

Performance of Venture-Backed Firms in an Emerging Market Context

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August, 2019

THESIS SUBMITTED TO LEICESTER CASTLE BUSINESS SCHOOL, DE MONTFORT
UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY (PhD)

De Monfort University-Leicester

This thesis is dedicated to my late beloved mother

MANAL EL WELELY

Acknowledgements

First of all, I thank God for blessing me with the ability to finish this thesis. Second, I thank my late mother Manal ElWelely, to whom I owe everything. I would not have been able to pull through and complete this thesis, if it was not for her.

I would like to offer my special thanks to my first supervisor, Dr. Albert Danso, for believing in me, pushing me forward and putting me on the right track. I am also very grateful to my second supervisor, Dr. Samar Gad, for all her fruitful comments, for the extreme moral support she has provided and for always pushing me forward. A special thank you to Dr. Dina Abdelfattah for all her support with econometrics, and all the guidance with which she has provided me throughout the thesis. She has been the light at the end of every tunnel in this thesis. I would also like to thank Ms. Shahinaz Fouda for her great value-added in her role as an expert from the field for the pre-testing of the questionnaire. I am also thankful to Prof. Dr. Khaled Shahin and Prof. Dr. Ibrahim Ammar for helping me organise my data and for their very useful discussions with me.

A special mention to the British Accounting and Finance Association, for the opportunity to participate in Master's Doctoral Classes, which gave me very rich feedback on the thesis.

I am very grateful to my friends Amy Talaat, Reem Abou El-Makarem and Suzan Salem for their extreme support in providing me with their connections for data collection.

My sincere thank you to my family and friends for all they have done to motivate me and support me in all the circumstances I have passed through, to be able to complete my studies. My sister Yasmeen Sharaf for taking the time to read it for me. My aunt Abla Shabaka, thank you for always going out of your way. My aunt Prof. Dr. Wafaa Ammar, thank you for always helping me prioritise my goals and always reminding me that my studies come first. I also owe a lot to my children, Ahmad and Fareeda, for their patience with me, forgoing quality time and the motivation they give me through their pride in wanting to see me a PhD holder. To all the lovely friends, whom are too many to name, for all their help and for pushing me forwards and bearing with me till completion.

Abstract

Entrepreneurs have trouble funding their businesses, from traditional finance sources. These entrepreneurs bring to the market innovative ideas and technical skills vital for firm success. Yet they may lack managerial advice and/or business expertise, which Venture capital (VC) firms are able to provide for them, along with funding. Nonetheless, not all VC-backed firms succeed. Therefore, an understanding of the determinants of success of these firms is crucial.

This study contributes to the literature; by combining the characteristics of entrepreneurs and VC firms, and their relationship, to assess their impact on VC-backed firms' performance. There is a sufficient amount of literature testing these determinants separately. However, studying them together as they co-exist in the market produces more reliable results. Additionally, emerging economies are still developing their VC markets, thus research on these markets is relatively recent. Hence, this study is timely and crucial, as it generate key insights to help leverage successful industries. This is achieved by combining two survey responses. One distributed to 14 VC firms in Egypt, and another to 79 of their portfolio firms. The research data is analysed using t-tests, ordinary least square regression and ordered probit regression. Supported by the Institutional Theory, the findings of this study emphasise the importance of entrepreneur networks in Egypt. As they have a positive and significant impact on performance of VC-backed firms. The resource-based capabilities of portfolio firms, matched to their firms' strategies, have a significant impact on the performance of VC-backed firms. Finally, the VC-E relationship shows that contracts have a significant negative impact on VC- backed firms' performance. However, when legal environment factors are considered, their impact becomes insignificant. Instead, the strength of the VC-E relationship has a positive impact on sales growth. Hence, trust is more crucial than contracts, in weak legal environments. This study provides recommendations to entrepreneurs, VCs and policy makers in Egypt.

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List of Abbreviations

Abbreviation	Meaning
AT	Agency Theory
BOD	Board of Directors
CFA	Confirmatory Factor Analysis
CMB	Common-Method Bias
DM	Developed Market
E	Entrepreneur
EM	Emerging Market
FCT	Financial Contracting Theory
HC	Human Capital
HCT	Human Capital Theory
IPO	Initial Public Offering
IPR	Intellectual Property Rights
OLS	Ordinary Least Square Regression
PE	Private Equity
PF	Portfolio Firm
RBCs	Resource-based Capabilities
RBVF	Resource-based View of the Firm Theory
RDT	Resource Dependence Theory
ROA	Return on Assets
ROS	Return on Sales
SC	Social Capital
SCT	Social Capital Theory
ST	Stewardship Theory
UET	Upper Echelon Theory
UK	United Kingdom
US	United States of America
VC	Venture Capital
VC-E	Venture Capitalist-Entrepreneur

Chapter One

Introduction and Overview of the Study

1.0 Introduction

This chapter presents an overview of the thesis as a whole, through nine sections. These sections start with a theoretical background about venture capital (VC), after which they provide a summary of the entire research. The research background, problem, objectives, questions and hypotheses are presented. These sections also include an explanation of the research significance and contribution. Moreover, they highlight the type of data collected and method of collection. Finally, the chapter concludes with a presentation of the thesis structure.

1.1 Brief Background

This thesis examines the impact of the characteristics of entrepreneurs, and the characteristics of venture capitalists and the services they provide, as well as the relationship between entrepreneurs and their corresponding venture capitalists, on the performance on venture capital-backed firms in Egypt.

VC funding as a concept has existed for centuries, dating back to the age of Magellan (Spencer, 2008). However, in a contemporary context, VC is equity capital seeking above market returns, that is most commonly invested in early-stage, high risk companies that have high growth potential (Florida and Kenney, 1988; Gompers, 1997; Boocock and Woods, 1997; Manigart et al., 2002). The argument for supporting the VC markets starts with the standard “macro-economic theory: to produce output, capital and labour need to be available” (Lerner and Tag, 2013, p.154). A well-developed VC market can boost economic growth through allowing innovative entrepreneurial firms

to find funding. Megginson (2004, pg.89) defines modern VC as “a professionally managed pool of money raised for the sole purpose of making actively-managed direct equity investments in rapidly growing private companies, and with a well-defined exit strategy”.

1.2 Research Gap

This study examines the performance of VC-backed firms in Egypt in relation to the characteristics of entrepreneurs and venture capitalists, and the relationship between both. The first gap this study fills is by combining the three variables to provide results that are more reliable as they all exist together in the VC market. There is a significant amount of research in the literature to address determinants of VC-backed firms’ success. However, these studies have either focused on the role of the entrepreneur or the VC firm solely, or on the relationship between them. Thus, there is a distinct lack in addressing all three variables combined. It is important to look at the whole picture, not just a segment, to understand the broader context, appreciating interactions amongst the variables (Leischow and Milstein, 2006). Additionally, many of the studies addressing entrepreneur characteristics have focused on the performance of firms in general and not specifically VC-backed firms (Unger et al., 2009; Dimov, 2010).

The most widely studied VC model is that of the US (Bruton et al., 2009; Mourougane, 2016), followed by Europe (Zeng, 2004). In fact, research on venture capital in developing countries is relatively recent (Lerner and Schoar, 2002; Cummings and Fleming, 2002). This presents an important research gap, particularly given the fact that Institutional Theory suggests that a VC industry would emerge and operate differently in an emerging economy context (Bruton and Ahlstrom, 2003). Institutional Theory explains that the development of institutions and the culture

existing in a nation, determine the actions of individuals and firms in those nations (Bruton and Ahlstrom, 2006). Institutions are referred to as the rules of game of a society (North, 1990). They influence the uncertainty faced by the economic actors in a nation (Banalieva, 2014). Institutions are also essential for the effective functioning of a market economy, and in turn for the strategies and operations of all kinds of firms (Meyer & Peng, 2005; Peng et al., 2008). These institutions or rules define the way the motives of economic actors differ from one context to another, in terms of uncertainty, agency relationships, business transactions as well as market structures. Any instability of regulatory institutions can itself be a source of uncertainty. In many emerging markets where rules and regulations are unpredictable and unstable, firms are forced to develop organizational structures and capabilities. This allows them to flexibly respond to these dynamics. (Meyer and Peng, 2016). This will be explored more in-depth in section 2.4

This study is conducted on Egypt (an emerging economy). As explained by the Institutional Theory, some theories applicable to VC in developed economies may not fully characterise the social nature of VC in different economies (Bruton et al., 2002; Shane and Cable, 2002). Drivers that exist in one context may not be operating in another or may not lead to similar results. It is also important to note that, emerging economies have recently started establishing their VC industries, which is another crucial reason why the developed market framework may not be exactly adequate (Locket and Wright 2002; Bruton et al., 2004). Therefore, this research is both timely and critically important as it will generate key insights to help leverage a much-needed successful VC industry in an emerging economy context, despite its unstable institutional regime (Wright and Robbie, 1998). The Egyptian VC market has only commenced in 2004. Not all VC-backed firms are successful, yet no studies have been

conducted in Egypt to explore the factors that characterise the success of those firms and how they differ from a developed market context.

VC firms do play a role in fostering economic growth of the regions they exist in (Saxenian, 1994; Jeng and Wells, 2000). Being that the goal of the Egyptian government, is to thrive towards economic development since the 2011 Revolution, this research is of utmost importance.

1.3 Background of Research Questions

Previous micro-level research on VC has focused on either the entrepreneur as an individual, venture capitalists' characteristics or, in some studies, on the contractual relationship between them. Human Capital Theory (HCT) (Becker, 1975) governs the relationship between entrepreneurs as well as fund managers and the success of the funds. HCT suggests that HC characteristics of both the entrepreneurs and the fund managers determine their performance. In the case of entrepreneurs, some HC characteristics, mainly industry or entrepreneurial experience, have been found to impact their venture performance (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005). Empirical evidence has also shown that entrepreneurs who have succeeded in preceding ventures have a higher chance of succeeding in their subsequent venture, whether funded by top tier or lower tier venture capitalists (Gompers et al., 2006). Hence, success in entrepreneurship is attributed to the skill of the entrepreneur. Additionally, firm strategies as well as resource-based capabilities of the entrepreneurial firm, such as capital equipment, employees and patents, are also determinants of its performance (Wang and Ang, 2004). Resources are a source of a firm's capabilities and a firm's competitive advantage depends on those capabilities (Grant, 1991).

HCT also suggests that VC managers that possess greater or better-quality human capital, assessed by superior education and experience (Becker, 1975), achieve higher performance when accomplishing the tasks required by them, pre-and post-investment of the VC fund (Dimov and Shepherd, 2005). However, it is still important to note that the impact of the different aspects of HC differs according to each performance criterion. Venture capitalists promote positive performance of portfolio firms by two functions, selecting and providing value (Kanniainen and Keuschnigg, 2003; Keuschnigg and Nielsen, 2002; Rosenbusch et al., 2013).

HCT is also consistent with Upper Echelon Theory (UET) (Hambrick and Mason, 1984; Finkelstein and Hambrick, 1996). UET states that characteristics of top management teams make a difference in firm performance (Zarutskie, 2007).

Besides HC, social capital, which is an investment in social relationships with expected returns (Lin, 1999), also matters. Social capital exists when individuals or organisations engage in communications and networking in order to yield return. Social Capital Theory (SCT) (Bourdieu, 1983; Coleman, 1988; Putman, 1993) suggests that a firm's external network is a major contributor to its performance (Granovetter, 1985; Lee et al., 2001). Erli et al., (2006, p.3) explain that "a firm's ability to mobilise extramural resources, attract customers, and identify entrepreneurial opportunities is conditional on external networks." VC social networks hold opportunities for the funded start-ups and for the VC firms themselves, primarily for the superior information they access through their network (Lin, 1999).

VC has been of academic interest since the late 1980s (Porteba, 1987; Freear and Wetzel, 1988), particularly as it is often viewed as a crucial factor in nurturing a region's economic growth (Saxenian, 1994; Jeng and Wells, 2000). However, extant

research tends to be contextualised by well-developed economies. However, this research examines the Egyptian VC market, which is an emerging economy. Hence, this leads to the first research question:

1. What role do characteristics of entrepreneurs and VC firms each play in the success of VC-backed firms in Egypt (an emerging economy)?

In addition to the characteristics of venture capitalists and entrepreneurs, the relationship between the two can also affect a VC-backed firm's performance. While the innovative ideas and technical skills provided by entrepreneurs are vital for firm success, entrepreneurs may lack managerial advice and/or business expertise, which can be offered by VC firms. There is a large amount of academic literature (more theoretical than empirical) on the principal-agent problem (pioneered by Holmstrom (1979)) in financial contracting. The conflicts between agent and principal stem from extensive information asymmetries as well as behavioural uncertainties related to the interaction with the investee, which form the detailed contracts used to oversee the relationship throughout the investment relationship (Amit et al., 1998; Cumming and Johan, 2009). The level of effort provided by both parties is unobservable, which causes a double moral hazard problem, and hence both parties need proper financial incentives to provide effort. This is achieved through different contract covenants that give rights to entrepreneurs and venture capitalists (Elitzur and Gavious, 2001; Casamatta, 2003). Other than contracts, complementarity effect of effort sharing between venture capitalists and entrepreneurs, which is key to the success of the portfolio firm (Vergara et al., 2016). The trust between venture capitalists and entrepreneurs as well as the strength of the relationship between them is also found in some studies to be a crucial

determinant of the success of the VC-backed firm (Li et al., 2018). This leads to the second research question:

2. What impact does the relationship between the entrepreneur and the VC have on the success of VC-backed firms in Egypt (an emerging economy)?

