compared the internationalisation of both AMNEs and EMNEs as there has been debate about the theoretical merit of the associated differences in internationalisation (Hernandez & Guillén, 2018). But scholars (Luiz et al., 2017; Ozkan et al., 2022) have concluded that the typical EMNE has less traditional resources (both tangible and intangible) than their advanced market counterparts. Resources are fundamental to internationalisation (Hill et al., 1990). Moreover there is a trend in the literature (Khanna & Palepu, 2000a; Lei & Chen, 2011; Li et al., 2019; Liu et al., 2021) that typically EMNEs with limited resources, have mostly internationalised through non-equity partnerships in emerging markets like non-equity linked extra-firm networks. Therefore I proposed:

Hypothesis 1: EMNEs with their limited resources, are likely to use extra-firm networks more than intra-firm network when they internationalise into African countries

In contrast the literature (Belderbos et al., 2018; Kottaridi et al., 2019; Tong et al., 2008) indicated that AMNEs with resources, internationalised using mostly equity partnerships like the equity linked intra-firm networks (in this study). Consequently, I proposed:

- *Hypothesis 2: AMNEs with their significant resources, are likely to use intra-firm networks more than extra-firm networks when they internationalise into African countries*

Using the lens real options theory, I proposed that both EMNE and AMNE network internationalisation options, would be negatively moderated by country risk (indicated in hypothesis 3 and 4).

- *Hypothesis 3: Country risk negatively moderates the relationship between EMNE resources and internationalisation through networks into African countries, so that as risk increases. so does the propensity to use options of extra- rather than intra-firm networks*
- *Hypothesis 4: Country risk negatively moderates the relationship between AMNE resources and internationalisation through networks into African countries, so that as risk increases. so does the propensity to use less risky resource options of extra- rather than intra-firm networks*

The regression results (see Chapter 6) indicated support for the hypothesised relationships between *MNE resources* and *internationalisation network options* for both EMNEs and AMNEs. While EMNE internationalisation network options increased with increasing country risk, AMNEs were unaffected. There was no support for hypothesis 3 and 4. In addition, there were significant relationships between control variables *profitability*, *firm age* and *type of firm* with *internationalisation network options* for both EMNEs and AMNEs.

This chapter first discusses the theoretical implications of the *Network index* developed in this study. Consequently, the extension of the definition of the MNE as a network that has equity and non-equity linked options is discussed. It is then followed by the discussion of network development with firm age and the relationship between MNE

resources and internationalisation network options for EMNEs and AMNEs. The effect of network diversity and possible inherent risk mitigation in the intra- and extra-firm network options is examined. Lastly the measurement of country risk is reviewed relative to the lack of support of negative moderation in the relationships for both EMNEs and AMNEs. The chapter concludes with a summary of the insights of this study.

7.2 Measurement of the MNE intra- and extra-firm networks and network index

Most network literature (see appendix 1) has measured networks using case studies and primary surveys. While primary survey studies (Bai et al., 2021; Hajdini & Windsperger, 2019; Ripollés & Blesa, 2020) did use quantitative methods, this study makes a methodological contribution by the quantitative measurement of networks using archival, financial data.

The proxy for the intra-firm network was equity investment and following Cuypers & Martin (2010), *total equity* was used to measure equity investment. Non-equity costs associated with research and development (Alinaghian & Razmdoost, 2018; Bajeux-Besnainou et al., 2010; Moog & Soost, 2022; Ripollés & Blesa, 2020; Shih & Aaboen, 2019), distribution (Chipp et al., 2019; Kumar et al., 2022; Morrish & Earl, 2021), logistics (Parmigiani & Rivera-Santos, 2015), external marketing (Liu et al., 2021; Ripollés & Blesa, 2020) and promotion (Parmigiani & Rivera-Santos, 2015) non-equity networks were used as a proxy for the extra-firm network. This is because these networks were identified in literature as competitiveness-relevant networks.

A comparative measurement was required as both AMNEs and EMNEs were likely to have intra- and extra-firm networks. Hence, the *Network Index* was developed for the measurement of intra- and extra-firm internationalisation options. It was developed from an adaptation of the Michaely index, which measures country level import/export trade specialisation (Laursen, 2015). Consequently, the *Network Index* extends the application

of the comparative index from country level to the firm level and allows for a richer understanding of the MNE as a network.

7.3 MNE as a network

With the empirical evaluation of MNE resources, intra- and extra- firm network internationalisation, I extend the understanding of resource and risk mitigation options. This understanding is important for MNE management decisions on equity-linked intra-firm and non-equity linked extra-firm network internationalisation relative to resource and risk benefit.

The MNE has been defined as a network of subsidiaries where the firm has equity investment in these subsidiaries (Belderbos et al., 2020; Song et al., 2015; Trigeorgis & Reuer, 2017). But the MNE has also been defined as an entity where relationships like those with service providers are associated with cross-border internationalisation (Cuervo-Cazurra, Mudambi, & Pedersen, 2018). The current study consolidates these views by extending the definition of the MNE as not only a network of equity linked firms (intra-firm) but also a non-equity linked network of relationships (extra-firm). Thus, the extension of the MNE network modifies the conversation from the MNE as an equity-linked portfolio to an entity that also includes the non-equity linked extra-firm network.

This broader definition contributes to the ongoing debate regarding the extension of benefits of internalisation of firm activities beyond the boundaries of the firm to its external network (Forsgren & Holm, 2022). Traditionally internalisation was understood as being confined to the activities within the boundaries of the ownership (Buckley & Casson, 2009; Kottaridi et al., 2019; Rasciute & Downward, 2017). However, recent work suggests that internalisation benefits also extend to inter-firm (Narula et al., 2019) or to business groups (Gaur et al., 2019). Those are akin to non-equity linked extra-firm networks in this study. The current study supports the view of the MNE as an integrator of internal and external networks (Narula et al., 2019). Therefore, internalisation benefits can exist in both the firms intra- and extra-firm network. This insight is especially important as it highlights the potential for internationalisation by firms with fewer

resources because they can use extra- rather than intra-firm networks to support internationalisation.

I highlight specifically the potential for resource access in the MNE intra- and extra-firm network with the corresponding benefits of internalisation which probably aid in risk mitigation. It turns out to be central for explaining AMNE and EMNE internationalisation into African countries. There is literature on firm resources (Barney, 1991; Breuillot et al., 2022) and internalisation (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019). But the fact that a resource base can be intra or extra the firm with corresponding internalisation benefits offers important avenues for the internationalisation of less resourced firms and future study by scholars.

7.4 Network development with firm age

Given the understanding of the MNE as a network, it follows that both intra- and extra-firm networks develop over time. Older MNEs may have a more established extra-firm network, thus internationalisation via the extra-firm network option may arise from the availability of this option. In contrast younger MNEs with limited extra-firm networks are likely to internationalise using the available intra-firm network option. This result is suggestive of the understanding of the firm's networks (Gaur et al., 2014; Luo et al., 2021; Luo & Tung, 2007) and the availability of options (McGrath et al., 2004).

There is a stronger relationship between *firm age* and *internationalisation network options* for EMNEs than AMNEs. This result may be associated with the view that firm resources include networks (Gaur et al., 2014; Luo et al., 2021; Luo & Tung, 2007). Since AMNEs trump EMNEs in resources (measured as total assets in this study), network resources are likely to be particularly important for EMNEs. Older EMNEs have been found to have more established supplier, distributor and customer networks (conceptualised in this study as non-equity linked extra-firm networks) than their younger counterparts (Kumar et al., 2020). Still, real options literature (Bernardo & Chowdhry, 2002) suggests that younger firms may not be familiar with resources at their disposal

where younger firms have more options to explore relative to older firms with the same resource complement. But the results of the current study contradict Bernardo and Chowdry (2002) as it suggests that EMNEs develop the extra-firm network options over time and not for lack of understanding of the available options.

The advanced market firm extra-firm network literature (Ferrucci et al., 2018; Rubino et al., 2019) has focussed on small and medium enterprises rather than AMNEs. However, like older EMNEs, older AMNEs are also likely to have more established networks than their younger counterparts.

Therefore the negative relationship of *firm age* and *internationalsation network options* for both EMNEs and AMNEs (albeit stronger for the former) can be reflective of the availability of the extra-firm network option and is aligned with the selection of options available to the firm (McGrath et al., 2004). Consequently, the result adds a dimension to the firm age/internationalisation literature (Hernandez & Guillén, 2018) with the element of extra-firm network internationalisation over time. The findings suggest the need for further research focussing on MNE age and internationalisation network options.

7.5 Resources, profitability and internationalisation network options

There has been debate (Hernandez & Guillén, 2018) on the theoretical differences in EMNE and AMNE internationalisation. Much of this debate likely arises from literature (Cuervo-Cazurra, Mudambi, & Pedersen, 2018; Hernandez & Guillén, 2018; X. Li et al., 2018) that evaluates either EMNE or AMNE internationalisation and makes inferences about the counterpart. I systematically assessed EMNE and AMNE internationalisation into African countries and extend the limited literature on EMNE and AMNEs in the same context (Liedong et al., 2020). In contrast to the existing studies that compare internationalisation into advanced markets (De Beule et al., 2014), this study contributes to the EMNE and AMNE internationalisation literature with the direct comparison of internationalisation into emerging markets of African countries.

The emerging market context is important because it is known that EMNEs compensate for their resource limitations in emerging markets with their ability to better operate in such environments (Cuervo-Cazurra, Ciravegna, et al., 2018; Cuervo-Cazurra & Genc, 2008; Gaur et al., 2014). This ability arises from the similarity of the environment with the EMNE home country.

I confirmed that EMNEs not only lagged AMNEs in resources, but EMNEs with limited resources internationalised with more extra-firm network options than AMNEs. The EMNE internationalisation with more extra-firm networks is aligned with network literature (Lei & Chen, 2011; Li et al., 2019; Liu et al., 2021) but extends the literature with the comparison to AMNEs.

I found support for internationalisation of AMNEs with resources using equity-linked internationalisation. The result is aligned with Tong et al., (2008)'s findings that larger firms had more resources to support equity-linked internationalisation.

Consequently, the results of the current study highlight the potential for internationalisation of EMNEs and AMNEs using intra- and extra-firm networks, based on MNE resources. While firms with limited resources are likely to internationalise with extra-firm network options, firms with resources are likely to internationalise with intra-firm network options. In comparison EMNEs lagged AMNEs in resources, therefore, it follows that EMNEs with resource constraints internationalise with more extra-firm network options, than AMNEs.

In contrast to the MNE resource relationship, profitability was correlated with internationalisation network options for both EMNEs and AMNEs. The nature of the correlation indicates that EMNEs and AMNEs with low profitability were more likely to internationalise with more intra-firm networks. However, this correlation was not evident for EMNEs when internationalisation into South Africa was excluded. The profitability of these EMNEs was positively correlated with internationalisation network options, meaning profitable firms were linked with internationalisation with more intra-firm

networks. The mixed finding is probably aligned with the trade off between borrowing or leverage and profitability (Abel, 2018; Shyam-Sunder & Myers, 1999), benefits of options exercise for strategic investment, (McGrath et al., 2004) or competitive pre-emption (Chi et al., 2019) and portfolio logic (Luiz & Barnard, 2022).

