Locational Determinants of Cross Border VC Investments into Developing Countries

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DETERMINANTS OF US VC INVESTMENT INTO DEVELOPING COUNTRIES

LOCATIONAL DETERMINANTS OF US CROSS-BORDER VENTURE CAPITAL INVESTMENTS INTO DEVELOPING COUNTRIES

A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS OF SOUTHERN NEW HAMPSHIRE UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN INTERNATIONAL BUSINESS

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Abstract

This study investigated factors influencing US cross border VC investments into developing countries, whether these factors differ between the developing regions and characteristics of the most active US VC investment companies into these distant markets. As VC investors increasingly adopt global perspectives, their expansion into new frontiers of growth such as those in developing countries has grown. Securing VC financing is a key step towards growing developing countries startups since lack of access to external finance is one of the most cited obstacles to the growth of SMEs in these countries. However, cross-border VC investments suffer from increased information asymmetry risks as well as liabilities of foreignness in target portfolio companies' host countries. Various methods were used to analyze the data and evaluate the hypothesis including – principal component analysis, fixed effects GLS panel data regression, and ANOVA. Our analysis shows that larger, older US VC investors with a global reach invested in developing countries. There is also a strong correlation between institutional quality, geographical distance, cultural disparities, and capital market development and cross border VC investment amounts in each developing country. Also, the four developing regions (Africa, MENA, Latin America & Caribbean, and Asia Pacific) differed significantly between each other in the four key locational determinants of cross border VC investments. Therefore, we conclude that institutional quality, geographical distance, cultural disparities, and capital market development are key determinants of cross border VC investments in developing countries.

Keywords: venture capital, entrepreneurial finance, cross border investments, developing countries, target portfolio companies, SMEs.

Locational Determinants of US Cross-Border Venture Capital Investments into Developing Countries

1.0 INTRODUCTION

1.1 Background and Context

Venture capital (VC) firms have become a mainstay source of funding for SMEs and start-ups in developing countries. They provide entrepreneurial firms with debt, equity, and hybrid forms of funding in combination with managerial expertise and other value adding services which help mitigate the costs of informational asymmetries (Amit, Brander & Zott, 1998). VC firms play a crucial role in the economy in the promotion and development of the business innovation processes (Zider, 1998). Kortum and Lerner (2000), established that investments by VC firms in an industry lead to higher patent rates compared to regular R&D investment by a ratio of 7 to 1. Governments around the world especially those in developing countries are looking to promote SME development in their local economies by attracting the inward flow of foreign VC investment firms.

Venture capitalists target early-stage SMEs and start-ups with high growth potential which often suffer from problems of information asymmetries and thus increased risks of moral hazard and adverse selection. Over time they have honed the skill of risk mitigation in external equity financing to target portfolio companies. As a result, the mitigation of such risks is the raison d'etre of VC firms (Amit, Brander & Zott, 1998).

The need to reduce information asymmetries risks has led to VC industry mostly remaining local. (Wright & Robbie, 1998) Such local bias is especially prevalent in VC

investments (Cumming & Dai, 2010) because geographical proximity allows VC firms access to tacit information that would otherwise not be transferable to evaluate and identify suitable investments. However, larger, older, more experienced VC investors with a broader network and a good IPO record were shown to have a lesser local bias (Cumming & Dai, 2010).

Buchner, Espenlaub, Khurshed & Mohamed (2018) observed that despite the underperformance of cross-border VC investments abroad, VC investors are increasingly seeking to invest in markets abroad with greater future growth potential to achieve international portfolio diversification as markets at home mature and become saturated.

According to Pacanins (2001), VC investment activity has continued to increase in developing countries despite their lack of institutional development, capital market sophistication and cultural disparities because of the continued implementation of economic and political reforms that have allowed for greater openness to capital inflow and economic progress thus making them more attractive to foreign VC investors.

1.2 Significance of the Study

SMEs represent close to 90 percent of businesses globally and create about 70 percent of the jobs in an economy. As the global workforce continues to grow, it is expected that six hundred million jobs will need to be created by 2030 to absorb this additional labor. Most of these jobs will be created by SMEs thus making SME development an imperative for most governments in developing markets (World Bank, 2021).

Formal SMEs account for 40 percent of GDP in developing countries. The numbers increase significantly when informal SMEs are included (World Bank, 2021). However, large numbers of SMEs in developing countries are unable to secure funds from formal financial systems that can be used productively to fund the growth of their operations. Such funding gaps for SMEs hampers the enterprising spirit as well as the economic development necessary for poverty alleviation in these economies (OECD, 2006).

The number of entrepreneurs in developing countries have been on the rise owing to their youthful population, growing internet penetration, and the rise in the application of emerging technologies that show potential to expand access to financial services, education, health care, and energy in these markets (Solomon & van Klyton, 2020; Holtz & Golubski, 2021).

According to the UNCTAD (2017), 80 percent of the world population lives in developing countries and are expected to continue driving population growth. While developed economies are getting saturated and experiencing economic stagnation and stagflation, developing economies are experiencing faster economic growth rates of five percent and above thus creating vast consumer groups and enormous opportunities for cross-border VC investors seeking to invest in target portfolio companies in developing countries.

Securing VC financing is a key step towards growing developing countries startups (Rai, 2014). VC investors are not only providers of outside capital, but they also provide value adding services that can help small businesses scale up their operations and develop new products (Sapienza, 1992). Consequently, it is important to study various

factors and conditions that can help create an attractive environment for foreign VC investors in making their investment decisions by reducing challenges and structural barriers that have stymied developing countries' startups' growth potential and thus help further the development of developing countries' innovation hubs and startup ecosystem (Dobrzanski, Bobowski, Chrysostome, Velinov & Strouhal, 2021).

As VC investors increasingly adopt global perspectives, their expansion into new frontiers of growth such as those in developing countries is expected to grow. These countries represent new frontiers of growth for first movers seeking to arbitrage abnormal returns despite their country risk assessments (Dimitrijević, & Mistele. (2016). In the 1980s VC market were almost nonexistent outside of the US (Manigart, De Prijcker & Bose, 2010). However, by the 1990s half of the $80 billion of the new VC deals globally were VC funds set up outside of the US (Schwartz, 1994).

Although European VC investment markets continue to dominate as a key destination for US VC investments (PitchBook, 2022), recently there has been a shift in the VC firms' expansion strategies into new markets such as those in Asia, the Middle East, Latin America, and Africa fostered by the increased integration of the global financial system (Cornelius, 2011). Developing countries such as Indonesia, Nigeria, Bangladesh, Mexico, Brazil, India, and China are increasingly attracting the attention of global VC investors (Glasner, 2022).

1.3 Theoretical Framework

VC internationalization comes with increased transaction costs of doing business abroad compared to domestic VC investments. Cross-border VC investments suffer from

increased information asymmetry risks due to the opacity inherent in distant and less developed markets and their target portfolio companies. Information asymmetries have a negative impact on screening and appraisal of target portfolio companies' pre-investment. Developing countries tend to exhibit significant market frictions making them inefficient. These market inefficiencies increase transaction and trading costs due to information asymmetries and as a result may deter arbitrageurs and investors in general (Batram and Grinblatt, 2021). However, despite these challenges, developing markets are becoming more attractive to international investors seeking to benefit from the effect of diversification in those economies (Babarinde, 2012).

Moving operations abroad allows for greater local embeddedness to facilitate the provision of monitoring, consulting and other value adding services post investment by VC firms (Sorensen & Stuart, 2001; Makela & Maula, 2006). However, such expansion of operations abroad creates challenges in the VC investment operations abroad due to cultural, financial, geographical, and institutional distances between VC investors' home country and host countries of their domestic portfolio firms (Devigne, Manigart & Wright, 2016). These factors create liabilities of foreignness (Zaheer, 1995). According to Moore, Payne, Bell & Davis (2015), institutional differences and cultural disparities between foreign VC firms' home markets and host countries influence VC investor's decisions with differing effects depending on the type of distance.

However, despite such challenges cross-border VC investments continue to be on the rise globally which has attracted the attention of scholars to determine what are the antecedents to such investments, how these international VC firms are managed, and what are their outcomes in these foreign markets (Devigne, Manigart, Vanacker &

Mulier, 2018). Using both theories of liabilities of foreignness as well as information asymmetry this study seeks to investigate the factors and conditions influencing the locational determinants of cross-border VC investments into developing countries.

1.4 Argument Building

The expansion of the US VC investments into foreign markets is a new phenomenon as both VC general and limited partners have avoided internationalization of VC investments due to the political, administrative, legal, capital market development and cultural risks that come with investing in distant markets (Braz, 2020). Historically, the US VC industry has had a local bias concentrating its main investment activities domestically with a geographical focus on major investment hubs (Bengtsson & Ravid, 2009).

The deployment of VC firms' specialized skills relies crucially on their local embeddedness. VC investors need to be within proximity to their target portfolio firms to reduce the risks of information asymmetry since distance affects the extent of a venture capitalist's active involvement in the portfolio firm necessary to gather much needed information for pre-investment decision making and to provide value adding services post investment (Sapienza, Manigart, and Vermeir, 1996; Pruthi, Wright, and Lockett, 2003).

Although the US driven technology bubble in the 1990s fueled the internationalization of VC investments into and out of the US, the destination choices of these cross-border VC investments in more recent times have not been random (Aizenman & Kendall, 2012). Factors such as regulatory quality, corruption, political

stability, capital market sophistication, cultural differences, geographical distance, and supply of good quality target portfolio companies have all been shown as key locational determinants of cross-border VC investments. However, despite their relative economic and institutional underdevelopment, developing countries have become attractive destinations for US venture capitalists due to their rapid economic growth, their perceived resilience to economic and financial downturns as well as their continued adoption of economic and institutional reforms that improve their domestic business environment (Ndlwana & Botha, 2018).

US VC investments into developing countries has grown at a steady pace in the last thirty years. International businesses including VC investors are increasingly seeking markets with growth potential abroad as markets at home mature and become saturated. Aylward (2000) observed that, VC investments into developing countries in both Asia and Eastern and Central Europe saw a significant increase since the early 1990s. The World Economic Forum reported that Africa's VC investment would reach a record high of $2.8 billion in 2021 and is forecasted to surpass $10 billion by 2025.

In Latin America and the Caribbean region, VC investment flows have also increased by 30 percent annually since the year 2005, concentrating mostly in early-stage development SMEs (Stein & Wagner, 2022; Minardi & Bortoluzzo, 2022). The MENA region has also seen a growth in VC investments as in the financial, ICT and industrial sectors (JETRO, 2020). The governments in this region hope that increased VC investment will drive the economic development, fostering the MENA region's innovative culture, beckon skilled talent into the region and accelerate the growth of the region's technology industry (TradeArabia News Services, 2019).

In developing economies, SMEs account for 90 percent of the businesses in the private sector and generate 70 percent of jobs in these countries (World Bank, 2021). Lack of access to external finance is one of the most cited obstacles to the growth of SMEs in developing countries (Enterprise Surveys, 2021). In 2017, the micro and small and medium enterprise (MSME) financing gap assessment report estimated that there existed a funding gap to MSMEs of $5.2 trillion annually worldwide. The funding gap is even larger when informal and micro businesses are included (International Finance Corporation, 2021).

Accessing finance including VC financing can be a strategic resource critical to improving SME competitiveness and facilitating inclusive economic growth of developing countries (OECD, 2017; UNCTAD, 2001). As governments in developing and transition economies have undertaken to implement policies that allow their countries' business ventures to benefit from the opportunities globalization and trade openness present, majority of the SMEs in these countries have missed these opportunities due to the institutional, capital market underdevelopment, geographical distance, and cultural disparities. Consequently, governments and development agencies need to put in greater efforts to improve both institutional and human capacities of SMEs to increase the SMEs' ability to benefit from global VC investment deal flow and thus increase their contribution to each country's economic growth potential (Dalberg, 2011; OECD, 2004).

The investment decisions of foreign venture capitalists are influenced by factors including the investment climate and institutional settings in the host countries' startup ecosystems (Scheela &Chua, 2011). VC firms prefer to invest in countries that create

opportunities for innovation by facilitating strong legal, financial, technological, and political institutions to protect investor rights, guarantee legal and regulatory stability and facilitate exits (Guler & Guillen, 2010a).

According to Nahata, Hazarika & Tandon (2014), institutional and cultural factors are important in determining the success of global VC investments. The positive effects of incentives availed by the formal institutions are dependent upon the cultural context. Cultural cognitive differences between the foreign VC firms' home market and the target firms' host market influence VC investor's decisions negatively.

Brunetti, Kisunko & Wider (1997) observed that institutional obstacles such as corruption were cited as reasons that decrease the attractiveness of developing countries as it increased uncertainties and transaction costs of doing business in those markets. The fear of sudden policy and unexpected rules changes as well as lack of investor protection made the investment climate unattractive.

According to Kaufmann, et al (2003), political stability is the risk of the destabilization of a government either through violent means as in a coup or through a constitutional crisis. Political stability poses a challenge to VC investors because a change in leadership often also comes with a change in policies that may affect foreign investors.

Cumming & Walz (2010), showed that there were systemic biases in the reporting and disclosure of private equity returns depending on the legal and accounting environment in advanced versus developing countries. Weak accounting standards and disclosure requirements inhibits proper screening and appraisal of target portfolio companies necessary in making pre-investment decisions for VC financing of

entrepreneurial ventures by early-stage VC investors (Pruthi, Wright, and Lockett, 2003). Countries with strong legal systems and disclosure requirements provide favorable conditions for VC firm opportunity identification and evaluation.

Further, poorly functioning, inactive, and less efficient financial and capital markets hamper the attractiveness of foreign markets (Black & Gilson, 1998). Less developed capital markets pose challenges of liabilities of foreignness to VC investors since VC investors' assessment of exit opportunities is crucial in determining whether to invest in entrepreneurial firms in any host country's VC market (Sterenczak, Zaremba & Umar, 2020).

In their study of determinants of VC investment activity, Bonini & Alkan (2012) observed that although sociopolitical and legal environments were crucial in influencing cross-border VC investments, entrepreneurial environment also was a key facilitator in explaining the variations across countries of the levels of VC investments. The greater the entrepreneurial activity, the more conducive the entrepreneurial environment as well as the suitability of its geographical location in the developing country the more the likelihood that VC investors would seek these markets (Giot & Schwienbacher, 2007).

Past research reviewed during this study on the internationalization of VC investment firms has revealed that there are a variety of factors and conditions that influence the way VC firms make their locational choices for their cross-border VC investments. The role of the institutional quality, cultural disparities, geographical distance, the investment climate's impact on corporate governance structures, the influence of capital market development on the decision to invest VC funds in destination

markets in developing countries is a topic that is lacking in entrepreneurial finance literature.

Most past research has considered various factors such as macroeconomic variables (GDP, interest rates, inflation) or institutional variables (corruption, political stability, lack of the rule of law). These studies have also relied on other theories such as network theories, resource-based theories, and institutional theories. Also, most extant literature/research focused their study on more advanced and/or emerging market economies. Consequently, this study identified a gap in literature that warrants further exploration. Consideration of factors and conditions affecting the internationalization of VC investments into developing countries using the less used liabilities of foreignness and information asymmetry theories will offer new insight into these new frontiers of growth that have potential to propel the global growth in the future.

1.5 Problem Statement

Lack of access to external finance is one of the most cited obstacles to the growth of SMEs in developing countries (Enterprise Surveys, 2021; Ndaiye, Razak, Nagayev & Ng, 2018). Governments including those in developing countries have recognized the lack of access to capital for SMEs as a key obstacle to economic development (Khalil & Dahou, 2009). Mobilizing critical VC investment from foreign VC investors is key to unlocking developing countries' untapped potential to achieve the desired accelerated growth in those markets.

Lack of favorable investment conditions that help mitigate liabilities of foreignness and informational asymmetry concerns while facilitating the

internationalization of foreign VC investments into developing countries' target portfolio companies to supply the much-needed small business financing into developing countries hamper the attractiveness of developing countries' target SMEs. Information asymmetries are often associated with the mismatch between the supply of entrepreneurial finance and demand for capital by entrepreneurs especially as they enter the second phase of growth - the so-called valley of death, where they need more funding to realize their growth potential (Berger & Udell, 2006).

Institutional under development that is prevalent in many developing countries can lead to significant problems for foreign VC investors who face barriers to entry into developing countries emanating from concerns of corruption (Hamori, 1999), political instability, lack of the rule of law and increased transaction costs (Marshall, Nguyen and Visaltanachoti, 2015; North, 1990).

According to Black & Gilson (1998) the absence of a vibrant IPO market that can facilitate exits via IPOs of VC backed portfolio companies is a key reason that makes a market unattractive to cross-border VC investors. Cultural disparities (Dai, Jo & Kassicieh, 2012; Hain, Johan & Wang, 2016), geographical distance (Cornelli, Kominek & Ljungqvist, 2013) as well as poor financial disclosure requirements (Cumming, Schmidt & Walz, 2010) also decrease the attractiveness of host markets to foreign VC investors.

1.6 Research Questions and Hypotheses

In the ten years from 2010 to 2019 there has been a significant increase in the share of VC investments by US VC firms into developing countries. This study aims to

examine three research questions to provide greater insight into the VC firms characteristics and the factors and conditions that have influenced the VC investment flow into the 22 developing countries identified.

1. What are the characteristics (similarities and differences) of the most active US cross-border VC investment firms investing in developing countries?

Hypothesis 1: The most active US VC investment firms investing in developing countries are larger, older, and more experienced firms with a global reach.

2. What are the locational determinants of cross-border VC investment deal flow into developing countries?

Hypothesis 2: developing countries with higher institutional quality receive more cross-border VC investment than developing countries with lower institutional quality.

Hypothesis 3: developing countries with greater cultural disparities between the VC firm's home country and the portfolio companies' host country receive less cross-border VC than developing countries with less cultural disparities.

Hypothesis 4: developing countries with lower geographical distance receive more cross-border VC investment than developing countries with greater geographical distance.

Hypothesis 5: developing countries with more developed capital markets receive higher cross-border VC investment deals than developing countries with less developed capital markets.

3. Are there any significant differences between the four regions (MENA, Africa, Latin America/Caribbean, and Asia/Pacific) that are represented in the developing countries regarding the influence of locational determinants on the amount of cross-border VC investments?

Hypothesis 10: there are significant differences between the four developing country regions regarding the influence of locational determinants on the amount of cross-border VC investments.

To conduct a critical analysis of the literature, this study uses a Venn diagram approach as in Rudestam & Newton (2001) that starts by examining literature on each of the three main aspects of the study separately, that is US cross-border VC investments, VC destination markets in developing countries, and target portfolio companies. The second half of the literature review focuses on hypothesis development by examining relevant literature that intersects between the subsets of the three constructs mentioned above to build an argument for the study's hypotheses (see Figure 1).

The three intersecting construct subsets include an analysis of existing literature that investigates US cross-border VC investments into developing countries, followed by US cross-border VC investments into developing countries' target portfolio companies, and finally, pertinent literature on target portfolio companies in developing countries. Upon providing a comprehensive review of extant literature, the study is organized as

follows. The Methods section which describes the measures, procedures, research design and data analysis. The Results section presents a statistical analysis of the data. The Discussion section concludes the study with an interpretation of the results and recommendations for future research.

2.0 LITERATURE REVIEW

2.1 US Cross-Border VC Investments

Historical Background

The United States is the birthplace of the global VC industry. Its beginnings can be traced back to the first publicly traded private equity company – American Research and Development Corporation (ARD) established in 1946 in Boston, Massachusetts. The establishment of this company grew out of the need in the 1930s to the 1940s for long term equity financing to increase and support the growth of newly founded entrepreneurial ventures in the United States (Fenn, Liang & Prowse, 1997). Although other developed countries such as those in Europe and Asia have made policy changes to grow their VC industries, the regulatory quality in those countries has had an influence in the financing of startup innovations by VC firms internationalizing into those markets (Hege, Palomino & Schwienbacher, 2009). The US VC industry has continued to be the largest and the most vibrant globally.

Historically, the US VC industry has had a local bias concentrating its main investment activities domestically with a geographical focus on major investment hubs such as California's Silicon Valley, along Route 128 in Massachusetts and North Carolina's Research Triangle Park of Durham, Raleigh and Chapel Hill as well as Austin, Texas (Bengtsson & Ravid, 2009). According to the National Venture Capital 2020 Yearbook (NVCA, 2020), 84 percent of total US VC assets were held in three major investment hubs – New York, California, and Massachusetts. Leading technology firms

in the US such as Google, Apple, Facebook, Starbucks, Airbnb, Uber, and Spotify funded their early growth stage with financing from VC firms.

Although the US driven technology bubble in the 1990s fueled the internationalization of VC investments into and out of the US, the destination choices of these cross-border VC investments have not been random (Aizenman & Kendall, 2012). Prior to the 1990s, cross-border VC investments were insignificant. The geographical arbitrage of VC investment opportunities which enabled VC investors to invest in undervalued portfolio companies abroad while leveraging their firm specific advantages (such as their professional expertise in managing risky and informationally opaque entrepreneurial ventures in uncertain markets to help them achieve profitable exit strategies) has facilitated the global expansion of US VC firms (Manigart, De Prijcker & Bose, 2010).

Despite the challenges posed by cross-border VC investments including lower returns, VC investors are seeking to drive the next phase of technological advancements globally by investing in innovative startups abroad while diversifying their portfolios (Buchner, et al., 2018). However, contrary to those findings, in their study of US and European Union VC firms, Portes & Rey (2005) contend that investors chasing returns and portfolio diversification have a much less significant influence on cross-border VC flows. Instead, the authors argue that the geography of information that is the geographical segmentation of information where different countries hold different sets of information regarding their markets was a key antecedent of cross-border equity patterns since VC investors can grow their international networks abroad.

The expansion of the US VC investments into foreign markets is a new phenomenon as both VC general and limited partners have avoided internationalization of VC investments due to the political, administrative, legal, capital market development and cultural risks that come with investing in distant markets (Braz, 2020). As in past studies (Jeng & Wells, 2000; Johan & Najar, 2010, Guler and Guillen, 2010a) looking at the significance of locational determinants such as institutional factors, the impact of cultural differences as well as the influence of financial market sophistication of VC investments into developed and emerging markets this study seeks to highlight the key drivers of US cross-border VC investments into developing countries within a set theoretical framework.