Most of the available literature on determinants of portfolio firms' success is conducted on US firms (Rajan, 2010), where empirical research has shown the US VC-backed firms outperform non-VC-backed ones (Kortum and Lerner, 2000; Baum and Silverman 2004; Chemmanur et al., 2011). These results are not necessarily evident in other countries (Hamao et al., 2000; Wang et al., 2003; Rindermann, 2004; Coakley et al., 2007). Additionally, European venture capitalists do not influence growth and employment of portfolio firms (Bottazzi and Da Rin, 2002). One of the reasons for the inconsistency in results outside the US is heterogeneity of venture capitalists there. This shows that context is an important factor, as results may differ in different economies; hence, this study focuses on the emerging economy of Egypt, analysing the extent to which results may vary there.

“Institutional Theory argues that institutions in general, and culture in particular, shape the actions of firms and individuals in a number of subtle but substantive ways” (Bruton and Ahlstrom, 2003, p.233). In this context, culture is referred to in terms of a population's perception of entrepreneurship, its tolerance of risk taking, formal institutions, networking, etc. In line with the Institutional Theory (Bruton and Ahlstorm, 2003), venture capitalists rely on a steady institutional regime with a foreseeable rule of law and enforcement regime to ease simplify and safeguard their investments (Cardis et al., 2001). VC firms perform better in countries with a stronger legal system, since legal remedy is open to investors, if the information they

receive is not accurate or other financial fraudulences occur (Bruton and Ahlstrom, 2006). In a VC setting, property rights, shareholder and creditor protection, and contract enforcement are significantly affected by the structure of the legal system in place (Shleifer and Vishny, 1997). Institutional stability is non-existent in most emerging economies, which places more weight on other substitutes such as networks (Butler, Brown and Chamornmarn, 2003; Peng, 2003; Hoang and Antoncic, 2003). In such settings, government interference may have adverse effects and hence protection from it may also be necessary (Henisz, 2000). This leads to the third research question:

- 3. How does the impact of entrepreneur characteristics, VC firms and the relationship between the entrepreneur and VC change with the institutional environment in which they exist?**

1.4 Research Problem

Entrepreneurial firms face limitations in Egypt. Not all VC-backed firms are successful. This research focuses on how characteristics of entrepreneurs, VC firms and the relationship between both parties within an institutional framework, can enhance performance and success possibilities of portfolio firms.

1.5 Research Aim and Objectives

The overall aim of this research is to understand the interrelationship between VC, entrepreneurs and the performance of VC-backed firms. This aim is justified as reaching such understanding could play a significant role in the enhancement of the economy as a whole. Previous studies concluded that VC is believed to spur innovation and entrepreneurship, as well as employment rates and is therefore an essential aspect in promoting a country's economic growth (Saxenian, 1994; Jeng and Wells, 2000). Evidence from firm-level studies commonly suggests that VC-backed firms reach

relatively higher employment and sales growth rates than non-VC-backed start-ups (Jain and Kini, 1995; Engel and Keilbach, 2007). Given this effect on the economy, it is important to understand what drives the performance or success of the VC-backed firms and how these outcomes are achievable in different contextual configurations.

Considering the aim of this research, several research objectives are formulated in order to develop a more coherent approach to the research investigation.

The research objectives for this study are as follows:

1. To identify how the characteristics of entrepreneurs and venture capitalists in Egypt impact the performance of the VC-backed firms.
2. To examine how the interaction between the entrepreneurs and venture capitalists in all different aspects can impact the performance of VC-backed firms.
3. To identify contextual configurations that characterise the success of the VC-backed firms in Egypt.

1.6 Research Contribution and Significance

To the best of our knowledge, this research is the first to examine the interrelationship between venture capitalists, entrepreneurs and the performance of VC-backed firms in Egypt. Previous studies related to entrepreneurs have mainly focused on the impact entrepreneurs' characteristics have on firm performance (Bruderl and Preisendorfer, 1998; Davidsson and Honig, 2002; Wang and Ang, 2004) but not relating it to VC-backed firms. Studies that have linked entrepreneur characteristics to VC funding have mainly done so by linking them to the VC's decision to provide funds (Shane and Cable, 2002; Batjargal and Liu, 2004; Hallen, 2008). Other studies have also focused solely

on the impact venture capitalists have on the performance of VC-backed firms (Kanniainen and Keuschnigg, 2003; Rosenbusch et al., 2013) or on whether it is the screening effect or value-added effect that contributes to better portfolio firm performance (Hellmann and Puri, 2002; Rajan, 2010; Croce et al., 2013). Finally, other research has been conducted on the relationship between venture capitalists and entrepreneurs (Elitzur and Gaviols, 2001; Casamatta, 2003; Vergara et al., 2016), or on the contractual agreements created between them (Lim and Cu, 2010). Additionally, most of the abovementioned studies focus on the value-adding effect of venture capitalists and/or the relationship between entrepreneurs and venture capitalists, neglecting the importance of the entrepreneur. Moreover, it is important to consider centrality of the entrepreneur, while VC input should be examined from a complementary perspective (as Vergara et al., (2016)), where the strengths and weaknesses of the venture capitalist and entrepreneur should be matched together. Therefore, the three categories are all combined in this study to create a full understanding of their impact on firm performance.

To the best of our knowledge, there are no available studies that have combined the impact of all three categories together (entrepreneur characteristics, VC manager characteristics, and the interrelations between venture capitalists and entrepreneurs). This is the first study to examine the interrelationship between these three dimensions in the context of an emerging market. Additionally, in this study's analysis each VC firm is matched to the firms in its portfolio. This allows for the analysis of the effect of characteristics of entrepreneurs as well as VCs together to provide a clearer understanding of which has a more significant impact on firm performance.

Another contribution of this study stems from the context of the study. According to Institutional Theory (Bruton and Ahlstrom, 2006), venture capitalists develop differently in diverse settings. This research focuses on an emerging economy, examining how the performances of portfolio firms growing in such an institutional setting would be impacted by entrepreneurs of the firms themselves, venture capitalists offering funds and the relationship between both. Special attention is paid to the emerging economy of Egypt, as its financial market and entire economy are in the developing phase. After the revolution that Egypt encountered in 2011, the economy experienced many transitions. Thus, a focus on VC markets to support GDP growth and enable funding of more businesses, and the creation of additional job opportunities has become crucial to the economy's development. Entrepreneurship and VC are interdependent; moreover, recent statistics in Egypt have been showing a more positive societal perception of entrepreneurship as a career choice, and a high social status is associated with entrepreneurs. Such amiable views attract more entrepreneurs to develop their new ventures [1]. The VC market in Egypt (a country with a population of approximately 90 million) is relatively new, starting in 2004, and with only 16 VC firms, or VC-activity performing firms, to date. In addition, very few portfolio firms have survived. Very few studies have emphasised venture capitalists in Egypt and there appears to be no proper disclosure of any VC-related data in the country nor a well-established database of existing VC funds.

The significance of this research is in the recommendations it provides for entrepreneurs and venture capitalists to enhance the VC market in Egypt. The results of this study clarify the areas of strengths and weaknesses possessed by entrepreneurs and

¹ GEM (Global Entrepreneurship Monitor): Egypt National Report 2015-2016.

venture capitalists in Egypt, hence enabling them to recognise the areas that require improvement.

Entrepreneurs should improve their ability to recruit talented personnel and executives through their own networks rather than those of venture capitalists. Entrepreneurs should also focus on attaining unique education and experience opportunities that would allow them to create a competitive advantage for their firm. Nascent entrepreneurs should also seek education in entrepreneurship, which is commencing in Egypt. These recommendations are discussed further in Chapter seven, section 3 (p.219).

VC managers, on the other hand, should also focus on attaining distinctive education, to allow them to offer superior value-added advice and other services which other VC firm managers cannot. Results also show that most VC teams do not have a law expert on their management team, despite its importance in fulfilling required VC tasks (Dimov and Shepherd, 2005). Hence, it is advisable for VC firms to have a person with a strong legal background on their management team.

As for the selection of portfolio firms, venture capitalists should take into consideration characteristics of entrepreneurs. To enhance VC-backed firm performance, venture capitalists should select entrepreneurs with previous success (Gompers et al., 2006) or experience in the same field as the current venture (Bruderl et al., 1992; Chatterji, 2009).

As for the services they provide, VC firms should work on increasing the advice they provide to their portfolio firms, as it is crucial to add value to portfolio firms; thus, it increases their survival chances and boosts their performance (Nofsinger and Wang,

2011; Wise and Valliere, 2014). Recommendations for VC managers are explained in more detail in Chapter seven, section 3 (p.219).

The VC-E relationship is governed either by the contract binding both or by the extent of their relationship. Therefore, enhancing negotiation of contractual terms is crucial as results show that, in Egypt, entrepreneurs do not find the contractual terms to be favourable and hence this has a negative impact on performance. Additionally, the choice of securities has an impact on the incentives given to both venture capitalists and entrepreneurs, and hence the efforts of both (Kaplan and Stromberg, 2001; Hart and Moore, 2004). These choices can include convertible preferred securities and convertible bonds; however, in Egypt they mostly use equities in contracts between venture capitalists and entrepreneurs, and hence it is recommended for these firms to explore other options for securities.

Venture capitalists and entrepreneurs should also comprehend the importance of the role played by the strength of the relationship between them. When considering the legal environment factors in Egypt, results show that entrepreneurs and venture capitalists tend to rely more on networks and personal relationships, since contract enforcement is weak; thus, the importance of trust arises. A more in-depth explanation of the areas of improvement required in the relationship of venture capitalists and entrepreneurs in Egypt is provided in Chapter seven, section 3 (p. 219).

1.7 Research Data

This study relies on survey research combined with correlational research to collect data. Survey research describes the characteristics of a group or population (Fraenkel et al., 2012). It is a quantitative research technique, in which a researcher administers a survey or questionnaire to a sample or to the entire population to describe their attitudes,

opinions, behaviours, experiences or other characteristics (Creswell, 2005). Moreover, survey research allows for the investigation of relationships between variables (Fraenkel et al., 2012; McMillan, 2012). In this case, correlational research is also used, to aid in the discovery and measurement of relationships between two or more variables, as well as the strength of the relationship. The outcome of this combination provides an understanding of certain related events, conditions and behaviours (explanatory correlational study), as well as strong indications that a variable may be causing another variable (causality correlational study) (Mertler, 2016).

This study follows a cross-sectional type of survey research, which refers to data on two or more variables collected from samples or populations, at a single point in time (Boso, 2010; Mertler, 2016). The VC market in Egypt is relatively new; thus, a longitudinal study will not be required.

The data in this study was analysed using very thorough descriptive statistics as well as t-tests, to compare means of components of each sub-variable, in order to recognise the importance of each, which would provide a better understanding of the data and enable its explanation, with the support of the literature.

The measures used in the survey are borrowed from previous studies, hence Confirmatory Factor Analysis (Joreskog, 1969; Harrington, 2009) is used to examine if the original form of the measure is well adapted to the new population. Furthermore, it also allowed for the aggregation of highly correlated measures.

After validation and aggregation of data measures, an Ordinary Least Square regression model is implemented to further analyse the data. Multiple regression is one of the most commonly used statistical techniques in research (Mason and Perreault, 1991). Its inclusion in this study, conditional on statistically significant overall

prediction, is to draw conclusions about individual predictor variables (the independent variables in this study). It is used to test the hypotheses of the effect of each predictor on the dependent variable, and to evaluate their relative importance (Mason and Perreault, 1991).

Finally, results are confirmed through Ordered Probit Regression, which is the model used when the dependent variable is an ordinal one (Likert scale).

1.8 Structure of the Thesis

This section explains how the remainder of this research is structured. Chapter two focuses on a review of the literature, which examines existing research on the role entrepreneurs play in affecting their firm's performance, as well as the role VC firms play and the value they add or their ability to boost performance of the funded firm in a specific institutional setting. It also focuses on the importance of the relationship between the two and resolving all the conflicts of interest between both parties to ensure the portfolio firm's success. This chapter also reviews previous studies on the Egyptian VC market and identifies the crucial need for research in this field, and thus highlights the contribution of this research.

In Chapter three, the conceptual framework is presented, as well as key concepts and proxies for each variable. Furthermore, it provides an explanation of how the hypothesis for each variable was derived.

A justification of the methodology used in this research is provided in Chapter four. An explanation of the model used, in addition to regression analysis applied, is provided. This chapter also provides information on sampling procedures, data collection method, questionnaire administration activities and assessments of survey bias. Data collection relies on distributing questionnaires to entrepreneurs and VC fund

managers in Egypt. The content of these questionnaires is discussed in detail, in addition to a full explanation of the scales and measurement items used. The chapter concludes with a review of the methodology, which assesses the research design, data analysis and robustness check technique used to confirm the consistency of study results.

Chapter five provides descriptive statistics for the VC and portfolio firms used in the study. It furnishes the necessary information on each, to make the study clearer and more reliable. Descriptive statistics of responses provided to both questionnaires are also discussed in depth in this chapter for variables related to characteristics of entrepreneurs and venture capitalists only, after which an explanation of the data reduction technique and procedure for these two variables, is presented. The regression model analysing the effect of these two variables on VC-backed firm performance is also discussed.