The trade off between borrowing or leverage and profitability literature (Abel, 2018; Shyam-Sunder & Myers, 1999) indicates that firms with lower profitability have higher leverage. From this literature, the results can be explained with the view that firms with lower profitability are likely to internationalise with intra-firm networks using leverage. This may occur because firms may forego the lack of profitability in the short term in the pursuit of it in the longer term (Sharma & Erramilli, 2004). In this manner, the firm may secure a competitive advantage due to proprietary access or strategic investments (McGrath et al., 2004). Moreover, firms exercise options as competitive pre-emption, where first movers in a market can gain advantage and deter competition (Chi et al., 2019). Therefore, the benefit of strategic investments could motivate both EMNEs and AMNEs to exercise options like resource intensive equity-linked intra-network option, despite having lower profitability.

This internationalisation strategy remained pre- and post global financial crisis for AMNEs, even though credit supply of some banks post global financial crisis were reduced (Kapan & Minoiu, 2018). This could be due to a possible commitment to invest with limited flexibility to change options (Chi et al., 2019). EMNEs could not be evaluated pre-global financial crisis. However, post global financial crisis, like AMNEs, EMNEs with low profitability internationalised using intra-firm networks.

Conversely EMNEs and AMNEs with higher *profitability* internationalise with more extra-firm networks. Given the characteristics of options which include preference (McGrath et al., 2004), upside potential and downside risk mitigation (Chi et al., 2019), the finding suggests profitable MNE's portfolio of options (Kogut & Kulatilaka, 1994) may include extra-firm network options. By exercising the extra-firm network option, the firms benefit from the "invest and see approach" (Dixit & Pindyck, 1994). In this approach the firms

make a small investment which provides the flexibility to increase/decrease/abandon (Ahsan & Musteen, 2011; Chi et al., 2019; Ipsmiller et al., 2019; Trigeorgis & Reuer, 2017) the investment depending on changes in the investment environment.

Most of the EMNEs in the model excluding South Africa as host country, originated from South Africa. These firms internationalised with more intra-firm networks when the firm was more profitable. This finding may be aligned with South African firm's portfolio approach to investment into other African countries (Luiz & Barnard, 2022). This is because South Africa as a home country, has experienced institutional instability and the South African MNEs may seek out more stable African countries (Luiz & Barnard, 2022). Therefore, the result suggests that South African MNEs may take a more cautious investment approach.

In sum, the profitability and intra- and extra-firm internationalisation network options relationship could be a function of strategic investment whether it is competitive advantage, wait and see approach and/or portfolio-based strategy. The mixed results indicate avenues for strategic investment and a need for future research evaluating profitability and internationalisation network options.

7.6 Diversity of the MNE network

Counter to expectations, the relationship between EMNE and AMNE resources and internationalisation network options, were unaffected by increases in country risk. However, EMNEs internationalised with more intra-firm networks with increasing country risk. This result adds support to EMNE understanding of emerging markets (Cuervo-Cazurra & Genc, 2008) and network diversity (Rivera-Santos et al., 2012) with corresponding internalisation benefits (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019). For AMNEs, the result may arise from the ability to withstand risk with significant resources (Smit et al., 2017), the benefits of network diversity and the corresponding internalisation benefits.

Real options theory suggests that firms will use lower resource commitment options when risk increases (Ahsan & Musteen, 2011). At first glance, EMNE internationalisation with more intra-firm networks with increasing country risk, appears to contradict real options theory. I argue that the developing state of country institutions may not be perceived as a risk to EMNEs because EMNEs have developed the capability to operate in emerging markets due to similarities in home country (Cuervo-Cazurra, Ciravegna, et al., 2018; Cuervo-Cazurra & Genc, 2008; Gaur et al., 2014).

The capabilities may include the benefit of internalisation of activities associated with equity ownership (Buckley & Casson, 2009; Kottaridi et al., 2019; Rasciute & Downward, 2017). By internalising functions, the firm is less likely to be dependent on the institutional country functions. I found evidence of network diversity in South African MNEs as MNEs with both manufacturing and service offerings were more likely to internationalise with intra-firm network options than those that offered just service followed by those that had only manufacturing offerings. The finding adds focus to network literature (Rivera-Santos et al., 2012) where network member firms from different sectors provided institutional functions to other firms in markets with developing country institutions. It follows that businesses that offer the combination of manufacturing and service offerings may be able to provide multiple functions in the network. This is likely to be an advantage when the network members intend to provide institutional functions to other members in African host countries with developing institutions.

While it appears that EMNEs increase investment with increasing country risk, the result is likely due to the understanding of the emerging markets. Therefore, the developing state of institutions is probably not viewed as a risk. Furthermore, diversity of the network is also likely to be linked to the ability to navigate emerging markets which offers opportunities for MNEs in the mitigation of risk associated with developing country institution.

Like EMNEs, AMNEs also did not behave as predicted by advanced market real options literature (Belderbos et al., 2014; Belderbos et al., 2018, 2020; Belderbos & Zou, 2007).

The AMNE *resources* and *internationalisation network options* relationship was unaffected by *country risk.* However, the finding adds focus to real options literature (Smit et al., 2017) where large firms (with resources) can withstand risk associated with limited or developing institutions. In addition, the ability to withstand risk may also arise from the diversity and/or internalisation benefits of the AMNE network.

While the internationalisation of AMNEs from different sectors has not been observed, I found that AMNEs with both manufacturing and service offerings were more likely to internationalise with intra-firm network options than those that offered just service or only manufacturing offerings. Therefore, the finding extends the benefits of network diversity from the context of emerging market firms (Rivera-Santos et al., 2012) to intra-firm networks and the advanced market firms.

The lack of moderation may be the result of internalisation of functions, which may include institutional functions within the intra-firm network. With internalisation of institutional functions, AMNEs would not be affected by changes in country risk associated with developing institutions. Thus, the result adds focus to internalisation benefits of equity linked internal firm network (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019).

However, pre-global financial crisis, the AMNEs with both manufacturing and service offerings internationalised with more extra-firm network options. This result provides support for internalisation benefits in the external, extra-firm network (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019). This may play out as extra-firm network internationalisation of firms from different sectors, which substitute for institutional functions that are developing in emerging markets. However, the phenomenon has previously been noted amongst emerging market firms (Rivera-Santos et al., 2012), therefore, this result extends the phenomenon to AMNEs.

In sum, firm diversity in both the intra- and extra-firm network has internalisation benefits and this could be a risk mitigating measure. This is evident in the type of firms, where

firms with both manufacturing and service offerings in both intra- and extra-firm networks were unaffected by country risk. This finding highlights important strategies for risk mitigation and future research should investigate the diversity of both intra- and extra-firm networks.

7.7 Group level MNE data

The lack of support of moderation by country risk may also arise from the use of group level MNE data in lieu of the absence of the subsidiary level data. The group level data could contribute to the dilution of the direct effect of country risk. Therefore, future research should replicate the study using subsidiary level data.

7.8 Measurement of country risk

Another explanation for the lack of moderation is the measurement of country risk. The construct was measured using aggregate of World Governance Indicators (WGI) which indicated the state of development of country institutions. The database has been used by several scholars (Buckley et al., 2020; Cuervo-Cazurra & Genc, 2008; Fisch, 2011; Sartor & Beamish, 2018) to measure constructs associated with country risk. But it is possible that it is not an adequate reflection of country risk in African countries.

Other scholars have made use of the Political Constraints Index (Henisz, 2000; Slangen, 2013), which measures government stability. It is assumed that firms like stability. But, in Zimbabwe government stability or the same government has not been beneficial to the economy and business investment (World Bank, 2023). Hence, this index is also limited in capturing country risk in African countries.

Yet other scholars use the Index of Economic Freedom (Losada-Otálora & Andonova, 2022), as well as Economic Freedom of the World Index (Smit et al., 2017). Like the WGI database, these databases make use of public sector data. Moreover, some of these databases like Index of Economic Freedom are used in the compilation of the WGI data (Kaufmann et al., 2007). Consequently, the limitation of the study is the measurement of

risk, as this did not show up as significant, so future work should seek to improve measures of risk.

7.9 Conclusion

The findings of this study indicate that the MNE can be understood as a network that includes both equity-linked intra-firm and non-equity linked extra-firm networks. This understanding then extends the MNE portfolio of options to include the options in both networks with corresponding resource and risk options. This definition also adds to the conversation of the internalisation benefits of the intra- and extra-firm network.

I found that older firms were more likely to internationalise with extra-firm network options. This result may be attributed to the availability of these networks as options for internationalisation compared to the younger counterparts that may not have developed these networks. Thus, the relationship with firm age may be attributed to the development of extra-firm networks over time.

I confirmed empirically that EMNEs lagged AMNEs in resources, which is aligned with extant literature (Luiz et al., 2017; Ozkan et al., 2022). The differences in EMNE and AMNE resources influenced the internationalisation using intra- and extra-firm network options. While EMNEs with limited resources were more likely to internationalise with extra-firm network options, AMNEs with resources are more likely to internationalise with intra-firm network options. Therefore, this study highlights the potential of resource access in the MNE intra- and extra-firm network. This finding raises many questions about EMNE/AMNE internationalisation using network options like the effect of non-contracted extra-firm networks and different types of resources (example financial versus technological).

Both AMNEs and EMNEs (except South African MNEs where relationship is reversed) with low profitability were likely to internationalise with intra-firm network options. The mixed result is aligned with the trade-off between profitability and leverage (Abel, 2018; Shyam-Sunder & Myers, 1999) for the potential upside of strategic investment (McGrath

et al., 2004) and a portfolio approach to investment (Luiz & Barnard, 2022). Both EMNEs and AMNEs with may forego profitability in the short term and use leverage to fund intra-firm network internationalisation as a strategic investment with upside potential. The difference in South African MNEs may be due to the portfolio approach to investment into other African countries, arising from the institutional instability in their home country (Luiz & Barnard, 2022). The mixed results indicate avenues for strategic investment and a need for future research evaluating profitability and internationalisation network options.

Network diversity appeared to be important in internationalisation using network options for both EMNEs and AMNEs. The internalisation benefits of the intra- and extra-firm network (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019) may have inherent risk mitigation which is likely when firms provide institutional functions that are still developing in African countries. This finding may explain the lack of moderation by country risk as both EMNEs and AMNEs did not exercise lower resource commitment extra-firm network options in the presence of increasing country.

Another explanation for the lack of moderation is the dilution effect associated with using group level MNE data as well as the measurement used for country risk. Therefore, future research should focus on subsidiary level data.