Theoretical Framework

VC firms are financial intermediaries whose competitive advantage is their ability to reduce the costs of information asymmetry (adverse selection and moral hazard problems) and the management of prominent levels of uncertainty in entrepreneurial firms (Amit, Brander & Zott, 1998). VC firms have curved a niche in their ability to reduce the cost of informational asymmetries in highly uncertain environments and thus are able to provide outside capital to small and newly founded business ventures that otherwise face challenges securing access to external financing due to their informational opacity (Gompers & Lerner, 2001).

VC firms raise funds from investors and then invest these funds into small innovative startups with high growth potential with the goal of realizing a return at the end of their holding period usually in about five to seven years (Gompers & Lerner,

2004). Besides providing funding to entrepreneurial firms, VC firms also provide mentoring, monitoring and other value adding services to portfolio firms (Gorman and Sahlman, 1989; Divakaran, McGinnis & Shariff, 2014).

The deployment of VC firms' specialized skills relies crucially on their local embeddedness. VC investors therefore need to be within proximity to their target portfolio firms to reduce the risks of information asymmetry since distance affects the extent of a venture capitalist's active involvement in the portfolio firm and thus the ability to gather much needed information for pre-investment decision making and to provide value adding services post investment (Sapienza, Manigart, and Vermeir, 1996; Pruthi, Wright, and Lockett, 2003).

Cross-border VC investments pose a particular challenge to VC investors due to institutional, geographical, and cultural distance between the VC firm's country of origin and their target portfolio firm's host country. As a result, cross-border VC investments incur higher transaction costs owing to the risks of more severe agency conflicts and information asymmetries in the new more distant markets. Consequently, VC investors suffer from the liability of foreignness when investing in foreign portfolio firms (Zaheer, 1995).

Entrepreneurial finance studies confirm this phenomenon, that foreign VC firms are more likely to experience the liability of foreignness due to geographic, cultural, and institutional distance (Wright, Pruthi & Lockett, 2005; Moore, Payne, Bell & Davis, 2015; Taussig, 2017; Devigne, et al., 2018).

The level of institutional development influences the VC activity in a country (Li and Zahra, 2012). Higher financial market and institutional development in a destination

market encourages VC firms to overcome local bias and thus consider cross-border investments (Black & Gilson, 1998). VC firms prefer to invest in countries that create opportunities for innovation by facilitating strong legal, financial, technological, and political institutions to protect investor rights, guarantee legal and regulatory stability and facilitate exit. However, as firms gain in international experience in foreign markets their ability to overcome the constraints of doing business in foreign markets increases (Guler & Guillen, 2010).

Additionally, formal institutional factors such as regulatory and legal settings as well as informal institutional factors such as cultural and cognitive context have an influence on the mobility of corporate governance practices in the internationalization of VC firms globally (Cumming, Filatotchev, Knill, Reeb & Senbet, 2017). However, despite such challenges of liability of foreignness and informational asymmetries, VC firm internationalization has continued to increase both in size and number since the 1990s (Aizenman & Kendall, 2012; Manigart, Deprijcker & Bose 2010; Schertler & Tykvova, 2012).

Studies looking at the internationalization of VC investments have relied on theories such as institutional and macroeconomic theories. Poterba (1989), Gompers, et al. (1998), Jeng & Wells (2000), as well as Schertler & Tykvova (2012) built their research studies based on assertions of supply and demand of VC investments that were used to examine the factors influencing VC investments mostly in developed economies in Europe. Precup (2015) also used 27 European countries to study the determinants of VC investments between the years 2000 and 2013 using the same economic theory of supply and demand.

Other studies have used agency theory to deepen the theoretical understanding of how international VC investors compensate for agency risks when investing in foreign markets (Gompers, 1995; Kaplan & Stromberg, 2001; Cumming et al., 2010; Hassan, 2010; DePrijcker, et al., 2012). Devigne, et al. (2013) used the resource-based view (RBV) in the analysis of the internationalization of VC investments into European tech companies. The RBV theory posits that foreign VC investors do not only provide capital, but they also provide social capital, as well as knowledge and expertise useful in adding value to portfolio companies (Hsu, 2004; Cumming, Fleming & Suchard, 2005; Reuer & Ragozzino, 2014).

Network theory has also been used to study the use of VC syndication to mitigate the risks of liability of foreignness. VC firm networks in host country markets reduce barriers to entry, facilitate the transfer and access to resources and markets for both domestic VC firms and other foreign VC investment firms (Sorenson & Stuart, 2001; Shane & Cable, 2002; Hochberg, Ljungqvist & Lu, 2007; Cumming & Dai, 2010; Guler & Guillén, 2010b; Jaaskelainen & Maula, 2014).

Hain, et al (2015) also used network theory to establish that cross-border VC investors rely on relational trust in their expansion into emerging markets more than they do when expanding into developed markets. Other studies that relied on network theories include Hassan (2010) who observed that networking was a critical skill utilized by cross-border VC investors in economies such Egypt with underdeveloped institutions that lack contract enforcement regimes when selecting potential target portfolio companies.

Various studies investigated the impact of cultural distance on cross-border VC investments using the psychic distance theory (the distance between the home and host

market emanating from the differences in culture and business environment) include, Li & Zahra (2012), Cumming, et al. (2017), Dai, et al. (2012), Sarajuuri (2018) and Gantenbein, et al. (2019).

Economic and institutional theories have been the most commonly used to increase the theoretical understanding of cross-border VC investments both at a firm level – impact of corporate governance regulations on internationalization of VC investments (Cumming, et al., 2010; Cumming, et al., 2017) and at the country level in explaining how institutional development influences VC investment deal flow in different countries (Brunetti, et al., 1997; Bruton, et al., 2005; Guler & Guillen, 2010a; Li & Zahra, 2012; Nahata, et al., 2014). Another theory utilized in the analysis of the internationalization of VC investments has been path dependency as in Aizenman & Kendall (2008) and Black & Gilson (1998).

However, in the study of the internationalization of VC investments into developing markets, the liabilities of foreignness and informational asymmetry theories are deemed as best suited to provide an insightful analysis of the locational determinants of cross-border VC investments into these geographically, culturally, and institutionally distant markets. Liabilities of foreignness in foreign markets in developing countries increases investment risks for US venture capitalists due to informational asymmetries of adverse selection and moral hazard risks inherent in cross-border VC investments and the uncertainty in these less developed economies.

Internationalization of US VC Investments

The US VC industry although a new addition to the national system of innovation has contributed to the technological development of the US economy especially in the information technology, communications, and biomedical sectors where it has had its greatest success (Kenney, 2012; Niosi, 2002). Increased competition in the VC industry for limited attractive target portfolio firms as well as higher funds availability has motivated VC firms to search for cross-border VC investments despite having lower expectations for generating good returns abroad (Buchner, et al, 2018).

The rise in the number of corporate venture capital (CVC) investors for instance, Goldman Sachs, Kellogg, Starbucks, and JetBlue Airways participating in global VC investment opportunities has contributed to the expansion of the US cross-border VC investments (Fonda, 2020). As developing countries' startup ecosystems mature, traditional established players, large CVC investors as well as sovereign wealth funds are taking notice. Corporations such as Google Ventures, Mastercard, Visa, and Shell are injecting capital into maturing startups in emerging and developing countries that require large external capital to fund their growth.

CVC firms are also tapping into growing and innovative SMEs in sectors such as fintech, clean energy, and mobility. Unlike traditional VC firms, CVC firms are not limited to a three-to-five-year investment holding period cycle thus giving them more time to scale up their portfolio companies' post-investment (Hruby, 2020).

Another factor facilitating the worldwide expansion of cross-border VC investments is the growth in the penetration of the internet due to the digitalization of

services. Small businesses around the world are seeking to partner with VC investors with the technical expertise and outside capital necessary to finance the growth of their business operations by expanding their customer base through the provision of online services on electronic platforms (Eisenberg, 2021). This need has become even more urgent especially since the emergence of the COVID-19 pandemic.

2021 saw an all-time high in investments by US VC investments firms owing to record low interest rates, surging performance in the equities market, increased liquidity, the desire to diversify their portfolios, and growth in sectors that have benefited from the COVID-19 pandemic such as the technology sector – software, fintech, telemedicine, and e-commerce (Dogra, & Murugaboopathy, 2021). The pandemic and subsequent lockdown measures resulted in the growth of digital startups which in turn increased VC investors' opportunities and appetites for investment in startups. This resulted in the growth of unicorn companies and cities around the world (Dealroom.co, 2021).

According to Statista, unicorns are defined as highly valued and often elusive startup companies. Examples include SpaceX, Instacart, and Chime among others ((Rudden, 2021). Majority of unicorns hail from the United States or China. However, in 2021 Latin America had the most active startup market in the world.

The first half of 2021 saw Europe become the leading destination for cross-border VC investments, outperforming previous preferred investment destinations such as the US, China, and Asia. However, other regions that have also seen increased prosperity in VC investments are Latin America, Middle East, and Sub-Saharan Africa which have a growing number of unicorn companies as well (Dealroom.co, 2021).

According to Refinitiv.data, US cross-border VC investments into late-stage start-ups accounted for the largest share of funds (73 percent) - $195.3 billion, with early-stage companies obtaining $73.4 billion. Series A deals also increased (Grabow, 2021). The best performing US-based global VC investors include 500 Startups which topped Pitchbook's 2019 Annual Global League Tables as the most active early stage as well as seed/angel investor. Other top performing early-stage global VC investors include Plug and Play Tech Center, Y combinator, and Techstars, among others (Black, 2019).

Companies are seeking VC investments to help scale up their businesses rather than to preserve them. The increase in the number of startups in the US is directly attributed to the lowering of costs through the investment in technology in the company creation process thus increasing the VC firms' investment opportunities to choose from. Further, unicorn firms have floated their shares in the public stock market with impressive aftermarket performance of the IPO floatation in terms of capital returns thus fulfilling the promise of VC investments. This fueled the bull run in the domestic US VC industry in 2021 (Grabow, 2021).

According to the National Venture Capital Association 2021 Yearbook, US share of global VC investments has remained stable at 50 percent in the last five years. This is lower than it has been in the past – 51 percent in 2020, 67 percent in 2010, 84 percent in 2004, and more than 90 percent in the 1990s (NVCA, 2021). However, despite this apparent decline, US VC investments are the greatest source of VC investments into developing countries. Consequently, given the continued increase in the size of cross-border VC investments globally and the significance of such investments in spurring innovative entrepreneurial activity and economic development this study seeks to

investigate the factors and conditions that influence the internationalization decisions and the attractiveness of VC investments into developing countries.

2.2 VC Destination Markets in Developing Countries

International businesses including VC investors are increasingly seeking markets with growth potential abroad as markets at home mature and become saturated. The economic slowdown that predates the COVID-19 pandemic has had a negative impact on multinational businesses from both advanced countries as well as those from emerging markets. However, over time developed and emerging markets have become increasingly expensive and hence less attractive to set up operations for either export or import, making it harder for global players to attain the double-digit growth that they seek abroad.

Consequently, investors are looking for opportunities in the new frontiers of growth around the world majority of which are in developing economies (Babarinde, 2012; Musacchio & Werker, 2016). However, it is worth noting that national cultural differences influenced the growth of the VC investment industry in these developing regions and influenced foreign VC investment deal flow (Hofstede, 1980; Gantenbein, et al., 2019; Sarajuuri, 2018).

According to Ning, Wang &Yu (2015) US VC investment deal flows are also affected by economic volatility. In their study of macroeconomic drivers of VC, the authors observed that VC investment was significantly affected by macroeconomic factors and public market signals as in the 2007/8 financial crisis and the 2000 tech bubble. In both these periods VC investors were found to have adjusted their investment

strategies and risk preferences by investing in fewer and small deals, investing in later stage deals and by investing smaller investment amounts per deal.

Mustafa & Mazhar (2020) observed that in India, a crucial determinant of VC investment attractiveness was both global liquidity as well as domestic macro-economic variables such as inflation, stock market development and GDP growth. In Brazil another large and developing economy, the PE market has grown substantially and is expected to continue to grow due to its strong macroeconomic environment, capital market development, and institutional environment (Carsalade & Renmo, 2014).

Overall, US VC investments into emerging markets were found to be sensitive to location specific factors. Investors used these factors as a criterion to distinguish between different countries such as local policies, regulations that facilitate investor protections and favorable business practices that increase a country's attractiveness such as capital gains taxes, and capital market development. (Klonowski, 2011b; Fisher & Smyth, 2013).

However, despite their relative economic and institutional underdevelopment, emerging markets in developing countries have become attractive destinations for US venture capitalists due to their rapid economic growth and their perceived resilience to economic and financial downturns (Ndlwana & Botha, 2018). The World Economic Forum reported that VC investments in developing countries in Africa will reach a record high of $2.8 billion in 2021 and forecasted to surpass $10 billion by 2025. Nigeria and Kenya are the two most preferred destinations with each receiving $307 million and $305 million respectively in 2020. Other VC investment hotspots on the continent include Egypt and South Africa with $269 million and $259 million (McCarthy, 2021).

To mitigate against the investment risks in these developing markets, Bliss (2010) observed that venture capitalists often use different VC investment models when going into developing and transition economies in their deal origination. In developing countries of Southeast Asia such as Vietnam, Philippines, and Thailand, (Scheela, Isidro, Jittrapanun, & Trang, (2015) noted that VC investors as well as business angels face challenges in investing due to a lack of robust legal and financial institutions necessary to support VC investing. Consequently, they often need to adjust their investment strategies to those markets including better networking skills, thorough due diligence, and greater involvement in monitoring post investment. According to Hassan (2010), networking was a critical skill utilized by cross-border VC investors in economies such Egypt with underdeveloped institutions that lack contract enforcement regimes when selecting potential target portfolio companies.

Efforts to improve government policy for good governance and openness to trade have helped to strengthen the investment climate for and help improve Africa's share of global investments (Ngowi, 2001; Willem te Velde, 2002; Asiedu, 2006; Asiedu, 2002). In Asia structural differences such as exit opportunities and amount of credit provided by the banking sector are major drivers of private equity (PE) funding. In emerging markets in Asia, since banks provide more credit, there is less demand for PE funding compared to developed countries. Outside capital investors therefore must be more competitive to find target VC investments (Oberli, 2014).

Following the 2008 global financial crisis, international investors seeking higher returns and opportunities sought refuge in new markets in developing countries such as in Latin America. The region was attractive given its commodity markets boom which

propelled their economic growth. However, with Central Banks globally reversing years of quantitative easing to tackle inflation in their respective countries, international VC investors including those in the US are pulling out of risky investments abroad including those in Latin America which are considered risky bets (Marques, Andrade & Gonzalez, 2022).

The VC industry in Latin America is new but has shown remarkable growth in the last two decades owing to the efforts put in by various development agencies, NGOs, and respective governments in the region to promote innovation, entrepreneurship and VC managers needed to support the growth of high potential small business in these developing economies (Miranda, 2022). Although, this region's VC industry development lags other developing countries such as India and China, the region has seen a boom in investment growth at an annual rate of 30 percent (Stein & Wagner, 2018). VC investments in Latin America were made by less experienced foreign investors who showed a lesser appetite for risk as they invested larger amounts, in less high-tech target portfolio companies and in fewer rounds compared to other VC investments in benchmark regions.

Although the early 2010s saw a large boom in VC investments into Latin America, more recently these Latin American markets have fallen out of favor with foreign VC investors due to a myriad of factors including slower macroeconomic growth which has fueled political instability by populist governments, and currency volatility which affects the returns of VC investments at exit (Barrett-Johnson, Rollins, de Ry & Jacobs, 2022).

According to the African Private Equity and Venture Capital (AVCA) report, the entrepreneurial finance landscape is experiencing increased growth on the continent due to a combination of factors such as a growing consumer market, macroeconomic progress including the recent ratification of the African Continental Free Trade Area (AfCTA), and a burgeoning of SME and start-up ecosystem (AVCA, 2020). North American venture capitalists constitute the largest share of VC investments into Africa followed by Europe in a distant second. African VC investment flows are concentrated in the financials and consumer discretionary sectors followed by the IT sector (Holtz & Golubski, 2021).

Additionally, although rare and risky, VC funding for science-based innovations such as those in health and biotechnology exist in Africa. Risk tolerant investors including development finance institutions such as International Finance Corporation can make both a financial return as well as social impact despite the local challenges such as low human capital capacity, regulatory and legal barriers, and a risky business environment (Masum, Chakma, Simiyu, Ronoh, Daar, & Singer, 2010).

In the MENA region although also a nascent industry, the region is experiencing a boom in cross-border VC investments owing to its growing and youthful population, the improvement in its regulatory quality as well as notable high performing investment exits that are attracting foreign investors seeking better returns in these new frontiers of growth (Global Ventures, 2021). According to their study of VC country attractiveness, Groh & Lietchestein (2012) established that developing countries in the MENA region – Tunisia, Morocco, Saudi Arabia, and Egypt had made the most progress in improving their

investment conditions and hence their country attractiveness to foreign VC investors in the period under study.

The recent acquisition of two venture backed start-ups in the Middle Eastern - e-retailer Souq.com and Careem a ride sharing app is vindication of the investment potential in the region's entrepreneurial ecosystem (SyndiGate Media Inc., 2017). Such successful VC exits in terms of their monetary returns put the region's technology industry in the limelight and is bound to beckon other major foreign VC investors in Europe, the US and beyond.

Mubadala Capital Ventures recently launched a tech focused VC investment fund worth $250 million to support the emerging startup ecosystem in the MENA region (TradeArabia News Service, 2019). The fund plans to invest in fifteen target portfolio companies that are founder-led whose product or market fit match the fund's investment criteria. In 2019, the American based Mubadala Ventures started an initiative to encourage foreign funds from Europe and the US to invest in the United Arab Emirates.

The VC firm's investment target is in the technology sector, specifically, it is interested in investing in early-stage tech funds and startups dealing in blockchain, food delivery, and autonomous mobility (Gulf News [United Arab Emirates], 2019). These fund managers are seeking to leverage their expertise obtained from US to make an impact in their home market – the UAE by driving the economic development, fostering the MENA region's innovative culture, beckon skilled talent into the region and accelerate the growth of the region's technology industry (TradeArabia News Services, 2019).

2.3 Startups in Developing Countries

SMEs are the economic backbone of the global economy since they make up most business ventures in all regions around the world. In developing economies, SMEs account for 90 percent of the businesses in the private sector and generate 70 percent of jobs in these countries (World Bank, 2021). Unlike in past centuries where MNEs dominated the global economy in driving growth, in the 21st century SMEs have gained importance especially in developing economies and are viewed as promoters of business innovation and economic efficiency, healthy business and investment climate and economic development ((Keskġn, Sentürk, Sungur & Kġrġġ, 2010).

Although start-ups have a higher chance of failure early on, making them more volatile and resulting in net negative job growth, young businesses deserve the attention of researchers and policy makers due to their contribution to economic growth and economic activity (Haltiwanger, Jarmin, & Miranda, 2013).

Formal SMEs account for 40 percent of GDP in developing countries. The numbers increase significantly when informal SMEs are included (World Bank, 2021). However, large numbers of SMEs in developing countries are unable to secure funds from formal financial systems that can be used productively to fund the growth of their operations. Such funding gaps for SMEs hampers the enterprising spirit as well as the economic development necessary for poverty alleviation in these economies ((Manzoor, Wei & Sahito, 2021; OECD, 2006).

Small businesses often struggle with raising much needed finance for their development and growth (Lee, Sameen & Cowling, 2015). SMEs have a greater

likelihood of being locked out of access to bank loans compared to larger businesses. Consequently, they rely on internal finances or seek capital from family and friends to start and grow their business ventures (Carpenter & Petersen, 2002).

Lack of access to external finance is one of the most cited obstacles to the growth of SMEs in developing countries (Enterprise Surveys, 2021). In 2017, the micro and small and medium enterprise (MSME) financing gap assessment report estimated that there existed a funding gap to MSMEs of $5.2 trillion annually worldwide. The funding gap is even larger when informal and micro businesses are included (International Finance Corporation, 2021).

Wang (2016) contends that although firm characteristics such as age, size, and growth rate hinder SMEs in attracting external financing, other factors include prohibitive costs of borrowing in developing countries and lack technical knowledge of the financing industry also influence access to finance negatively.

Without the necessary working capital, SMEs in developing countries cannot make the investments they need to facilitate their growth resulting in their stagnation. To grow SMEs in developing countries Runde, Savoy & Staguhn (2021) recommend a concerted effort to increase access to capital using blended forms of financing. These may include a mix of debt, equity as well as grants that offer technical assistance which help improve their performance and capabilities. Accessing finance including VC financing can be a strategic resource critical to improving SME competitiveness and facilitating inclusive economic growth of developing countries (OECD, 2017; UNCTAD, 2001).

As governments in developing and transition economies have undertaken to implement policies that allow their countries' business ventures to benefit from the opportunities globalization and trade openness present, majority of the SMEs in these countries have missed these opportunities. Consequently, governments and development agencies need to put in greater efforts to improve both institutional and human capacities of SMEs to increase the SMEs' ability to benefit from global trade and investment opportunities and thus increase their contribution to each country's economic growth potential (Dalberg, 2011; OECD, 2004).

Although Latin America is still growing its entrepreneurial culture, respective governments and private sectors in the region are working together to support the creation of startups and an ecosystem that can bring about an economic transformation (OECD, 2013). As more startups emerge in Latin America and the Caribbean region, VC firms are also taking note and increasing their investments in the region (LAVCA, 2016).

In the MENA region the number of VC investments have been on the rise by 30 percent since the year 2011 to 2015 with the investment size doubling in the same period. Corporate VC investors are taking the lead in investing in MENA's growing investment ecosystem. In the years 2015 and 2016, 14 new CVCs invested in the MENA market. However, other investors such as accelerator programs, incubators, and public institutions are also investing in the region's startups (Alkasmi, El Hamamsy, Khoury & Syed, 2022).

In the third quarter of 2020, the MENA region attracted a total VC investment of $4billion for all SMEs development stages and industries since the year 2015 with United Arab Emirates taking the lion's share of the VC investment market. Global VC investors such as TechStars, Plug and Play, 500 Startups and StartupBootcamp were among the

major early-stage foreign VC investors showing an increased appetite for the region's startups (Jetro, 2020).