Chapter six provides descriptive statistics as well as data reduction explanation for VC-E relationship variables as well as Institutional Environment. The results of the regression model analysing the effect of all the variables in this study on VC-backed firm performance is also presented in this chapter.

The key findings of the research are presented in Chapter seven. A comparison between findings and hypotheses is also demonstrated, in addition to the robustness results which ensure consistency of the derived results.

In Chapter eight, the thesis concludes with a summary of findings, a discussion of the contributions of this study and recommendations for all practitioners in the field. This chapter concludes by discussing challenges faced, limitations to the research and implications for future research and VC practice.

Chapter Two

Literature Review

2.0 Introduction

The aim of this chapter is, first, to provide an understanding of VC as a concept, followed by overview of the VC markets' literature, its previous perspectives and related key theories; and, second, to analyse the main drivers of VC-backed firms' success, and the factors that have an impact on the extent of the success, as well as consider the persistence of their role in different contexts. The explanation of these drivers and their impact in different contexts will aid in the development of the conceptual framework of this study.



Figure 2.1 Overview of Literature

Section 2.1 will provide an overview about VC as a concept. After which the focus of this chapter will be on the literature available on VC research, related to this study.

Figure 2.1 above highlights the three main areas of literature on which this chapter will focus. Firstly, in section 2.2 the main theories, that explain the existence of VC itself and hence validation of this research, are discussed. These theories are the ones that clarify the importance of VC financing and thus justify the need to understand the importance of success of V-funded firms. After which, section 2.3 focuses on each variable that has an impact on the performance of the funded firms, as well as any factor that increases, decreases or has an effect on this impact. Section 2.4 covers market context, how research results have differed or remained the same in different contexts. Therefore, Institutional Theory is discussed in this section, with the focus on the emerging market context. Section 2.5 narrows down the focus of the emerging context to previous literature available on VC in Egypt. Section 2.6 summarises all key theories discussed in this study and relates them to the research questions. Finally, section 2.7 concludes this chapter by providing key insights of the literature review, which highlights the importance of this research, as it emphasises the determinants of success of VC-backed firms.

2.1 Overview of Venture Capital as a Concept

Venture capital funding is a type of financing, most commonly used by start-up businesses. These businesses receive capital from VC firms in exchange for shares and an active role in the company. This diverts from traditional forms of financing, such as personal bank loans, where debt is exchanged for the loaned capital (Rosenbusch et al., 2013). VC firms operate as a fund, where they pool investments of individuals or institutions and in turn create a portfolio of potentially promising firms that they finance (Megginson, 2004). A VC fund is a legal entity, mostly in the form of a limited partnership, which is formed to facilitate the investments in private companies with the objective of increasing their value over a given lifetime. A typical VC fund structure

consists of three entities, Management Company, VC Fund and General Partnership. The Main stakeholders and their roles in a VC firm are as illustrated in Figure 2.2 below, after which an explanation is provided.

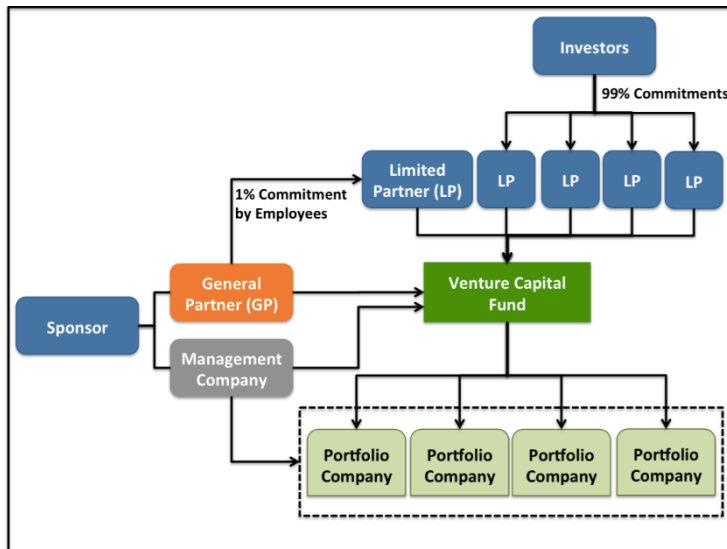


Figure 2.2 Structure of VC Firm²

The VC fund is set up as a Limited Partnership. This requires certain conditions to be met. These conditions include the following: At least one partner needs to be a General Partner actively involved in the decisions of the fund. Limited Partners cannot actively participate in the management of the fund especially when their liability is limited by the funds contributed. A fund's life must be agreed upon and established in the Limited Partnership Agreement (LPA). As explained above, the VC fund pools capital of investors (Bhandari, 2013). These investors consist of corporate and pension funds, large corporations, insurance companies and accredited investors etc. They participate as limited partners by committing to provide funding once called/requested by the General Partner to invest in a portfolio of companies. The General Partnership is the legal entity (usually a Limited Liability Company) which serves as General Partner to the VC fund and is responsible for the management of the partnership between the

² World Bank Group: Venture Capital Workshop (2016)

different stakeholders, to make the capital calls (these calls must be made to the limited partners when investing in a new start-up), reporting, cash distributions and dispensing investment advice. In most structures the General Partner through their executive team act as limited partners by providing 1% or more of the Private Equity capital to invest alongside the investors based on the same terms to align the interests between the different stakeholders. The Management Company, mostly being the General Partner itself, is affiliated to choose the companies to invest in and manage these portfolio investments. It employs most of the staff and is responsible for all the operating expenses. All the financial documents are signed under the management company's name. It is responsible for investing the money in the different portfolio companies and dispensing services to them (Bhandari, 2013).

The existence of VC fills a financing gap in the market³. Firms that are already established have track records that allow them to obtain funding from traditional sources such as commercial banks, capital markets, foreign direct investments etc. Firms that have high-growth potential yet are less established have typically relied on financing from sources other than traditional lenders during their early growth phases. In the more developed economies of the United Kingdom, Canada, and the United States, venture capitalists have filled this gap by providing capital to early stage ventures with good growth potential (Wright & Robbie, 1998). The availability of such capital has helped to promote the emergence of numerous high-growth firms in the United Kingdom, United States, and several other developed countries. This has led many to conclude that venture capital is a crucial factor in fostering a region's economic growth (Jeng & Wells, 2000; Saxenian, 1994).

³ World Bank Group: Venture Capital Workshop (2016)

VC firms invest in early-stage businesses to help them grow. VC firms offer more than just funding to the companies in their portfolios. They use their expertise to provide additional services that would include marketing assistance and strategic advice.

VC investments have a life of about five to ten years, before they exit the fund and make a return. During this period, they expected businesses to grow and prepare themselves for exit phase whether through an Initial Public Offering (IPO), merger or acquisition or stock buybacks (Gravagna and Adams, 2013). While the organizational structure of VC firms in developed economies is very similar to those in emerging economies, the exit mechanisms differ. Exit mechanisms are dependent of the development of the financial market in the nation (Ekanem et al., 2019), such as how well-established the capital market is to allow for an exit through an IPO.

Occasionally, funds will hold on to an investment to help the business grow even further. Businesses can often expect further investment rounds.⁴ Venture capitalists generally finance start-ups based on their capital needs over multiple stages known as rounds. In each round the start-up is valued, and new preferred shares are issued accordingly⁵. Shares issued in each of these financing rounds are labelled Series A, Series B, Series C, up until series E. Series E however is extremely uncommon (McGowan, 2018).⁶ Each round funding is generally raised to transition or grow the company from one stage to another within the company's life cycle. Before a Series A there is a seed round. The purpose of each round is explained in the table below.

⁴ British Business Bank (2019)

⁵ World Bank Group: Venture Capital Workshop (2016)

⁶ Series D and E are less common, as they may mean that the funded firm has not been meeting the expectations set, however in some cases they occur when the firm needs to raise extra capital to increase its valuation before going public, or that it has a new expansion opportunity.

Table 2.1: Purpose of Investment rounds	
Round	Purpose
Seed	For proof of concept, it takes start-up from just an idea to first few steps.
Series A	Firm has a business plan and needs to get to the next level like finding a market or product fit. Expected to raise revenue.
Series B	Product development is maturing and firm needs marketing and sales expansion as well as a full team to accommodate the growing customer base.
Series C	Firm is established and looking for market or new product expansion, or to increase valuation before an IPO.
Series D	To increase valuation before an IPO, or found a new expansion opportunity, or want to stay private for a longer period. A series D is only negative if a firm has not met their expectations on the series C round.

Studies as early as Liles (1974) have referred to VC as a high-risk investment. This labelling refers to the nature of investments they make. Venture capitalists invest in any high-risk financial venture or in unproven ideas, products or start-up situations. They also invest in start-up companies that do not have a sufficient track record, or in large publicly traded companies where uncertainty is evident⁷. Their willingness to take such risk arises from their ability mitigate it through tools they possess, which will be discussed more in depth in section 2.2.2.

2.2 Theoretical Perspectives of Venture Capitalists

2.2.1 Previous Perspectives and the Evolution of Venture Capital Research

In efforts to provide a literature review on VC-backed firms, it is best to start with the evolution and development, as well as the primary focus of previous publications, to better understand the importance of this research.

Soni and Priyan (2013) observed that the institutional VC market was established by the end of the 1940s in the US. However, scholarly interest in VC began only in the 1970s and grew vastly in the late 1980s, while empirical research did not

⁷ World Bank Group: Venture Capital Workshop (2016)

exist before the 1990s (Mason and Harrison, 1999). The main focus of VC studies conducted in the 1970s was on examining the investment and screening process from a venture capitalist's point of view (the supply side) (Tyebjee and Bruno, 1984; Brophy, 1986). This interest in studying the VC process has continued in more recent years (ex: Sweeting, 1991; Bygrave and Timmons, 1992; Fried and Hisrich, 1994; Pandey and Jang, 1996; Isakkson, 2006; Klonowski, 2007). According to Tyebjee and Bruno (1984, p.1051), "investment process steps are deal origination, screening, due diligence or evaluation, deal structuring, post-investment activities and exit." Sapienza and Villanueva (2007) have studied trends in VC research and also conclude that the available literature on VC focuses on VC, from the investor's perspective and on the selection, as well as the monitoring stages, in the VC cycle (ex: Gompers, 1995; Amita et al., 1998; Kaplan and Stromberg, 2001). While most attention was paid to the selection and monitoring stages, some attention was paid to the other stages over the years, however, research on VC exits did not start till the early 2000s (Bascha and Walz, 2001; Shwienbacher, 2005; Giot and Schweinbacher, 2007; DeTienne et al., 2008). Further, researchers began to take an interest in post-investment activities and understanding the value-added by venture capitalists beyond just providing financial support. Another major area of interest that later emerged was the performance of VC investments. Not many studies exist; however, a few studies emphasise the determinants of VC-backed firm performance (MacMillan et al., 1989; Wang and Ang, 2004; Erli et al., 2006). Several studies calculated the annual rate of return on VC investments (ex: Flynn and Forman, 2001; Florin, 2005; Kaplan and Schoar, 2005; Dushnitsky and Lenox, 2006; Erli et al., 2006; Nahata, 2008; Smith et al., 2010). Hege et al. (2003) compared those determinants in the US with the determinants in Europe. These studies on determinants also include external factors, such as the impact of the

industry, the opportunities in the market, technological innovations, etc. Other studies on VC-backed firms' performance either concentrate on the entrepreneur's impact (Batjargal and Liu, 2004; Gompers et al., 2006; Hsu, 2007; Dimov, 2010; Unger et al., 2011), or the VC firms' impact (Hellmann and Puri, 2002; Kannianen and Keuschnigg, 2003; Rajan, 2010; Croce et al., 2013; Rosenbusch et al., 2013), or the relationship between the two (Casamatta, 2003; Elitzur and Gaviious, 2003; Vergara at al., 2016).

Research on determinants of VC funding itself has also been of interest as of the late 1990s (ex: Gompers and Lerner, 1998; Hege et al., 2003; Felix et al., 2011; Cumming and Li, 2013; Lerner and Tag, 2015).

An evident factor in all previous research on VC is its dominance mainly in the developed market context. The most comprehensively studied model of venture capital is that of the US (Bruton et al., 2009; Mourougane, 2016). This considerable interest in the US was mainly because it has been hosting the most active and dynamic VC market in the world (Landstorm, 2007). In fact, research on VC in developing countries is relatively recent (Lerner and Schoar, 2002; Cumming and Fleming, 2002). Jeng and Wells (2000) initialised the examination of VC determinants across countries. Since then, a few studies have been conducted on emerging markets (Locket and Wright, 2002; Bruton et al., 2002, 2004).

In view of the abovementioned limitations, this study's uniqueness is that it excludes any external factors when finding the determinants of VC-backed firm success; instead, it focuses on the impact stemming from the individuals (firm founders and venture capitalists) directly involved in the firm. Also, while many studies analyse entrepreneurs or VC managers separately or analyse only the relationship between them, neglecting the characteristics each must possess, this study contributes a fuller

picture by analysing both together as well as the relationship between them. Additionally, most studies with contradicting results have been conducted in different countries; hence, as explained by the Institutional Theory (Bruton and Ahlstrom, 2006) (addressed below), a different setting produces different results. Moreover, this study focuses on market context with greater emphasis on emerging markets and the institutional differences existing within them (addressed in section 2.3).