In addition, the lack of moderation may be associated with the measurement of country risk. The construct was operationalised using data from the WGI database, which measures the state of development of country institutions using publicly available data and insights from experts (Kaufmann et al., 2007). Other databases like Political Constraints Index (Henisz, 2000; Slangen, 2013) and Index of Economic Freedom (Losada-Otálora & Andonova, 2022), as well as Economic Freedom of the World Index (Smit et al., 2017) have been used to measure the state of development of country institutions. But these databases also use public data. In addition, some of the databases like Index of Economic Freedom are used in the compilation of the WGI data (Kaufmann

et al., 2007). Therefore, the limitation of the study is the measurement of risk, as this did not show up as significant, so future work should seek to improve measures of risk.

Chapter 8 Contribution, limitations and future research

8.1 Introduction

The current study has made theoretical, methodological and management contributions. Like all studies, the current study had limitations which provide avenues for further research. The contributions are first discussed and is then followed by limitations, future research and lastly concluding remarks.

8.2 Contribution

8.2.1 Theoretical contribution

I contribute to internationalisation literature by extending the definition of the MNE to not only include its assets and equity linked intra-firm network but also the relationships in the non-equity extra-firm network. This finding highlights the shifts in the boundaries of the firm corresponding to the increase in externalisation of firm activities. In addition, the extension of the definition is important as it highlights the potential for resource and risk mitigation options that exists in both intra- and extra-firm MNE networks.

I contribute to internationalisation literature by systematically comparing both EMNEs and AMNEs internationalisation into African countries. I empirically confirm that EMNEs lag AMNEs in resources. I extend real options theory to include the resource options of the intra- and extra-firm network. Internationalisation using non-equity linked extra-firm networks is particularly important for MNEs with limited resources.

In addition, I establish the boundary of real options theory, for risk mitigation when internationalising into emerging market African countries. This is because findings differed from the theory for both AMNEs and EMNEs. The ability to withstand country risk may arise from the access to resources for AMNEs versus EMNE ability to operate in emerging markets, combined with the inherent risk mitigation associated with network diversity and internalisation of possible institutional functions in the intra- and extra-firm network for both MNEs. Therefore, the study highlights the potential of network diversity and internalisation of functions in the intra- and extra-firm network (Asmussen et al.,

2022; Gaur et al., 2019; Narula et al., 2019) which could provide mitigation of risk associated with developing institutions.

8.2.2 Methodological contribution

Most of the extant network literature has either measured networks using case studies or primary survey. Even though the primary survey studies used quantitative measurements, this study provides a methodological contribution by quantitative measurement of networks using secondary data sourced from the firm annual reports.

Since both AMNEs and EMNEs had intra- and extra-firm networks, the study assessed comparative indexes (Adigwe, 2022; Laursen, 2015) which have been applied to country trade import/export specialisation. The Michaely index was adapted as it compares two characteristics which was important as MNEs were likely to have both intra- and extra-firm networks. The *Network Index* was developed to assess the internationalisation network option specialisation of the AMNE or EMNE relative to its advanced or emerging market peers. Therefore, this study also made a methodological contribution with the development of the *Network Index* and extension of comparative indexes from the country to firm level. Moreover, the *Network Index*, enables the quantitative measurement of the MNE as an entity that includes its assets and equity linked intra-firm network but also the relationships in the non-equity extra-firm network.

8.2.3 Management contribution

The insights of this study will help managers with the understanding of internationalisation into African countries using the firm's equity-linked intra- and non-equity-linked extra-firm network. Both networks have resource and risk mitigation implications.

Management should note that internationalisation with equity-linked intra-firm networks, not only requires resources for the internationalisation but also resources to withstand

risks in the developing institutions of the African host countries. In contrast non-equity linked extra-firm networks require less resource investment.

Both intra- and extra-firm network have the potential for inherent risk mitigation, and management should note the importance of network diversity. This is because different types of firms could provide functions that substitute for developing country institution functions. In this way management can internalise functions in not only the equity-linked network but also its extra-firm network, where the latter requires less resource commitment.

Thus, this study provides avenues for management strategies for internationalisation into African countries using the extra-firm network. This is likely to be especially important for the resource constrained firms. For the management of firms with resources, that intend to internationalise with equity linked intra-firm networks, the study highlights that resources are not only required for internationalisation into African countries, but resources are also required to withstand risk. Finally, management should note that diversity in types of firms in the network can provide the firm with ability to internalise functions in not only the equity-linked network but also the extra-firm non-equity linked network.

8.3 Research limitations and future research

8.3.1 Research design limitations

Publicly listed MNEs

I limited the research design to publicly listed MNEs. Listed companies tend to have greater resources. Therefore, it is likely that only the relatively well-resourced EMNEs were evaluated and not the less resourced EMNEs or EMNEs that are listed on underdeveloped stock exchanges (Barnard et al., 2023).

The study makes use of secondary data sourced from annual financial reports and it was highly dependent on the availability of complete data from annual firm reports. The final

population of EMNEs and AMNEs was within the range of other real options studies. albeit at the lower end. However, several firms from MNE population, sourced from Osiris and Who Owns Whom, did not have a comprehensive list of annual reports, accessible websites as well as unclear reporting of internationalisation into African countries. Email enquiries, where possible, were largely unsuccessful.

Combined, these two factors potentially limit the applicability of the research. Even the lesser-resourced EMNEs may have a threshold level of resources which could limit the comprehensive website information and/or resources to cater to email enquiries. Given that resources are central to the argument of the thesis, that bias is potentially of concern.

Non-financial extra-firm networks are not a reporting requirement. Consequently, reporting of informal non-financial extra-firm networks was not consistent across the entire population. For example, the South African firm, Bell Equipment declares community initiatives that can be social or relationship-based in the executive management address of its annual report. Comparably, the American firm, Rock Well Automation did not provide this type of information in its securities exchange filings. Accordingly, only formally contracted extra-firm networks have been measured in this study. MNEs with resource constraints are likely to be more dependent on non-financial extra-firm networks.

Therefore, an avenue for future research should assess less resourced MNEs as well as the importance of the non-financial extra-firm network in internationalisation.

EMNE population

Most of the EMNEs in the population originated from South Africa followed by MNEs from India. Given the significant Chinese FDI into African countries, the small representation of Chinese MNEs in the population could be of concern. However, this study excluded state owned firms which is likely the reason for small representation.

A limitation of the current study is that the EMNE population was dominated by South African MNEs. Future research should replicate the study in other emerging market host country contexts that are less dominated by a single country.

Group level MNE data

Group level MNE data was used in lieu of the absence of secondary level data. This data could have contributed to lack of support for negative moderation of the resource and internationalisation network options relations. Therefore, future research should focus on subsidiary level data.

Measurement of country risk

Following scholarship (Abdi & Aulakh, 2012; Cuervo-Cazurra & Genc, 2008; Fisch, 2011; Slangen & Beugelsdijk, 2010), the state of development of country institutions was used to measure country risk using data from the WGI database. Databases like Political constraints index (Henisz, 2000; Slangen, 2013) and Index of Economic Freedom (Losada-Otálora & Andonova, 2022), as well as Economic Freedom of the World Index (Smit et al., 2017) have been used to measure the state of development of country institutions. However, these databases, like WGI also use public data and some of the databases like Index of Economic Freedom are used in the compilation of the WGI data. Because there was no significant relationship with country risk, a limitation of the study is the measurement of risk using the state of development of country institutions in African countries. Therefore, future work should seek to improve measures of country risk.

Consideration of informal country institutions

The scope of this study was limited to the evaluation of country risk associated with level of development of formal country institutions. However, informal country institutions are important in the context of African countries. Informal country institutions include tribal structures (Barnard et al., 2017), informal economies (George et al., 2016) and indigenous societies (Garrone et al., 2019). The studies indicate that informal institutions also affect firm internationalisation.

From a network perspective, informal extra-firm networks are associated with communities (Chung & Tung, 2013; Prashantham et al., 2015) and non-profit organisations (Elg et al., 2015). Therefore, future research should evaluate the relationship between informal institutions and the link with informal networks.

8.3.2 Methodological limitations

Concerns could be raised on the proxies used for the quantitative measurement of equity-linked intra- and non-equity linked extra-firm networks using secondary data sourced from annual financial reports. Yet, both proxies were developed from an assessment of the networks identified in extant literature. The equity investment of the intra-firm network was developed from the assessment of real options literature. The non-equity linked extra-firm network was based on the extra-firm networks reported in network literature.

Future research using a primary survey research design will add to the findings of this study by firstly empirically confirming the index using primary data. Secondly the primary survey research design will address the limitations of secondary data in the measurement of informal extra-firm networks.

8.3.3 Firm age and network development

The findings suggest the need for further research focussing on MNE age and network development. It is likely that firms develop networks over time which raises questions about firm internationalisation strategies and intra- and extra-firm network development.

8.3.4 Firm profitability and networks

The results suggest the importance of investigating firm profitability and internationalisation network options. Future research evaluating the profitability and internationalisation network options of EMNEs and AMNE can provide an understanding of firms' risk appetite in terms short term losses, leverage about upside potential.

8.3.5 Network diversity and different types of resources

Network internationalisation has been used to mitigate risk by way of networks of firms from diverse sectors acting as informal institutions (Rivera-Santos et al., 2012) to compensate for the developing state of institutions in emerging markets. Consequently, future studies should focus on the network diversity as well the resources and functions each firm contributes. This line of research will also suggest management strategies for internationalisation using networks relative to the different resources and functions each firm brings to the table with corresponding risk mitigation benefits.

The current study only focussed on firm resource quantity. Consequently, future research should focus on the effect of the different types of resources and how they affect internationalisation network options exercise. This will augment the understanding of network formation, the resources each firm contributes, and the exercise of the intra- and extra- firm network internationalisation options.

8.4 Concluding remarks

With the empirical evaluation of the MNE resources, intra- and extra- firm network internationalisation, I extended the understanding of resource and risk mitigation network options. Correspondingly, the definition of the MNE as an equity linked portfolio was extended to include the non-equity linked extra-firm network. This highlighted the potential for resource access and risk mitigation in the MNE intra- and extra-firm network. Moreover, the MNE as a network of intra and extra-firm options highlights the benefits of internalisation. These benefits are not just “within” the MNE but is now an advantage of that may exist in its internal and external network MNE (Asmussen et al., 2022; Gaur et al., 2019; Narula et al., 2019).

The internationalisation options of the intra- and extra-firm network was important in explaining AMNE and EMNE internationalisation into African countries. Moreover, the comparison of AMNEs and EMNEs in the same context, meant that I could confirm that

EMNEs lag AMNEs in resources. The resources are important internationalisation using extra- and intra-firm options. EMNEs with limited resources internationalise with extra-firm networks and AMNEs with access to resources internationalise with intra-firm networks.