SMEs in Asia make up 96 percent of all Asian businesses and provide two thirds of all private sector jobs on the continent. Consequently, they are critical to the economic success of these countries. However, just as in other developing economies around the world, Asian SMEs face challenges in accessing external funding to finance their growth due to asymmetric information concerns and high transaction costs. As a result, SMEs in Asia are required to meet higher collateral requirements and pay higher interest rates limiting the amounts of outside capital they have access to (Yoshino & Taghizadeh-Hesary, 2018).

SMEs in Africa face similar challenges such as lack of capital, poor managerial talent and technological capabilities, and corruption as their counterparts in other developing countries (Muriithi, 2017). Africa has been viewed by global businesses, investors, and policy makers as the next frontier for growth in the next three decades despite its challenges given its young population, huge consumption market potential as well as the diffusion of mobile phone technologies (Beck & Cull, 2014).

Africa has one of the highest entrepreneurial rates in the world driven by the size of market opportunities and the rise in the digitalization in Africa. Although VC investments in Africa are not as high as in other parts of the world, Africa's largest economies – South Africa, Nigeria, Kenya, Egypt have the most competitive startup markets on the continent (Statista, 2022). Startups in the tech sector have attracted the largest number of both foreign and local VC investors. According to Statista, total VC

funding in the tech sector rose from $190 million in 2015 to over $2 billion in 2021 (Saleh, 2022).

Africa's technology sector is growing rapidly propelled by the growth in the number technology businesses training new computer engineering talent on the continent. For instance, Microsoft recently injected more than $100 million in their development center in Kenya with a goal to recruit and train five hundred employees in the next five years (Microsoft News Center, 2022). Google and Facebook are also investing in boosting connectivity in various African countries to create the foundational technology infrastructure necessary for a thriving tech industry.

As VC investors continue their internationalization efforts into target portfolio companies in new and distant markets abroad, entrepreneurial finance will benefit from studies such as these to provide a better understanding of what country level factors are attracting investors to startups in developing countries.

Hypothesis Development

2.4 US Cross-border VC Investments into Developing Countries

US VC Investor Characteristics. Cumming & Dai (2010) found that larger, more experienced, and reputable VC firms with a stronger IPO track record and broader network connectivity tend to show less local bias and thus most likely to invest in distant markets. In their study of VC firms from five European countries, De Prijcker, Manigart, Wright & Maeseneire (2012) found that experiential and inherited knowledge had a positive impact on VC expansion as it helped mitigate information asymmetries inherent

in the VC internationalization process. However, external knowledge acquired through network partners had a limited effect on the internationalization of VC firms. Over time, as venture capitalists accumulate experience this tempers the effect of distance on cross border VC investments.

Also, as VC firms become more confident in their ability to identify and appraise their investment opportunities, Tykvova & Schertler (2011) observed that they grew less reliant on external partners and sources of information. Further, as firms gain in international experience in foreign markets their ability to overcome the constraints (liabilities of foreignness) of doing business in foreign markets increases. Further, we expect that VC firms with extensive experience in an industry such as technology industries have an information advantage thus enabling them to have a greater global reach in their investments in that industry Guler & Guillen (2010a). Therefore, we expect that larger, older US VC investors with a global reach are more likely to invest in more distant markets in developing countries.

Geographical Distance. VC investments rely on local embeddedness to identify, evaluate, and monitor their investments post investments (Nahata, et al., (2014). Proximity to their portfolio target portfolio firms reduces information asymmetry problems as well as liabilities of foreignness (Hain, et al., 2015). It helps venture capitalists provide meaningful oversight as well as the ability to add value to their target portfolio companies (Sapienza, Manigart, and Vermeir, 1996). Staying closer to their investments, VC investors can better gather information on their investments and monitor

CEO performance to better offer their consultancy services as needed (Pruthi, Wright, and Lockett, 2003; Dai, et al., 2012; Cornelli, Kominek & Ljungqvist, 2013).

However, Cumming & Dai (2010) contend that older, more experienced VC investors with a stronger IPO record showed less local bias. Additionally, proximity to host markets facilitates the selection of local VC partners in syndication of VC deals which helps mitigate against risks of liabilities of foreignness and informational asymmetry and increase attractiveness of the host market (Makela & Maula, 2008; Sorensen & Stuart, 2001). Therefore, we expect that developing countries with less geographical distance receive more cross-border VC investment than developing countries with higher geographical distance.

Cultural Disparities. According to Nahata, Hazarika & Tandon (2014), institutional and cultural factors are important in determining the success of global VC investments. The positive effects of incentives availed by the formal institutions are dependent upon the cultural context. Cultural cognitive differences between the foreign VC firms' home market and the target firms' host market influence VC investor's decisions negatively.

In Moore, Payne, Bell & Davis (2015), cultural cognitive beliefs are subtle common beliefs in a society that provide a framework and knowledge sets that create a shared understanding of how people conduct themselves even in a business environment. Using Hofstede (1980) cultural dimensions, Shane (1993, 1995) established that culture influences entrepreneurial and innovative activity as well as the economic behavior in a country. Aggarwal & Goodell (2013) also found that uncertainty avoidance and

femininity had a significant influence on VC investments. On the other hand, Licht, Goldschmidt & Schwartz (2005) observed that power distance influenced investor protection negatively thus hampering investment decisions.

Li & Zahra (2012) observed that although strong institutional structures in a host country are correlated with increasing VC investments activity the effect is weaker in collectivist and uncertainty avoiding societies. On the other hand, Gantenbein, Kind & Volonté (2019) established that countries that have a more individualistic culture attract more VC activity. Sarajuuri (2018) corroborates this in their comparative analysis of the relationship between national culture and investment VC activity in sixty-seven countries. The authors also established that more feminine cultures were associated with a higher level of VC activity.

In their study of Asian VC markets, Dai et al., (2012) assert that although foreign VC investors have advantages compared to domestic VC investors due to their experience and size, foreign VC investors were disadvantaged when doing information collection due to cultural disparities. Cultural differences were also found to have a negative influence on VC syndication. The greater the distance culturally between the host and home country, the lower the likelihood of VC syndication (Dai & Nahata, 2016; Dai, et al., 2012). Cultural disparities were also associated with poor exit performance (Dai, et al., 2012). Using China as a model, Hain, et al., (2015) established that in VC markets where geographical, cultural, and institutional distance posed a challenge to cross-border investing institutional trust mitigated the negative effects of both cultural and geographical distance in emerging markets. However, in developed markets, Chinese VC investors relied on relational trust to mitigate distance.

We therefore expect that developing countries with greater cultural disparities between the VC firm's home country and the portfolio companies' host country receive less cross-border VC than developing countries with less cultural disparities.

Regulatory quality. The investment decisions of foreign venture capitalists are influenced by factors including the investment climate and institutional settings in the host countries' startup ecosystems (Scheela &Chua, 2011). VC firms prefer to invest in countries that create opportunities for innovation by facilitating strong legal, financial, technological, and political institutions to protect investor rights, guarantee legal and regulatory stability and facilitate exits (Guler & Guillen, 2010a).

Cross-border VC investors in developing countries face the challenge of underdeveloped legal systems that increase risks due to liabilities of foreignness as they navigate the regulatory environment in these distant and underdeveloped markets (Wu & Salomon, 2017). Inferior quality regulatory frameworks in developing countries such as high regulatory opacity, red tape, and non-transparent regulatory systems pose major challenges to VC investors in the management of their VC investments. As a result, this hampers the attractiveness of a region to VC investors (Mmieh, & Owusu-Frimpong, 2004).

The quality of the legal system has been established as a key determinant of cross-border VC investments in entrepreneurial finance research. Lerner & Schoar (2004) established that in emerging markets both the index of law enforcement and the legal origin matter in financial contracting between VC investors and their target portfolio companies. Less developed legal systems do not facilitate the legal enforcement of

financial contracts in the event of a dispute thus increasing VC investors' moral hazard concerns. In countries with better legal systems, investors demand more downside protections when designing their financial contracts, provide more value adding services, and investors are more active in exercising corporate governance obligations (Botazzi, Rin & Hellmann, 2009).

A country that enjoys better investor legal protections increases the willingness of foreign VC investors to provide equity capital to its entrepreneurial ventures as it mitigates against moral hazard risks inherent in early-stage financing of startup firms (Nofsinger & Wang, 2011). Therefore, a higher degree of legal protections for investors results in more attractiveness for cross-border VC investors (Mpofu & Sibanda, 2015). Using 36 African countries in their study Adongo (2011) found that institutional factors that affect the financial, macroeconomic, and regulatory environment influence the countries' VC investment attractiveness in Africa.

A business environment that is friendly to investors is one that has established rules that allow for property and contractual rights, investor protections, and facilitate conflict resolution (Hallisy, 2008). Countries that have strong regulatory institutions enable entrepreneurs to easily run their businesses within the rule of law and thus tap into the benefits of a simple, transparent, and efficient rules and regulations. In Latin America although foreign VC investments have seen a significant growth since the early 2010s, poor institutional development is often the cause of VC investor flight in the region (Marques, Andrade & Gonzalez, 2022).

In a comparative benchmark study of six developing Asian countries of Vietnam, Thailand, the Philippines, Malaysia and China, the Asian Development Bank found that

these developing countries had poorer regulatory quality compared to their more developed counterparts in the region – South Korea, Japan, Singapore, and Hong Kong which had an impact on their investment attractiveness (Schou-Zibell & Madhur, 2010).

In their comparative study of the differences between VC investments in emerging markets in Latin America and Asia, Bruton, Ahlstrom & Puky (2009) found that institutional disparities in these two regions influenced VC deal selection, the monitoring of the portfolio firm post investment, the creation of entrepreneurial ventures, and their choice of exit strategies,

However, despite such challenges, VC firm cross-border investments continue to be on the increase which has attracted the attention of scholars to determine what are the antecedents to such investments, how these international VC firms are managed, and what are the performance outcomes in these foreign markets (Devigne, et al., 2018). In this study we expect that developing countries with better regulatory quality will higher amounts of cross border VC investments.

Political stability. Locational decisions in developing countries are also greatly influenced by considerations of the political economy (Naudé, & Krugell, 2007; Bartels, Alladina, & Lederer, 2009). According to Bhinda, Griffith-Jones, & Martin (1999) political instability increases investment risk in a country which in turn undermines any efforts to attract private capital flows. Developing countries in general suffer from a deficiency in good governance. Consequently, this affects political stability, respect for rule of law, effectiveness of government institutions, management of corruption, professionally managed tax collection systems, and quality of legal systems (Kaufmann,

Kraay & Mastruzzi, 2009; Ferreira & Ferreira, 2016). Although foreign VC firms can leverage their foreign political connections in the new markets to reduce their barriers of entry and to mitigate such liabilities of foreignness, (Sojli & Tham, 2017), in more geographical, institutional, and culturally distant regions, institutional trust is more important in alleviating the negative effects of distance in the expansion of VC firms into foreign jurisdictions (Hain, Johan & Wang, 2016).

According to Kaufmann, et al (2003), political stability is the risk of the destabilization of a government either through violent means as in a coup or through a constitutional crisis. Political stability poses a challenge to VC investors because a change in leadership often also comes with a change in policies that may affect foreign investors. In their study of VC activity in Latin America, Khoury, Junkunc & Mingo (2015) observed that political risk and institutional quality negatively influenced the size of VC investment in the region. Frequent political upheavals in Latin America fueled by leftist governments due to a decline in macroeconomic growth which impacts standard of living has resulted in the region's view as a risky bet (Barrett-Johnson, Rollins, de Ry & Jacobs, 2022)

The recent coups in African countries such as Burkina Faso in 2022, Mali in 2020, Guinea Bissau in 2011 and 2021, Chad in 2021, and Central Africa in 2012 are examples of instability that often undermine the efforts to attract foreign investors into sub-Saharan Africa (Mlambo, 2005; Ross, 2022). However, in a panel data analysis study of US investments into sub-Saharan African countries, Okafor (2016) observed that US investors were motivated by market seeking and resource seeking factors rather than efficiency seeking antecedents. The author established that factors such as corruption,

political instability, and exchange rates were not a major influence in the attractiveness of the region to US investors.

The MENA region has suffered from decades of insecurity, a lack of the rule of law and political instability owing to its high youth unemployment at 30 percent. Despite its immense oil wealth, youthful workforce, and strategic location, the MENA region has faced geopolitical risks from the 2011 conflicts in Syria and 2014 in Yemen, the 2010 Arab spring uprising in Tunisia and Egypt that spilled over to the whole region and the financial strain brought about the collapse in global oil prices in 2014 (Cammack & Bahout, 2018). However, governments are now working on implementing economic and labor reforms that can facilitate the private sector to drive greater inclusive growth and create jobs for its youth. (Jafar & Dusek, 2017).

Despite years of government containment of rebellious anti state insurgencies in India, Pakistan, Bangladesh, Nepal, Thailand and Sri Lanka, these movements have resurfaced and threaten to destabilize political stability in the south Asian region (Staniland, 2020; Lee, 2020). However, despite the overthrow of the governments in Malaysia, Thailand and Sri Lanka which have seen those economies shrink due to the impact of COVID as well, US VC investors such as Sequoia have reported their optimism in the VC market in the region due to the region's strong technology sector (Tong, 2022). In this study we therefore expect that developing countries with greater political stability and respect for the rule of law will attract greater amounts of annual cross border VC investments per capita.

Corruption. In their survey of 3.600 entrepreneurs around the world, Brunetti, Kisunko & Wider (1997) observed that institutional obstacles such as corruption were cited as reasons for not investing in Africa as it increased uncertainties and transaction costs of doing business in those markets. The fear of sudden policy and unexpected rules changes as well as lack of investor protection made the investment climate unattractive.

In the last ten years 80 percent of countries in the Sub-Saharan African region have made little progress in addressing endemic of corruption (Transparency International, 2022). According to the 2021 Corruption Perception Index (CPI), frontier markets in Africa are among the lowest ranked out of 180 countries – Guinea Bissau (162), Kenya (128), Togo (128), Cote d'Ivoire (105), Niger (124), Nigeria (154). These countries scored below 50 in the corruption index globally. Elevated levels of corruption are a major deterrent to investments in the African markets (Anyanwu, 2006).

Investors and multinational businesses remain wary of doing business in the Latin American and Caribbean region also due to historically negative perceptions of doing business in that region. Although the region has the fastest growing economies in the world such as Mexico and Brazil and besides putting in measures to deal with corruption, the region still faces challenges such as corruption and government red tape that hampers investors (OECD Latin America and Caribbean Anti-Corruption Initiative, 2022). The pervasive influence of corruption is reflected in the high-profile scandals that continue to embattle the region such as the Petrobras, the Panama papers, and the Odebrecht scandals (Lipton, Werner & Gonçalves, 2017). However, the 2019 Corruption Perception Index revealed that the Latin American region surprisingly has countries with low levels of corruption such as Chile, Costa Rica, and Uruguay but majority of Latin American

countries including Venezuela, Honduras and Nicaragua still struggle with the problem of corruption (Lagunes, Yang & Castro, 2019).

In the MENA region large nationwide patronage networks made up of political elites have bred crony capitalism and endemic corruption. A look at the 2017 Corruption Perception Index reveals that sixteen Arab countries scored an average of thirty-eight which is below the global average of 43 (Marwa, 2018). In a survey conducted by Carnegie Institute in 2016 on more than a hundred Arab leaders revealed that corruption was the second most cited challenge in the region after authoritarianism (Cammack & Bahout, 2018). Politically connected companies in the MENA region enjoy economic favors, thus stifling the growth of smaller entrepreneurial ventures that could create jobs and promote economic development in the region (Schiffbauer, Sy, Hussain, Sahnoun & Keefer, 2015).

Relatedly, in the Asian region, a study of the impact of corruption and legal protections on private equity returns in Asia Cumming, Fleming, Johan & Takeuchi (2010) found that countries with poor regulatory and elevated levels of corruption affected the performance of VC investments at exit. However, PE managers have devised ways to mitigate the effects of corruption by effecting organizational change so as not affect returns at exit (Cumming, Fleming, Johan & Najar, 2013). Rock & Bonnett (2004) also found this paradoxical phenomenon of high investment growth and high corruption especially in east Asian newly industrialized countries which they called the East Asian paradox. The authors found that although in the past, studies showed that corruption reduces investments and slows their growth, in the newly industrialized economies of East Asia, there exists a mutual exchange of government incentives in exchange for

kickbacks which explains the confounding relationship between corruption and investment or growth in East Asia.

Countries with lower levels of corruption also have lower performance and fixed fees charged by their fund managers (Johan & Najar, 2010). Overall better legal settings, culture and corruption levels have a major influence in determining VC and private equity fund manager fees. Corruption in general reduces investment attractiveness and influences the ownership structure and the decision on whether to take on a local partner in VC investment syndication (Javorcik, & Wei, 2009). Therefore, we expect that higher levels of corruption will affect the attractiveness of developing countries to US VC investors.

Entrepreneurial activity. Despite the hurdles of investing in new markets, there has been significant growth in the number of startup and innovation hubs in developing countries. In their study of determinants of VC investment activity, Bonini & Alkan (2012) observed that although sociopolitical and legal environments were crucial in influencing in cross-border VC investments, entrepreneurial environment also was a key facilitator in explaining the variations across countries of the levels of VC investments.

According to Forbes, Africa now has 643 tech hubs with majority being in Nigeria, Egypt, Kenya, and South Africa. Forty-one percent of these hubs are incubators, innovation hubs account for 24 percent of tech hubs and 14 percent are accelerators (Shapshak, 2019). African tech startups have gained the spotlight of global VC investors with the embrace of technological innovativeness which is creating opportunities for the growth of tech startups. According to Startup Blink, Africa's best startup cities in 2019

included Lagos, Nairobi, Cape Town, Kigali, Kampala, and Accra. African tech startups that harness the benefits of innovation will stay ahead of their peers (Statista, 2022).

In 2021, according to Partech's report on Africa Tech VC more than six hundred tech startups in Africa raised a combined total of $5.2 billion from venture capitalists. These amounts were three time greater than VC raised in the previous year driven by interest in funding growth stage startups such as Wave, Andela, Yoco, and Flutterwave seeking to scale-up their operations on the continent (Onukwue, 2022). Other companies that benefited from the rush of VC investment into Africa were Chipper Cash and TeamApt Ltd which made up the more than five hundred early-stage cross-border VC investment deals valued at less than five million dollars each that will benefit from US cross-border VC injection.

In Asia, both China and India make up the two largest developing economies in the region since the adoption by China of the Open Door Policy and India's liberalization of its economy in 1991. Both countries are also expected to join the ranks of top world economies such as the US by the year 2030 (Varun, 2020). The growth of the internet and diffusion of smartphone mobile technologies have facilitated the growth of entrepreneurial activity and the startup ecosystems in the two countries.

Today the world has close to 500 unicorns. India and China are home to close to half of them owing to the adoption of the new technologies to grow their businesses (Live mint, 2022). Startups are therefore expected to play a key role in propelling further the development of these emerging countries and enhance these countries attractiveness to foreign VC investors such as those in the US due to the large number of target portfolio companies with high growth potential (Tan, 2022).

The VC industry in Southeast Asia is young. However, Vietnam has in recent years emerged as a startup hub in the South Asian region due to its young highly skilled population, high smartphone usage, widespread internet coverage, and more importantly government support of the startup ecosystem. in the past Vietnam's policymakers have tended to favor credit-based solutions rather than equity-based solutions in SME financing due to its socialist history (Klinger-Vidra, 2014).

However, it is expected that as Vietnam continues to implement market-based reforms it will continue to be a destination of choice for foreign VC investors (Viet Nam News, 2021). VC firms going into the region form syndication networks to address issues of information asymmetry and institutional underdevelopment, (Aleenajitpong & Leemakdej, 2021).

The recent acquisition of two venture backed start-ups in the Middle Eastern - e-retailer Souq.com and Careem a ride sharing app is vindication of the investment potential in the region's entrepreneurial ecosystem (SyndiGate Media Inc., 2017). Such successful VC exits in terms of their monetary returns is bound to beckon other major foreign VC investors in Europe, the US and beyond to tap into these lucrative investments in these regions.

Therefore, we expect that developing countries with better regulations that facilitate higher levels of entrepreneurial activity in terms of the number of startups being created receive more cross-border VC investment deals targeting the portfolio companies than developing countries with lower levels of entrepreneurial activity.

2.5 US Cross-border VC Investments into Developing Countries' Startups

Financial disclosure requirements. Information asymmetries in VC investing arise because entrepreneurs often know more about their businesses than VC investors about the target firms. There is always a risk that entrepreneurs may not provide accurate information about the quality of their businesses and instead seek to overstate the attractiveness of their business proposal to achieve higher valuations and thus secure external equity. VC investors therefore must safeguard the risk of adverse selection and moral hazard (Amit, Glosten & Muller, 1990).

In general, evaluating early-stage VC investments which make up most startups in developing countries is challenging because these portfolio companies lack a good record due to their age that can be used to make informed decisions. VC firms in geographically distant and culturally disparate countries experience liabilities of foreignness which increases transaction costs. Also, monitoring the performance of their target portfolio companies in these distant markets post-investment needs more resources.

The screening process is of vital importance to venture capitalists especially when seeking to identify suitable portfolio companies in distant markets. VC firms receive funds requests every year but complete very few deals. When considering cross-border VC deals in geographically, culturally, and institutionally distant countries, the screening process becomes even more crucial in deal origination because the level of legal and institutional development may either impede or facilitate the screening, appraisal and due diligence process thus impacting the rate of VC investment, the ability to finance meritorious target portfolio firms and manage VC deal flow (Cumming, Schmidt & Walz, 2010).

Countries with strong legal systems facilitate the mobility of corporate governance practices from cross-border VC investments. The spillover effects of investment appraisal and management practices from developed countries' VC investments thus benefit and strengthen the host country's VC market's corporate governance best practices (Cumming, Filatotchev, Knill, Reeb & Senbet, 2017).