2.2.2 Well-Established Theoretical Perspectives on VC

The existence of the VC market is justified by the standard macroeconomic theory: to produce output, capital and labour need to be available (Lerner and Tag, 2013). The combination of capital and labour depends on the amount of output needed. With a given amount of input, output can be increased through innovation, which is brought to the market through young entrepreneurial firms. These firms with risky innovative ideas may have trouble raising the funds they need, from equity or banks (Aron and Lazear, 1990), due to two imperfections in the capital market: moral hazard and adverse selection (Jensen and Meckling, 1976). Both imperfections are types of information asymmetries; a concept pioneered by Akerlof (1970) meaning one party lacks information (Mishkin and Eakins, 2015). Venture capitalists are experts at solving these problems and this explains why a VC is needed to provide capital for risky innovations, instead of other sources of finance. Venture capitalists exist because they are more superior at reducing these sources of market failures than other unspecialised investors (Amit et al., 1999). To illustrate further, moral hazard is defined as the concept that individuals have tendencies to modify their behaviour when other people can be held accountable for risk or bad decision-making (Pettinger, 2017). This in turn creates a conflict of interest between entrepreneurs and investors, which limits the ability of start-ups or early stage firms to raise equity funding or access debt financing from banks.

This conflict of interest is also known as the principal-agent problem, where the venture capitalist is the principal and the entrepreneur is the agent. Some authors have, however, argued that these terms can be used either way (Gabrielsson and Huse, 2002). Indeed, the Agency Theory (AT) has been the dominant theory in explaining the VC-E relationship in entrepreneurship literature (Barney et al., 1989; Amit et al., 1990; Sapienza and Gupta, 1994; Sahlman, 1990). AT suggests actions that focus on the protection of the investment made by the principal against the harmful potential behaviours of the agent (Jensen and Meckling, 1976). The second imperfection that Lerner and Tag (2013) mention is asymmetric information, however it is better termed as adverse selection as it refers to the wrong investment choice, due to investor's lack of information (Amit et al., 1998; Chan, 1983; Williamson, 1985; Burchardt et al., 2014). This lack of information leads to fear by different investors. Equity investors' fear that entrepreneurs would only issue equity when they perceive the firm as overvalued (Akerlof, 1970; Greenwald et al., 1984). In addition, bank financing might not be a feasible option either, in fear that, only high-risk entrepreneurs would apply for loans in cases of high interest rates. (Stiglitz and Weiss, 1981).

VC firms reduce these asymmetries using several measures: first, conducting a detailed screening process about the entrepreneur and the firm before selection (Chan, 1983) (mainly useful to solve adverse selection problem); second, stage funding (Admati and Pfleider, 1994); third, demanding seats on the board of the portfolio firm to monitor activities and provide advice (Hellman 1998; Cornelli and Yosha, 2003); and, finally, through the use of financial contracts, for example, requiring preferred stocks and issuing restrictive covenants (Kaplan and Stromberg, 2004).

The impact of information asymmetry in VC financial contracting is widely recognised (Sahlman, 1990). The detailed contracts are used to govern the relation

between both parties, over the life of the investment, in an effort to solve the principal-agent problem mentioned above (e.g., Cumming and Johan, 2009). Research on VC contracting covers the investment life cycle (i.e. selection, appraisal, contracting, monitoring) and exit of target companies. Thus, Financial Contracting Theory (FCT) is understood to be the key resolvent of the agency conflict (Kaplan and Stromberg, 2004). As per AT, the losses that result from moral hazard and adverse selection can be minimised through the use of contracts and monitoring efforts, which in turn can improve the portfolio performance (Berg-Utby et al., 2007). The restrictive covenants written in the contract between the entrepreneur and VC include, but are not limited to, control rights, cash-flow rights and liquidation rights, which aid in solving the conflicts between both parties. AT and FCT will be discussed in more depth in section 2.2.3. How these contracts are written and enforced depends on the institutional and legal environment of the country in which they exist. The strength of the legal framework and institutional stability determines the relationship between venture capitalists and entrepreneurs. An explanation for this is provided by the Institutional Theory, which states that institutions and cultures shape the actions of firms and individuals. Hence, venture capitalists would operate differently in different parts of the world (Bruton and Ahlstrom, 2003). This justifies the importance of this study in view of the impact of entrepreneurs, venture capitalists and the relationship between them on portfolio firms' performance, in a different institutional setting. Institutional Theory will be discussed in more depth in section 2.3.

In general, there is more theoretical work than empirical available in the literature on VC-E contracting. Kaplan and Stromberg (2000) provide an important empirical study that compares VC financial contracting theories to their counterparts in reality, where results show that the theories do reflect reality. However, contracts in

reality are more complex and the different kinds of rights such as cash-flow rights and control rights are actually interrelated in systematic ways (Kaplan and Stromberg, 2000).

Another important theory for VC investing is the Resource Dependence Theory (RDT), which, for the entrepreneur, is based on ways of attracting and handling resources necessary for the success of the firm (Gabrielsson and Huse, 2002). According to this theory, resources provided by venture capitalists are not limited to financial capital, but include human and social capital as well. Researchers have thus begun to pay attention to the latter forms of capital. The former being their experience and expertise and the latter being their network. Entrepreneurs contribute key technological ideas; however, they are often commercially inexperienced. Therefore, venture capitalists provide them with managerial advice that draws on their industry knowledge and commercial expertise (Sapienza et al., 1996). The role of the venture capitalist as a resource provider in past research has shown to be most effective in substantive ways. The most prominent of these are assisting in strategic decision making, monitoring operational and financial performance, recruiting executives, access to networks, etc. (Timmons and Bygrave, 1986; MacMillan et al., 1988; Gorman and Sahlman, 1989; Gomez-Mejia, 1990; Ehrlich et al., 1994; Sweeting and Wong, 1997; Busentiz et al., 2004; Dolvin, 2005; Maula et al., 2005). In alliance with the RDT, according to AT, venture capitalists require representation on the board of the portfolio firm, as a way to protect their investment (Gabrielson and Huse, 2002).

The basic macroeconomic theory, AT, FCT and RDT are the main theories that explain the purpose and importance of VC. These theories will be discussed in more depth in section 2.2 with the variables.

2.3 Variables that Impact the Success of VC-backed Firms

Variables related to parties directly involved in the VC-backed firms that can impact their success are discussed below, excluding any external factors which are controlled for.

2.3.1 Entrepreneur

Early research (Gompers, 1995) suggests that entrepreneurs are dependent on VC funds to resolve their liquidity constraints. Technological innovation leads to opportunities for creating new products; however, not everyone can seize these opportunities and start a new business, due to lack of funds and/or managerial expertise. Thus, venture capitalists can play a crucial role in providing both to entrepreneurs (Jeng and Wells, 2000).

Social Capital of Entrepreneurs

As defined by Shane and Venkataraman (2000, p.220), “entrepreneurship consists of two related processes, discovery of entrepreneurial opportunities and exploitation of such opportunities.” The relevant one for this research is exploitation, as it focuses on leveraging social and capital resources. Social capital (SC), which constitutes social networking, is not only important to the entrepreneur, but also to the VC fund manager (Coleman, 2009). Previous studies found a link between organisational capital, which constitutes of the social or human capital of entrepreneurs, and venture performance (Bates, 1990; Bruderl et al., 1992; Shane and Stuart, 2002). SC has been defined in different ways throughout literature. According to Glaeser et al. (2002) and Hsu (2007), it refers to a person’s social characteristics, which include social skills, charisma and the size of the business contacts that allow him or her to obtain market and non-market returns. For new ventures, these networks can be important for recruitment, whether of executive officers or technical staff (Bygrave and Timmons, 1992), and for establishing

ties with venture capitalists (which are also crucial for enhancing venture performance, discussed in section 2.2.2) (Shane and Stuart, 2002). Despite the importance of venture capitalists, venture valuation is positively associated with the entrepreneur's ability to recruit executives through their own social network, rather than the VC's (Hsu, 2007). The SC of starting entrepreneurs has widely played an important role in the development and success of firms (Bruderl and Preisendorfer, 1998; Hallen, 2008), through the access to information, positive reputation-building, and enabling recognition of opportunities (Burton et al., 2002; Hsu, 2004). Aldrich and Zimmer (1986) categorised SC into two types, bonding and bridging, both crucial resources to exploit opportunities. Bonding social capital facilitates an individual's evaluation, attainment and utilisation of resources necessary for exploitation, through networks. Bridging social capital refers to weak ties at the individual level that utilises what an individual has developed within their own connections. It also reflects their own worth, structure, primacies and resource distributions. This includes relationships that may obtain resources, such as capital, which would include friends, angel investors, venture capitalists (Greene and Brown, 1997), or information which is diffused through appropriate networks. Social networks are also viewed as valuable resources by other studies for different reasons they: smoothen economic activity (Nahapiet and Ghoshal, 1998; Burt, 1992), increase entrepreneur efficiency and access to selective business opportunities (Batjargal, 2003), and also innovation enhancement (Zhang and Duan, 2010; Cambra-Fierro et al., 2011; Goktan and Miles, 2011; Rowley et al., 2011). Other studies show that through SC firm success can be enhanced by strengthening the status of the entrepreneur, and the firm's reputation and image (Burt, 1992, 1997; Belliveau et al., 1996; Leana and Van Buren, 1999).

Entrepreneurial Firm Resource- Based Capabilities

Crucial to the firm's success, in addition to possessing SC, several studies have examined the role of resource-based capabilities (RBCs) in contributing to firm success and creating competitive advantage for the firm (Barney, 1991; Grant, 1991; Mahoney and Pandian, 1992; Peteraf, 1993; Wang and Ang, 2004). This is founded on the Resource-based View of the Firm Theory (RBVF), which explains that only firms with certain resources, network links and characteristics will achieve competitive advantages, through different strategies, such as innovation, and therefore achieve superior performance (Barney, 1991; Camison and Villar-Lopéz, 2014; Tavassoli and Karlsson, 2015). These resources can also be named internal capabilities, which are defined by Erli et al. (2006, p.2) as "capacity for a coordinated set of resources to perform some tasks and activities". They are skills needed to transform inputs into outputs (productivity) (Pennings et al., 1998). Basic inputs include capital, equipment, skills of individual employees, patents and brand names; all which, through internal capabilities, can produce outputs. Along with RBCs, firm strategy is also important to exploit fully and effectively these capabilities and the firm's unique characteristics (Wang and Ang, 2004). Strategies are the ways by which ventures match their internal strengths and weaknesses with the opportunities and threats in the environment (McDougall et al., 1994). Entrepreneurial strategy making consists of innovativeness, risk-taking propensity and pro-activeness (Miller, 1983). Researchers suggest that, in the current dynamic world, where customer demand and technology are constantly and swiftly changing, entrepreneurial strategy is critical for company success (Dess et al., 1997). Resources on their own are not sufficient to realise elevated performance; thus, having a good strategy is essential (Mahoney and Pandian, 1992). However, a strategy alone is not effective; a good strategy is one that makes better use of resources.

Performance is therefore a function of an adequate fit between the firm's strategy and resources, as, without it, the result would be unfocused and unproductive efforts (Wang and Ang, 2004).

Human Capital of Entrepreneurs

The VC funding process involves several steps, starting with the screening of firms, followed by selection, and continues until the firm exits the fund. Many studies assume that VC-backed firms perform better than non-VC-backed ones, since venture capitalists are more likely to select promising firms to fund. However, the performance of these firms is enhanced by post-investment, value-added activities provided by venture capitalists (Rajan, 2010; Croce et al., 2012; Rosenbusch et al., 2013). The assumption that venture capitalists tend to provide funding for more promising firms, is justified by the Investment Theory. This theory states that rational investors only invest when the calculated present value of their expected returns surpasses their investment amount (Brealey and Myers, 1996). Hence, venture capitalists are more likely to select potentially promising investments, regardless of social and cultural context (Batjalar and Liu, 2004). This is applicable to already existing firms; on the other hand, when selecting from new firms to fund, it is a very risky action as there is a considerable liability of newness and no performance track record (Stinchcombe, 1965), making the outcome of the project uncertain (Timmons, 1994). In this case, the abilities, experience, technical skills, reputation and integrity of the entrepreneurial firm team are crucial to the VC investment decision (Sorenson and Stuart, 2001). In most of these uncertainty situations, venture capitalists would choose to fund entrepreneurs with whom they have previously engaged in transactions (Podolny, 1994), or with whom they have particular ties, i.e. any enduring relationships (Granovetter, 1973), given that any other investment decision criteria have been met. This occurs because

they seek partners about whom they have better knowledge and are therefore more likely to be satisfied with their results (March, 1988). Not only is a second-time entrepreneur more reassuring for venture capitalists, and more likely to receive funding in earlier stages, it also is a factor that increases the chances of firm success and a determinant of firm performance (Gompers et al., 2006; Allinson et al., 2000).

Previous experience of entrepreneurs in start-ups is labelled as entrepreneur skill. The empirical results of Gompers et al. (2006) show that entrepreneurs who have succeeded in a preceding venture have a 30% chance of succeeding in their subsequent venture. Results also show that a start-up owned by an entrepreneur with a track record of success (i.e. an entrepreneur with skill) has a higher success chance regardless of whether it is funded by a top- or lower-tier VC firm. Several other studies show the positive effect of entrepreneurial experience on performance, and Eesley and Roberts (2006) confirm it by measuring firm revenues. Serial entrepreneurs are also more likely than first-time entrepreneurs to obtain more favourable control provisions in contractual agreements with venture capitalists, as the latter feel less of a need to protect themselves. These provisions include control, vesting, and liquidation rights, as well as access to more upfront capital (Gompers et al., 2006). Another advantage for serial entrepreneurs is that they have higher tolerance for decision uncertainty (Allinson et al., 2000).