In contradiction to the proposed risk mitigation hypotheses, EMNEs and AMNEs did not internationalise with lower resource commitment of extra-firm networks. Both EMNEs and AMNEs did not appear to be negatively affected by increasing country risk. EMNEs internationalise with more intra-firm networks with increasing country risk. This finding is suggestive of EMNE capabilities in operating in emerging markets. Therefore, what is viewed as increasing country risk, may not be the same perception for an EMNE whose home country may be of similar level of development as the host country institution. In addition, the ability to operate in the emerging market African host countries may also be attributed to the ability to internalise activities in both the intra- and extra-firm network. This was evident in the relationship between type of firm and internationalisation network options. Internalisation of possible institutional functions within the intra- and extra-firm network can mitigate risk associated with developing institutions in Africa.

Consequently, this study establishes boundaries of real options theory in emerging markets of African countries. Thus, I echo the sentiment that research in the African context is ideal laboratory for understanding the boundaries of theories (Barnard et al., 2017). In addition, internationalisation network options relationships were influenced by South Africa as host country and South African MNE internationalisation into other African countries.

Firm age, profitability and type of firm are also important in internationalisation using network options into African countries. These relationships were not theorised but offer an opportunity for future research. Like all research, this study had limitations which also provide opportunities for future research.

References

Abdi, M., & Aulakh, P. S. (2012). Do country-level institutional frameworks and interfirm governance arrangements substitute or complement in international business relationships? *Journal of International Business Studies*, *43*(5), 477-497. https://doi.org/10.1057/jibs.2012.11

Abel, A. B. (2018). Optimal debt and profitability in the trade-off theory. *Journal of Finance*, *LXXIII*(1), 95-143.

Acquaah, M. (2009). International joint venture partner origin, strategic choice, and performance: A comparative analysis in an emerging economy in Africa. *Journal of International Management*, *15*(1), 46-60. https://doi.org/10.1016/j.intman.2008.06.001

Adcock, C., Eling, M., & Loperfido, N. (2015). Skewed distributions in finance and actuarial science: A review. *European Journal of Finance*, *21*(13-14), 1253-1281. https://doi.org/10.1080/1351847X.2012.720269

Adekoya, F. (2021). Poor infrastructure, inconsistent policies keeping factories idle. *The Guardian*. https://guardian.ng/business-services/industry/poor-infrastructure-inconsistent-policies-keeping-factories-idle/

Adigwe, E. O. (2022). A comparative analysis of competitive trade in a cluster market of the European Union: The Revealed Comparative Advantage (RCA) index. *Naše gospodarstvo/Our economy*, *68*(1), 14-24. https://doi.org/10.2478/ngoe-2022-0002

Adomako, S., Amankwah-Amoah, J., Debrah, Y. A., Khan, Z., Chu, I., & Robinson, C. (2021). Institutional voids, economic adversity and inter-firm cooperation in an emerging market: The mediating role of government R&D support. *British Journal of Management*, *32*(1), 40-58. https://doi.org/10.1111/1467-8551.12443

Afifi, A. A., & Elashoff, R. M. (1967). Missing observations in multivariate statistics: II. Point estimation in simple linear regression. *Journal of the American Statistical Association*, *62*(317), 10-29.

Aguinis, H., & Gottfredson, R. K. (2010). Best-practice recommendations for estimating interaction effects using moderated multiple regression. *Journal of Organizational Behavior*, *31*, 776-786. https://doi.org/10.1002/job.686

Ahsan, M., & Musteen, M. (2011). Multinational enterprises' entry mode strategies and uncertainty: A review. *International Journal of Management Reviews*, *13*, 376-392. https://doi.org/10.1111/j.1468-2370.2010.00296.x

Alaydi, S., Buck, T., & Tang, Y. K. (2021). Strategic responses to extreme institutional challenges: An MNE case study in the Palestinian mobile phone sector. *International Business Review*, *30*, 1-16. https://doi.org/10.1016/j.ibusrev.2021.101806

Alcácer, J., Cantwell, J., & Piscitello, L. (2016). Internationalization in the information age: A new era for places, firms, and international business networks? *Journal of Internalisation Business Studies*, *47*, 499–512.

Aleksynska, M., & Havrylchyk, O. (2013). FDI from the south: The role of institutional distance and natural resources. *European Journal of Political Economy*, *29*, 38-53. https://doi.org/10.1016/j.ejpoleco.2012.09.001

Alinaghian, L., & Razmdoost, K. (2018). How do network resources affect firms' network-oriented dynamic capabilities? *Industrial Marketing Management*, *71*, 79-94. https://doi.org/10.1016/j.indmarman.2017.12.006

Antwi, S. K. (2015). Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European Journal of Business Management*, *7*(3), 217-225. www.iiste.org

Asmussen, C., Chi, T., & Narula, R. (2022). Quasi-internalization, recombination advantages, and global value chains: Clarifying the role of ownership and control. *Journal of Internalisation Business Studies*, *53*, 1747–1765.

Bai, W., Johanson, M., Oliveira, L., & Ratajczak-Mrozek, M. (2021). The role of business and social networks in the effectual internationalization: Insights from emerging market SMEs. *Journal of Business Research*, *129*, 96-109. https://doi.org/10.1016/j.jbusres.2021.02.042

Bajeux-Besnainou, I., Joshi, S., & Vonortas, N. (2010). Uncertainty, networks and real options. *Journal of Economic Behavior and Organization*, *75*(3), 523-541. https://doi.org/10.1016/j.jebo.2010.06.001

Barnard, H. (2014). Chapter 10: Migrating EMNCs and the theory of the multinationals. In A. Cuervo-Cazurra & R. Ramamurti (Eds.), *Understanding multinationals from emerging markets* (pp. 195-223). Cambridge University Press.

Barnard, H. (2021). Host countries' level of development and internationalization from emerging markets: A typology of firm strategies. *Journal of International Management*. https://doi.org/10.1016/j.intman.2021.100828

Barnard, H., Amaeshi, K., & Vaaler, P. M. (2023). Theorizing international business in Africa: A roadmap. *Journal of International Business Policy*.

Barnard, H., Cuervo-Cazurra, A., & Manning, S. (2017). Africa business research as a laboratory for theory-building: Extreme conditions, new phenomena, and alternative paradigms of social relationships. *Management and Organization Review*, *13*(3), 467-495. https://doi.org/10.1017/mor.2017.34

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120.

Belderbos, R., Tong, T. W., & Shubin, W. (2014). Multinationality and downside risk: The roles of option portfolio and organization. *Strategic Management Journal*, *35*, 88-106. https://doi.org/10.1002/smj

Belderbos, R., Tong, T. W., & Wu, S. (2018). Multinational investment and the value of growth options: Alignment of incremental strategy to environmental uncertainty. *Strategic Management Journal*, *40*(1), 127-152. https://doi.org/10.1002/smj.2969

Belderbos, R., Tong, T. W., & Wu, S. (2020). Portfolio configuration and foreign entry decisions: A juxtaposition of real options and risk diversification theories. *Strategic Management Journal*, *41*(7), 1191-1209. https://doi.org/10.1002/smj.3151

Belderbos, R., & Zou, J. (2007). On the growth of foreign affiliates: Multinational plant networks, joint ventures, and flexibility. *Journal of International Business Studies*, *38*(7), 1095-1112. https://doi.org/10.1057/palgrave.jibs.8400319

Bernardo, A. E., & Chowdhry, B. (2002). Resources, real options, and corporate strategy. *Journal of Financial Economics*, *63*(2), 211-234. https://doi.org/10.1016/S0304-405X(01)00094-0

Berns, J. P., Gondo, M., & Sellar, C. (2021). Whole country-of-origin network development abroad. *Journal of International Business Studies*, *52*(3), 479-503. https://doi.org/10.1057/s41267-020-00379-x

Bono, J. E., & McNamara, G. M. (2011). Publishing in AMJ-Part 2: Research design. *Academy of Management Journal*, *54*(4), 657-660.

Breuillot, A., Bocquet, R., & Favre-Bonté, V. (2022). Navigating the internationalization process: Strategic resources for early internationalizing firms. *Journal of International Entrepreneurship*, *20*(2), 282-315. https://doi.org/10.1007/s10843-022-00308-z

Brouthers, K. D. (2013a). Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies*, *44*(1), 1-13. https://doi.org/10.1057/jibs.2012.22

Brouthers, K. D. (2013b). A retrospective on: Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies*, *44*(1), 14-22. https://doi.org/10.1057/jibs.2012.23

Brouthers, K. D., Brouthers, L. E., & Werner, S. (2008). Real options, international entry mode choice and performance. *Journal of Management Studies*, *45*(5), 936-960. https://doi.org/10.1111/j.1467-6486.2007.00753.x

Bryman, A. (1984). The debate about quantitative and qualitative research: A question of method or epistemology? *The British Journal of Sociology*, *35*(1), 75-92. https://doi.org/10.2307/590553

Buch, C. M., & Lipponer, A. (2007). FDI versus exports: Evidence from German banks. *Journal of Banking and Finance*, *31*(3), 805-826. https://doi.org/10.1016/j.jbankfin.2006.07.004

Buckley, P. J., & Casson, M. C. (2009). The internalisation theory of the multinational enterprise: A review of the progress of a research agenda after 30 years. *Journal of International Business Studies*, *40*(9), 1563-1580. https://doi.org/10.1057/jibs.2009.49

Buckley, P. J., Chen, L., Clegg, L. J., & Voss, H. (2016). Experience and FDI risk-taking: A microfoundational reconceptualization. *Journal of International Management*, *22*(2), 131-146. https://doi.org/10.1016/j.intman.2016.02.001

Buckley, P. J., Chen, L., Clegg, L. J., & Voss, H. (2020). The role of endogenous and exogenous risk in FDI entry choices. *Journal of World Business*, *55*, 1-11. https://doi.org/10.1016/j.jwb.2019.101040

Buckley, P. J., Munjal, S., Enderwick, P., & Forsans, N. (2016). Cross-border acquisitions by Indian multinationals: Asset exploitation or asset augmentation? *International Business Review*, *25*(4), 986-996. https://doi.org/10.1016/j.ibusrev.2015.10.006

Chari, M., & Acikgoz, S. (2016). What drives emerging economy firm acquisitions in tax havens? *Journal of Business Research*, *69*(2), 664-671. https://doi.org/10.1016/j.jbusres.2015.08.034

Chen, T. J. (2003). Network resources for internationalization: The case of Taiwan's electronics firms*. *Journal of Management Studies*, *40*(5).

Chen, Z., & Dar-Brodeur, A. (2020). Trade and labour standards: Will there be a race to the bottom? *Canadian Journal of Economics*, *53*(3), 916-948. https://doi.org/10.1111/caje.12450

Chi, T., Li, J., Trigeorgis, L. G., & Tsekrekos, A. E. (2019). Real options theory in international business. *Journal of International Business Studies*, *50*(4), 525-553. https://doi.org/10.1057/s41267-019-00222-y

Chipp, K., Wocke, A., Strandberg, C., & Chiba, M. (2019). Overcoming African institutional voids: Market entry with networks. *European Business Review*, *31*(3), 304-316. https://doi.org/10.1108/EBR-01-2018-0029

Cho, K. R., & Lee, J. (2004). Firm characteristics and MNC's intra-network knowledge sharing. *Management International Review*, *44*(4), 435-455.