To address potential risks of adverse selection pre-selection as well as agency conflicts and moral hazard problems post investment brought about by informational asymmetries in distant markets, VC firms have developed mechanisms including thorough screening and rigorous portfolio firm selection criteria, due diligence, monitoring, and designing financial contracting and governance structures that incentivize entrepreneurs to behave optimally and thus mitigate risks (Sahlman, 1990; Kaplan & Stromberg, 2001).

VC firms undertake more rigorous screening measures ex ante in emerging markets where greater cultural disparities exist (Nahata, Hazarika & Tandon, 2014). Cross-border VC investments incur higher information and transaction costs in developing markets because these investments tend to be risky and opaque. Investors, therefore, require more intensive pre-investment screening and more direct control and management support post investment.

Well-developed institutional infrastructure that allows for greater financial disclosure requirements facilitates good corporate governance structures thus facilitating better VC investment management (Sahlman, 1990; Sapienza, et al, 1996; Kaplan & Stromberg, 2001; Cumming, Schmidt & Walz, 2010; Cumming, Filatotchev, Knill, Reeb & Senbet, 2017).

Wright, Lockett & Pruthi (2002) established that there are significant differences in the evaluation, risk assessments and eventual target portfolio company selection of domestic VC investors relative to that of foreign VC investors in Europe and Asia. To obtain information necessary for business valuation of their portfolio firms, foreign VC investors in India place greater emphasis on financial statements as well as production and technological capabilities (Wright, Lockett & Pruthi, 2002).

According to Cumming, Schmidt & Walz (2010) cross country differences in the quality of legal settings, legal origin, accounting disclosure standards have an impact on the corporate governance structures of cross-border VC investments in high tech portfolio companies around the world. Similar biases were also observed by Cumming & Walz (2010) in the reporting of VC fund performance. The authors showed that there were systemic biases in the reporting and disclosure of private equity returns depending on the legal and accounting environment in advanced versus developing countries.

Weak accounting standards and disclosure requirements inhibits proper screening and appraisal of target portfolio companies necessary in making pre-investment decisions for VC financing of entrepreneurial ventures by early-stage VC investors (Pruthi, Wright, and Lockett, 2003). Countries with strong legal systems and disclosure requirements provide favorable conditions for VC firm opportunity identification and evaluation.

We hypothesize that developing countries with strong institutional quality with regard to financial disclosure requirements attract more cross-border VC investment deals than developing countries with weaker financial disclosure requirements as VC investors seeking to invest in those countries need as much financial information as possible to

make sound investment decisions on their target portfolio companies pre-investment and to break barriers of information opacity prevalent in these privately held SMEs..

2.6 Target Portfolio Companies in Developing Countries

Capital Market Development. Rajan & Zingales (2003) contend that the development of the financial sector has a major impact on the economic growth of a country. The target portfolio company geographical location is key to determining its success. VC investors in a geographical location with a well-developed capital market and with access to a large cluster of entrepreneurial firm activity is more likely to encounter success in its investments and exists (Giot & Schwienbacher, 2007).

Poorly functioning, inactive, and less efficient financial and capital markets hamper the attractiveness of foreign markets (Black & Gilson, 1998). Less developed capital markets pose challenges of liabilities of foreignness to VC investors since VC investors' assessment of exit opportunities is crucial in determining whether to invest in entrepreneurial firms in any host country's VC market (Sterenczak, Zaremba & Umar, 2020). Therefore, VC investors are concerned about both the exit route and time to exit of their investments in these risky VC markets in frontier economies of Asia, MENA, Africa, and Eastern Europe.

According to Giot & Schwienbacher (2007) in a vibrant IPO market, better performing portfolio firms are more likely to be exited quickly via an IPO. Additionally, the authors also determined that larger syndicated VC investment deals tend to be exited quickly most often via IPOs or M&A owing to syndicate's greater expertise of the IPO markets and network connectivity in the host and home country. Jeng & Wells (2000)

assert that IPOs were the strongest driver of cross-border VC investing in advanced countries. However, Cumming, Fleming & Schwienbacher (2006) contend that a robust legal system has a much greater influence in facilitating portfolio firm IPO exits more than the size or level of activity of a country's stock market.

In their study of VC investments in the Asia Pacific region, Cumming, Fleming & Schwienbacher (2005) VC firms time their investments based upon the liquidity conditions of the capital market. The authors established that when VC firms had expectations of IPO exit market illiquidity, they tended to invest significantly more in early stage and high-tech target portfolio firms to postpone their exit. However, in times of more market liquidity (lower liquidity risk), VC firms invested proportionately more in later stage portfolio firms thus reducing the time to exit (investment duration). The liquidity of the exit markets also affected size of the VC syndicates. In less developed countries with higher liquidity risks due to the under development of their capital markets, VC investors invest in more early-stage investments and hold them for a greater investment duration as they strive to grow their investments.

The VC investor's choice of an exit route is also significantly affected by informational asymmetries. In their study of Canadian VC firms, Amit, et al (1998) observed that when venture capitalists invest in markets with high informational asymmetries, they chose to exit their investments through management buyouts as well as third party acquisitions rather than through IPOs even though IPOs generate higher returns relative to other exit strategies. This is because markets that suffer from severe information asymmetries such as those in developed countries experienced friction in information flow among investors in those capital markets.

A major deterrent to the growth of foreign portfolio investments into Africa is in the size of the stock markets on the continent relative to other developed countries. According to Osei-Assibey & Adu (2016), economies with more developed stock markets and high market indices often send positive signals to prospective investors making those countries more attractive to equity investors. Although venture capitalists are not portfolio investors, they rely on stock markets as an exit strategy for the sale of their investments.

Except for South Africa which hosts one of the largest capital markets in the world with a market capitalization of US$ 1, 051.528 billion, most African stock markets are small and often suffer from low liquidity levels (Anyawu, 2006). Consequently, this makes African markets less attractive to portfolio funds as well as to equity investors such as VC investors seeking to invest in high growth target portfolio companies in developing countries. This study therefore hypothesizes that developing countries with more developed capital markets receive higher cross-border VC investment deals than developing countries with less developed capital markets.

2.7 Gaps in Existing Literature

Overall, despite a significant increase in VC investments into developing countries in recent years, there is a dearth of research studies on the variety of factors and conditions that influence the attractiveness of host countries in developing countries to cross-border VC investments. As developing country VC markets continue to develop and grow in importance, insightful research on the factors affecting attractiveness of cross-border investments in these markets will provide VC investors seeking better

returns and new investment diversification opportunities with key information for locational decision making of their investments.

There are studies looking at the internationalization of private equity and VC investments around the world. Jeng & Wells (2000) one of the earliest studies looking at the determinants of VC investments considered this topic albeit within the context of advanced countries' settings. Other studies enrich the VC investment literature by looking at differing determinants of VC investments. Groh & Wallmeroth, (2016) for instance used mergers & acquisition activity, intellectual property, bribery, corruption, regulatory and investor protection, corporate taxes, unemployment, exports, and innovation. On the other hand, Jeng & Wells (2000) use a diverse set of variables such as GDP growth, market capitalization growth, labor market regulations, accounting standards, IPOs, and private pension funding.

Studies looking at the topic also considered this topic within the context of investor friendly advanced country settings with fewer information asymmetry and liabilities of foreignness concerns (Wright, Pruthi, and Lockett, 2005; Aizenman & Kendall, 2008; Bonini & Alkan, 2012; Devigne, et al., 2013; Vanacker, et al., 2014; Bellavitis, Filatotchev, Kamuriwo Vanacker, 2017).

Using macroeconomic drivers and volatility indicators in the US, Ning, et al., (2015) conduct their research to building on arguments from past research of Poterba, 1989; Gompers, et al., 1998; Jeng & Wells, 2000 and relying in variables such as production index, unemployment rate, real GDP growth, annual consumer price inflation and stock market performance indicators such as Russell 2000 return, 10-year Treasury bond yield, NASDAQ Composite return, and number of IPOs.

Bernoth & Colavecchio (2014) and Kelly (2012) also study determinants of PE investments in European countries using variables such annual GDP growth, inflation rates, unemployment rates, regulatory and institutional environment, market capitalization, and labor costs. Bonini & Alkan (2012) also used similar variables in their study as well as legal, entrepreneurship and political environment to study the drivers of cross-border VC investment in advanced countries.

Factors influencing cross-border VC investment flow into developing countries have rarely been studied. Instead, most cross-country level studies looked at determinants of VC investments into emerging markets (BRICS), developed countries such as the US and into Europe (Groh & Liechtenstein, 2012; Ning, Wang & Yu, 2015; Ndlwana & Botha, 2018). However, there are studies that have focused on new and emerging markets in the developing world. For instance, Klonowski (2011a) studied the growth of the PE market in Poland using variables such as economic growth, exit market development, entrepreneurial activity, institutional development, and returns to establish the key drivers of PE activity over a twenty-year period from 1990 to 2010.

Although BRICS are classified among developing countries, they have elicited more research in the recent past compared to other developing countries. In their study looking at drivers of PE investment in developing countries in Asia, Oberli (2014) decries the dearth of research in these emerging economies. Among the variables the author used include, IPOs, GDP growth, past investment returns, interest rates, capital gains taxation, labor market regulations, gross domestic savings, and the size and maturity of the PE market.

Studies on BRICS that have attracted the attention of publishers and scholars include Woeller (2012) who conducted a qualitative study on the impact of economic and legal settings on VC investments in BRIC countries and Klonowski (2011b) who looked at the influence of returns, investment process and legal environment on PE dynamics in BRIC countries.

Further, in their study of locational determinants of US VC investments into emerging markets, Fisher & Smyth (2013) established that shareholder right protections, capital gains tax and capital market development were important in influencing PE investments into emerging markets. Owens (2011) pointed out that robust economic growth and strong institutional environment increase post 2008 financial crisis helped improve attractiveness of BRIC countries. However, other studies looked at individual BRIC countries such as India (Ratanpal, 2008; Kumari, 2013; Neerza & Tripathi, 2019; Mustafa & Mazhar, 2020), Brazil (Carsalade & Renmo, 2014), and Russia (Hallisy, 2008).

Notably, studies looking at the idiosyncratic determinants of VC investments in developing countries have not been extensively covered due to the VC investing industry being at nascent stages in those countries. For instance, although Scheela, et al (2012) focus their study on developing countries, they narrowed it to focus on the Southeast Asian region. Additionally, Khoury, et al. (2015) studied developing countries in Latin America, while Bernoth & Colavecchio (2014) compared the determinants of PE investment into developing countries in Eastern and Central Europe versus developed countries in Western Europe.

Further, although studies such as those conducted by Jeng & Wells (2000), Johan & Najar (2010), Nofsinger & Wang (2011), Groh & Wallmeroth (2016) and Sarajuuri (2018) included developing countries in their datasets, these datasets included a mix of countries from advanced, emerging and developing countries. Consequently, they do not enable the bespoke examination of determinants of cross-border VC investments into developing countries.

However, it is worth noting that there are studies that have been conducted on locational determinants of VC investments into developing countries in Africa. Adongo (2011) built on Gompers, et al. (1998) and Jeng & Wells (2000) research work to examine the determinants of VC investments in Africa thus extending past author's research using a cross sectional analysis. The author studied the influence of variables such as R&D expenditure, rule of law, and information flow between VC investors and target portfolio companies on VC activity in thirty-six African countries.

Another study that looks at cross-border PE investment into Africa used variables such as growing middle class, high investment returns, successful VC exits, as well as economic and political reforms (Babarinde, 2012). Other studies that have focused their research on Africa include Mpofu & Sibanda (2015) and Molatlhwe (2016). However, there authors focused their studies on individual countries. For instance, Molatlhwe (2016) looked at the impact of capital market development, the sophistication of the banking system, and economic growth to determine their contribution to the growth of the PE investment industry in South Africa.

On the other hand, Mpofu & Sibanda (2015) asserted that the lack of institutional development, market illiquidity, the lack of a robust business sector as well as high

political risk contributed to hampering the operations and attractiveness of VC investors into Zimbabwe. Hassan (2010) observed that in Egypt, the reduction of corporate tax, business privatization, and improved energy subsidies helped attract more VC investors into their country.

Most extant research reviewed thus far has highlighted country level factors such as legal and political institutions, technological, capital market and human capital development as well as macroeconomic factors affecting the investment attractiveness of VC investments in advanced and emerging markets (Manigart & Struyf, 1997; Black & Gilson, 1998; Bruton, Fried, Manigart, 2005; Hege, Palomino and Schwienbancher, 2009; Cumming, Schmidt & Walz, 2010; Guler & Guillen, 2010a; Schertler and Tykvova, 2012; Vanacker, Heughebaert & Manigart, 2014; Hain, Johan & Wang, 2015).

Although studies such as Buchner et al. (2018) used geographical distance, institutional quality, and cultural disparities based on liabilities of foreignness theoretical framework, they analyze the topic from a firm level using VC from around the world and target portfolio companies also from a wide range of countries from around the world to assess the impact on VC performance. Therefore, to the best of our knowledge there is a need for research that considers country level factors (such as geographical distance, institutional and cultural disparities, and capital market development) that influence cross-border VC investments into developing countries within the theoretical framework of liabilities of foreignness and informational asymmetry.

In Chemmamur et al (2016) and Nahata, et al., (2014), the authors found that geographical distance had no impact on VC investments they examine this effect within the context of VC syndication. However, this study considers this factor in developing

countries in as far as it affects the attractiveness of developing countries to US VC investors. Other studies that looked at the influence of geographical distance in VC investments (Hain, et al., 2015; Dai, et al., 2012; Cumming & Dai, 2010; Makela & Maula, 2008; Sorensen & Stuart, 2001), they considered this factor within the context of advanced countries.

Also, although Dai, et al (2012) considered the impact of institutional, cultural disparities and exit market development on VC investments they did so using 6 Asian countries and within the context of syndication partner selection and VC exit performance. There are studies that used institutional variables to study the drivers of cross-border VC investments. For instance, Oberli (2014) and Scheela, et al. (2015) considered the impact of the strength of legal rights on VC investments in Asian markets. Vanacker, et al (2014) and Woeller (2012) also considered institutional quality using variables such as shareholder protections, political hazards, and bankruptcy laws within the context of European and BRIC countries.

Although Mpofu & Sibanda (2015) look at institutional quality using political hazards and regulatory underdevelopment to assess the drivers of PE investments in developing countries, the authors studied the impact in only one country in Africa – Zimbabwe. Jeng & Wells (2000) as well as Cumming, et al. (2010) looked at the influence of institutional development in facilitating corporate governance by foreign VC investors. However, the authors relied on accounting standard disclosure requirements in mostly developed and emerging countries. To address this literature gap, this study considers institutional variables to assess the impact of institutional quality in developing

countries using these variables - rule of law, political instability, regulatory distance, accounting disclosure requirements and corruption.

Studies that considered the influence of cultural disparities on VC investments included Johan & Najar (2010), Li & Zahra (2012), Moore, et al (2015) and Gantenbein, et al (2019). To the best of our knowledge, none of these studies consider the impact of institutional development and cultural disparities on cross-border VC investment activity into a group of developing countries. This creates a research opportunity to be examined in this study.

Also, capital market development has been used as a variable in numerous studies looking at determinants of VC investments, majority of these studies designed their research with a focus on its influence as a macroeconomic driver of cross-border VC investment within emerging and developed countries (Black & Gilson, 1998; Gompers, et al., 1998; Groh & Liechtenstein,2012; Kelly, 2012). Hege, et al. (2008) used capital market development to assess its influence in the performance disparities between VC investments in Europe and the US. However, other studies used capital market development as a variable within the institutional theory framework (La Porta, et al., 1997).

It is worth noting that Nahata, et al., (2014) uses the capital market development as a variable relying on the liabilities of foreignness framework. However, the authors do so while focusing their study on a mix of thirty advanced and emerging countries. Consequently, this study aims to fill the gap in entrepreneurial finance literature and cross-border VC investment literature by considering the capital market development

variable and its influence on VC investments in developing countries within the context of liabilities of foreignness theoretical framework.

Extant research on the internationalization of VC investment firms has revealed that there are a variety of factors and conditions that influence the way VC firms make their locational choices for their cross-border VC investments. The role of the institutional quality, cultural disparities, geographical distance, the investment climate's impact on corporate governance structures, the influence of capital market development on the decision to invest VC funds in destination markets in developing countries is a topic that is lacking in entrepreneurial finance literature and therefore warrants further scrutiny using longitudinal data and suitable methodology to evaluate the hypotheses discussed above.

To achieve this aim, this study aims to examine three research questions to establish which locational determinants (institutional quality, cultural disparities, geographical distance, capital market development) have a significant influence on the VC investment flow into developing countries. Firstly, the research will seek to determine what are the similarities and differences of US cross-border VC investment firms investing in developing countries?

Secondly, the study will investigate what are the locational determinants of cross-border VC investment deal flow into developing countries. Thirdly, the study will seek to determine whether there are any significant differences between the four regions (MENA, Africa, Latin America/Caribbean, and Asia/Pacific) that are represented in the developing countries regarding the influence of liabilities of foreignness and information asymmetries on cross-border VC investment deal flow?

3.0 METHODOLOGY

3.1 Introduction

Although the global expansion of venture capital investments by US VC firms was initially concentrated in Europe, recently there has been a shift in the VC firms' expansion strategies into other growing markets such as those in Asia Pacific, MENA, Latin America, and Africa fostered by the increased integration of the global financial system (Cornelius, 2011).

US cross-border VC investments into developing countries' target portfolio companies has increased in the past ten years since the year 2010 following the global financial crisis. However, despite the regions' increased interest by venture capitalists and the significance of such investments in terms of their potential to facilitate SME development in these distant markets, there has been limited research work done to establish what factors and conditions are attracting outward VC investments by US VC investors into these new frontiers of investment growth.

Internationalization of VC investments often face the challenge of liabilities of foreignness (Zaheer, 1995) due geographical distance, cultural disparities in the host countries, a general lack of institutional development as well as the lack of development of host country capital markets. Despite their challenges, developing countries' portfolio companies in various sectors and stages of development have continued to attract US cross-border VC investments Consequently, the aim of this research is to investigate which locational determinants of VC investments into these developing countries have a significant influence in attracting US cross-border VC investments. Further, the study also seeks to examine whether there is a significant difference between the four regions

(Africa, MENA, Asia Pacific, and Latin America) represented by the 22 developing countries used in the research. Figure 2 shows a summary of the conceptual framework as discussed above.

Using cross-border VC investments deal flow data obtained from Standard and Poor's Capital IQ database in this section the objective of this study is to answer the research questions and test the hypotheses of the study based on the liabilities of foreignness and information asymmetry theoretical framework using the panel data regression methodology.

Most extant research looking at determinants of cross-border VC investment flow has focused its attention on emerging markets and advanced countries (Jeng & Wells, 2000; Cumming, Schmidt & Walz, 2010; Guler & Guillen, 2010a; Schertler and Tykvova, 2012; Vanacker, Heughebaert & Manigart, 2014). Different estimation methods have been used to conduct past studies. Studies such as Johan & Najar, 2010; Cumming, et al., 2010; Khoury, et al., 2015; Vanacker, et al., 2014; Neerza & Tripathi, 2019 looked at determinants of VC investments across countries relied on various kinds of regression models – OLS, probit, and multinomial regression.

Although ordinary least squares (OLS) regression analysis has also been used in conducting research on determinants of VC investments that considers time series data for one country (Johan & Najar, 2010) or a cross sectional analysis of data that considers several countries in one year (Ferreira & Ferreira, 2016), panel regression analysis has a better analytical capability for this study since it considers the variations in the factors influencing the value of VC investment flow into several countries both over several

years as well as cross sectionally as in Li & Zahra (2012) and Hain, Johan & Wang (2015).

Using OLS regression Johan & Najar (2010) established that legal conditions, culture, and corruption play a crucial role in determining the amount of legal fees charged by international VC and private equity fund managers. In another study of what lures cross-border VC investments Schertler & Tykvova, (2012) consider factors such as expected economic growth, capital market development and favorable business climate as factors attracting cross-border VC flows using a panel data OLS regression. However, OLS regression omits the consideration of the effect of time and cross sections on the sample data.

Other methodologies used in investigating the determinants of VC investments include the gravity model (Portes & Rey, 2005). However, this model would not useful when comparing differences between countries and over time. Another method identified in the VC investment literature include the Poisson model used in their study of the internationalization of VC investments. The suitability of this method was also identified as being weak since it makes strong assumptions about the sample data thus not allowing for the objective assessment of the heterogeneity of the sample data (Schertler & Tykvova, 2011).

Hain, Johan & Wang (2016) rely on general least squares (GLS) regression to estimate the effects of both institutional and relational trust in determining cross-border VC investments into advanced countries and emerging markets. The authors determined that institutional trust was more crucial in reducing the negative effects of geographical and cultural distance in emerging markets while relational trust was more important in

cross-border VC investments in advanced countries. Li & Zahra (2010) also used the panel data GLS model regression in their investigation of the influence of formal institutions and culture on VC activity globally.

However, all these studies look at the determinants of the internationalization of VC investments using data sets with majority developed countries. Consequently, there is a dearth of research investigating the determinants of VC investments in developing countries. To the best of our knowledge based on the literature survey conducted during this study there are no studies that examined locational determinants of US cross-border VC investments into these twenty-two developing market economies together using longitudinal data as in this study.

3.2 Data, Sample and Procedure

The data was collected from the Standard and Poor's Capital IQ database. An analysis of the data reveals that there has been a steady growth in annual US cross-border VC investments into developing countries in the last thirty years (1988 to 2021) with the greatest increase in the annual cross-border VC investment being in the period after the global financial crisis and before the COVID-19 pandemic - the ten years from 2010-2020 under consideration in this study as shown in Figure 3. Another detailed analysis of the annual cross-border VC investment by country (Figure 4) shows that countries such as China, India, Israel, Singapore, and South Korea received the largest amounts of cross-border VC investments in the period under consideration.

Also, a look at the data by regions shows that the Asia Pacific region was the most preferred destination of the by US VC investors as it received the lion's share of total investments into the 22 developing countries under consideration. The MENA and Latin American regions received an equal share of total investments in the ten-year period – eight percent. However, sub-Saharan Africa was the least preferred destination of choice by US VC investors with only a two percent share of total US VC investments in the ten years under consideration (see Figure 5).