In addition to entrepreneurial experience, industry experience (Bruderl et al., 1992; Chatterji, 2009) also increases the likelihood of firm success. Both are referred to as human capital (HC); more precisely, specific HC. HC can be categorised as general or specific: the former refers to overall education and life experience, and the latter relates to education and experience in a particular activity or context (Dimov,

2010). HCT (Becker, 1975) states that the greater the HC the better the performance at a particular task. Previous studies found that general HC tends to increase the chances of venture survival and success (Bates, 1990; Brudel et al., 1992; Cooper et al., 1994), and the specific HC characteristics (entrepreneurial and industry experience) have an impact on the venture's success (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005). HCT, which was originally developed to explain the discrepancy in financial returns of employees, suggests that, in general, people want to maximise their economic welfare over their lifetime, and would want to be compensated for their HC investments. On that note, entrepreneurs as well would seek to gain more returns from their start-ups based on their HC investments, which should be reflected in the scale and growth of their firms (Cassar, 2006). HC should therefore reflect and impact the venture's financial performance. It is important to note, however, that financial performance could be measured by different dimensions (Venkatraman and Ramanujam, 1986), such as firm size (Eisenhardt and Schoonhoven, 1990; Frese et al., 2007), profitability, growth and/or stock market performance (Combs et al., 2006).

Dimov (2010) studied the impact of entrepreneur HC but focused on nascent entrepreneurs. The results showed that, compared to entrepreneurial experience, industry experience has a more direct positive effect on venture emergence. Dimov's results also show that, in addition to both abovementioned specific HC characteristics (Delmar and Shane, 2003; Honig and Karlsson, 2004), early planning effort is also crucial in the case of nascent entrepreneurs. Even though entrepreneur experience, industry experience and early planning efforts are all important factors that determine venture emergence and success of nascent firms, their effect is mediated by the crucial variable opportunity confidence. Opportunity confidence is found to be crucial for venture emergence and it also decreases the likelihood of its discontinuation (Dimov,

2010). Opportunity confidence covers two aspects, belief in the feasibility of the opportunity and start-up self-efficacy; the latter is defined as the belief in one's knowledge and ability to execute actions (Bandura, 1977; Chen et al., 1998; Markman et al., 2002; Mitchell et al., 2002). Hence, confidence in terms of both those facets is necessary for an entrepreneur to surpass all obstacles and continue the venture (Dimov, 2010).

HCT (Becker, 1964) also explains that HC investment (education and experience) should be differentiated from HC outcomes (knowledge and skills). This differentiation is important, because the acquisition and transfer of HC does matter (Reuber and Fischer, 1994; Sohn et al., 2006); however, acquiring HC does not necessarily mean it will lead to a HC outcome, i.e. experience may or may not lead to skills (Sonnetag, 1998). The study of Unger et al. (2009), which measures the relationship between entrepreneur HC and success, found that outcomes of HC investments have a greater impact on success than HC investments do. This is because the former are direct indicators of HC, while the latter are indirect (Davidsson, 2004). HCT does not explain how the transfer occurs, however; it simply states that HC investment does improve knowledge and skills. HC investments are also related or non-related to a specific task. Task relatedness of HC helps explain the diverse effects of HC on success, since successful transfer is easier when knowledge is similar to the task being performed (Cooper et al., 1994; Gimeno et al., 1997; Lerner and Almor, 2002). These findings, however, were inconsistent with study of Chandler (1996). The study of Unger et al. (2009), which was conducted using meta-analysis to clarify the opposing results, concluded that HC with high task relatedness has a greater impact on entrepreneur success than HC with low task relatedness. Task-related HC is also categorised as process specific (related to daily tasks of running a business) or content

specific (related to the industry of the owner's business) (West and Noel, 2002). The former includes tasks that cover environment scanning, selecting opportunities and formulating strategies for exploitation of opportunities, as well as organisation management and leadership (Mintzberg and Waters, 1982; Chandler and Jansen, 1992; Shane and Venkatraman, 2000), all of which increase the likelihood of success. Additionally, studies have found that entrepreneurs who start a business in the same field as their past operations are more likely to succeed (Sirinivasan et al., 1994) as, when prior knowledge possessed by the entrepreneur is in a field related to the current business context, it facilitates the acquisition of new knowledge (Cohen and Levinthal, 1990).

In addition to entrepreneur and industry experience, managerial experience shows the managers' past experiences in leadership and management (Hallen, 2008), which could enhance the performance of the venture. Chambers et al. (1988) examine the performance of 100 new firms in the US and find that managerial experience has a positive effect while previous founding experience does not. However, a study by Kolvereid and Bullvag (1993) which compares 250 entrepreneurs finds that experienced entrepreneurs are more resourceful, and tend to get involved in a more competitive business environment, but show no difference in terms of performance.

The focus of this research is on emerging economies; hence, it is important to consider that previous studies have suggested that the extent of effectiveness of HC possessed by entrepreneurs depends on the development of the nations in which they operate (Unger et al., 2009). In developing economies, HC may have a greater impact on success for two reasons. First, it is more likely that education level is variant; hence, entrepreneurs may possess unique HC that is likely to create a competitive advantage.

Additionally, necessity entrepreneurship is more abundant in developing countries, where individuals (from different levels and educational backgrounds) could find no employment options and therefore be forced into creating their own start-ups (self-employment) (Reynolds et al., 2002). From the researcher's perspective, it is also more difficult to find the relationship between education and success in more developed nations, where education level is somewhat uniform (Hunter and Schmidt, 1990; Lerner et al., 1997).

SC and HC of entrepreneurs are both important, yet they are not necessarily separate investments. Coleman (1988) argued that SC can contribute to HC, and more recently Hsu (2007) explained that HC can also contribute to SC, i.e. while professional experience contributes to what you know it can also contribute to who you know.

In summary, the important entrepreneur characteristics that can influence the venture's success and performance on different dimensions are: entrepreneur's HC, especially task related, and SC, as well as RBCs of the firm combined with firm strategy. Moreover, the amount of influence depends on the development of the nation studied.

2.3.2 VC Fund Managers

VC firm performance is considered one of the key drivers to the success of the entrepreneurial firms, since VC firms provide essential performance elements, particularly financial resources and managerial expertise, which the entrepreneurs may lack (Teece, 1986). This is the case specifically in high-tech industries, where entrepreneurs may have the technological know-how, but lack the skills necessary to run a business (Gans and Stern, 2003). Therefore, more attention in research has been given to investigating the impact of VC firms on performance of the portfolio company,

where results have mainly concluded that VC-backed firms develop more rapidly, have more patents, are more productive and are more likely to go public than non-backed ones (Wright and Robbie, 1998; Kortum and Lerner, 2000). The conflict in previous literature is in the causality of the impact of VC on firm performance. While some researchers find the screening by the VC fund to be the reason for superior firm performance (Chan, 1983; Tyebjee and Bruno, 1984; Amit et al., 1998), others find it to be related to post-selection and post-investments activities of the VC. When considering the impact of the VC's screening ability on firm success, it is also important to note the high percentage of VC-backed firm failures (Gifford, 1997), as this survivorship bias may limit the validity of previous work. In efforts to determine this causality effect, Croce et al. (2012) summarised the results of all previous studies comparing the effect on portfolio firm performance of screening or value-added activities. Results were mixed, but most of them found that value-added activities have a greater effect screening has no positive effect (Engel, 2002; Davila et al., 2003; Balboa et al., 2006; Colombo and Grilli, 2010; Bertoni et al., 2011). However, one study found that VC-backed firms outperform non-VC backed firms; nonetheless, it could not answer the causality query (Baum and Silverman, 2004), and therefore attributes performance to both, while yet another study also concludes that both have a positive effect on performance (Chemmanur et al., 2011).

Moreover, if screening is controlled for, the question is whether performance is enhanced by funding or monitoring (Sahlman, 1990; Lerner, 1995; Kaplan and Stromberg, 2003) or other value-added activities (Sapienza et al., 1996; Sorenson, 2007) provided by VC (Croce et al., 2012). Venture capitalists do have the ability to select winners, as previously justified by the Investment Theory, and because they are more capable of dealing with information asymmetries, than other financial

intermediaries (Amit et al., 1998), which allows them to provide the financing necessary to utilise the opportunities they have (Chan, 1983; Tyebjee and Bruno, 1984; Amit et al., 1998). Venture capitalists have more efficient screening abilities than other financial intermediaries that may result in superior firm performance (Tyebjee and Bruno, 1984; Shepherd and Zacharakis, 2002). Furthermore, they can also create successful firms by providing them with mentoring (Jain and Kini, 1995; Hellmann and Puri, 2002), monitoring (Sahlman, 1990; Lerner, 1995; Kaplan and Stromberg, 2003), and access to valuable business contacts (Hsu, 2006; Lindsey, 2008). These provisions are known as value-added activities. Goodstein et al. (1994) have classified VC provisions as networking, monitoring and strategic decision-making. Venture capitalists are often represented on the board of directors or in direct managerial positions within the firm. Wijbenga et al. (2003) analyse the influence that venture capitalists can have while on these boards in each of the aspects categorised by Goodstein et al. (1994). Their results show that, through networking, they are able to secure critical resources and link the portfolio firm to its external environment. Through monitoring, they can screen and approve investment proposals (Tirole, 2001), as well as train or replace ineffective management teams. Finally, through strategic decision-making, they can participate in the strategic decision-making process, to a certain extent.

Human Capital of Venture Capitalists

Venture capitalists can use their specific industrial knowledge and expertise (HC), as well as their contacts (network) to assist portfolio firms in strategic and operational planning, personnel and supplier selection, marketing, financing and participating in other roles where required (MacMillan et al., 1989; Erli et al., 2006).

Strategic advice is found in some studies to be one of the most valued contributions from venture capitalists (Gorman and Sahlman, 1989; Manigart and Struyf, 1997). The venture capitalists' general business knowledge (general HC discussed below) and ability to help entrepreneurs through short-term crises is a crucial factor in strategic value-added advice.

HCT is also applied to VC managers. HCT suggests that VC managers with more superior HC (assessed through better education and experience (Becker, 1975)) achieve higher performance in executing relevant tasks, such as activities prior to and after the investment of the VC fund (Dimov and Shepherd, 2005). However, it is still important to note that different aspects of human capital differ in impact on each performance criterion.

The HCT, which considers investment managers' HC as a predictor of investment performance, is also consistent with Upper Echelon Theory (UET) (Hambrick and Mason, 1984; Finkelstein and Hambrick, 1996). UET states that top management teams make a difference in firm performance. Hence, in the case of a VC fund, characteristics of fund management teams should be able to predict performance of the fund (Zarutskie, 2007). Similar to entrepreneurs, VC managers' HC can also be categorised, as general HC and Specific HC. Specific knowledge, which divides into industry specific and task specific, can yield a competitive advantage for the VC firm (Barney, 1991, Wright et al., 1995) as it refers to knowledge that is more relevant to the firm. In the context of this study, specific HC would refer to experience and education that is relevant for the execution of VC-related activities. This could be in the fields of business, law or consulting, for instance. The two HC types can be defined differently in alternative contexts (e.g. Pennings et al., 1998).

Before discussing further, the impact of HC characteristics on the performance of portfolio companies, it is important to first understand how the link between HC and firm performance arises and accordingly why outcomes differ. Venture capitalists are engaged in pre- and post-investment activities with entrepreneurial firms. Pre-investment activities involve all decisions taken by a VC firm, including screening of portfolio firms and structuring a contract with the selected firm, up until the signing of the contract. These decisions are made according to the VC firm's perception of potential risk and return (Tyebjee and Bruno, 1984). On the other hand, post-investment activities, which are made according to the VC firm's perception of opportunities and threats (Tyebjee and Bruno, 1984), include monitoring of firm activities, hiring top quality management, and dispensing advice (Lerner 1994, 1995). Whether these perceptions differ based on the awareness of the situation (Sitkin and Pablo, 1992) or the key resources available (Jackson and Dutton, 1988), or any other explanation, all depends on the relevant knowledge that the VC top management team possesses (Dimov and Shepherd, 2005). Relevant knowledge includes knowledge already attained and the ability to accumulate new knowledge, which is based on what already exists (Cohen and Levinthal, 1990). This knowledge can be formally acquired, through educational institutions, or gained from experience in a particular field, both of which form the underlying aspects of VC fund managers' relevant HC. The knowledge possessed differs from one VC firm to another (Spender, 1996) and hence it is crucial to understand performance. This is better justified by the RBVF (Barney, 1991), which associates superior performance with the possession of resources that are valuable, rare and not substitutable. Hence, the theory supports that fund management must obtain HC that differentiates them from others, in order for certain fund management teams to outperform the rest (Zarutskie, 2007).