Choi, S. J., Liu, H., Yin, J., Qi, Y., & Lee, J. Y. (2021). The effect of political turnover on firms' strategic change in the emerging economies: The moderating role of political connections and financial resources. *Journal of Business Research*, *137*, 255-266. https://doi.org/10.1016/j.jbusres.2021.08.034

Chua, W. F. (2019). Radical developments in accounting thought? Reflections on positivism, the impact of rankings and research diversity. *Behavioral Research in Accounting*, *31*, 3-20. https://doi.org/10.2308/bria-52377

Chung, C. C., Lee, S. H., Beamish, P. W., & Isobe, T. (2010). Subsidiary expansion/contraction during times of economic crisis. *Journal of International Business Studies*, *41*(3), 500-516. https://doi.org/10.1057/jibs.2009.72

Chung, H. F. L., & Tung, R. L. (2013). Immigrant social networks and foreign entry: Australia and New Zealand firms in the European Union and Greater China. *International Business Review*, *22*(1), 18-31. https://doi.org/10.1016/j.ibusrev.2012.01.005

Contractor, F. J., Lahiri, S., Elango, B., & Kundu, S. K. (2014). Institutional, cultural and industry related determinants of ownership choices in emerging market FDI acquisitions. *International Business Review*, *23*(5), 931-941. https://doi.org/10.1016/j.ibusrev.2014.02.005

Contractor, F. J., Nuruzzaman, N., Dangol, R., & Raghunath, S. (2021). How FDI inflows to emerging markets are influenced by country regulatory factors: An exploratory study. *Journal of International Management*, *27*(1), 1-20. https://doi.org/10.1016/j.intman.2021.100834

Cuervo-Cazurra, A., Ciravegna, L., Melgarejo, M., & Lopez, L. (2018). Home country uncertainty and the internationalization-performance relationship: Building an uncertainty management capability. *Journal of World Business*, *53*(2), 209-221. https://doi.org/10.1016/j.jwb.2017.11.002

Cuervo-Cazurra, A., & Genc, M. (2008). Transforming disadvantages into advantages: Developing-country MNEs in the least developed countries. *Journal of International Business Studies*, *39*(6), 957-979. https://doi.org/10.1057/palgrave.jibs.8400390

Cuervo-Cazurra, A., Mudambi, R., & Pedersen, T. (2018). The boundaries of the firm in global strategy. *Global Strategy Journal*, *8*, 211-219. https://doi.org/10.1002/gsj.1208

Cui, L., & Xu, Y. (2019). Outward FDI and profitability of emerging economy firms: Diversifying from home resource dependence in early stage internationalization. *Journal of World Business*, *54*(4), 372-386. https://doi.org/10.1016/j.jwb.2019.04.002

Cuypers, I. R., & Martin, X. (2010). What makes and what does not make a real option? A study of equity shares in international joint ventures. *Journal of International Business Studies*, *41*(1), 47-69. https://doi.org/10.1057/jibs.2009.17

De Beule, F., Elia, S., & Piscitello, L. (2014). Entry and access to competencies abroad: Emerging market firms versus advanced market firms. *Journal of International Management*, *20*(2), 137-152. https://doi.org/10.1016/j.intman.2013.05.002

Demirbag, M., McGuinness, M., & Altay, H. (2010). Perceptions of institutional environment and entry mode. *Management International Review*, *50*(2), 207-240. https://doi.org/10.1007/s11575-010-0028-1

Desgagné, A., & Lafaye de Micheaux, P. (2018). A powerful and interpretable alternative to the Jarque–Bera test of normality based on 2nd-power skewness and kurtosis, using the Rao's score test on the APD family. *Journal of Applied Statistics*, *45*(13), 2307-2327. https://doi.org/10.1080/02664763.2017.1415311

Dhanaraj, C., & Khanna, T. (2011). Transforming mental models on emerging markets. *Academy of Management Learning and Education*, *10*(4), 684-701. https://doi.org/10.5465/amle.2011.0511

Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton University Press.

Doh, J., Rodrigues, S., Saka-Helmhout, A., & Makhija, M. (2017). International business responses to institutional voids. *Journal of International Business Studies*, *48*(3), 293-307. https://doi.org/10.1057/s41267-017-0074-z

Dubini, P., & Aldrich, H. (1991). Personal and extended networks are central to the entrepreneurial process. *Journal of Business Venturing*, *6*(5), 305-313. https://doi.org/10.1016/0883-9026(91)90021-5

Dullien, S., Kotte, D. J., Márquez, A., & Priewe, J. (2010). *The financial and economic crisis of 2008-2009 and developing countries*.

Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, *32*(4), 1155-1179. https://doi.org/10.5465/AMR.2007.26586086

Elg, U., Ghauri, P. N., & Schaumann, J. (2015). Internationalization through sociopolitical relationships: MNEs in India. *Long Range Planning*, *48*(5), 334-345. https://doi.org/10.1016/j.lrp.2014.09.007

Elg, U., Ghauri, P. N., & Tarnovskaya, V. (2008). The role of networks and matching in market entry to emerging retail markets. *International Marketing Review*, *25*(6), 674-699. https://doi.org/10.1108/02651330810915583

Estrin, S., Nielsen, B. B., & Nielsen, S. (2017). Emerging market multinational companies and internationalization: The role of home country urbanization. *Journal of International Management*, *23*(3), 326-339. https://doi.org/10.1016/j.intman.2016.11.006

Feinberg, S. E., & Gupta, A. K. (2009). MNC subsidiaries and country risk: Internationalization as a safeguard against weak external institutions. *Academy of Management Journal*, *52*(2), 381-399.

Ferrucci, L., Gigliotti, M., & Runfola, A. (2018). Italian firms in emerging markets: Relationships and networks for internationalization in Africa. *Journal of Small Business and Entrepreneurship*, *30*(5), 375-395. https://doi.org/10.1080/08276331.2017.1412611

Fisch, J. H. (2011). Real call options to enlarge foreign subsidiaries - The moderating effect of irreversibility on the influence of economic volatility and political instability on subsequent FDI. *Journal of World Business*, *46*(4), 517-526. https://doi.org/10.1016/j.jwb.2010.10.012

Fisch, J. H., & Zschoche, M. (2011). Do firms benefit from multinationality through production shifting. *Journal of International Management*, *17*(2), 143-149. https://doi.org/10.1016/j.intman.2011.01.004

Fisch, J. H., & Zschoche, M. (2012a). The effect of operational flexibility on decisions to withdraw from foreign production locations. *International Business Review*, *21*(5), 806-816. https://doi.org/10.1016/j.ibusrev.2011.09.006

Fisch, J. H., & Zschoche, M. (2012b). The role of operational flexibility in the expansion of international production networks. *Strategic Management Journal*, *33*, 1540-1556. https://doi.org/10.1002/smj

Forsgren, M., & Holm, U. (2022). Controlling without owning – owning without controlling: A critical note on two extensions of internalization theory. *Journal of Internalisation Business Studies*, *53*, 1734–1746.

Francioni, B., Vissak, T., & Musso, F. (2017). Small italian wine producers' internationalization: The role of network relationships in the emergence of late starters. *International Business Review*, *26*(1), 12-22. https://doi.org/10.1016/j.ibusrev.2016.05.003

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, *51*, 115-134. https://doi.org/10.1037/0022-0167.51.1.115

Garrone, P., Piscitello, L., & D'Amelio, M. (2019). Multinational enterprises and the provision of collective goods in developing countries under formal and informal institutional voids. The case of electricity in sub-saharan Africa. *Journal of International Management*, *25*(2). https://doi.org/10.1016/j.intman.2018.09.002

Gaur, A. S., Kumar, V., & Singh, D. (2014). Institutions, resources, and internationalization of emerging economy firms. *Journal of World Business*, *49*(1), 12-20. https://doi.org/10.1016/j.jwb.2013.04.002

Gaur, A. S., Pattnaik, C., Singh, D., & Lee, J. Y. (2019). Internalization advantage and subsidiary performance: The role of business group affiliation and host country characteristics. *Journal of Internalisation Business Studies*, *50*, 1253–1282.

George, G., Corbishley, C., Khayesi, J. N. O., Haas, M. R., & Tihanyi, L. (2016). From the editors bringing Africa in: Promising directions for management research. *Academy of Management Journal*, *59*(2), 377-393. https://doi.org/10.5465/amj.2016.4002

Getachew, Y. S., Fon, R., & Chrysostome, E. (2023). On the location choices of African multinational enterprises: Do supranational economic institutions matter? *Journal of International Business Policy*.

Ghauri, P. N., Tasavori, M., & Zaefarian, R. (2014). Internationalisation of service firms through corporate social entrepreneurship and networking. *International Marketing Review*, *31*(6), 576-600. https://doi.org/10.1108/IMR-09-2013-0196

Giroud, A., & Ivarsson, I. (2020). *World investment report 2020: International production beyond the pandemic* (9789211129854). (United Nations Conference on Trade and Development, Issue.

Grant, R. M., & Venzin, M. (2009). Strategic and organisational challenges of internationalisation in financial services. *Long Range Planning*, *42*(5-6), 561-587. https://doi.org/10.1016/j.lrp.2009.10.005

Guercini, S., & Milanesi, M. (2019). Newness and heritage in business networks: Case analysis of university spin-offs. *Industrial Marketing Management*, *80*, 139-148. https://doi.org/10.1016/j.indmarman.2017.12.013

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis* (Eighth edition ed.).

Hajdini, I., & Windsperger, J. (2019). Contractual restraints and performance in franchise networks. *Industrial Marketing Management*, *82*, 96-105. https://doi.org/10.1016/j.indmarman.2019.02.011

Hanson, W. E., Plano Clark, V. L., Petska, K. S., Creswell, J. W., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, *52*(2), 224-235. https://doi.org/10.1037/0022-0167.52.2.224

Henisz, W. J. (2000). The institutional environment for multinational investment. *Journal of Law, Economics & Organization*, *16*, 334–364.

Hernandez, E., & Guillén, M. F. (2018). What's theoretically novel about emerging-market multinationals? *Journal of International Business Studies*, *49*(1), 24-33. https://doi.org/10.1057/s41267-017-0131-7

Hill, C. W. L., Hwang, P., & Kim, W. C. (1990). An eclectic theory of the choice of international entry mode. *Strategic Management Journal*, *11*(2), 117-128. https://doi.org/10.1002/smj.4250110204

Historical exchange-rates. Fxtop company. https://fxtop.com/en/historical-exchange-rates

Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, *43*(3), 249-267. https://doi.org/10.2307/1556394

IFRS. (2023). *International financial reporting standards*. https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/#use-of-ifrs-accounting-standards-by-jurisdiction

Ioulianou, S., Trigeorgis, L., & Driouchi, T. (2017). Multinationality and firm value: The role of real options awareness. *Journal of Corporate Finance*, *46*, 77-96. https://doi.org/10.1016/j.jcorpfin.2017.06.011

Ipsmiller, E., Brouthers, K. D., & Dikova, D. (2019). 25 years of real option empirical research in management. *European Management Review*, *16*(1), 55-68. https://doi.org/10.1111/emre.12324

Ito, K., & Rose, E. L. (2010). The implicit return on domestic and international sales: An empirical analysis of US and Japanese firms. *Journal of International Business Studies*, *41*(6), 1074-1089. https://doi.org/10.1057/jibs.2009.104

Jeong, W. S. (2016). Types of foreign networks and internationalisation performance of Korean SMEs. *Multinational Business Review*, *24*(1), 47-61.