It is also evident from the data that certain sectors received greater number of VC investment deals than others. In the ten years under review, the information technology, financial sector, communications services, industrials, and consumer discretionary sectors were among the top five sectors of choice by US VC investors. However, portfolio companies in sectors such as real estate, utilities and energy were the least targeted by of US VC investments firms (Figure 6).

Further scrutiny of the data reveals interesting facts on fifteen of the most active US VC investment firms in developing countries in the period under review. The International Finance Corporation has been the most active investor in the region's small businesses followed by Accel Partners, 500 Global, and Y combinator management a VC firm that offers incubation services to start ups around the world. Other top US VC investors include, Deer management company, Techstars Central, LLC, Lightspeed Ventures, and among others (Figure 7). Majority of these firms' VC investment deals were originated either solely or as lead VC investors in a VC syndicate with other foreign VC investors and/or with domestic VC investment firms.

The study will evaluate the hypotheses with an econometric analysis of VC investment data into 22 developing countries over a ten-year period from 2010 to 2019. The VC investment deal data was collected from S&P Capital IQ database. In choosing the sample countries to work with twenty-five countries were originally identified as having the ten-year longitudinal data required to conduct this study. However, using the United Nation classification of countries only twenty-two countries were identified as having the classification of developing countries (United Nations Secretariat, 2014). It is these 22 countries that make up the sample used in evaluating the hypotheses and answering the research questions in this study. They include Jordan, Israel, South Korea, Mexico, Nigeria, Indonesia, Kenya, Argentina, Brazil, Singapore, Vietnam, Turkey, Taiwan, Philippines, China, South Africa, Chile, Colombia, Egypt, Hong Kong, India, and Russia.

Notably, these countries represent four regions around the world (MENA, Africa, Latin America & Caribbean, and Asia/Pacific). This is an important factor that will facilitate a better assessment and generalizability of the study in analyzing the attractiveness of VC investments into developing countries based on a range of factors and conditions in these countries while also allowing for the studying of any differences between the regions. Databases used to collect data for the independent variables include World Development Indicators from the World Bank, World Governance Index, Global Entrepreneurship Monitor (GEM), and Hofstede's cultural dimensions for cultural factors.

Procedure

With the data collected, it was arranged on a spreadsheet in columnar form with all variables - both dependent and independent each in their own column by country and by year as in (Stedmund, 2012). Once the data was formatted, data on independent variables were input into SPSS to conduct a principal component analysis (PCA) to eliminate the concern mentioned above of multicollinearity of the variables used in the study. This factor reduction technique reduced the variables from nine to four.

The four components were chosen based upon the scree plot and components that had eigen values greater than one (see Figures 9). The four principal components accounted for 71.25 percent of the cumulative variation in the variables (Figure 104). The components were then orthogonalized using a varimax rotation method with Kaiser normalization. Four variables (geographical distance, cultural difference, institutional quality, and capital market development) were then named based on factor loadings of 0.4 and above. The transformed variables generated by the PCA that are uncorrelated with one another as well as the data on the dependent variable – VC investment data by country and year are then input into EViews to conduct the panel data regression.

Using a fixed effect panel data model allows for the control of the effect of variables that affect total VC investments (dependent variable) into each country that are unobservable hence individually heterogenous (Oberli, 2014). Additionally, this methodology allows for the use of a large amount of data thus increasing the degrees of freedom, reducing the collinearity in explanatory variables as well as controlling for the effects of omitted variables. Further, Jeng & Wells (2000) observed that the fixed effect

panel data regression model is a better model for understanding the impact of determinants of VC fundraising (independent variables) from one country to another while the random effects model provides a better understanding of the variables' effect over time.

Using the panel data regression generalized least squares (GLS) model will cater for unobserved differences in the countries under consideration and therefore reduce biases in estimation since the countries used will differ in terms of their economic and institutional development, technological opportunities, cultural distance due to past colonial ties, and enterprising spirit. This model also permits for inclusion of variables that are time-invariant such as the geographical distance and Hofstede's cultural dimensions (Li & Zahra, 2012).

Consequently, this study will utilize the panel data GLS model regression methodology framework to investigate the locational determinants of VC investments into developing countries. The choice of methodology to analyze this panel data set is like that used in Groh & Wallmeroth (2016) and Precup (2015). The study will also employ an ANOVA test for each variable to determine if any differences exist between the regions in terms of influence on the amount of cross-border VC investments as in Kumari, 2013.

3.3 Research Design

Research Questions

In conducting our data analysis, this study seeks to answer the following research questions:

1. What are the characteristics of the US VC investment firms internationalizing into developing countries?

H1: The most active US VC investment firms investing in developing countries are larger, older, and more experienced firms with a global reach.

2. What are the locational determinants of cross-border VC investments into developing countries?

H2: developing countries with higher institutional quality receive more cross-border VC investment than developing countries with lower institutional quality.

H3: developing countries with greater cultural disparities between the VC firm's home country and the portfolio companies' host country receive less cross-border VC than developing countries with less cultural disparities.

H4: developing countries with lower geographical distance receive more cross-border VC investment than developing countries with greater geographical distance.

H5: developing countries with more developed capital markets receive higher cross-border VC investment deals than developing countries with less developed capital markets.

3. Are there differences between the four regions represented by the 22 developing countries – MENA, Asia/Pacific, Africa, and Latin America/Caribbean in terms of the locational determinants on the amount of cross-border VC investments?

H6: there are significant differences between the four developing country regions in terms of the locational determinants on the amount of cross-border VC investments.

To address the first research question, we will collect qualitative data on each of the companies showing characteristics such as age, global reach, sectors of interest, size of company (number of employees), target SME development stage, and type of financing offered. We hypothesize that there will be similarities and differences between these VC firms but that larger more experienced US VC investment firms will be more active in terms of deal originations in these developing countries (Cumming & Dai, 2010; Guler & Guillen, 2010a).

In answering the second question of the factors influencing VC investments into developing countries, we hypothesize that there will be a positive relationship between the amount of VC investment and capital market development, financial disclosure requirements and the scores on governance – rule of law, political stability, and

regulatory quality, corruption, and days to start a business. However, we hypothesize that geographical distance as well cultural distance, will have a negative influence on VC investment. To evaluate these hypotheses, we use panel data regression. Given the concern for multicollinearity we will conduct the principal component analysis to correct for the concern. To determine each variable's statistical significance, we will evaluate the hypothesis with alpha set at a 5 percent, significance level.

For the analysis of differences between the four regions, the ANOVA test will be utilized for each variable to compare the influence of the variables on VC investments into the regions. We hypothesize that there is a significant difference between the regions in terms of the significance of the influence of each of the factors in attracting cross-border VC investments. The statistical significance of each of the variables will also be set at a 5 percent level of significance.

Research Model

Despite the developing countries' increased attractiveness to venture capitalists and the significance of such investments in terms of its potential to facilitate SME development in these regions, there has been limited research work done to establish what factors and conditions are attracting outward VC investments by US VC investors into these new frontiers of investment growth. Consequently, the aim of this research is to investigate what are the determinants of VC investments into developing countries.

Using cross-border VC investments deal flow data obtained from Standard and Poor's Capital IQ database the objective of this study is to test the various hypotheses described above to establish whether institutional and legal development, corruption,

capital market development, political stability, geographical distance, financial disclosure requirements, cultural disparities, and entrepreneurial activity influence the value of cross-border VC investments into developing markets as shown in the research model in Figure 3. Definitions of the variables are provided in Table 1 in the appendix.

In conducting this research, we foresee potential threats to this research design both external and internal. Including the fact that although we hope for a balanced panel of data for 22 countries, we are also cognizant of the fact that we may not find all the data for each of the independent variables to be used in the study. This will result in an unbalanced panel which determine whether we can run a random effects regression. Additionally, we anticipate there to be multicollinearity in some of the variables such as the rule of law, political stability, corruption, and regulatory quality which require some remedial measure to be taken to eliminate the concern.

To conduct this study, we rely on a set of variables to construct the research model (see Figure 8). Each of the variables is backed by past literature as discussed in section 2 - Literature Review. The research model shown is made up of one dependent variable – the natural logarithm of the total value of VC investments received into each country in the ten years under review. The model has nine independent variables - regulatory quality, cultural disparities, geographical distance, rule of law, political instability, corruption, financial disclosure requirements, entrepreneurial activity, and capital market development.

Although these variables have been used in past studies, they have not been used in combination as in this study to investigate their significance in influencing the cross-border VC investment decisions in developing countries. In Johan & Najar (2010), the

study considered the influence of legal conditions, culture, and corruption on VC investments in developed countries. Also, in Schertler & Tykvova, (2012) factors such as expected economic growth, capital market development and favorable business climate factors attracting cross-border VC flows also in developed countries were used.

Fisher & Smyth (2013) established that shareholder right protections, capital gains tax and capital market development were important in influencing PE investments into emerging markets using a conceptual model. Oberli (2014) used variables such as IPOs, GDP growth, past investment returns, interest rates, capital gains taxation, labor market regulations, gross domestic savings, and the size and maturity of the PE market in developed and Asian markets. Jeng & Wells (2000) relied on variables such as pension fund growth, market capitalization, GDP growth, IPOs, accounting standards, labor market regulations in 21 developed countries. On the other hand, Buchner et al. (2018) used geographical distance, institutional quality, and cultural disparities, to analyze the impact of liabilities of foreignness on VC performance from a firm level.

To the best of our knowledge, the research model used in this study has not been used previously to investigate the locational factors influencing cross-border VC investments into developing countries. Consequently, this model facilitates the unique showcasing of this topic and an enriching of VC investment literature in a bespoke manner. The variables are shown in the order they were discussed in the literature survey. The research model designed for this study is the best diagrammatical representation of the analytical process to be conducted as it shows the nine independent variables and their expected interactions with the dependent variable. It is this model that we use to test statistically our hypotheses for this research using the panel data regression methodology.

3.4 Measures

Dependent variable

The dependent variable in this study is the monetary value of VC inflows into each developing country's portfolio companies as in Gompers, et al. (1998); Poterba (1989); Jeng & Wells (2000). In past studies, cross-border VC inflows have been shown to be strongly influenced by the size of the countries under consideration (Armour & Cumming, 2006; Cumming & MacIntosh, 2006). Consequently, we use the total amount of VC investments per capita as our measure of cross-border VC activity in a country. The value of VC investments is expected to be higher for countries with a larger active population where an active population is defined as the number of people aged between 15 and 64. Also, use the log of the total VC investment per capita into the developing countries for the ten years from 2010 to 2019 to achieve better functional form in the model.

Independent variables

Geographical distance. As in Buchner, et al. (2018) geographic distance between VC firms and the target portfolio companies is the distance between the capitals of the countries of the VC firm and those of the portfolio company in each developing country under consideration. Other studies that utilized a similar measure include Hain, et al., 2015 and Dai, et al., 2012. On the contrary, in Cumming & Dai, (2010) and Nahata, et al., (2014) the authors calculated geographical distance using the average longitude and

latitude data of the VC investor's home country and the target portfolio companies' host country based on Coval & Moskowitz (1999, 2001).

However, Nahata, et al., (2014) observed that using the average longitude and latitude measure for geographical distance resulted in high correlation with cultural dimensions. Consequently, in this study we will rely on data obtained from the CEPII website where distances between country dyad capitals are already calculated (Mayer & Zignago, 2011). Here we expect a negative impact on cross-border VC investment flow into each country the longer the distance from the VC firms' home country (the United States) since local embeddedness and geographical proximity are important in reducing liabilities of foreignness.

Cultural disparities. The expansion into new markets such as those in Africa, MENA, Latin America, and Asia/Pacific brings with it the challenges of cultural disparities which affect monitoring and value addition post investment, VC firm and CEO interactions as well as partner selection in VC syndication (Pruthi, Wright & Lockett, 2003; Nofsinger & Wang, 2011; Dai, et al., 2012; Cornelli, Kominek & Ljungqvist, 2013; Dai & Nahata, 2016). As in other studies (Hain, Johan & Wang, 2015; Dai & Nahata, 2016; Buchner, et al., 2018), we follow the cultural distance calculation in Kogut & Singh (1988). Data on cultural dimensions will be obtained using Hofstede's et al (1984) six cultural dimensions of individualism, masculinity, power distance and uncertainty avoidance to estimate the influence of cultural disparities on cross-border VC investments.

Legal and institutional distance. Venture capitalists conducting their operations in unfamiliar markets incur additional transaction costs ex-ante and have less capabilities to add value post investment. Institutional distance therefore is an obstacle to cross-border VC investment activities. Past studies have used different indices to measure the institutional differences (Cumming, et al., 2010; Cumming, et al.,2006; Groh & Wallmeroth, 2016; Guller & Guillen, 2010). In their seminal work on finance and law, La Porta et al. (1998) also provides legal index variables which consider corruption, rule of law, efficiency of the judicial system, among others which together measure the quality of a country's legal system.

In Cumming, Schmidt & Walz (2010), the authors use the legality index constructed by (Berkowitz, Pistor, & Richard, 2003) which is a weighted average of the legality variables by La Porta (1998) in their study of the effect of institutional differences on corporate governance structures of VC activities around the world. In Li & Zahra (2012), the authors use World Governance Index (WGI) designed by Kaufmannm Kraay & Mastruzzi (2007). The authors observed that this index had more advantages than other measures as it was the most comprehensive in terms of the number of institutional dimensions it considers.

However, they also highlighted a limitation with the index in that the variables that make up the index are highly correlated, thus could not be used simultaneously in a regression model. Therefore, to correct for the multicollinearity, Li & Zahra (2012) created a composite index using principal component analysis of the six variables in the WGI for use in their research.

As these studies show, better quality institutions afford VC investors protections against liabilities of foreignness as well as protection against the risk of contract repudiation and expropriation which increase the risks of moral hazard. In this study we will measure the legal and institutional distance as the regulatory quality score of the portfolio company's host country obtained from the World Bank's Worldwide Governance Indicator (WGI) as in Buchner, et al (2018).

Political stability. Political instability is a major deterrent to cross-border VC investment as it increases the costs of doing business abroad. It also increases liabilities of foreignness and moral hazard risks and uncertainties of doing business in politically unstable foreign markets (Daude & Stein, 2007; Kaditi, 2013). In Okafor (2015), Ferreira & Ferreira (2016), and Sarajuuri (2018), the authors used the number of terrorist incidents and absence of violence as well as coups and politically instigated violence as a proxy for political stability. However, in this study, we measure political distance, using data collected from the World Bank's Worldwide Governance Indicator (WGI) to obtain the scores of the portfolio company's host country political stability.

Corruption. Developing countries suffer from the negative perception that corruption is rampant, endemic, and out of control. Although developing countries have tried to implement controls to counter this perception, this image continues to affect the willingness of foreign investors including international VC investors to invest in these regions as much as they invest in developed countries (Darley, 2012; Ferreira & Ferreira, 2015). In this study we will rely on corruption data retrieved from the Corruption

Perception Index prepared by Transparency International for each country for the ten years under consideration (Johan & Najar, 2010; Cumming, et al., 2010).

Entrepreneurial activity. Evans & Leighton (1989) established that VC investments are important in increasing access to finances necessary for the growth and survival of startups. Consequently, the greater the number of startups being formed the higher the need for VC investors and thus the greater the pool of target portfolio firms to pick from. In their study of the legal and political determinants of VC investments around the world, Bonini & Alkan (2012) measured entrepreneurial activity using an index obtained from the Global Entrepreneurship Monitor (GEM) survey. Although this database covers captures data from around the world on informal businesses - early-stage entrepreneurial firms especially those in developing countries (Acs et al., 2008), this database is missing data on some countries in our sample and has data only up to 2018 which would result in a lot of missing data.

Li & Zahra (2012) also collected their data from WorldBank Group's Enterprise Survey which focused on the formal SME sector in advanced countries Klapper & Delgado (2007). In this study we use the country score on the ease (days and costs to register a new startup) of starting a business as a proxy for entrepreneurial activity. To obtain data on days to starting a business we will collect data from the World Bank, Doing Business databank as in Oberli (2014).

Financial Disclosure Index. Better financial disclosure requirements facilitate better deal screening and origination thus reducing the information asymmetry risk of

adverse selection. Superior accounting standards and disclosure requirements offer higher screening capabilities to VC investors that facilitate the supply of VC especially since information asymmetries are especially pronounced for early-stage high tech startups in distant markets such as those in developing countries. Cumming & Walz (2010) observed that fund managers tended to overstate their returns performance in countries that had high information asymmetries and where the legal and accounting environment were less stringent. In this study, we obtain disclosure index data, from the World Bank, Doing Business databank as in Cumming & Walz, (2010). A high country's score on the disclosure index is therefore expected to have a positive influence on the amount of VC investment flow as it allows for better screening, valuation, and overall corporate governance.

Capital Market Development. According to Rajan & Zingales (2003), financial markets are especially important in the development of a successful VC industry in a country. They are also crucial in attracting cross-border VC investments (Black & Gilson, 1998; Armour & Cumming, 2008; Jeng & Wells, 2000; Da Rin, Nicodano & Sembelleni, 2006; Gompers, et al., 1998). An active capital market facilitates IPO exits and increases the availability of capital necessary for acquisition activity. Therefore, cross-border VC investors are more willing to expand into these markets if they believe they can recover their initial investment through IPO floatation or trade sales/acquisitions as they do in their home countries thus reducing liabilities of foreignness.

Using data collected from the World Development Indicators of the World Bank and the Global Economic Monitor (GEM) survey which capture data including that of

developed countries (Klapper & Delgado, 2007; Acs, Desai & Klapper, 2008), we will calculate capital market development as the market capitalization divided by GDP as in Hege, et al. (2008), Li & Zahra (2012), Kelly (2012), and Nahata, et al. (2014). We expect that we should find higher cross-border VC investment activity in countries with a higher capital market development to GDP ratio.

4.0 RESULTS

4.1 Introduction

In this section we present the results of our data collection and analysis. The purpose of our analysis was to evaluate the hypotheses spelt out in the previous section. The research model included one dependent variable – the natural logarithm of VC investment per capita and nine independent variables (geographical distance, cultural disparities, regulatory quality, rule of law, political stability, corruption, a proxy variable for entrepreneurial activity, financial disclosure requirements, and capital market development. These measures were used in combination with the aim of answering the three research questions of the study.

Venture capital investment data was collected from Standard and Poor's Capital IQ database. To answer the first research question qualitative data was collected to highlight the characteristics of the US VC investment firms investing in developing countries. Although we started off with nine independent variables, using the factor reduction technique - PCA, we reduced the variables to four components – geographical distance, cultural disparities, institutional quality, and capital market development. Using the PCA technique we eliminated the multicollinearity concern in the variables. These components were then rotated to obtain four orthogonalized factors used in conducting the panel data regression model.

The data was analyzed using the fixed effect GLS regression model as mentioned in the Methodology section. at a 5 percent level of significance. ANOVA tests were also run to analyze the differences between the four regions (Asia Pacific, MENA, Latin

America and the Caribbean, and Africa) for each of the four variables. The results are presented below in order of the research questions.

4.2 VC Investment Firm Characteristics

The VC firms that are investing in developing countries under consideration had various characteristics both similarities and differences. The sample selected was made up of 4,674 US VC investors all investing in the twenty-two developing countries over the ten-year period 2010 to 2019. Table 2 provides a summary of the fifteen most active US VC investors and their characteristics in terms of age, geographical areas of interest, SME stage of development invested in, and amount invested into the twenty-two developing countries considered in the study over the ten-year period from 2010 to 2019. The VC companies highlighted were either sole or lead investors each of the deals. As we highlight below the VC investment companies had both similarities and differences among them.

Most of these VC investment firms were private equity and/or VC investment firms based in the United States. However, YCombinator, Techstars Central, and 500 Global are startup accelerators and incubator. These VC firms although highly active in these developing markets, they originated small deals in value over the ten-year period compared to investors such as the International Finance Corporation, Warburg Pincus, Accel Partners, and BRV Partners which have invested large amounts over the ten years in these developing countries.

Additionally, majority of the VC companies have a global reach with investments and branch offices all around the world where they have investments in both developed

and developing countries. Their deals have been originated in all the four regions represented by these developing countries - MENA, Africa, Asia/Pacific and Latin America and the Caribbean with India and China being the most preferred VC investment destination of the twenty-two countries.

These investments companies also invest in a wide range of sectors including mostly information technology, utilities, consumer discretionary, industrials, renewable energy, healthcare, and financial services. However, a few such as Accel Partner, YCombinator and 500Global invested in technology startups globally.

Further, the data collected revealed that most of the VC investment companies are old and experienced. The oldest VC company that is most active in these developing countries being the Deer Management Company, LLC established in 1911. Other old VC investors include the International Finance Corporation founded in 1956 (66 years old), Warburg Pincus, LLC (56 years), Lightspeed Ventures, LLC (51years old). The youngest but most active investor in these developing countries was the 500 Global company, an incubator and accelerator investing mostly growth capital in technology startups in MENA, and Africa among other developing countries. Other young VC investors include GGV Capital founded in 2000, YCombinator – 2005, Techstars Central – 2006, 500 Global - 2010 and Qualcomm Ventures – 2000. Notably, all these young VC investment companies have a sectoral bias towards startups in the technology sector around the world.

The VC investment companies investing in developing countries differed in terms of size of the workforce employed. Some of the companies had a small workforce profiled with companies such as BRV Partners, LLC with 12 employees, West Street

Capital Partners with 36 employees, DCM Ventures, Inc having 20 employees, and Qualcomm Ventures with 24 profiled employees. However, there were companies with a large workforce such as Techstars Central, LLC having 124 employees, the Warburg Pincus with 330 profiled employees, the International Finance Corporation with 314 employees, and 500 Global with 126 employees.

Most of the US VC companies sampled had similarities in that they invested in all stages of development of their target portfolio companies ranging from early stage, seed stage, middle ventures, late stage, turnaround as well as growth stage SMEs. They also had similarities in the type of transactions they originated. These VC investors facilitated investments in growth capital, distressed/vulture investments, recapitalization, leveraged buyouts in exchange for either majority or minority stake in their target portfolio companies.