Previous studies have mainly paid attention to the quantitative nature of HC, such as the number of years or degree of education (Bruderl et al., 1992; Cooper et al., 1994; Gimeno et al., 1997) or experience (Evans and Leighton, 1989; Bruderl et al., 1992). However, Dimov and Shepherd (2005) highlighted the importance of considering qualitative aspects of HC, such as the field of education, to understand which HC characteristics are associated with better performance. Additionally, while most studies focus on what enhances the performance of a venture, it is important to note that those factors differ from factors that improve its survival chances (Rander and Shepp, 1996; Dimov and Shepherd, 2005). Results of Dimov and Shepherd (2005) show that general HC is positively associated with portfolio companies that went public (homeruns), while specific HC is not positively associated with homeruns; however, it is negatively associated with those that went bankrupt (strikeouts). A more in-depth explanation is that specific HC focuses on detecting risks and therefore prevents strikeouts. For example, experience and education in business and law are specific to task requirements of VC and they allow for critical analysis of business plans, negotiation of contract structures, etc., all to detect and minimise risks. General HC, in contrast, focuses on detecting opportunities rather than risks, through accumulation of new knowledge, which increases opportunity sets (Gimeno et al., 1997). However, it is also associated with strikeouts, which contradicts previous studies that showed general HC being positively related to survival (Bruderl et al., 1992; Cooper et al., 1994; Gimeno et al. 1997; Pennings et al., 1998). With these results, it is clear that further analysis of HC is required, and different educational backgrounds should be considered, as their results solely focused on US firms and large venture capitalists, and did not control for VC deal size, which can impact performance itself. Zarutskie (2007) built on Dimov and Shepherd's model by using a larger data set and analysing first-time

funds, and by taking the study further and categorising specific HC into industry specific and task specific. The results of analysing first-time funds are important, as they highlight the types of venture capitalists needed for a successful VC market (Zarutskie, 2007). Task specific covers two VC-related tasks, managing the VC fund and managing a start-up. Fund managers with previous experience in running funds have been exposed to trial and error, and therefore have the hands-on experience, which cannot be attained elsewhere, not even through education, needed to enhance the performance of the VC fund (Lazear, 1995; Gibbons and Waldman, 1999, 2004). In addition, fund managers with experience in running a start-up can add value to start-ups selected as portfolio companies by giving better advice or hiring better calibre staff for their management. Contrary to the task-specific characteristics, industry-specific HC matters in the case of first-time fund managers. Industry-specific HC comes through experience in tasks and skills attained in prior industries in which VC fund managers have previously worked (Kletzer, 1989; Neal, 1995). They are also important to venture capitalists, since they are active investors who became involved in the governance and strategic decisions of their portfolio companies, either by being on their board of directors (BOD) or by helping them identify good managers or advisors (Sapienza, 1992; Lerner, 1995; Gompers and Lerner, 2001; Kaplan and Stromberg, 2001 and Botazzi et al., 2007). VC managers that have undertaken previous experience in either strategy and management consulting, non-venture finance, or professional science and engineering can have positive impacts on VC fund performance (Zarutskie, 2007). These results extend the model of Dimov and Shepherd (2005); however, both studies are conducted on US firms and hence an international context is necessary to confirm the results.

A study by Wise and Valliere (2014) compares the impact of the SC (the extent of their connectedness in the ecosystem) of fund managers to the impact of their HC (in terms of start-up experience) on the performance of portfolio firms. The study tries to reveal how both lead to the mitigation of risk failure of portfolio firms i.e. minimising unsuccessful exits. Results show that experience does have an impact while connectedness is insignificant. Results also explain that the start-up experience of fund managers has five outcomes. First, more experienced managers are able to screen and select portfolio firms better. Second, they can assist and advise firms with implementation of strategies and business plans. Third, experienced managers have an awareness of the need of flexibility in implementation and hence they can advise the entrepreneurs when they would need to forgo previous plans and apply new ones. Fourth, more experienced managers also have more credibility with their entrepreneurs. Finally, they may be able to spot opportunities and foresee potential for connection at an operational level.

Value-added Services by Venture Capitalists

Since HC of VC managers positively affects the performance of VC funds, it is important to understand what VC funds provide using their HC, which impacts the degree of portfolio firms' success. VC funds allow better resource attainment for the portfolio companies (value-added activities) and they provide incentives for managers of their portfolio companies (monitoring) (Croce et al., 2012). The Agency Cost Theory (AT) (Jensen and Meckling, 1976), supports the impact of monitoring (Admati and Pfleiderer, 1994; Lerner, 1995), as it allows managers to discover potential problems in their portfolio firms, after their investment. This also results in reducing agency costs and increasing portfolio firm performance. On the other hand, the impact of the value-added activities is justified by the RBVF (Barney, 1991). Venture capitalists provide

value-added services to their portfolio companies, which in turn increases their financial (Hellman and Puri, 2002) and managerial (Sorenson, 2007) resources. These services, which include aid in strategic and operational planning, management recruitment and compensation, and access to their network of contacts (e.g. banks, managers at supplier, customer and competitor firms, etc.) (Gorman and Sahlman, 1989; Sahlman, 1990; Sapienza et al., 1996; Gompers and Lerner, 1998; Sorenson, 2007), are valuable resources for the portfolio firm (Shepherd et al., 2000).

Croce et al. (2012) control for reverse causality to determine whether outperformance of VC-backed European firms is due to VC screening or value-added activities. They also isolate value-added effect from financial effect. Contrary to some previous studies, they find that productivity growth is not higher in VC-backed firms than matched non-VC-backed firms before the first round of VC financing. This contradiction provides evidence that screening abilities of US VC firms are stronger and hence more effective (Hege et al., 2003). Results also show that value-added activities are a greater driver of portfolio firm performance and that venture capitalists have an imprinting effect on firm performance, since productivity growth does not decrease even after the exit of the VC fund. Contradicting this view, Rosenbusch et al. (2013) find that VC funding loses value after the firm goes public.

Traditional Financial Intermediation Theory focuses on the role of financial intermediaries in alleviating information asymmetries (Fama, 1985; Stiglitz, 1985), which emphasises the role of monitoring. However, venture capitalists provide additional roles which support in building up the organisation (Hellmann and Puri, 2002). This would mean that value-added services have the most effect on portfolio firm performance. These additional roles include human resources and recruitment

processes, involvement in strategic and financial planning such as stock options, and provision of beneficial contacts. In an effort to clarify past inconsistencies, Rosenbusch et al. (2013) tested the extent to which VC affects portfolio firms. They find that VC can have an effect in terms of profitability, growth and stock market performance. Moreover, the VC impact on success may depend on the context, such as age, pre- and post-IPOs and cultural uncertainty avoidance.

Consistent with empirical literature, a panel discussion by Rajan et al., (2010)⁸ that comprised venture capitalists, an entrepreneur and an academic to discuss the interrelation between venture capitalists and portfolio firm performance. Results of panel discussion showed that context, as well as the knowledge transferred from the previous experience of the general partners in the VC, can influence the ways in which, venture capitalists contribute to the efficiency of their portfolio companies (Rajan, 2010). This confirms that the HC of VC managers matters.

VC Firm Networks

One of the most important value-added services provided by venture capitalists as mentioned above is providing portfolio firms with access to all its business contacts, referred to as the VC's network or SC, which is vital for the success of VC-backed firms (Lin, 1999). An organisation's network ties allow it to gain access to resources that may have been difficult to access otherwise (Granovetter, 1985; Burt 1992; Hallen, 2008). Network ties come in many forms including alliances, board interlocks and equity investments between organisations (Mizruchi, 1996; Hallen, 2008; Santos and Eisenhardt 2009), through which organisations are exposed to many benefits. These

⁸ Panellists: Rajan, T. (Anchor); Emani, R. (Co-founder and CEO, Insta Health Solutions); Kumar, S. (Managing Director, Inventus Advisory Services); Sabaronathan, G. (Associate Professor, Finance and Control, Indian Institute of Management Bangalore); Subramaniam, G. (Managing Partner, IL & FS Investment Managers Ltd.).

benefits may include exchange of industry information (Burt, 1992), access to financial capital (Sorenson and Stuart, 2001) and collaboration to foster innovation (Baum et al., 2000). Venture capitalists with network ties or that participate in different networks are exposed to higher-quality relationships, various investment opportunities and are able to access more information, while improving the firm's cash-flows (Hochberg et al., 2007). This explains why it is important to understand SC thoroughly. It refers to investment in social relationships with expected returns (Lin, 1999). It is when individuals or organisations engage in interactions and networking to produce profits. Networks can be defined as a particular group of connections between a specified set of actors, where these connections may be used to analyse the social behaviour of the actors involved (Mitchell, 1969). In recent years, Complex Network Theory has been developed through the study of complex networks in science and social fields (Barbasi and Albert, 1999; Newman 2003; Boccaletti et al., 2006). A network is considered complex if it consists of various interacting agents (Barabasi, 2002), who may possess divergent proficiencies and serve different purposes in the network. This theoretical framework, which Watts (2004) called 'the new science of networks', is also helpful in the analysis of industrial and innovative clusters. Empirical studies were conducted in VC research to examine the bridging and clustering relations that comprise the VC network (Zheng, 2004; Hochberg et al., 2007).

VC network studies can be mainly traced to the network theory called Social Network Theory (SNT) (Laudan, 1977). It is centrally concerned with structured relations among persons who create, distribute and utilise various types of knowledge (Dunn, 1983). Social networks play an important strategic role for firms (Burt, 1982; Gulati et al., 2000; Westphal et al., 2006, Lim and Cu, 2010). A firm's social network is only possible through the SC it possesses, and therefore SNT is in line with the SCT

(Bourdieu, 1983; Coleman, 1988; Putman, 1993), which suggests that a firm's external network is a major contributor to its performance. A firm's ability to mobilise extramural resources, attract customers and identify entrepreneurial opportunities is conditional on external networks (Granovetter, 1985; Lee et al., 2001; Liu et al., 2006). SC is productive, as it permits the accomplishment of certain outcomes that would not exist in its absence (Coleman, 1988). VC social networks hold opportunities for the funded start-ups and for the VC firms themselves, primarily for the superior information they access through the network (Lin, 1999). Information can be acquired through the use of social relations that are maintained for other purposes (Katz and Lazarsfeld, 1955). The willingness of venture capitalists' investment in firms increases with the greater access to information as well as potential opportunities concerning those firms (Alexy et al., 2012). Those venture capitalists with better-quality relationships (network positions that are more influential) enjoy more access to information, as well as investment opportunity sets (Hochberg et al., 2007).

There are three main VC networks: syndicates for co-investment (Lerner, 1994; Hochberg et al., 2007; Mas et al., 2008, Jin et al., 2015), service providers such as head hunters, patent lawyers, investment bankers, etc. – to help the company succeed (Gorman and Sahlman, 1989; Sahlman, 1990) – and institutional investors, as well as other investors (Lindsey, 2003; Hsu, 2004). However, most of the available literature on VC networks is based on syndication. A syndicate network is formed when two or more VC firms connect with each other because of at least one common investee (Zheng, 2004; Kogut et al., 2007). The reason this type has received more attention is that syndication relationships are believed to have a positive impact on both main drivers of VC performance, the VC's ability to select a promising company to fund (pre-investment) (Burt, 2005) and its ability to add value to it (post-investment) (Pratch,

2005; Hsu, 2006). Three explanations have been put forward for this: first, when venture capitalists form syndicates, they would invite one another to co-invest in promising deals (Lerner, 1994). Second, it is useful for them to make better selection decisions as they receive signals from one another's willingness to invest in potential companies (Wilson, 1968; Sah and Stiglitz, 1986). Finally, each VC may have expertise in distinct industries or sectors and hence this would expand their abilities to invest, add value to their investments and diversify them (Stuart and Sorensen, 2001). In addition, syndication increases sharing of resources and information among venture capitalists, and also gives them access to each other's networks. For instance, a VC in a syndicate may have access to another VC's service providers (head hunter, investment banks, etc.) and hence expand its own network (Bygrave, 1988). Having access to more information would also enhance the performance of the VC firm as it allows for a more positive valuation of its portfolio companies (Tyebjee and Bruno, 1984).

In addition to these two direct benefits of VC syndication networks, VC networks in general also have an indirect effect on the ventures they fund, by providing these ventures with access to their networks (social capital). In this case, the VC becomes an information or resource broker to the funded firm, enabling it to access professionals or experts as well as other venture capitalists from the VC's own networks (Sapienza et al., 1996; Dimov and Shepherd, 2005; Pratch; 2005; De Clerq et al., 2006).

The impact of the direct and indirect roles of VC syndicate networks on funded companies' performance (measured through successful exits, mainly IPOs and sales to other companies) was studied by Hochberg et al. (2007) through a US-based sample (1980 to 2003), using cross-sectional measures. A five-year window was used, since a VC network is not static, as some venture capitalists enter and exit over time. Their

findings mainly show that a better-networked VC at the time a fund is raised leads to better fund performance. The centrality measures of degree, closeness and betweenness are both used to determine how well networked a fund is. First, Degree centrality refers to the number of relationships an actor has in the network; the more ties, the more central or influential the VC would be. Second, Closeness is the quality of these relationships, measured by the importance or centrality of the other actors in this network, which is termed eigenvector centrality (Bonacich, 1987). Finally, 'betweenness' is the term used for the indirect measure in which the VC acts as an intermediary connecting other actors in the network. Results find that degree centrality has the most economic effects, where VC firms with more influential positions in a VC network will exhibit better investment performance at both fund and portfolio company levels. The measure of least economic significance is betweenness, which shows that indirect relationships play a lesser role in the VC market. These results are derived from regression analysis and do not provide explanations. It is also important to note that these are attributed to US firms only, and hence might not hold in other contexts.