Jiang, M. S., Aulakh, P. S., & Pan, Y. (2009). Licensing duration in foreign markets: A real options perspective. *Journal of International Business Studies*, *40*(4), 559-577. https://doi.org/10.1057/jibs.2008.71

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*(2), 386-408. https://doi.org/10.1097/EDE.0b013e3181

Jonker, J., & Pennink, B. (2010). *The essence of research methodology: A concise guide for master and PhD students in management science*. Springer.

Kano, L., & Verbeke, A. (2019). Theories of the multinational firm: A microfoundational perspective. *Global Strategy Journal*, *9*(1), 117-147. https://doi.org/10.1002/gsj.1332

Kapan, T., & Minoiu, C. (2018). Balance sheet strength and bank lending: Evidence from the global financial crisis. *Journal of Banking and Finance*, *92*, 35–50.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2006). *Governance matters VI: Aggregate and individual governance indicators for 1996-2005*.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2007). *Governance matters VI: Aggregate and individual governance indicators 1996–2006*.

Khanna, T., & Palepu, K. (1997). Emerging markets. *Harvard Business Review*.

Khanna, T., & Palepu, K. (2000a). The future of business groups in emerging markets: Long-run evidence from Chile. *Academy of Management Journal*, *43*(3), 268-285. https://doi.org/10.2307/1556395

Khanna, T., & Palepu, K. (2000b). Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *Journal of Finance*, *55*(2), 867-891. https://doi.org/10.1111/0022-1082.00229

Khanna, T., & Rivkin, J. W. (2001). Estimating the performance effects of business groups in emerging markets. *Strategic Management Journal*, *22*(1), 45-74. https://doi.org/10.1002/1097-0266(200101)22:1<45::AID-SMJ147>3.0.CO;2-F

Kish, L. (1959). Some statistical problems in research design. *American Sociological Review*, *24*(3), 328-338. https://www.jstor.org/stable/2089381?seq=1&cid=pdf-

Klingebiel, R., & Adner, R. (2015). Real options logic revisited: The performance effects of alternative resource allocation regimes. *Academy of Management Journal*, *58*(1), 221-241. https://doi.org/10.5465/amj.2012.0703

Knight, G. A., & Kim, D. (2009). International business competence and the contemporary firm. *Journal of International Business Studies*, *40*(2), 255-273. https://doi.org/10.1057/palgrave.jibs.8400397

Kogut, B., & Kulatilaka, N. (1994). Operating flexibility, global manufacturing, and the option value of a Multinational network. *Management Science*, *40*(1), 123-139. https://doi.org/10.1287/mnsc.40.1.123

Kolk, A., & Rivera-Santos, M. (2018). The state of research on Africa in business and management: Insights from a systematic review of key international journals. *Business and Society*, *57*(3), 415-436. https://doi.org/10.1177/0007650316629129

Kottaridi, C., Giakoulas, D., & Manolopoulos, D. (2019). Escapism FDI from developed economies: The role of regulatory context and corporate taxation. *International Business Review*, *28*(1), 36-47. https://doi.org/10.1016/j.ibusrev.2018.06.004

Kumar, P., Liu, X., & Zaheer, A. (2022). How much does the firm's alliance network matter? *Strategic Management Journal*, *43*(8), 1433-1468. https://doi.org/10.1002/smj.3379

Kumar, V., Singh, D., Purkayastha, A., Popli, M., & Gaur, A. (2020). Springboard internationalization by emerging market firms: Speed of first cross-border acquisition. *Journal of International Business Studies*, *51*(2), 172-193. https://doi.org/10.1057/s41267-019-00266-0

Laanti, R., Gabrielsson, M., & Gabrielsson, P. (2007). The globalization strategies of business-to-business born global firms in the wireless technology industry. *Industrial Marketing Management*, *36*(8), 1104-1117. https://doi.org/10.1016/j.indmarman.2006.10.003

Lahiri, S. (2017a). Impact of industry sector on corporate diversification and firm performance: Evidence from Indian business groups. *Canadian Journal of Administrative Sciences*, *34*(1), 77-88. https://doi.org/10.1002/cjas.1333

Lahiri, S. (2017b). The moderating influence of market potential and prior experience on the governance quality-equity participation relationship: Evidence from acquisitions in BRIC. *Management Decision*, *55*(1), 203-217. https://doi.org/10.1108/MD-06-2016-0408

Lahiri, S., Kundu, S., & Munjal, S. (2021). Processes underlying interfirm cooperation. *British Journal of Management*, *32*(1), 7-19. https://doi.org/10.1111/1467-8551.12476

Laursen, K. (2015). Revealed comparative advantage and the alternatives as measures of international specialization. *Eurasian Business Review*, *5*(1), 99-115. https://doi.org/10.1007/s40821-015-0017-1

Lee, B. H., Struben, J., & Bingham, C. B. (2018). Collective action and market formation: An integrative framework. *Strategic Management Journal*, *39*(1), 242-266. https://doi.org/10.1002/smj.2694

Lee, J. W., Abosag, I., & Kwak, J. (2012). The role of networking and commitment in foreign market entry process: Multinational corporations in the Chinese automobile industry. *International Business Review*, *21*(1), 27-39. https://doi.org/10.1016/j.ibusrev.2011.10.002

Lee, S.-H., & Makhija, M. (2009). The effect of domestic uncertainty on the real options value of international investments. *Journal of International Business Studies*, *40*(3), 405-420. https://doi.org/10.1057/jibs.2008.79

Lei, H. S., & Chen, Y. S. (2011). The right tree for the right bird: Location choice decision of Taiwanese firms' FDI in China and Vietnam. *International Business Review*, *20*(3), 338-352. https://doi.org/10.1016/j.ibusrev.2010.10.002

Li, J., & Li, Y. (2010). Flexibility versus commitment: MNEs' ownership strategy in China. *Journal of International Business Studies*, *41*(9), 1550-1571. https://doi.org/10.1057/jibs.2010.25

Li, J., Meyer, K. E., Zhang, H., & Ding, Y. (2018). Diplomatic and corporate networks: Bridges to foreign locations. *Journal of International Business Studies*, *49*(6), 743-752. https://doi.org/10.1057/s41267-017-0098-4

Li, X., Quan, R., Stoian, M. C., & Azar, G. (2018). Do MNEs from developed and emerging economies differ in their location choice of FDI? A 36-year review. *International Business Review*, *27*(5), 1089-1103. https://doi.org/10.1016/j.ibusrev.2018.03.012

Li, Y., Herrnandez, E., & Gwon, S. (2019). When do ethnic communities affect foreign location choice? Dual entry strategies of Korean banks in China. *Academy of Management Journal*, *62*(1), 172-195.

Liedong, T. A., Peprah, A. A., Amartey, A. O., & Rajwani, T. (2020). Institutional voids and firms' resource commitment in emerging markets: A review and future research agenda. *Journal of International Management*, *26*(3), 100756-100756. https://doi.org/10.1016/j.intman.2020.100756

Liu, L., Henley, J., & Mahdi, M. (2021). Foreign interfirm networks and internationalization: Evidence from sub-saharan Africa. *Journal of International Management*, *27*, 1-18. https://doi.org/10.1016/j.intman.2020.100810

Lo, F. Y., Chiao, Y. C., & Yu, C. M. J. (2016). Network and institutional effects on SMEs' entry strategies. *Management International Review*, *56*(4), 531-563. https://doi.org/10.1007/s11575-016-0289-4

López-Duarte, C., & Vidal-Suárez, M. M. (2010). External uncertainty and entry mode choice: Cultural distance, political risk and language diversity. *International Business Review*, *19*(6), 575-588. https://doi.org/10.1016/j.ibusrev.2010.03.007

Losada-Otálora, M., & Andonova, V. (2022). Escaping from institutional weakness by EM-MNEs: The role of firms' resources vulnerability. *European Business Review*, *34*(4), 492-520. https://doi.org/10.1108/EBR-07-2021-0147

Lu, J., Liu, X., Wright, M., & Filatotchev, I. (2014). International experience and FDI location choices of Chinese firms: The moderating effects of home country government support and host country institutions. *Journal of International Business Studies*, *45*(4), 428-449. https://doi.org/10.1057/jibs.2013.68

Luiz, J., Stringfellow, D., & Jefthas, A. (2017). Institutional complementarity and substitution as an internationalization strategy: The emergence of an African multinational giant. *Global Strategy Journal*, *103*(7), 233-240. https://doi.org/10.1002/gsj

Luiz, J. M., & Barnard, H. (2022). Home country (in)stability and the locational portfolio construction of emerging market multinational enterprises. *Journal of Business Research*, *151*, 17-32.

Lukka, K. (2010). The roles and effects of paradigms in accounting research. *Management Accounting Research*, *21*(2). https://doi.org/10.1016/j.mar.2010.02.002

Luo, Y., Maksimov, V., & Bu, J. (2021). Making geographic dispersion work for emerging market MNEs. *Journal of International Management*, *27*(3). https://doi.org/10.1016/j.intman.2020.100800

Luo, Y., & Tung, R. L. (2007). International expansion of emerging market enterprises: A springboard perspective. *Journal of International Business Studies*, *38*(4), 481-498. https://doi.org/10.1057/palgrave.jibs.8400275

Maciel, A. F., & Fischer, E. (2020). Collaborative market driving: How peer firms can develop markets through collective action. *Journal of Marketing*, *84*(5), 41-59. https://doi.org/10.1177/0022242920917982

Majchrzak, A. (2015). A review of interorganizational collaboration dynamics. *Journal of Management*, *41*(5), 1338-1360. https://doi.org/10.1177/0149206314563399

Manikandan, K. S., & Ramachandran, J. (2015). Beyond institutional voids: Business groups, incomplete markets, and organizational form. *Strategic Management Journal*, *36*, 598-617. https://doi.org/10.1002/smj

Manolova, T. S., Manev, I. M., & Gyoshev, B. S. (2014). Friends with money? Owner's financial network and new venture internationalization in a transition economy. *International Small Business Journal*, *32*(8), 944-966. https://doi.org/10.1177/0266242613482482

Mantere, S. (2013). Reasoning in organization science. *Academy of Management Review*, *38*(1), 70-89.