4.3 Data Analysis and Results

Descriptive Statistics

Table 3 gives the summary statistics of the four independent variables (cultural disparities, geographical distance, capital market development and institutional quality) as well as the dependent variable (natural logarithm of VC investment per capita). All the variables in the 22-country sample have 189 observations. Due to missing data in capital market development as well as in entrepreneurial activity variables, the sample resulted in an unbalanced panel dataset. Table 4 provides the correlation matrix. Here we show that the variables have low correlations owing to the use of the factor reduction technique

(PCA) conducted to eliminate for multicollinearity in the variables before conducting the analysis.

Principal Component Analysis

The PCA was conducted with the nine independent variables for the 22 developing countries and for the ten years under consideration – 2010 to 2019. Four components were extracted based on the criterion utilized of eigen values above 1 as shown on the scree plot (Figure 9). A look at the Total Variance Explained Table (Figure 10) shows the four components explained 71 percent of the variance. Consequently, based on this result, the first four components were retained for use in the regression analysis.

Using the results of the rotated component structure matrix coefficients we determine the dimensions represented by the components. Higher correlations indicate a stronger relationship between the variable and the component. According to Meyers, Gamst & Guarino (2013), structure coefficients of 0.8 and higher are strong indicators; coefficients in the 0.7s are relatively strong indicators. However, coefficients in the 0.6's and 0.5's are moderate indicators while those in the 0.4's and 0.3's are modest indictors.

Looking across the factors for each variable in our results, we establish that the first component correlates reasonably highly (based on factor loadings) with these variables – regulatory quality, corruption, rule of law, entrepreneurial activity, and financial disclosure index. Therefore, we subjectively label it institutional quality. A similar analysis of the other dimensions is conducted and followed by a subjective labelling of the variables based on factor loadings. The second component is associated

highly with geographical distance while the third relates highly with capital market development based on factor loadings on the rotated component structure matrix. The final dimension has high factor loadings that relate highly with cultural disparities. Moving forward to the regression analysis these four dimensions are named for the variables – institutional quality, geographical distance, capital market development, and cultural disparities.

Panel GLS Regression Estimation and Results

The regression model used was the fixed effect panel EGLS regression on an unbalanced panel dataset of 189 observations for twenty-two countries in the period 2010 to 2019. The panel data fixed effects model assumes that all countries in the panel have the equal variance and thus no correlation exists over time neither within nor across the countries in the panel. On the other, the panel data random effects model assumes that although both the unobserved effect and the explanatory variables are uncorrelated and both factors vary randomly over time and between countries (Cameron & Trivedi, 2005). However, the random effects model could not be used as the panel data is unbalanced.

As in Li & Zahra (2012) and Hain, Johan & Wang (2015), Groh & Wallmeroth (2016) generalized least squares model was deemed a good fit for the data set as it resulted in a R-squared of 79.77 percent. Cross section dummy variables were used in estimating the model. To improve the functional form of the model, a natural logarithm of the VC investment amounts was computed and subsequently used in conducting the panel regression. Additionally, a look at the Durbin-Watson statistic of 1.9037 which

rounds up to approximately 2 reveals that the regression model was also free from serial autocorrelation and therefore a sound model (Table 5).

As was expected, both geographical distance and cultural disparities were found to have a negative influence on cross-border VC investment activity. For every one-point increase in geographical distance, VC investment into developing countries decreased by -3.9724 points on average. Also, for every one-point increase in cultural disparities, VC investment into developing countries decreased by -2.4930 points on average. Both coefficients were found to be statistically significant since their p-values (0.0271) for geographical distance and 0.0001 for cultural difference) were less than alpha (0.05).

On the other hand, both institutional quality and capital market development have a positive influence on cross-border VC activity as hypothesized. Additionally, their coefficients were found to be statistically significant as their p-values of 0.0000 is less than alpha (0.05) for regulatory quality and 0.0001 is less than alpha (0.05) for capital market development. The size of these coefficients was also found to be significant since for every point increase in regulatory quality and capital market development, cross-border VC investments into developing countries increased by 1.5433 due to regulatory quality and 3.7555 due to capital market development.

Differences between regions (ANOVA Tests)

Another objective of the study was to establish whether there were differences between the four regions represented by the developing countries – Latin America, MENA, Africa, and Asia Pacific. Further analysis of the data was conducted using ANOVA tests for each of the independent variables against the four regions to determine

if any differences exist between the regions on SPSS. To compare the differences in terms of the impact of each variable between the four different regions, four different one-way ANOVAs were conducted for each independent variable.

The overall analysis established that each of the four independent variables was statistically significant based on Levene's test of equality of error variance (we assume equal variance). Consequently, additional statistical analysis was performed to determine which pairs of regional means are statistically significant. To obtain the multiple pairwise comparisons of the regional means we used the Tukey's and Dunnett C tests.

With the test of between subjects being statistically significant we can confidently say that some of the regions means, or a combination of regional means differ from each other or a combination of means. The results revealed that the four regions (MENA, Asia/Pacific, Africa and Latin America and the Caribbean) differed significantly in all the factors – geographical distance, cultural differences, capital market development and institutional quality. The post hoc tests Tukey and Dunnett's C address this issue.

The interpretation of the results on SPSS are as follows. The test of between subjects' effects omnibus for geographical distance (108.835) was statistically significant (0.001< alpha). Consequently, we conclude that there are some of the regional means differ from one another regarding geographical distance. Upon conducting of post hoc tests there emerges three subsets showing that regionals means or group of means of geographical distance are different from another (Figure 11). Latin America and MENA are both in different subsets which indicates that they differ significantly from the other two regions – Asia Pacific and Africa.

The one-way ANOVA for the cultural disparities' variable revealed the test of between subjects' effects with an F ratio (34.171) that was statistically significant (p value of 0.001). A subsequent pairwise comparison of the regional means revealed that Asia Pacific was the most different compared to the other three regions of Latin America, Africa, and MENA (Figure 12). Interestingly, although Africa was not significantly different culturally from MENA and Latin America, Latin America and MENA were significantly different from each other.

The one-way ANOVA for institutional quality also revealed a statistically significant p value (0.001) for the test of between subjects' effects with an F ratio (9.549) that was statistically significant (p value of 0.001) indicating that the four regional means or a combination of means differ from each other. The multiple pairwise comparison of the regional means revealed that Africa was the most significantly different from the other three regions as it was in its own subset (Figure 13).

Lastly, the one-way ANOVA for capital market development revealed a significant difference in the test of between subjects for the four regions. The F-ratio (4.236) for between subjects' effect was significant at a 5 percent level of significance at 0.006. However, upon conducting a groupwise comparison of the four regions, we find that Africa's capital market development means were significantly different from those of Asia Pacific as well as those of the MENA regions but not significantly different from Latin American capital markets. However, Latin America's capital market development did not differ significantly from any of the regions since they are classified under both subsets (Figure 14).

4.4 Discussion of Findings

Geographical Distance

The geographical distance between the US VC firm and target portfolio firm's host country was found to have a negative influence on the amount of VC investment flow into those developing markets. Also, it statistically significant given its p-value of 0.0271 which is less than alpha at 0.05. Our results were consistent with past research that looked at geographical distance and its impact on cross-border VC investment activity (Buchner, et al. 2018; Hain, et al. 2015). However, our results contrasts with Chemmamur et al (2016), who found that geographical distance had no statistically significant impact on the probability of undertaking cross-border VC investments. Our results corroborate past research that observed that geographical proximity is a crucial factor in the screening/appraisal and monitoring of VC investments (Sorensen & Stuart, 2001; Makela & Maula, 2006). VC firms rely on their local embeddedness to conduct rigorous evaluations of their target portfolio firms and in providing consultancy services as well as in managing their investments (Sapienza, Manigart, and Vermeir, 1996; Pruthi, Wright, and Lockett, 2003). We can therefore conclude that geographical distance therefore poses a huge challenge to conducting their operations, especially in these underdeveloped markets. This study also extends past research findings within the context of developing countries.

Cultural Disparities

In addition to geographical distance, cultural disparities were also found to be a strong determinant of foreign VC investments as in Dai, et al (2012) and Hain, et al (2015) as they increased the liabilities of foreignness caused by information asymmetries and moral hazard frictions of investing in small firms in developing countries. Cultural disparities were also found to have a negative influence on cross border VC investments into developing countries. Also, cultural disparities are statistically significant given its p-value of 0.0001which is less than alpha at 0.05. Our study aligns with past research (Sarajuuri, 2018; Gantenbein & Volonte, 2019) which found that the stated hypothesis that greater cultural differences negatively affect VC investments as they increase liabilities of foreignness and thus transaction costs of mitigating the risks.

In their cross-country study of the relationship between culture and VC investments, Gantenbein & Volonte (2019) found that power distance, uncertainty avoidance and masculinity had a negative relationship with VC investments. However, long term orientation, individualism, and indulgence had a positive correlation with cross-border VC investments. In Sarajuuri (2018), cultural differences represented by individualism, uncertainty avoidance and femininity were also found to have a statistically significant impact on VC investments across countries. Therefore, we can also conclude that cultural disparities have a major influence on which countries US VC firms choose as their investment destination among developing countries.

In the ANOVA test, of the four regions, Asia/Pacific was found to be the most significantly different from the other three regions culturally. Notably, this region has

also been the most preferred destination for most US VC investment into developing countries (Figure 5). Consequently, we can conclude that this region's culturally disparities were not significantly different from the US home market relative to the other three regions (Africa, Latin America and the Caribbean, and MENA regions) to function as a deterrent to US VC investment into the region. The region also had other factors working in its favor.

Institutional Quality

In our results show that institutional quality had a strong positive relationship with cross border VC investments into developing countries. Also, institutional quality was statistically significant given its p-value of 0.0000 which is less than alpha at 0.05. As in Brunetti, et al. (1997) that used surveys to establish the institutional obstacles that impact the business environment in developing countries, this study also established that higher institutional quality has a positive impact on the level of VC investment activity in developing countries at the 5 percent level of significance. Our findings also concur with Johan & Najar (2010) who established that institutional settings, culture and corruption increased liabilities of foreignness and moral hazard concerns thus resulting in the increase of transaction costs (increased fund management fees) of operating in these risky markets.

This study's findings concur with past research and with the theoretical framework on the effect of institutional environment that is used in the study as in La Porta, et al 1997; Cumming et al, 2010; Groh & Wallmeroth, 2016) which found that

good regulatory quality influences the amount of VC investment activity into a country. Similarly, Groh & Lietchetstein (2012) and Guler & Guillen (2010) established that institutional factors such as political stability, investor rights protections, were crucial factors in determining country attractiveness and VC investment allocation decisions in new markets abroad.

Although Li & Zahra (2012) used a composite of Kaufmann, et al., 2007 six dimensions of institutional development, this study obtains a similar result using the institutional dimensions of rule of law, regulatory quality, and political stability separately, as well as corruption to establish that countries with better institutional quality attract more VC investment. Neerza & Tripathi (2019) also found a similar result in their study of the effect of rule of law and depth of financial markets on cross-border VC investments in six Indian sectors.

However, Khoury, et al. (2015) found a contrary result in their study of the impact of institutional quality on VC investment flow into Latin American countries. Their results showed that VC investment flow had a negative relationship with quality of the legal systems thus indicating that poor regulatory quality in that developing region did not deter VC investors. The authors found that legal settings influenced the size of investment only when considered together with the portfolio company's stage of development rather than the overall country's institutional setting alone.

Like our results, in their study of the impact of corruption on the growth and investment into developing countries, Rock & Bonnett (2004) revealed that there was a statistically significant result of the institutional environment as impacted by corruption on investment and growth on both small and large developing countries. However, they

revealed a paradox on the effect of corruption on economic growth in large, newly industrialized countries in East Asia – despite their high rates of corruption the authors observed high growth rates too. Our findings revealed a robust positive impact of high institutional quality on amount of US cross-border VC investment.

However, our results are contrary to Moore, et al., (2015) who found that regulatory distance had no influence on cross-border VC investment flow into European countries. However, these authors found that cultural cognitive distance had a negative relationship with VC investment activity which is like our findings although our study's focus is the institutional quality's influence in developing countries. In their study of the determinants of external financing, Nofsinger & Wang (2011) also find that VC investors across twenty-seven countries six of which are developing countries value investor protections to mitigate against moral hazard concerns when investing in early-stage portfolio companies abroad. Our research findings extend Nofsinger & Wang (2011) findings in developing countries.

The analysis of differences between means (ANOVA) for institutional quality established that Africa was the most significantly different region relative to the other three regions. This may explain why the region was the least represented in the sample and received the least amount of cross-border VC investment form US VC firms in the ten years under consideration.

Capital Market Development

Our statistical analysis revealed that capital market development had a positive influence on cross border VC investments into developing countries. Also, it was statistically significant given its p-value of 0.0002 which is less than alpha at 0.05. As in their study of the path dependency of the vitality of capital markets and cross-border VC investment activity in the US, Japan, and Germany (Black & Gilson, 1998), this study also found a positive and significant relationship between capital market development and cross-border VC investment activity.

Precup (2015) also found a positive and statistically significant result in their study of the effect of market capitalization on PE investments in Europe. Our findings align and extend these studies but within the context of developing countries. As in their study of the effect of capital market development in attracting US VC investments internationally Guller & Guillen (2010) and Dai, et al (2012) study in Asian markets, our study also finds comparable results in developing countries – that greater capital market development had a significant effect of attracting foreign VC investors.

Similarly, in one of the earliest research studies that examined the determinants of VC investments across various countries, Jeng & Well (2000) also found comparable results, that an active capital market (one with a prominent level of IPOs) attracts more cross-border VC investments. However, the authors cautioned that their results could also be affected by reverse causality in that since most VC investments are exited via IPOs, therefore the prominent level of IPO activity in the capital markets was the result of more VC investments exiting by IPO - their preferred exit strategy. Upon testing for this

concern, the authors established that reverse causality was not a concern but that instead structural factors - capital market development influenced VC investment flow thus invalidating the reverse causality concern. The findings in this study therefore also go further into corroborating Jeng & Well (2000) within the context of developing countries.

Contrary to these findings on the impact of capital market development on cross-border VC deal activity, Schertler & Tykvova (2011) found that VC investor with high capital market development in their home countries (majority developed countries such as the US) invest more intensively at home and less into foreign markets even when other macroeconomic factors such as GDP growth and R&D expenditure favor the target portfolio companies' host capital markets.

The ANOVA test on capital market development revealed that African capital markets differed significantly from both Asian and Latin America in terms of the differences between the regional means. Capital market development means for Latin America were not distinctly different from other regional means as they are classified in both subsets.

5.0 CONCLUSION

5.1 Summary

The expansion of the US VC investments into foreign markets is a new phenomenon since VC investors have avoided internationalization of VC investments due to the risks involved in the internationalization of VC investments in distant markets. Although the VC investment industry has grown significantly in Europe, Asia and around the world since its beginnings, the US VC investment industry has remained the most dominant globally.

Historically, the US VC industry has preferred to hold their main investment activities domestically with a geographical focus on major investment hubs. This is because VC investments rely crucially on local embeddedness to facilitate the gathering of much needed information for pre-investment screening and appraisal and to provide value adding services and monitor their investments post investment.

Consequently, cross-border VC investments pose challenges to VC investors in foreign host markets. VC internationalization comes with increased transaction costs of doing business abroad compared to domestic VC investments. Cross-border VC investments suffer from increased information asymmetry risks due to the opacity inherent in distant and less developed markets and their target portfolio companies. VC investors need to be within close geographical proximity to their target portfolio firms to mitigate the risks of information asymmetry.

Additionally, foreign VC investors experience liabilities of foreignness in their investing in target portfolio companies in distant market which increases transaction costs as well as costs of screening, appraisal, and managing their investments compared to

domestic VC investors in the host countries. However, despite these challenges cross-border VC investments continue to be on the rise globally. Although European VC investment markets continue to dominate as a key destination for US VC investments there has been a shift recently in the expansion strategies of US VC firms into new markets such as those in developing countries in Asia, the Middle East, Latin America, and Africa.

SMEs in developing countries account for 40 percent of GDP in those economies. SMEs in developing countries therefore are crucial drivers of economic growth. 80 percent of the world population lives in developing countries and are expected to continue driving population growth. While developed economies are getting saturated and experiencing economic stagnation and stagflation, developing economies are experiencing faster economic growth rates of five percent and above thus creating vast consumer groups and enormous opportunities for cross-border VC investors seeking to invest in target portfolio companies in developing countries.

Securing VC financing is a key step towards growing developing countries startups. However, majority of these SMEs in developing countries are unable to secure funds from formal financial systems that can be used productively to fund the growth of their operations. This hampers the enterprising spirit as well as the economic development necessary for poverty alleviation in those economies. As a result, developing countries' governments are seeking to improve the attractiveness of their markets to foreign VC investors seeking to target their portfolio companies. On the other hand, VC investors also have an interest in investing abroad as they are seeking to diversify their portfolios in these new frontiers of growth.

This study was conducted to answer three questions, namely to determine the characteristics of the US VC investment companies investing in developing countries, what factors influence cross-border VC investments into developing countries and if VC investors were distinguishing between the regions in the levels of cross-border VC investment in the four regions represented by the developing countries based upon the factors influencing cross-border VC.

The study revealed that the US VC investment firms expanding into developing countries were large, older, had a global reach, and invested in a wide range of sectors. The data analysis conducted revealed that geographical distance, cultural disparities, institutional quality, and capital market development had a statistically significant influence on US cross border VC investments. Also, the analysis of the differences between the four regions –Africa, MENA, Asia Pacific, and Latin America showed that there were statistically significant differences between the regions based on the four variables.

5.2 Conclusion

The study therefore established that geographical distance, cultural disparities, capital market development and institutional quality were all significant locational determinants of US cross border VC investments into developing countries. Geographical distance and cultural disparities both had a significant but negative influence on the amount of VC investment while capital market development and institutional quality both had a positive influence on VC investment amounts. Consequently, VC investor firm

foreignness and information asymmetry concerns (adverse selection and moral hazard) were found to have a significant influence on US VC investment activity at a 5% level of significance in these distant markets in developing countries as was hypothesized.

Using the fixed effect panel data regression analysis, we established that all factors under consideration – geographical distance, cultural disparities, institutional quality, and capital market development had a significant influence on the flow of cross-border VC investments into the 22 developing countries under consideration in the ten years from 2010 to 2019.

It is therefore evident from our results that geographical distance affects the extent of a venture capitalist's active involvement in the portfolio firm as it allows VC firms access to tacit information that would otherwise not be transferable to evaluate and identify suitable investments. However, it is interesting to note that, although the results of the ANOVA test on geographical distance show that the two developing regions of Africa and Asia Pacific did not differ significantly, Asia was the most preferred destination for US VC investments while Africa received the least US cross border VC investments. This may signify that US VC investors consider other factors as crucial in their locational investment decisions such as institutional quality which factor Africa differed significantly from the other three regions.

Our study established that institutional quality is an important factor influencing US cross-border VC investment into developing countries. In this study institutional quality incorporate factors such as regulatory quality, corruption, political stability, and rule of law. We extend past literature that identifies institutional quality as a reason that

decrease the attractiveness of developing countries as it increased uncertainties and transaction costs of doing business in those markets.

Although institutional quality resulted in a significant factor in influencing US cross-border VC investment, the ANOVA test revealed that African countries were significantly different from the other three regions. Also, as the data showed, African countries received the least amount of VC investments from US companies. Consequently, we can conclude that low institutional quality has hampered the attractiveness of this region to US cross-border VC investments. Therefore, African governments need to put in more concerted efforts to address their institutional under development that has hindered their attractiveness to VC investments compared to other developing regions to increase VC investments into the continent.

Therefore, we conclude that US VC firms prefer to invest in countries that facilitate strong legal, financial, technological, and political institutions to protect investor rights, guarantee legal and regulatory stability and facilitate successful exits at the end of the investment's holding period.

Cultural disparities in developing countries were also found to be a significant and influential locational factor in determining the level of cross-border VC investment. Given that Asia Pacific was the most different from the other four regions, it is also interesting to note that the same region also received the highest amount of cross-border VC investments from the US VC investors. Therefore, we conclude that although the Asia Pacific regions was the most culturally disparate from the other three regions, this was not a deterrent to US VC investors since it received the largest amount of US cross border VC investment of the four regions. This may be explained by the age and hence

years of experience of US VC investors investing in these distant markets as well as their global reach which has allowed them to build a wealth of knowledge and skill to allow them to invest in such markets despite their culturally disparities.

In looking at the capital market development factor, we conclude that capital market development is an important locational determinant for US VC investment companies in developing countries. This study extended past literature on the factor within the context of developing countries. However, Africa differed significantly from the other three developing regions in terms of capital market development variable.

This may indicate another reason why Africa received the least number of US cross border VC investments compared to developing regions in Asia Pacific and MENA. Consequently, governments in developing countries such as those in Africa seeking to grow their economies need to consider making policy changes that will foster the deepening of their capital markets to benefit their SMEs and to attract cross-border VC investors seeking to inject capital in their SMEs.

Another important observation from this study is that the most active US VC investors were large based on size of employees. Also, the US VC firms investing into these developing countries were found to be mostly older although a few were young (12 years old), more experienced investors with a global reach, investing in a wide range of sectors although a few were sector biased in favor of technology. They also invested in all stages of development issuing seed and pre-seed capital, early stages, mid stage to later stage startup capital. Therefore, we conclude that large, older, and more experienced US VC investors with a global reach and investments in wide range of sectors have more investments in developing countries.

Our research contributes to enriching the scholarly literature on entrepreneurial finance using a unique panel data set sample of developing countries. Further, our reliance on liabilities of foreignness theory that has seldom been used in most extant literature also offers meaningful insight into understanding factors influencing US cross-border VC investment into distant markets in developing countries. The study also further enriches literature by focusing on developing countries which have rarely been considered on their own since most past research tends to use samples that mix both developed and emerging and/or developing countries in their research.

This study will contribute to entrepreneurial finance research knowledge that will provide new meaningful insights to business scholars and policy makers. The internationalization of VC firms has mostly been studied from the perspective of advanced country VC firm internationalization. There is limited research done with a focus on developing markets in general. This research study will add to the VC investment body of knowledge a new perspective that considers the factors and conditions that determine the attractiveness of host country markets to international VC investment deal flow.