While most literature has focused more on VC networks from the entrepreneur's perspective or its impact on their performance (Hsu, 2004, 2007; Hochberg et al., 2007; Pratch 2005; Hallen, 2008), Alexy et al. (2012) focused on the impact that VC networks have on the VC firm itself, measured by investment sum (amount they invest in start-ups). Their longitudinal study with five-year moving windows, on US high-tech sector firms only, measures VC networks based on structural and relational aspects. More studies in the literature are available on structural aspects (Alexy et al., 2012), which include number and intensity of connections (Uzzi, 1997) and position of VC in the network (Burt, 2005). Relational aspects cover who the VC connects with, and whether characteristics of other venture capitalists in the actor's network are similar or different

(Reagan and McEvily, 2003; Morgan, 2005). Findings on structural aspects show that the structural position of the VC in a network influences its investment sum in start-ups. This is consistent with previous findings, which show that a firm's position in the network, whether open (Burt, 2005; Jesppesen and Lakhani, 2010) or closed (Coleman, 1990), gives it privileged access to information and hence positive outcomes (Ahuja, 2000; Rodan and Galunic, 2004; and Fleming et al., 2007). The number of connections in a VC's network has a positive effect on investments made, while brokerage connections also have significant effects (unlike Hochberg et al. (2007), who found no significant effects on portfolio firm). It is important to understand, as noted in previous studies, that, at a certain point, given that management attention and information processing capability are limited (Ocasio, 1997), the marginal value-added by an additional connection in the network will decrease (Uzzi, 1997); the findings of Alexy et al. (2012) could not confirm this.

As for relational aspects, positive association has been found between either high specialisation or high diversity amongst network partners (in terms of past investment portfolios of each), where a mix is not recommended (Alexy et al., 2012). These results provide no explanation for such outcomes and do not solve the conflict in previous literature. Some studies find diversity of connections of the venture capitalists in a syndicate to provide a better source of information (Granovetter, 1985; Almeida and Kogut, 1997; Reagans and McEvily, 2003), while others find similarity to be more effective for the VC to process information (Gulati, 1995; Uzzi, 1997) and extract more reliable and higher-quality information (Dimov and De Clercq, 2006). Apart from analysing the connections of each VC firm in a syndicate, it could be effective to analyse the HC or experience of the VC's top management in a syndicate. One study

that explored this idea, but not in depth, found that the importance of the experience of each VC in a network is reduced and sometimes eliminated (Hochberg et al., 2007).

The abovementioned studies have focused on VC networks in the US. Some research on VC in emerging economies did find networks to have an important role (Ahlstorm et al., 2000; Locket et. al., 2002; Batjaral and Liu, 2004). Bruton and Ahlstorm (2003) add that networks have a greater role in emerging economies, as they substitute for formal institutions, such as market for corporate control and rule of law, which are known to be weaker or unorganised there (Meyer, 2001; Peng 2000). Ahlstorm and Bruton extended their study in 2006 to see if venture capitalists will be as reliant on their personal networks when institutions become more formal, or not. Their findings explain that economies with weak financial institutions become more dependent on their personal relationships and networks in all aspects of the VC process, starting with selection. For instance, the entrepreneurs they know more are the ones to be selected. Consistent with Guthrie (2002), the more the formal institutions exist, the less dependent the VC would be on networks. This implies that context is important when studying the impact networks have on the success of venture capitalists.

2.3.3 VC-E Relationship

In addition to the characteristics of the venture capitalist and the entrepreneur, the relationship between the two (VC-E relationship) also affects VC performance and VC markets. For a VC-backed firm to succeed, it requires effort from its venture capitalists and entrepreneurs, and joint inputs of both to interact well (Keuschnigg, 2004). Joint collaboration between the venture capitalist and entrepreneur is important for the success of the VC-backed firm (Cable and Shane, 1997). Entrepreneurs contribute key technological ideas; however, they are often commercially inexperienced

(Braunerhjelm, 2010). Venture capitalists therefore provide them with managerial advice that draws on their industry's knowledge and commercial expertise. The importance of the VC-E relationship began to receive attention in the US in the early 1990s (Sapienza et al., 1996), when researchers studying the value-added effect of VC activities found that there is no value to be added through VC involvement unless the entrepreneur is attentive and willing to react to VC advice (Barney et al., 1994). The relationship was found to be crucial, to the extent that Fried and Hisrich (1995) labelled venture capitalists as 'relationship investors'.

Most of the previous literature on the VC-E relationship has been based on the Agency Theory (AT), although some research has relied on Stewardship Theory (ST) (Fox and Hamilton, 1994; Davis et al., 1997). The latter assumes that goals of both the principal (VC) and the steward (Entrepreneur) are aligned.

The VC-E relationship is mainly governed by the financial contract that exists between both parties, mainly to alleviate the existent principal (VC) -agent (entrepreneur) problems (Holmstrom, 1979), which arise due to information asymmetries as well as behavioural uncertainties related to the interaction with the investment target (Amit et al., 1998). These asymmetries stem from either hidden information (adverse selection problem) or hidden actions (moral hazard problem) (Elitzur and Gavious, 2001). Contractual favourableness (or the degree to which an entrepreneur is content with the contract) is associated with fewer post-investment disagreements between both parties. Economic theory also suggests that difficulty faced by entrepreneurs in obtaining finance due to the high risk arising from the information asymmetries, leading to conflicts of interest between the principal and the agent, can be overcome through investor monitoring, structuring of financial contracts and contractual rights, staging of capital and risk-sharing solutions (Denis, 2004;

Nofsinger and Wang, 2011). Hence, research on VC contracting covers the investment life cycle, i.e., selection, appraisal, contracting, monitoring and exiting of target companies (Kaplan et al., 2001). It is worthy of mention that literature covering FCT and other issues related to VC-E contractual relationship is very broad and hence only previous studies related to the scope of this research will be covered.

The structure of the contract between principal and agent aids in mitigating conflicts of interest between them, through selection of security, control rights and cash-flow rights. For proper contract implementation, the contract design must also consider the incentives of both agents and hence provide expected returns equal to at least their investment (Casamatta, 2003). The first conflict arising in the VC-E relationship is adverse selection, which can be addressed through the type of security selected. The extent of the problem, or the degree of information asymmetry and agency costs faced by the VC firm, is not constant across different types of entrepreneurial firms (Burchardt et al., 2016); hence, these firms will have varying contract preferences accordingly. Consequently, securities used can be designed within contracts, to deal with agency problems based on the specific characteristics of the firm seeking financing (e.g., Cumming and Johan, 2009). Choice of securities can also differ based on the stage of financing of the firm (early or later stage) (Cumming and Johan, 2007). Previous theoretical literature has taken two tracks: the first characterises convertible preferred securities⁹ as the optimal form of financing for entrepreneurial firms (Chan, 1983; Amit et al., 1990; Berglöf, 1994; Gompers, 1997; Bergemann and Hege, 1998; Marx, 1998; Trester, 1998; Casamatta, 2003; and Schmidt, 2003); while the second suggests that convertible securities are not uniquely optimal (Barney et al., 1994; Landstrom et al.,

⁹ Convertible preferred stock is a share of a company's equity that gives the holder the right to exchange his/her stocks into common stocks and is preferred in case of bankruptcy and dividend payments.

1998; Manigart et al., 2002; Cumming, 2006; Cumming and Johan, 2009); while previous literature, mostly empirical, shows these convertibles to be the only optimal choice. Convertibles are used by 100% of the sample tested by Sahlman (1990) and Bengtsson and Sensoy (2011); 94.5 % of the sample tested by Kaplan and Stromberg (2003) and 80% by Trester (1998). The common ground between these studies is that all the samples are based on US firms. Gilson and Schizer (2003) offer a tax-related explanation, which does apply to the US only, for the remarkable similarity of capital structures in US venture finance. Companies issuing convertible-preferred equity are able to offer favourable tax treatment on their incentive compensation payments to employees (especially to the founder). On the other hand, studies based on European (Bottazzi, et al., 2004, 2009; Cumming, 2008; Schwienbacher, 2008; Hege et al., 2009) or Canadian (Cumming, 2004, 2005) venture capitalists find variant results with regard to both the choice of financial instrument and the distribution of cash-flow and control rights. Common stock is used more than convertible preferred equity, followed by mixed debt equity and straight debt or straight-preferred debt. In the hope of further explaining the heterogeneous results, Kaplan et al. (2007) study an international sample and, even though the findings show that the majority of investments are in fact financed with convertible preferred equity, it still remains much less common than in the US. Another explanation could be attributed to the association between the choice of financial instrument and agency costs related to the context of the stage of financing (start-up or seed) (Cumming and Johan, 2009). Moreover, adverse selection costs are more significant for firms in start-up and expansion stages, due to the presence of more risks (systematic, unsystematic and informational risks). Moral hazard costs are also high for start-up firms, due to the flexible nature of their assets, which enhances the ability for entrepreneurs to extract private benefits. Combined with the advantage that

preferred stockholders have over common stockholders in cases of bankruptcy and liquidation (Besley and Brigham, 2014), this explains the favouring of convertible preferred equity when investments are riskier. Another factor that would make convertible preferred equity more favourable according to risk is the type of industry in which the entrepreneurial firm operates. For example, venture capitalists are exposed to greater agency costs when investing in high- technology entrepreneurial firms (Hart and Moore, 1994; Noe and Rebello, 1996).

The agent is not the only criterion to be considered when selecting securities; the type of security can also depend on the venture capitalist's experience. The more experienced the venture capitalists are, the less concerned they are with clauses in the contract that would hedge their risk (Bengtsson and Sensoy, 2011). Venture capitalists with better governance abilities avoid clauses involving costs of risk sharing and focus more on influencing venture development, such as negotiating more on board representation rights.

The variation in research results can also stem from the different uses of contract provisions (e.g. liquidation preference), for a given security, which can result in a similar payoff for the investor (Metric and Yasuda, 2010; Bengtsson, 2011). Moreover, some combinations of different classes of securities can also substitute others (Kaplan and Stromberg, 2001). For example, debt-equity combination is equivalent to convertibles, according to the models of Bergemann and Hege (1998) and Marx (1998).

The extent of adverse selection problem may also fluctuate according to the strength of IPR (Intellectual Property Rights) protection (Ueda, 2004). The stronger it is, the more reassurance to entrepreneurs that their idea would not be given away to the venture capitalists, and thus they would not feel the need to avoid revealing critical information.

The second major conflict in the VC-E relationship is moral hazard (Burchardt et al., 2014), which includes lack of effort on the entrepreneur's behalf after VC funds are committed, entrepreneurs' engaging in opportunistic behaviour due to excess private information they have over the VC (informational rents), and the risk of threat to breach contract and withdraw HC when it is particularly important to the firm (hold-up problem) (Hart and Moore, 1994). Efficient contract design can help to align the incentives of the venture capitalist and the entrepreneur, and therefore mitigate those moral hazard issues, by the separate allocation of different rights such as cash-flow and control rights, which give entrepreneurs an incentive to act optimally (Kaplan and Stromberg, 2001). Allocation of cash-flow rights suggests that entrepreneur equity compensation is more sensitive to performance when information asymmetry increases (Holstrom, 1979; Lazear, 1986). This should secure the VC an attractive return on investment, while still providing sufficient financial incentives for optimal exertion of effort from the entrepreneur's side. Control rights, such as voting, liquidation and board rights, are allocated differently, whereas, if company performance is poor, then the VC would obtain full control. While these rights are conditional to the firm's performance, they are more common in the early stages of the VC and E relationship (Aghion and Bolton, 1992; Dewatripont and Tirole, 1994). Venture capitalists can alleviate the hold-up problem, specifically by including non-compete and vesting provisions in their contracts (Hart and Moore, 2004). Built on Traditional Corporate Finance Theory, which explains why agency costs are associated with obtaining external financing, Casamatta's (2003) model finds a relationship between the level of financial participation of the VC firm and the type of claim issued by the firm. Common stocks are used in the case of small investments, while convertible bonds are utilised for large

investments. This model is also supported by the work of Fenn et al. (1998), as well as Kaplan and Stromberg (2003).