Mas-ruiz, F. J., Ruiz-conde, E., & Calderón-martínez, A. (2018). Strategic group influence on entry mode choices in foreign markets. *International Business Review*, *27*(6), 1259-1269. https://doi.org/10.1016/j.ibusrev.2018.05.007

McGrath, R. G., Ferrier, W. J., & Mendelow, A. L. (2004). Real options as engines of choice and heterogeneity. *Academy of Management Review*, *29*(1), 86-101. https://doi.org/10.5465/AMR.2004.11851720

McGuire, J. B., James, B. E., & Papadopoulos, A. (2016). Do your findings depend on your data(base)? A comparative analysis and replication study using the three most widely used databases in international business research. *Journal of International Management*, *22*(2), 186-206. https://doi.org/10.1016/j.intman.2016.03.001

Memon, M. A., Cheah, J. H., Ramayah, T., Ting, H., Chuah, F., & Cham, T. H. (2019). Moderation analysis: Issues and guidelines. *Journal of Applied Structural Equation Modeling*, *3*(1), i-xi. https://doi.org/10.47263/jasem.3(1)01

Merck. (2023, 2023). *Historical milestones*. merckgroup.com

Meyer, K. E., Estrin, S., Bhaumik, S. K., & Peng, M. W. (2009). Institutions, resources, and entry strategies in emerging economies. *Strategic Management Journal*, *30*, 61-80. https://doi.org/10.1002/smj

Mizik, N., & Jacobson, R. (2003). Trading off between value creation and value appropriation: The financial implications of shifts in strategic emphasis. *Journal of Marketing*, *67*(1), 63-76.

Moog, P., & Soost, C. (2022). Does team diversity really matter? The connection between networks, access to financial resources, and performance in the context of university spin-offs. *Small Business Economics*, *58*(1), 323-351. https://doi.org/10.1007/s11187-020-00412-1

Morrish, S. C., & Earl, A. (2021). Networks, institutional environment and firm internationalization. *Journal of Business and Industrial Marketing*, *36*(11), 2037-2048. https://doi.org/10.1108/JBIM-05-2019-0230

Narula, R., Asmussen, C. G., Chi, T., & Kundu, S. K. (2019). Applying and advancing internalization theory: The multinational enterprise in the twenty-first century. *Journal of Internalisation Business Studies*, *50*, 1231–1252.

Nguyen, Q. T. K., Almodóvar, P., & Wei, Z. (2022). Intra-firm and arm's length export propensity and intensity of MNE foreign subsidiaries. *Journal of Business Research*, *145*, 288-308. https://doi.org/10.1016/j.jbusres.2022.02.062

Nuruzzaman, N., Singh, D., & Gaur, A. S. (2019). Institutional support, hazards and internationalization of emerging market firms. *Global Strategy Journal*, *10*, 361-385. https://doi.org/10.1002/gsj.1365

O'Gorman, C., & Evers, N. (2011). Network intermediaries in the internationalisation of new firms in peripheral regions. *International Marketing Review*, *28*(4), 340-364. https://doi.org/10.1108/02651331111149930

Ofori-Dankwa, J., & Julian, S. D. (2013). Dynamism, capital structure, and performance in a sub-saharan economy: Extending the institutional difference hypothesis. *Organization Science*, *24*(5), 1422-1438. https://doi.org/10.1287/orsc.1120.0789

Ozkan, K. S. L., Khan, H., Deligonul, S., Yeniyurt, S., Gu, Q., Cavusgil, E., & Xu, S. (2022). Race for market share gains: How emerging market and advanced economy MNEs perform in each other's turf. *Journal of Business Research*, *150*, 208-222. https://doi.org/10.1016/j.jbusres.2022.04.040

Pallant, J. (2016). *SPSS Survival manual: A step by step guide to data analysis using IBM SPSS* (6th ed.). McGraw-Hill.

Pantzalis, C., Simkins, B. J., & Laux, P. A. (2001). Operational hedges and the foreign exchange exposure of U.S. multinational corporations. *Journal of International Business Studies*, *32*(4), 793-812. https://doi.org/10.1057/palgrave.jibs.8490995

Parmigiani, A., & Rivera-Santos, M. (2015). Sourcing for the base of the pyramid: Constructing supply chains to address voids in subsistence markets. *Journal of Operations Management*, *33-34*, 60-70. https://doi.org/10.1016/j.jom.2014.10.007

Percoco, M. (2016). Strategic planning and institutional collective action in italian cities. *Public Management Review*, *18*(1), 139-158. https://doi.org/10.1080/14719037.2014.969758

Petrou, A. P. (2009). Foreign market entry strategies in retail banking: Choosing an entry mode in a landscape of constraints. *Long Range Planning*, *42*(5-6), 614-632. https://doi.org/10.1016/j.lrp.2009.09.001

Pinkham, B. C., & Peng, M. W. (2017). Overcoming institutional voids via arbitration. *Journal of International Business Studies*, *48*, 344-359. https://doi.org/10.1057/s41267-016-0026-z

Prashantham, S., Dhanaraj, C., & Kumar, K. (2015). Ties that bind: Ethnic ties and new venture internationalization. *Long Range Planning*, *48*(5), 317-333. https://doi.org/10.1016/j.lrp.2015.02.005

Pratt, M. G., Kaplan, S., & Whittington, R. (2019). Editorial essay: The tumult over transparency: Decoupling transparency from replication in establishing trustworthy qualitative research*. *Administrative Science Quarterly*, 1-19. https://doi.org/10.1177/0001839219887663

Procher, V. D., & Engel, D. (2018). The investment-divestment relationship: Resource shifts and intersubsidiary competition within MNEs. *International Business Review*, *27*(3), 528-542. https://doi.org/10.1016/j.ibusrev.2017.10.004

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network nevel: A review of the empirical literature on whole networks. *Journal of Management*, *33*(3), 479-516. https://doi.org/10.1177/0149206307302554

Provan, K. G., Kenis, P., Shaver, J. M., Flyer, F., Provan, K. G., Fish, A., Sydow, J., Tan, D., Meyer, K. E., Cho, K. R., & Lee, J. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Management*, *18*(4), 435-455. https://doi.org/10.1177/0149206307302554

Ragozzino, R., Reuer, J. J., & Trigeorgis, L. (2016). Real options in strategy and finance: Current gaps and future linkages. *Academy of Management Perspectives*, *30*(4), 428-440. https://doi.org/10.5465/amp.2014.0153S

Rangan, S., & Sengul, M. (2009). Information technology and transnational integration: Theory and evidence on the evolution of the modern multinational enterprise. . *Journal of International Business Studies*, *40*(9), 1496-1514.

Rasciute, S., & Downward, P. (2017). Explaining variability in the investment location choices of MNEs: An exploration of country, industry and firm effects. *International Business Review*, *26*(4), 605-613. https://doi.org/10.1016/j.ibusrev.2016.12.002

Redvers, L. (2011). Angola not for faint-hearted firms. *Mail & Guardian*. https://mg.co.za/article/2011-11-25-angola-not-for-fainthearted-firms/

Ren, M., Manning, S., & Vavilov, S. (2019). Does state ownership really matter? The dynamic alignment of China's resource environment and firm internationalization strategies. *Journal of International Management*, *25*. https://doi.org/10.1016/j.intman.2019.02.001

Reuer, J. J., & Tong, T. W. (2005). Real options in international joint ventures. *Journal of Management*, *31*(3), 403-423. https://doi.org/10.1177/0149206304272184

Ricard, A., Shimizu, K., & Vieu, M. (2021). Deepening the timing dimension of emerging market multinational companies' internationalization – An exploratory perspective. *Journal of International Management*, *27*, 1-18. https://doi.org/10.1016/j.intman.2020.100799

Ripollés, M., & Blesa, A. (2020). And yet, non-equity cooperative entries do improve international performance: Uncovering the role of networks' social capital. *Small Business Economics*, *55*(3), 761-776. https://doi.org/10.1007/s11187-019-00186-1

Rivera-Santos, M., & Rufín, C. (2010). Global village vs. small town: Understanding networks at the base of the pyramid. *International Business Review*, *19*(2), 126-139. https://doi.org/10.1016/j.ibusrev.2009.07.001

Rivera-Santos, M., Rufín, C., & Kolk, A. (2012). Bridging the institutional divide: Partnerships in subsistence markets. *Journal of Business Research*, *65*(12), 1721-1727. https://doi.org/10.1016/j.jbusres.2012.02.013

Rosa, B., Gugler, P., & Verbeke, A. (2020). Regional and global strategies of MNEs: Revisiting Rugman & Verbeke (2004). *Journal of International Business Studies*, *51*, 1045-1053. https://doi.org/10.1057/s41267-020-00347-5

Rubino, M., Vitolla, F., & Garzoni, A. (2019). Network contract and internationalization: Evidence from Italian firms. *Management Decision*, *57*(11), 2911-2939. https://doi.org/10.1108/MD-01-2018-0041

Rugman, A. M., & Verbeke, A. (2004). A perspective on regional and global strategies of multinational enterprises. *Journal of International Business Studies*, *35*(1), 3-18. https://doi.org/10.1057/palgrave.jibs.8400073

Sandberg, S. (2013). Emerging market entry node pattern and experiential knowledge of small and medium-sized enterprises. *International Marketing Review*, *30*(2), 106-129. https://doi.org/10.1108/02651331311314547

Sartor, M. A., & Beamish, P. W. (2018). Host market government corruption and the equity-based foreign entry strategies of multinational enterprises. *Journal of International Business Studies*, *49*(3), 346-370. https://doi.org/10.1057/s41267-017-0115-7

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson Education Limited.

Schellenberg, M., Harker, M. J., & Jafari, A. (2018). International market entry mode - A systematic literature review. *Journal of Strategic Marketing*, *26*(7), 601-627. https://doi.org/10.1080/0965254X.2017.1339114

Schwab, K. (2018). *The global competitiveness report* (World Economic Forum, Issue.

Schwab, K. (2019). *The global competitiveness report* (World Economic Forum, Issue. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

Schwab, K., & Zahidi, S. (2020). *The global competitiveness report: How countries are performing on the road to recovery* (World Economic Forum, Issue. www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf

Selnes, F., & Sallis, J. (2003). Promoting relationship learning. *Journal of Marketing*, *67*(3), 80-95. https://doi.org/10.1509/jmkg.67.3.80.18656

Sharma, V. M., & Erramilli, M. K. (2004). Resource-based explanation of entry mode choice. *Journal of Marketing*, 1-17.

Shaver, J. M. (2013). Do we really need more entry mode studies? *Journal of International Business Studies*, *44*(1), 23-27. https://doi.org/10.1057/jibs.2012.24

Shih, T., & Aaboen, L. (2019). The network mediation of an incubator: How does it enable or constrain the development of incubator firms' business networks? *Industrial Marketing Management*, *80*, 126-138. https://doi.org/10.1016/j.indmarman.2017.12.002

Shukla, D. M., & Akbar, M. (2018). Diffusion of internationalization in business group networks: Evidence from India. *Management Decision*, *56*(2), 406-420. https://doi.org/10.1108/MD-10-2016-0741

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, *51*, 219-244.