5.3 Limitations of the Study

Originally, this study's goal was to consider cross-border VC investments into frontier markets. Musacchio & Werker (2016) define frontier economies as countries that display more than one of three characteristics – faltering GDP per capital in the last six years, corruption that creates market distortions, and institutional constraints in the arbitrary enforcement of laws and regulations. Although emerging, frontier markets are

countries that are still deemed underdeveloped. These markets are scattered around the world and can be found in Africa, Eastern Europe as well former Soviet Union countries, Middle East, and Asia. MSCI Frontier Market Index has 26 of frontier market economies. However, due to limitations of data the original study on VC investments into frontier markets could not be conducted.

In conducting this study, we experienced a limitation in the number of countries we could have included in the research because even though US VC investments have targeted numerous developing countries in the last thirty years or more, there were only 25 countries with enough data available to form a panel for the ten-year period from 2010 to 2019. However, out of these countries only 22 countries were classified as developing countries by the UN. Consequently, the selection of these countries was not random since all the 22 developing countries with adequate data were selected.

Also, the lack of adequate data limited this study from pursuing a study on VC investments into Africa. Another limitation found in this study was that of missing data on some of the variables. Consequently, our data set was an unbalanced panel thus limiting the use of random effects panel regression model.

5.4 Opportunities for Future Research

As more data becomes available future research could expand the study by including more countries and years for greater generalizability. Looking at cross-border VC investments into frontier markets in Africa would be particularly insightful to policy makers in the region seeking to increase the region's attractiveness. As was observed in this study, Africa received the least amount of VC investments compared to other

developing countries regions. It also differed most significantly in both institutional quality and capital market development. Research studies looking at way governments in Africa can improve these two aspects would be beneficial to the fast-growing region in boosting its attractiveness to US VC investors as well as other foreign VC investors.

As observed from the data, some of the US VC investments were made in partnership with other US VC investment firms or with foreign VC investors and/or with local VC investors. Future research could seek to investigate what are the antecedents to forming VC syndicates for VC investors expanding into developing countries? Does the likelihood for US VC investment firms to form syndicates when investing in developing countries increase compared to their other VC investments in more advanced countries? What criteria do the US VC investors use when choosing a VC syndicate partner in their internationalization into developing countries?

Another opportunity for research could be to conduct research that looks specifically at locational determinants of cross-border VC investments into specific regions such as Asia/Pacific, MENA, Africa, and Latin America and the Caribbean. As the research observed sub-Saharan Africa received the least amount of cross-border VC investment relative to other regions. Although Asia and Africa both had the largest geographical distance and thus did not differ significantly from the other two regions – MENA and Latin America in the ANOVA test, it is interesting to note that the Asia Pacific region received the largest amount of VC investment despite its distance while Africa with similar large geographical distance received the least amount of cross-border VC investments from US VC investors (Figure 5).

Future research looking into what other factors influenced cross-border VC investment firms in favor of Asia and not Africa for instance the VC investment firm's age and experience would be insightful. Also, future research looking into what are the deterrents for foreign VC internationalization into the sub- Saharan Africa region and therefore how the region can help facilitate greater future cross-border VC investment would be insightful both for entrepreneurial finance research and policymakers.

Also, conducting research that scrutinizes the differences in how much cross-border VC investments went into the different sectors and stages of development in the different regions or individual countries would offer further insight into how global VC investors are choosing to invest their funds abroad. Countries like India, China, and Israel attracted some of largest amounts of cross-border VC investments. Future research could investigate why these countries were preferred destinations for US VC investment firms. Are the investment into these countries sector driven or do other factors and conditions in those countries also make these markets attractive as well.

So far, this study has had a focus on country level determinants of VC investments. However, there are a lot of opportunities for future research at the firm level. For instance, one of the most active investors in the region was the International Finance Corporation (IFC). Future research could seek to investigate the impact of the signaling effect on cross-border VC investment into developing countries since other VC investors both US and foreign VC investors invest in those market where the IFC is going to benefit from the IFC's investment appraisal mechanism. Another firm level analysis

that offers opportunities for future research would be to consider the investment performance of VC investments into these developing countries.

Future research could also study the internationalization of VC investment using other theories seldom used such as psychic distance. Additionally, this research has considered the topic of antecedents of VC investment from the VC investment firm perspective. Future research could evaluate the topic from a target portfolio firm perspective for insight into what kind of startups are more likely to be targeted for funding by these foreign VC investors to improve the quality and hence the attractiveness of target portfolio companies in developing countries. Although this study used secondary data, using primary data sources such as survey data and interviewing VC investment fund managers as well as target portfolio firm CEOs/founders could lead to very insightful research in the future.

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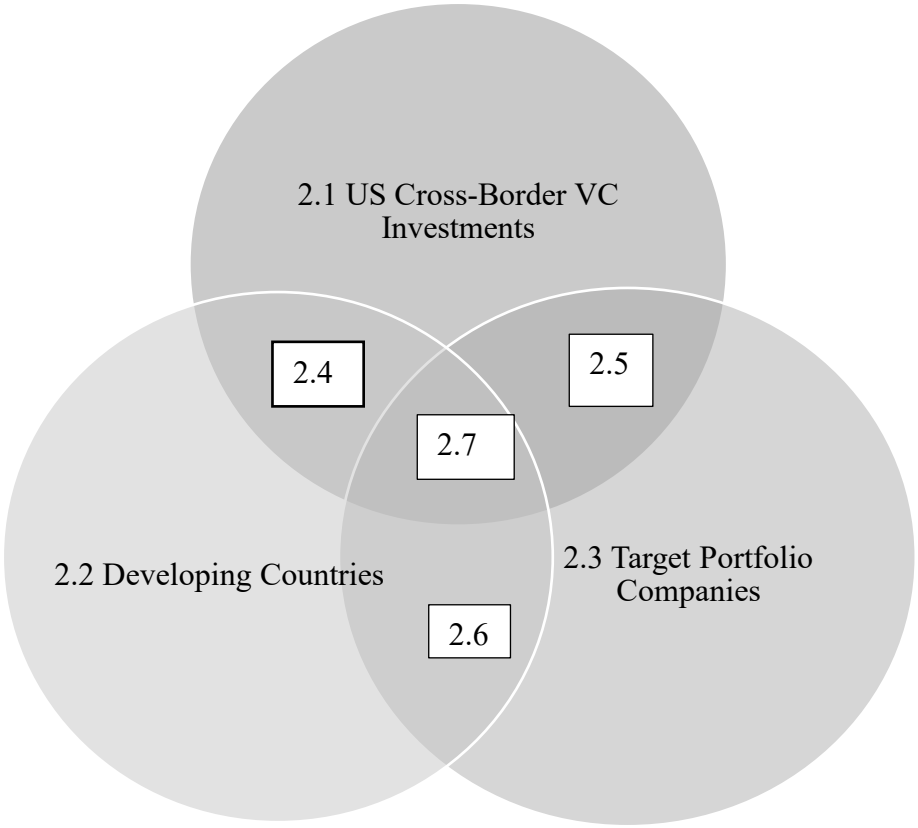
Figures and Tables

Figure 1

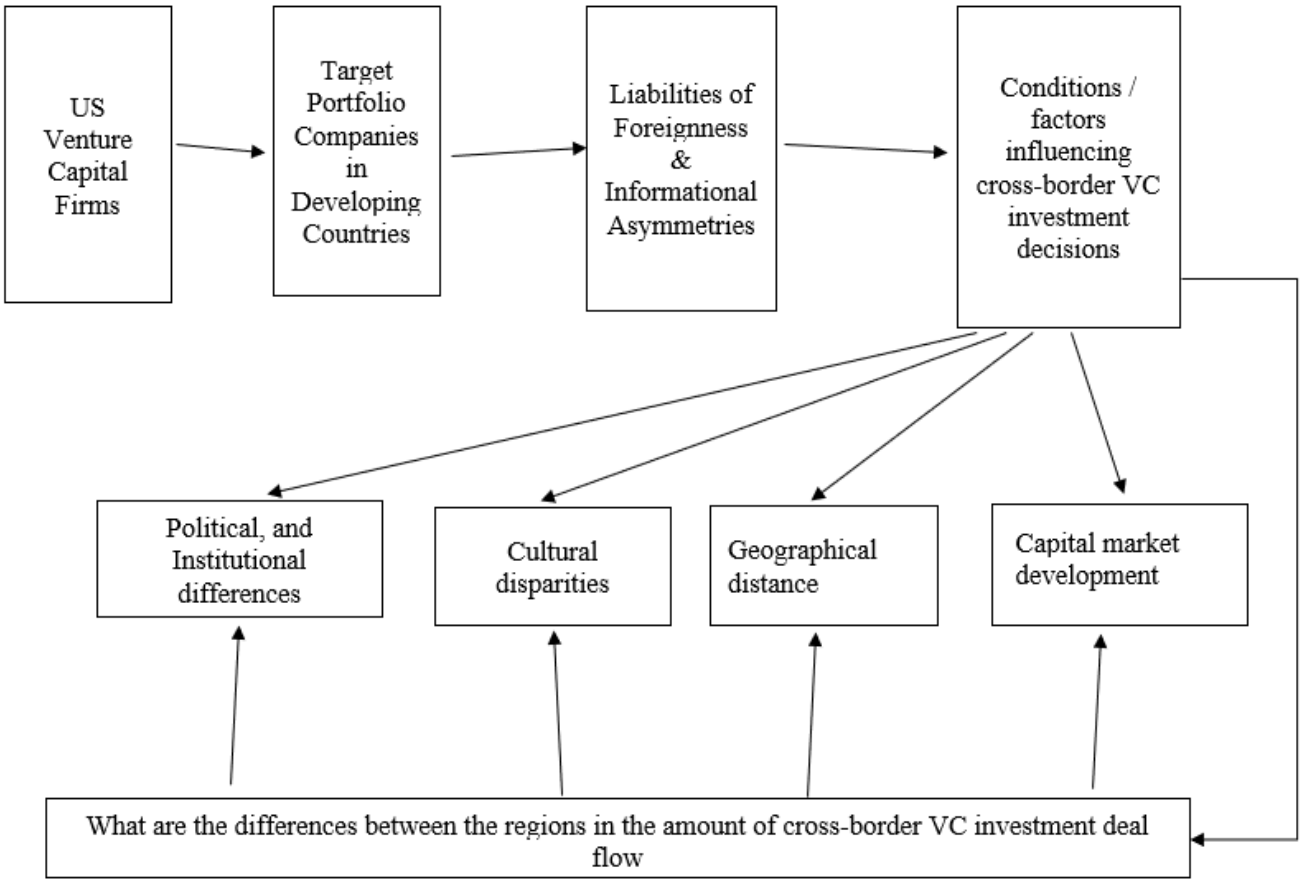
Venn Diagram for Literature Review



Note. This Venn diagram represents the key constructs discussed in the literature review. The literature survey reviewed literature on each of the three major constructs first followed by the examination of the intersections of each of the subset of constructs. Subset 2.4. reviewed literature on US cross-border VC investment in developing countries. Subset 2.5 reviewed literature on US cross-border targeting portfolio companies in developing countries. Subset 2.6 reviewed literature on target portfolio companies in developing countries. The final intersection 2.7 reviewed literature that touched on all constructs and identified gaps in the literature.

Figure 2

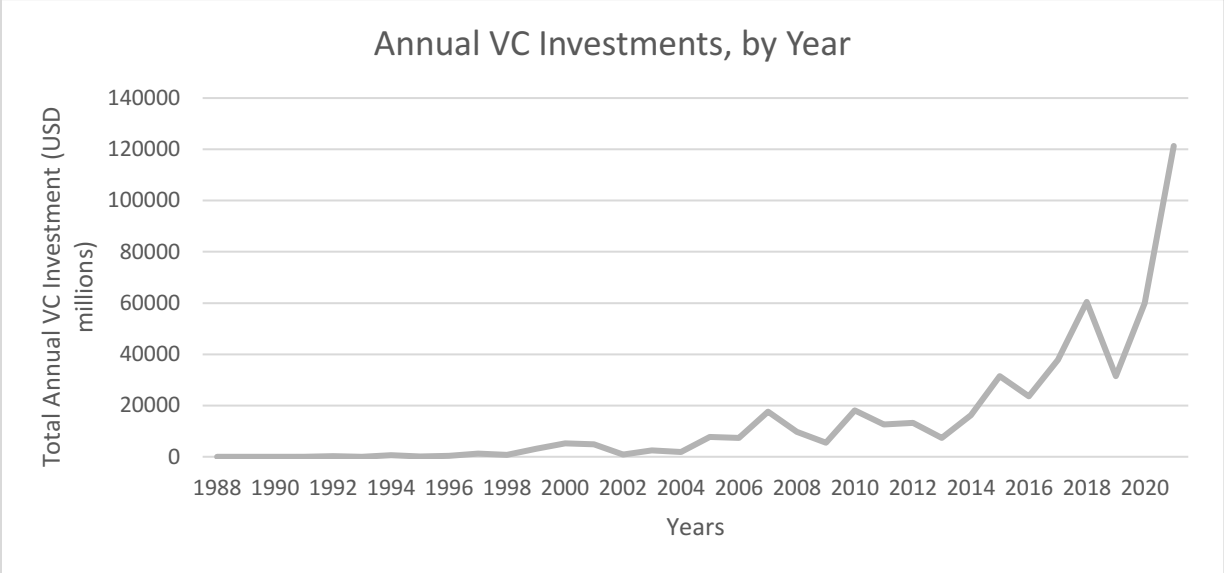
Conceptual Framework



Note. This conceptual framework created by the dissertation author demonstrates the main concept underlying this study.

Figure 3

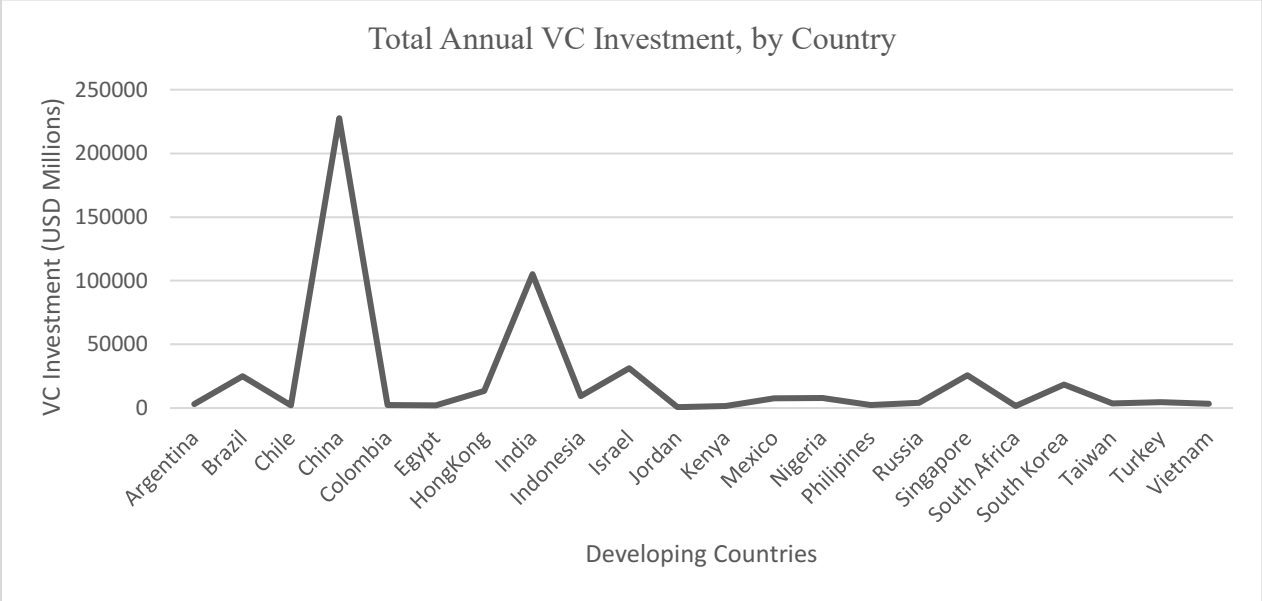
Annual US cross-border investment deal values into developing countries.



Note. The dissertation author created this chart. The data used to construct this chart was obtained from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Figure 4

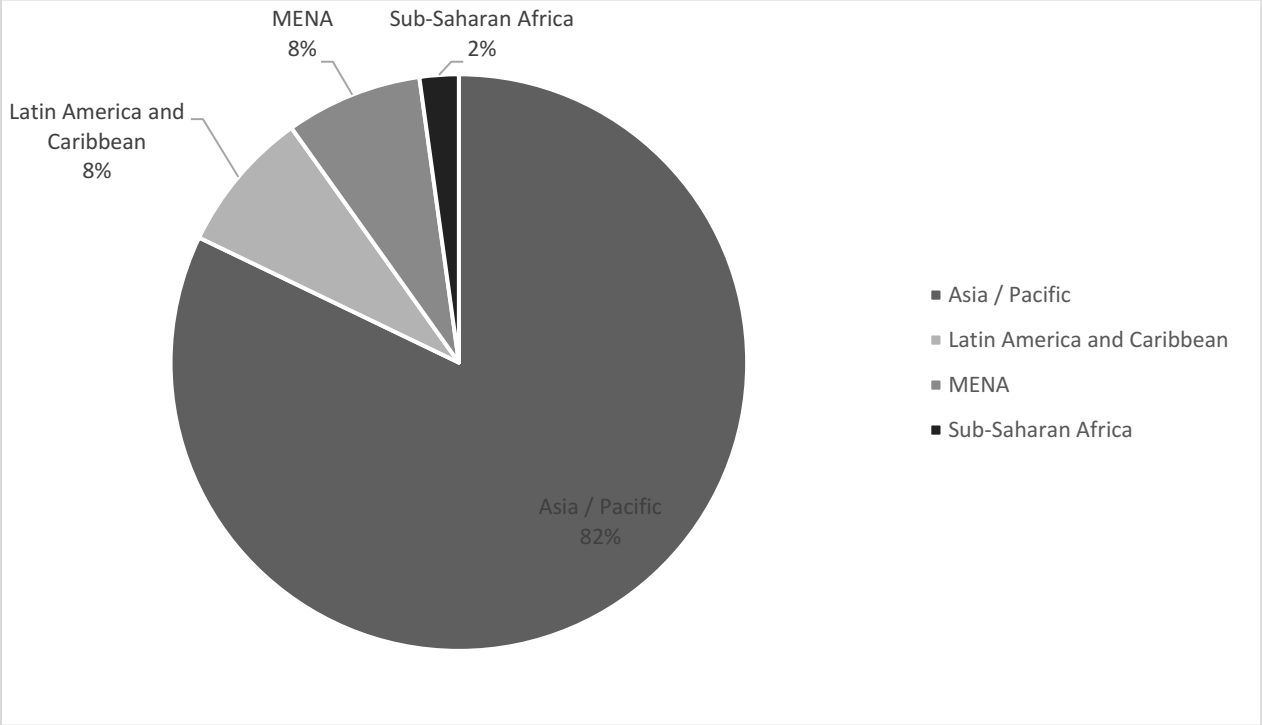
Annual cross-border VC investment amounts into developing countries, by country.



Note. The dissertation author created this chart. The data used to construct this chart was obtained from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Figure 5

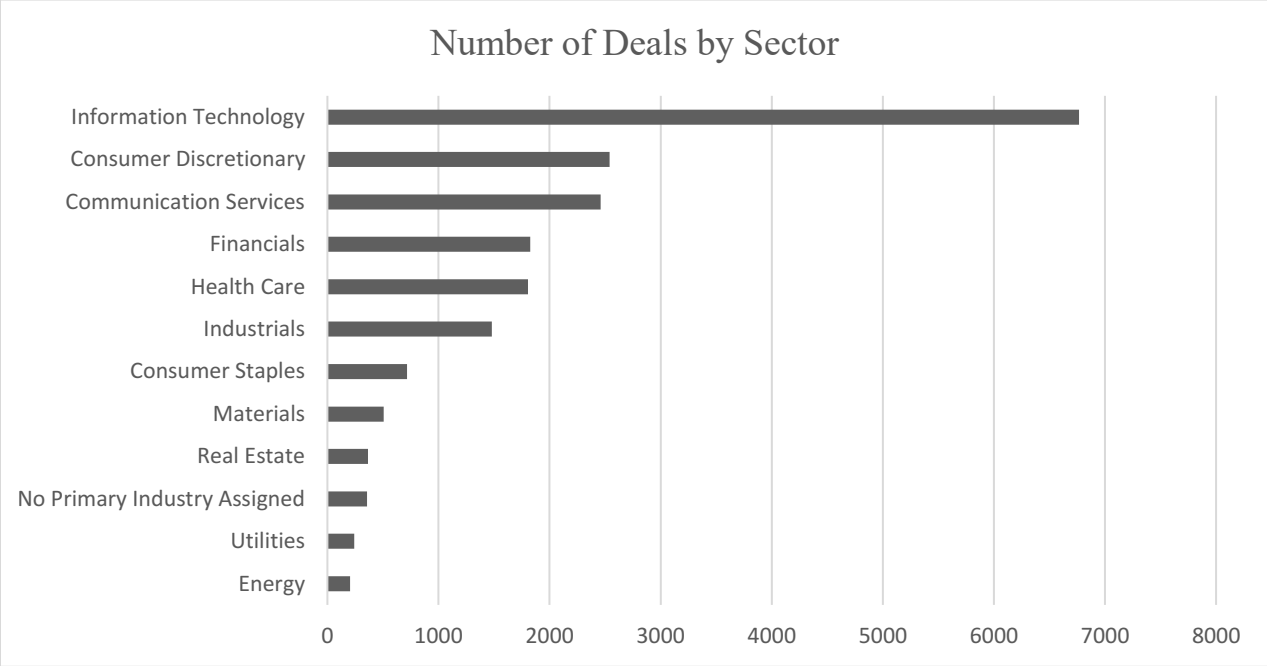
Share of cross-border VC investment into developing countries by region.



Note. The dissertation author created this chart. The data used to construct this chart was obtained from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Figure 6

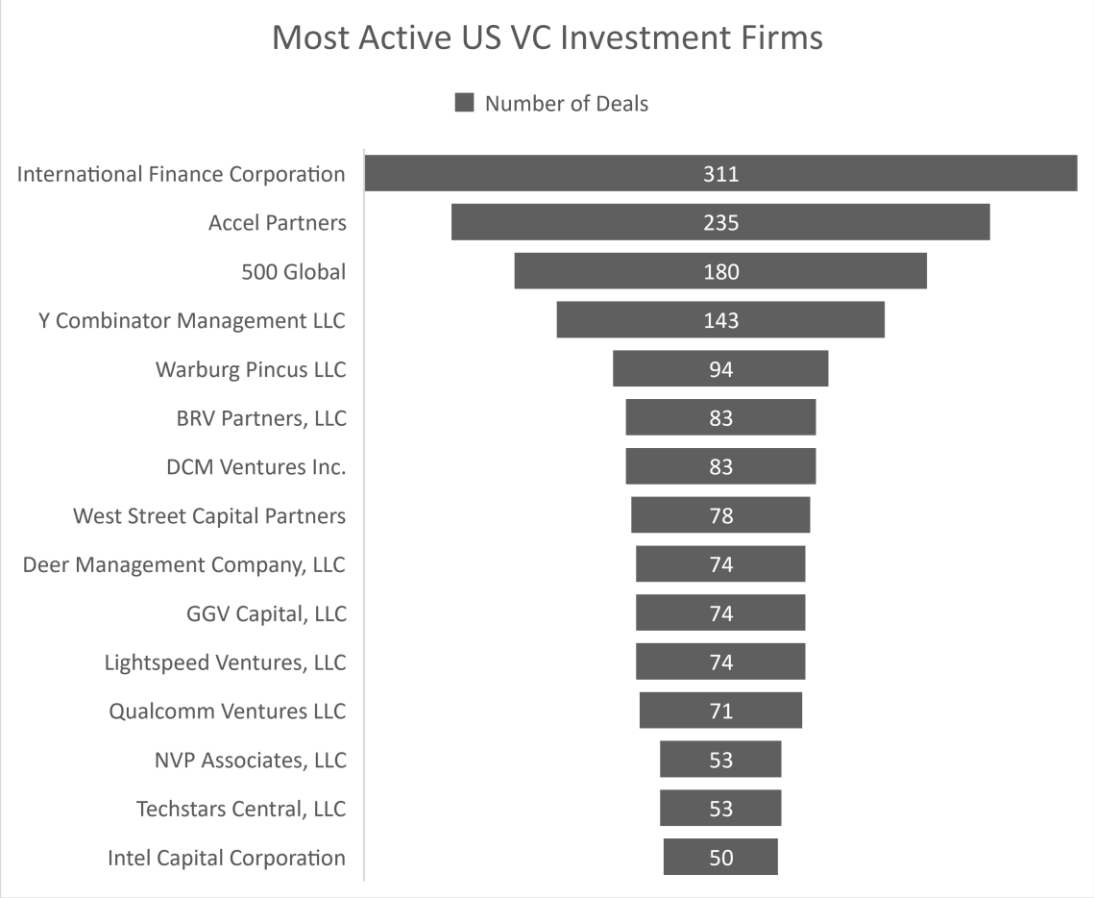
Number of cross-border VC deals into developing countries by sector



Note. The dissertation author created this chart. The data used to construct this chart was obtained from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Figure 7

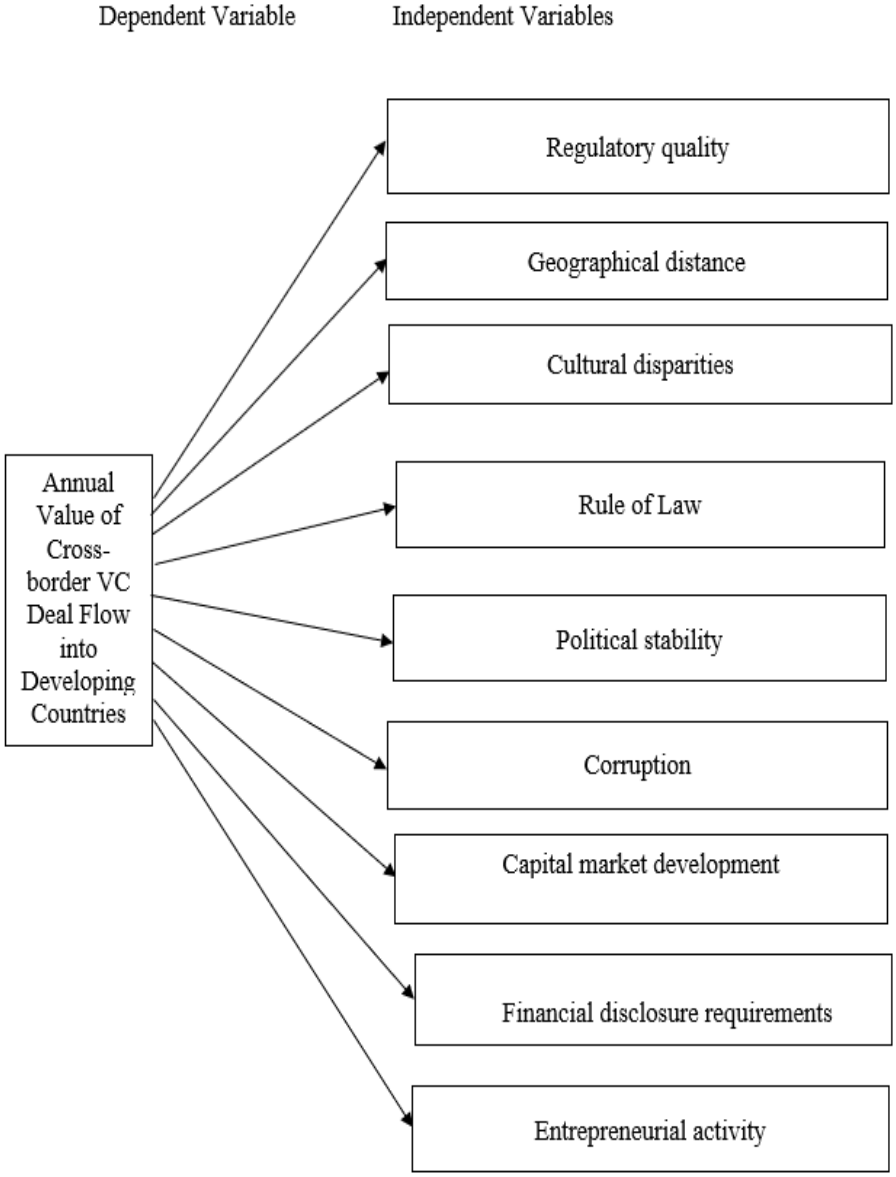
Most active US VC investors by number of deals



Note. The dissertation author created this chart. The data used to construct this chart was obtained from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Figure 8

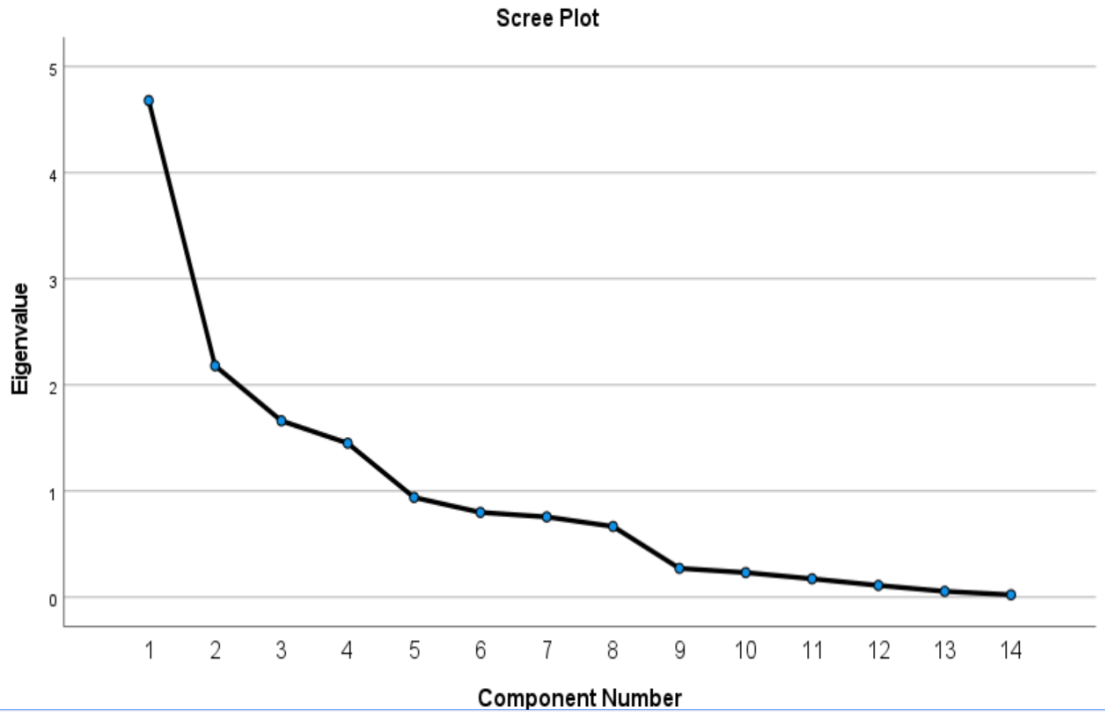
Research Model



Note. The dissertation author created this model as a diagrammatical explanation of the research study.

Figure 9

Scree Plot



Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the factor obtained after the preliminary analysis of the factor reduction technique – PCA.

Figure 10

Total Variance Explained Principal Component Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.680	33.432	33.432	4.680	33.432	33.432
2	2.181	15.578	49.010	2.181	15.578	49.010
3	1.662	11.872	60.882	1.662	11.872	60.882
4	1.451	10.363	71.245	1.451	10.363	71.245
5	.940	6.715	77.960			
6	.799	5.706	83.666			
7	.756	5.403	89.069			
8	.666	4.759	93.829			
9	.272	1.940	95.769			
10	.232	1.654	97.423			
11	.173	1.235	98.658			
12	.111	.791	99.449			
13	.055	.391	99.841			
14	.022	.159	100.000			

Extraction Method: Principal Component Analysis.

Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the factor obtained after the preliminary analysis of the factor reduction technique – PCA.

Figure 11

SPSS Output of Post Hoc ANOVA Tests - Geographical Distance

Homogeneous Subsets

GeoDist

	Regions	N	Subset 1	2	3
Tukey HSD[a,b,c]	LatAmer	39	-1.3235		
	MENA	40		-.3242	
	Africa	26			.4296
	AsiaPac	84			.6359
	Sig.		1.000	1.000	.397

Means for groups in homogeneous subsets are displayed.
Based on observed means.

Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the results of the post hoc test conducted to determine the differences between the four regions.

Figure 12

SPSS Output of Post Hoc ANOVA Tests - Cultural Disparities

Homogeneous Subsets

CultDiff

	Regions	N	Subset 1	2	3
Tukey HSD[a,b,c]	AsiaPac	84	-.5214		
	LatAmer	39		.0786	
	Africa	26		.3863	.3863
	MENA	40			.7672
	Sig.		1.000	.211	.078

Means for groups in homogeneous subsets are displayed.
Based on observed means.

Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the results of the post hoc test conducted to determine the differences between the four regions.

Figure 13

SPSS Output of Post Hoc ANOVA Tests of Regional Institutional Quality Means

InstQual

	Region	N	Subset 1	Subset 2
Tukey HSD[a,b,c]	Africa	26	-.7983	
	MENA	40		-.1148
	LatAmer	39		.0471
	AsiaPac	84		.2799
	Sig.		1.000	.220

Means for groups in homogeneous subsets are displayed.
Based on observed means.

Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the results of the post hoc test conducted to determine the differences between the four regions.

Figure 14

SPSS Output of Post Hoc ANOVA Tests - Capital Market Development

Homogeneous Subsets

CapMkt

	Regions	N	Subset 1	Subset 2
Tukey HSD[a,b,c]	Africa	26	-.3944	
	LatAmer	39	-.2524	-.2524
	AsiaPac	84		.1579
	MENA	40		.1709
	Sig.		.889	.143

Means for groups in homogeneous subsets are displayed.
Based on observed means.

Note. This chart is obtained from the system generated output resulting from data analysis conducted using SPSS. It shows the results of the post hoc test conducted to determine the differences between the four regions.

Table 1

Definition of Variables

Variable	Definition
Ln cross-border VC investments	the natural logarithm of the total value of US VC investment into a country in each year under consideration in USD millions.
Geographical distance	This is measured as the distance in miles between the VC firm's home country and the portfolio company's host country. Data is obtained from the CEPII webpage (www.cepii.fr/anglaisgraph/bdd/distances.htm).
Cultural distance	This measure is obtained from the six cultural measures provided by Hofstede's cultural dimensions of individualism, power distance, masculinity/femininity, uncertainty avoidance, indulgence/restraint, and long-term vs short-term orientation. The data are collected from Geert Hofstede's webpage (www.geerthofstede.nl).
Regulatory quality	This is the perception of the developing country's government ability to formulate sound policies and implement regulations that facilitate private sector development. The measure is obtained from the regulatory quality score of each host country and for each of the years under consideration (2010 to 2019) from the Worldwide Governance Indicator (WGI) of the World Bank webpage ((http://data.worldbank.org/data-catalog/ worldwide-governance-indicators). The scores range in value from 0 to 100.
Rule of law	This measure reflects the developing country's perceptions on respect for the rules of society especially regarding respect of property rights, contract enforcement, the judiciary, police and the likelihood of violence and crime. The measure is obtained from the rule of law score of each host country and for each of the years under consideration (2010 to 2019) from the Worldwide Governance Indicator (WGI) of the World Bank webpage ((http://data.worldbank.org/data-catalog/ worldwide-governance-indicators). The scores range in value from 0 to 100.
Political stability	The score measures the likelihood of politically motivated instability or violence including terrorism. The measure is obtained from the political stability score of each host country and for each of the years under consideration (2010 to 2019) from the Worldwide Governance Indicator (WGI) of the World Bank webpage ((http://data.worldbank.org/data-catalog/ worldwide-governance-indicators). The scores range in value from 0 to 100.The scores range in value from 0 to 100.

Corruption	This is a measure of the perceived level of public sector corruption in each developing country for each of the ten years under consideration (2010 to 2019). The corruption perception index (CPI) scores range in value from 0 to 100 with zero being highly corrupt and 100 being perceived as not corrupt. The CPI data is obtained from Transparency International website (https://www.transparency.org/en/cpi).
Financial disclosure requirements	This is a measure of the extent of disclosure requirements to interested parties of related party transactions. The extent of disclosure of higher (lower) the score the greater (lesser) the transparency requirements in each developing country's corporate governance regulations. The extent of disclosure index ranges from 0 to 10. The data was obtained from the World Banks website (Doing Business project (http://www.doingbusiness.org/).
Capital market development	This is the measure of the total market capitalization divided by the GDP for each host country for each year under consideration (2010 to 2019). The market capitalization for each country and for each of the ten years was collected from the World Bank's website – the database Global Economic Monitor (https://databank.worldbank.org/source/global-economic-monitor-(gem). The GDP data was obtained from the World Bank's website – the World Development Indicators (https://databank.worldbank.org/source/world-development-indicators)
Entrepreneurial activity	Each destination country's score for ease of start of business (time and cost it takes to formally start a business each year). This score is used as a proxy to measure the level of entrepreneurial activity in each developing country for each year under consideration as in Oberli (2014). The extent of ease of start of business ranges from 0 to 100. The data was obtained from the World Bank's website (Doing Business project (http://www.doingbusiness.org/).

Table 2

VC Firm Characteristics

Firm	Founding Date	Number of Employees Profiled	Investment Stage	Total Value of Deals ($millions)	Global Reach	**Sectors of Interest**
International Finance Corporation	1956	314	startups, early stage, mid, late, and growth stage	28,955.49	Global -Sub-Saharan Africa, East Asia and the Pacific, South Asia with a focus on India, China, Europe and Central Asia, Latin America, Central America, and the Caribbean, Western Europe, and the Middle East and North Africa.	wide range - Energy Equipment and Services, Oil, Gas and Consumable Fuels, Automobiles, Consumer Durables and Apparel, Household Durables, Textiles, Food Products, Health Care, Health Care Equipment and Services, Insurance, Information Technology, Interactive Media and Services, Utilities, and Independent Power and Renewable Electricity Producers.
Accel Partners	1983	94	incubation, seed, start-ups, early venture, mid and late stage	11,203.97	Europe - Finland, Switzerland, Ireland, and Germany; Asia - India and China; Latin America and Brazil; Israel and the United States	Information technology
Y Combinator Management LLC	2005	44	Specializing in incubation, seed, and later stage funding for early-stage startups	78.07	Sub-Saharan Africa with a focus on Nigeria, MENA, Silicon Valley, Canada	Technology companies with a focus on financial services, web, and mobile applications
500 Global	2010	126	Specializing in seed investments, early stage, post-seed, pre-Series A, and late stage.	1,214.32	California, India; Japan; Mexico; Singapore; Malaysia; Bahrain; Canada; China; Brazil; Thailand; Turkey	Information technology, communication, consumer discretionary
Warburg Pincus LLC	1966	330	Seed/Startup, Early, Mid and Late Venture,	13,946.75	Global investor	wide range - energy, consumer discretion, technology, healthcare, real estate management, utilities, media, and entertainment

BRV Partners, LLC	1998	12	Seed/Startup, Early Venture	7,474.35	Key global markets with a focus on Asia / Pacific developed markets as in Japan, China, Korea, and India as well as Europe and Canada.	
DCM Ventures Inc.	1996	20	Growth, early-stage, mid-stage, startup, and selectively in seed and late-stage companies.	2,258.81	United States, Asia, China, Japan, Europe, South Korea, and Latin America and Caribbean	Interactive Media and Services, Utilities, Renewable Electricity Producers, Real Estate, Consumer Services, Hotels, Restaurants and Leisure, Insurance, Diversified Financial Services
West Street Capital Partners	1986	36	Seed/Startup, Early Venture, and late stage	5,267.78	Americas, Europe, and Asia (including India),	Utilities, independent power and renewable electricity producers, energy, industrials, IT, consumer durables and apparels, real estate
Deer Management Company, LLC	1911	82	seed stage, Series A, Series B, early stage, start-up companies, hyper-growth startups, late-stage venture	1,963.07	Israel, Asia / Pacific, Emerging Markets, Europe, European Emerging Markets, Russia, Latin America, and Caribbean	energy, agriculture, crypto, enterprise, consumer, and healthcare technology companies
GGV Capital, LLC	2000	39	Seed/Startup, Early stage, Mid stage, Late stage, Emerging Growth, Middle Market	6,161.07	China, India, United States and Canada	wide range -consumer products, technology, healthcare, ecommerce, media, and entertainment
Lightspeed Ventures, LLC	1971	77	Incubation, seed, early stage, later stage, expansion stage, start-up, and growth stage companies	5,358.14	North America, Europe, Israel, and China.	ecommerce, IT - artificial intelligence, bitcoin, enterprise solutions, healthcare; education; and retail
Qualcomm Ventures LLC	2000	24	seed, series A, start-up, early stage, growth stage, mid stage, late stage, and expansion stage investments	1,021.95	globally including in China, Israel, Europe, Korea, Latin America, and North America	business software, consumer software including gaming, cloud/enterprise, hardware, healthcare, infrastructure, and semiconductors/component
NVP Associates, LLC	1961	70	seed/startup, early, mid, late venture, growth equity, and later stage investments	1,255.27	globally with a focus on Asia-Pacific, United States, Israel, India, China.	systems and information technology infrastructure sector

Techstars Central, LLC	2006	124	Early stage; Incubation	9.172	Africa - Nigeria, Middle East, Asia/Pacific and Latin America and Caribbean.	Proptech, fintech, retail technology, and web based and software companies
Sequoia Capital Operations LLC	1972	68	Incubation, seed, start-up, early, and growth, emerging growth, mature, mid-venture, late-venture, and PIPE	910.42	Global with a focus on China, India, Israel, Latin America, and Europe.	energy, financials and financial services, healthcare and healthcare services, internet, mobile, outsourcing, and technology

Note. Data compiled from Capital IQ (Standard & Poor's) database on the website https://www-capitaliq-com.ezproxy.snhu.edu/.

Table 3

Descriptive Statistics

Variables	Observations	Mean	Median	Maximum	Minimum	Standard Deviation
Geographical Distance	189	-5.29E-08	0.07361	1.64233	-2.37004	0.962968
Cultural Disparities	189	5.29E-08	-0.10658	2.29287	-1.49671	0.867925
Institutional Quality	189	3.17E-07	-0.13445	1.97272	-1.75291	0.970932
Capital Market Development	189	4.230E-07	-0.0642	2.92099	-1.60573	0.90017

Note. Data obtained from EViews.

Table 4

Correlation Matrix

	Ln VCI per capita	Geographical Distance	Cultural Disparities	Institutional Quality	Capital Market Development
Ln VCI per capita	1				
Geographical Distance	0.1819	1			
Cultural Disparities	0.2636	-0.0375	1		
Institutional Quality	0.3384	0.0355	0.0318	1	
Capital Market Development	-0.0479	-0.0206	0.0432	0.0551	1

Note. Output obtained from EViews.

Table 5

Panel Regression Estimation Output

Dependent Variable: LOGVCI_PERCAPITA
Method: Panel EGLS (Cross-section weights)
Date: 10/27/22 Time: 13:37
Sample: 2010 2019
Periods included: 10
Cross-sections included: 22
Total panel (unbalanced) observations: 189
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CULTURAL_DISPARITIES	-2.492978	0.673125	-3.703588	0.0003
GEOGRAPHICAL_DISTANCE	-3.972396	1.780627	-2.230897	0.0271
CAPITAL_MARKET_DEVELOPMENT	3.755502	0.993208	3.781182	0.0002
INSTITUTIONAL_QUALITY	1.543263	0.372988	4.137571	0.0001
C	1.262489	0.038461	32.82525	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

Root MSE	1.298211	R-squared	0.797753
Mean dependent var	2.773829	Adjusted R-squared	0.766733
S.D. dependent var	5.061476	S.E. of regression	1.397920
Sum squared resid	318.5313	F-statistic	25.71774
Durbin-Watson stat	1.903679	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.553586	Mean dependent var	1.262491
Sum squared resid	331.9344	Durbin-Watson stat	1.791281

Note. Output of Regression Analysis obtained from EViews.