Siemens. (2019). *Annual Report 2019 Siemens*. https://new.siemens.com/global/en/company/investor-relations/events-publications-ad-hoc.html#QuarterlyandAnnualResults

Slangen, A. H. L. (2013). Greenfield or acquisition entry? The roles of policy uncertainty and MNE legitimacy in host countries. *Global Strategy Journal*, *3*(3), 262-280. https://doi.org/10.1111/j.2042-5805.2013.01056.x

Slangen, A. H. L., & Beugelsdijk, S. (2010). The impact of institutional hazards on foreign multinational activity: A contingency perspective. *Journal of International Business Studies*, *41*(6), 980-995. https://doi.org/10.1057/jibs.2010.1

Slangen, A. H. L., & van Tulder, R. J. M. (2009). Cultural distance, political risk, or governance quality? Towards a more accurate conceptualization and measurement of external uncertainty in foreign entry mode research. *International Business Review*, *18*(3), 276-291. https://doi.org/10.1016/j.ibusrev.2009.02.014

Smit, H., Pennings, E., & Van Bekkum, S. (2017). Real options and institutions. *Journal of International Business Studies*, *48*(5), 620-644. https://doi.org/10.1057/s41267-016-0055-7

Song, S. (2013). FDI structure, investment specificity, and multinationality value under host market uncertainty. *Management International Review*, *53*(6), 795-817. https://doi.org/10.1007/s11575-013-0181-4

Song, S. (2014a). Subsidiary divestment: The role of multinational flexibility. *Management International Review*, *54*(1), 47-70. https://doi.org/10.1007/s11575-013-0198-8

Song, S. (2014b). Unfavorable market conditions, institutional and financial development, and exits of foreign subsidiaries. *Journal of International Management*, *20*(3), 279-289. https://doi.org/10.1016/j.intman.2013.10.007

Song, S., Lee, S. H., & Makhija, M. (2015). Operational hedging in foreign direct investments under volatile and divergent exchange rates across countries. *Journal of World Business*, *50*(3), 548-557. https://doi.org/10.1016/j.jwb.2014.08.012

Song, S., Makhija, M., & Lee, S.-H. (2014). Within-country growth options versus across-country switching options in foreign direct investment. *Global Strategy Journal*, *4*(2), 127-142. https://doi.org/10.1111/j.2042-5805.2014.1073.x

Song, S., Makhija, M., & Lee, S. (2008). Growth and switching options in foreign direct investment. *Academy of Management Annual Meeting Proceedings*, 1-6.

Stoian, M. C., Rialp, J., & Dimitratos, P. (2017). SME networks and international performance: Unveiling the significance of foreign market entry mode. *Journal of Small Business Management*, *55*(1), 128-148. https://doi.org/10.1111/jsbm.12241

Surdu, I., Mellahi, K., & Glaister, K. W. (2019). Once bitten, not necessarily shy? Determinants of foreign market re-entry commitment strategies. *Journal of International Business Studies*, *50*(3), 393-422. https://doi.org/10.1057/s41267-018-0167-3

Tajeddin, M., & Carney, M. (2019). African business groups: How does group affiliation improve SMEs' export intensity? *Entrepreneurship: Theory and Practice*, *43*(6), 1194-1222. https://doi.org/10.1177/1042258718779586

Tan, D., & Meyer, K. E. (2010). Business groups' outward FDI: A managerial resources perspective. *Journal of International Management*, *16*(2), 154-164. https://doi.org/10.1016/j.intman.2010.03.006

Tan, D., & Meyer, K. E. (2011). Country-of-origin and industry FDI agglomeration of foreign investors in an emerging economy. *Journal of International Business Studies*, *42*(4), 504-520. https://doi.org/10.1057/jibs.2011.4

Terpstra, V., & Yu, C.-M. (1988). Determinants of foreign investment of U.S. advertising agencies. *Journal of International Business Studies*, *19*(1), 33-46. https://doi.org/10.1057/palgrave.jibs.8490373

Tong, T. W., & Li, Y. (2011). Real options and investment mode: Evidence from corporate venture capital and acquisition. *Organization Science*, *22*(3), 659-674. https://doi.org/10.1287/orsc.1100.0551

Tong, T. W., & Reuer, J. J. (2007). Real options in multinational corporations: Organizational challenges and risk implications. *Journal of International Business Studies*, *38*(2), 215-230. https://doi.org/10.1057/palgrave.jibs.8400260

Tong, T. W., Reuer, J. J., & Peng, M. W. (2008). International joint ventures and the value of growth options. *Academy of Management Journal*, *51*(5), 1014-1029. https://doi.org/10.5465/AMJ.2008.34789680

Trigeorgis, L., & Reuer, J. J. (2017). Real options theory in strategic management. *Strategic Management Journal*, *38*, 42-63. https://doi.org/10.1002/smj

Tunisini, A., Harrison, D., & Bocconcelli, R. (2023). Handling resource deficiencies through resource interaction in business networks. *Industrial Marketing Management*, *109*, 154-163. https://doi.org/10.1016/j.indmarman.2022.12.016

UNCTAD. (2019). World investment report 2019. United Nations Conference on Trade and Development,

UNCTAD. (2020). *World investment report 2020*.

UNCTAD. (2021). *World investment report 2021*.

van Zyl, D. (2022). *The Challenges of Marketing in Africa*. https://grow.ukuinbound.com/blog/2017/11/13/challenges-of-marketing-in-africa

Vodafone. (2019). *Vodafone integrated report*.

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research*, *10*(1), 69-80.

Wang, D., Cui, L., Vu, T., & Feng, T. (2020). Political capital and MNE responses to institutional voids: The case of Chinese state-owned enterprises in Africa. *Organization Studies*. https://doi.org/10.1177/0170840620954011

Wang, R., Sedransk, J., & Jinn, J. H. (1992). Secondary data analysis when there are missing observations. *Journal of the American Statistical Association*, *87*(420), 952-961.

WARC. (2012). Companies tackle African challenges. https://www.warc.com/newsandopinion/news/companies-tackle-african-challenges/30257

Welch, L. S., & Luostarinen, R. K. (1993). Inward-outward connections in internationalization. *Journal of International Marketing*, *1*(1), 44-56. https://doi.org/10.1177/1069031x9300100104

WFE. (2023). *Market statistics - October 2023*. https://focus.world-exchanges.org/issue/october-2023/market-statistics

Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach: Chapter 10, Basic regression analysis with time series data*. http://www.eco.uc3m.es/~jgonzalo/teaching/TecnicasEconometricas/WooldridgeCh10-12.pdf%0Ahttp://www.getcited.org/pub/102998395

World Bank. (2020). *Doing business 2020: Comparing business regulation in 190 economies* (9781464814402).

World Bank. (2023). https://www.worldbank.org/en/country/zimbabwe/overview#:~:text=Manufacturing%20and%20mining%20sector%20growth,resumption%20of%20spending%20after%20elections.

Xu, D., Zhou, C., & Phan, P. H. (2010). A real options perspective on sequential acquisitions in China. *Journal of International Business Studies*, *41*(1), 166-174. https://doi.org/10.1057/jibs.2009.16

Zhang, Y., & Shaw, J. D. (2012). Publishing in AMJ-Part 5: Crafting the methods and results. *Academy of Management Journal*, *55*(1), 8-12. https://doi.org/10.5465/amj.2012.4001

Zhao, H., Ma, J., & Yang, J. (2017). 30 years of research on entry mode and performance. *Management International Review*, *57*, 653-682. https://doi.org/10.1007/s11575-017-0314-2

Zhu, Y., Sardana, D., & Tang, R. (2022). Heterogeneity in OFDI by EMNEs: Drivers and trends of Chinese and Indian firms. *International Business Review*, *31*, 1-16. https://doi.org/10.1016/j.ibusrev.2022.102013

Zoogah, D. B., Peng, M. W., & Woldu, H. (2015). Institutions, resources, and organizational effectiveness in Africa. *Academy of Management Perspectives*, *29*(1), 7-31.

Zyphur, M. J., & Pierides, D. C. (2017). Is quantitative research ethical? Tools for ethically practicing, evaluating, and using quantitative research. *Journal of Business Ethics*, *143*(1), 1-16. https://doi.org/10.1007/s10551-017-3549-8

Appendix 1 Network studies using case study and primary survey methods

Table 30 and

Table **31** indicate the network studies that use case study and primary survey methods respectively.

Table 30 Network studies using case study methods

Research question	Types of networks	Reference
How network resources affect the network dynamic capabilities	Network resources of research experts. laboratories. logistic. distribution. contract manufacturing. equipment suppliers. finance	(Alinaghian & Razmdoost, 2018)
How and why home country networks internationalise	Networks from home country: government. business associations. firms	(Berns et al., 2021)
How US firm entry into emerging markets using host country network	Host country network: institutions. non-governmental organisations (NGOs)	(Elg et al., 2008)
Process of internationalisation into emerging market. examining which networks are utilised	Host versus home country network - institutions. NGOs. non-profit organisations (NPOs). distributors	(Ferrucci et al., 2018)
How network relationships affect internationalisation of late starters	Social networks. expatriates. business partners	(Francioni et al., 2017)
How corporate social entrepreneurship and NGO networks aid internationalisation into emerging market India	NGOs and multinational firms	(Ghauri et al., 2014)
What type of new and heritage networks	Research networks	(Guercini & Milanesi, 2019)
How networks aid internationalisation into emerging market. China	Joint venture internationalisation. business. socio-political and distribution networks	(Lee et al., 2012)
How networks and institutions influence internationalisation	Social. business and distribution networks	(Morrish & Earl, 2021)
How network intermediaries influence internationalisation	Export promotion agencies.	(O'Gorman & Evers, 2011)

Table 31 Network studies using primary survey

Research question	Network	Reference
Role of network in effectual internationalisation of emerging market SMEs	Social and business networks for knowledge sharing	(Bai et al., 2021)
Multinational characteristics and knowledge sharing in network	Cultural, parent firm ownership, product and process similarity with the firms in network	(Cho & Lee, 2004)
Contract restraints and performance of franchise networks	Franchise networks with marketing and promotional activities	(Hajdini & Windsperger, 2019)
Size of financial network and internationalisation	Financial, social and business networks	(Manolova et al., 2014)
Relationship between networks. financial resources and performance	University, research, financial, infrastructure, SMEs, industry, informal contact networks	(Moog & Soost, 2022)
Non equity co-operative entry and internationalisation performance	Export intermediaries, external marketing, social, infrastructure, institutional, technological networks	(Ripollés & Blesa, 2020)
Network contracts and internationalisation	Contracted networks measured by its size, diversity, management activities	(Rubino et al., 2019)
Networks. international performance and foreign market entry mode	Inter-organisational networks	(Stoian et al., 2017)