Taking cash-flow rights a step further, when dealing with the moral hazard problem, agency costs and control risks are mitigated through stage financing (Wang and Zhou, 2004). In VC financing, this refers to segmenting the provision of funds to maintain the possibility of abandoning the project. Instead of committing all the necessary capital at once, venture capitalists invest on separate stages to keep the venture under control, by obliging entrepreneurs to continue to exert effort to receive the subsequent fund. When financing high-risk companies with pervasive moral hazards, staged financing allows venture capitalists to gather information and to monitor the progress of projects, while maintaining the option to quit (Gompers, 1995). This minimises risk for venture capitalists as it reduces losses from inefficient continuation and creates an exit option for them. Elitzur and Gaviious (2001) rely on a multi-period game theoretic model to study the VC-E relationship and how the VC deals with the problem of entrepreneur's hidden effort, through stage financing. In the model, the contract is set in the first period, while the relationship lasts several years, split into stages, allowing for the derivation of the strategic behaviour of both parties over time. Their findings show that all incentive payments should be back-loaded to the entrepreneur as much as possible and that a straight debt contract is the optimal one in venture financing. The drawback in the studies of Elitzur and Gaviious (2001) and Casamatta (2003) as well as others is that they work on the moral hazard problem; however, only focusing on the entrepreneur's side. Smith (1998) was the first to argue that both parties participate in the establishment of the firm's net worth and therefore a double-sided moral hazard problem exists. De Bettignies and Brander (2007) acknowledge that it is in fact a double moral hazard problem, where both the venture

capitalist and entrepreneur face moral hazard, and emphasise that efforts of both need to be aligned (consistent with ST), yet they fail to solve the moral hazard problem faced by entrepreneurs. Their conclusion shows that, when a VC owns a greater share in the firm, this in turn improves the VC's effort level but reduces the entrepreneur's. Building on their work, seeking to find a solution, Vergara et al. (2016) design an optimal contract in the context of double moral hazard, where efforts of both are complements, rather than substitutes. This is based on the previously mentioned concept of joined inputs from both the venture capitalist and the entrepreneur. Venture capitalists contribute marketing and networking support while, entrepreneurs possess skills in technological and production aspects as well as innovative ideas (Fairchild, 2011), hence they complement each other. The synergy generated by complementarity between the entrepreneur's abilities and VC's experience has a positive effect on the market value of the enterprise (Vergara et al., 2016). Contrary to Casamatta (2003) and De Bettignies and Brander (2007), the results of Vergara et al. (2016) show that the entrepreneurs' efforts do not decrease with shares allocated to venture capitalists, and there is no efficiency wage; instead, the venture capitalists' share is binding. Efforts of both are non-linear with respect to equity participation levels. The optimal share awarded to the VC depends on the elasticity and efficiencies as well as the complementarity of the efforts of both. The greater the complementarity, the greater the proportion of equity the entrepreneur is willing to give to the VC. The higher it is, the more it will result in shares being equal. This view is supported by previous work, where data from actual transactions showed venture capitalists to hold a 50% equity share in the ventures (Kaplan and Stromberg, 2003; Cumming et al., 2006; Goldfarb et al., 2013).

The work of Vergara et al. (2016) on complementarity effect addresses one of the recommendations of Arthur and Busenitz (2003). The work of the latter is based on the belief that both the AT and ST overlook the goals and motivation of the entrepreneurs and overemphasise the centrality of the VC. Neither of the theories explain the benefits that the entrepreneur can offer for venture or the relational rents possible through the VC-E relationship (De Clercq and Sapienza, 2000, 2001). They also find ST to be inadequate as it assumes subordination of E's goals or self-interest to take the priority of the best interest of the principal. Therefore, it fails to explain the VC-E relationship. In an effort to correct both theories, their results suggest that research on the VC- E relationship should focus on three dimensions. First, going beyond separation of ownership and management, researchers need to consider the trust developed in the relationship between both and need to view VC involvement as a form of collaboration to nurture the venture. Hence, this study will focus on the trust between both rather than contract specifications. Second, going beyond financial ownership, where researchers should consider the way venture capitalists treat entrepreneurs. In other words, if venture capitalists treat entrepreneurs with respect and highlight their capabilities and the firm-specific skills they possess, then the entrepreneurs will be motivated to continue to exert effort even if their shares are diluted, as they receive more funding. Finally, centrality of the entrepreneur: VC input should be examined from a complementary perspective (as per Vergara et al., 2016), where the strengths and weaknesses of the venture capitalist and the entrepreneur should be balanced. This in turn highlights the importance of this study, as it combines the characteristics of entrepreneurs and their firms, and venture capitalists and their firms, as well as the relationship between both.

Empirical tests (Gompers, 1997; Gompers and Lerner, 2001; Kaplan and Stromberg, 2003, 2004; Cumming, 2006; Cumming and Johan, 2009) have shown different results for the optimal structuring of contracts. This could be explained, by the relative negotiation ability of the VC and the entrepreneur. All of the abovementioned studies fail to include the effect of bargaining and negotiation between venture capitalists and entrepreneurs, until the recent study by Fu et al. (2018), which covered it. Their results show the significance of bargaining power in influencing how the project output is shared, and in determining how the return from the project will be allocated. In addition, no work has included syndication in the VC-E contractual relationship. Furthermore, understanding the different aspects of the legal environment such as legal implementation and institutional context influence (Inderst and Muller, 2004) is also important when assessing the VC-E relationship.

Behavioural economists highlight that the VC-E relation may also be governed by psychological factors such as fairness and reciprocity (Bolton, 1991; Rabin, 1993; Fehr and Schmidt, 1999), empathy (Sally, 2001) and trust (Berg et al., 1995; Bolle, 1995; Huang, 2000). Feelings may affect outcomes of negotiations and performance. Lehtonen et al. (2004) compare the agency approach to Procedural Justice Theory (PJ). This theory is based on fairness in decision-making where the fairer a party acts, the more likely it is to trust the other party. An increase in a person's fairness perception leads to commitment to decisions, performance, behaviour and attitude (Kim and Mauborgne (1991, 1993). Venture capitalists often complain that entrepreneurs are hesitant to share information (Sapienza, 1989), whereas willingness to share information and provide timely feedback is an indication of openness and honesty (Sapienza and Korsgaard, 1996).

Trust as used in relevant research (Saparito and Chen, 2001; Zacharakis and Shepherd, 2001; Li et al., 2018) is defined by Saparito et al. (2004) as a psychological state that is derived from the intention of one party to accept vulnerability based on positive expectations of the intentions or behaviour of another. This definition includes the expectation of any future beneficial action, whether it is based on self-interest or on a relationship (Saparito et al., 2004). Additionally, institutional trust is defined by Hain et al. (2016) as the overall trust in the institutional structure and the honest behaviour of citizens.

A high degree of trust and communication between the venture capitalist and entrepreneur can generate relational rents (De Clerq and Sapienza, 2001). Cable and Shane (1997) believe contractual control and trust to be substitutes in the VC-E relationship. Shepherd and Zacharakis (2001) view them as complements and find medium control to be optimal and to maximise trust. Fairchild (2006) takes those studies a step further to include empathy as a factor and to consider the impact of different contexts. Results show control and empathy/cooperation to be substitutes. Tough contracts (those with high penalties) destroy empathy and cooperation. They are optimal when culture closeness is low and legal system is highly effective, while soft contracts hold for the opposite. Other studies that capture the impact of trust in financial markets include Guiso et al. (2008), who emphasised the impact of trust in stock markets, and Bottazzi et al. (2016), who found it to significantly impact investment decisions.

Furthermore, Li et al. (2018) study how the trust relationship between venture capitalists and entrepreneurs and a firm's performance are linked. Their research identifies three mechanisms through which trust can improve a firm's performance:

better use of complementary resources, reduction of costs associated with asymmetric information, and team spirit. Their work mainly assesses the effect of trust in developing economies, which have weaker legal systems, and show that, in those cases, trust is more prevalent than strict contracts or any other rights.

2.4 Institutional Environment

Institutions are defined by North (1990, p.3) as “the rules of the game in a society” that have a significant impact on the goals and beliefs of individuals, groups and organisations (North 1990; Scott, 2002). Building on this definition by North, as well as the work of DiMaggio and Powell (1991), Scott (2002) categorised both formal and informal institutions into three groups: Regulatory, normative and cognitive, regulatory being the most formal and cognitive the most informal. More explicitly, regulatory institutions represent the standards provided by laws and other sanctions. Normative institutions represent roles or actions expected of individuals. They often exist through accepted authority systems like accounting or medical professional societies. They are either codified or understood practices of a work function or profession. Cognitive – or often referred to as cultural-cognitive – institutions are beliefs that guide behaviour. They are established by individuals in a society through their social interactions. They are considered to be rules that are ‘taken for granted’. The influence of normative and cognitive institutions is through the culture, as they are the more informal institutions (Scott, 2002; Bruton and Ahlstrom, 2006).

Organisations are not only embedded in the institutional arrangement of their own industry but also in their country-specific institutional settings (Busenitz et al., 2000; Bruton and Ahlstrom, 2006). Institutional differences in countries range from differences in culture, business norms, laws and regulations, and enforcement (Orru et

al., 1991; Kostova, 1997; Bruton and Ahlstrom, 2006). VC does not differ from any other industry or organisation, in a sense, in that certain institutions common to the industry would have impacts that lead venture capitalists to act uniformly (Fried and Hisrich, 1994). Institutions will also have an impact on the formation of goals and the processes of VC firms (Wright et al., 1992), their organisational practices and routines (Biggart and Guillent, 1999), and their strategic choices (Hitt et al., 2004). Furthermore, as institutions in emerging markets (EMs) differ to those in developed markets (DMs), then traditional VC mechanisms may need modification to be implemented (Bruton and Ahlstrom, 2003). EMs are countries undergoing rapid growth and reforming their economies to increase the number of transactions governed by market forces. They are known for their fundamental and complete institutional transformation as they begin to mature, hence their VC firms function differently from those in DMs (Bruton and Ahlstrom, 2006).

The variation in EMs and DMs, specifically differences in laws, regulations and enforcement, leads to alterations in the widely studied settings of VC in DMs mainly in the US, as the behaviour of entrepreneurs would differ if they do not feel their innovations are protected (Yasar et al., 2011). Furthermore, the use of networks in VC activities would be necessary to substitute more formal institutions (Bruton and Ahlstrom, 2006) and the VC-E relationship would rely more on trust than contract covenants (Li et al., 2018).

2.4.1 Institutional Differences and the Entrepreneur

The institutional environment of the country in which it exists generally affects entrepreneurship. Amoros (2011), who studies the impact of institutions on entrepreneurship in developing nations, finds positive relationships between both control of corruption and political stability and productive entrepreneurship. To explain

further, in high-income countries, if existing government institutions are of adequate quality then real opportunity venture can be allocated. This means that, in developing nations, in order to facilitate the right type of entrepreneurship, certain institutions have to be adopted first (Boettke and Coyne, 2009).

The court system is the main representative of the legal environment of any nation. The court system determines the ability to protect the intellectual property rights of entrepreneurs, through the existence of legitimate enforcement mechanisms (Smith and Ueda, 2006). The legal environment has an impact on the way entrepreneurs do business (Ueda, 2004) and the services provided by venture capitalists (Li et al. 2018). Entrepreneurial effort and transparency, as well as the provision of VC services in developed countries such as the US and Europe rely on the assumption that the rule of law will prevail; in other words, their ownership rights will be guaranteed and their contracts will be enforced by the court system (Li et al., 2018). However, in environments such as EMs with weak legal systems, this assumption is unlikely to hold. Entrepreneurs' innovation decisions (which include product, technological, process and management innovation) also depend on their perception of the legal environment (Jiao et al., 2015). The role of law and property rights is to stabilise entrepreneurs' expectations. Therefore, the more transparent and predictable the rules and laws are, the more likely it is for a firm to be innovative (Jiao et al., 2015). Law enforcement contributes to the increase of patent applications. Li (2006) shows that the degree of patent protection plays a significant role in promoting innovation activities. Lahr and Mina (2016) also show that institutional differences matter, as their results find firms based in the US to have higher chances of success (in terms of patent applications being granted) than firms located in the UK, due to the different patenting regimes. This has an impact on the innovation RBCs of entrepreneurs.

Not only do institutional differences affect entrepreneurs, but also VC firm effort and activities. This will be discussed in the following sections.

2.4.2 Institutional Differences and Venture Capitalists

VC investments are characterised by a high level of risk. Investors try to minimise this risk by properly screening and selecting new ventures, actively monitoring them and by timely exiting portfolio companies. To do so, an effective and efficient legal system is of utmost importance (Bonini and Alkan, 2012). Furthermore, EMs offer little protection for investors or private property (2001), which makes portfolio firm selection and monitoring processes more difficult (Bruton and Ahlstrom, 2003; Pruthi et al., 2003).

Using Search Theory, Silveira and Wright (2016) predict that the legal environment is positively related to market activity. Their model demonstrates that a better legal environment reduces the cost of entry into a market or the time spent on monitoring an investment. This increases market tightness, which leads to a higher number of deals. In addition, differences in legal systems increase information asymmetries, the cost (legal and contractual), and the risk of investment. Hence, law quality can have a significant effect on the costs and benefits associated with monitoring the entrepreneur (La Porta et al., 1998, 2000). With evidence from 39 countries, Cumming et al. (2010) found that a stronger legal environment facilitates board representation in the portfolio firm, as marginal benefits of monitoring are higher, due to better information available regarding the firm's activities. Furthermore, a stronger legal environment also leads to faster deal screening, as writing enforceable contracts is easier and government procedures are executed faster. The legal environment also affects effort provisions. The better the legal environment, the more reassuring and

motivating it is for venture capitalists to give non-contractible support to entrepreneurs, as venture capitalists are assured that their efforts will pay off (Bottazzi et al., 2009).

Consistent with the Institutional Theory (Bruton and Ahlstrom, 2003), venture capitalists rely on a steady institutional regime with a foreseeable rule of law and enforcement regime to ease simplify and safeguard their investments (Cardis et al., 2001). VC firms perform better in countries with a stronger legal system, since legal recourse is open to investors if the information they receive is not accurate or other financial shenanigans occur. In addition, official corruption in such settings becomes more addressable through legal protection (Peng, 2003). This institutional stability and predictability, decreases ambiguity and risk and increases the possibility of success in start-ups.

Venture capitalists in DMs rely on laws and regulations such as shareholder and creditor protection and property rights, (Daily et al., 2014) company and bankruptcy, investor protection and/or reorganisation laws (Smith and Ueda, 2006), which are all affected by the structure of the legal system in place, to safeguard their investments. With lack of institutional stability in EMs, they rely on other aspects in the VC market, such as networks and trust. Even though networks are important to all venture capitalists (Bygrave, 1987, 1988; Staurt et al., 1999; Shane and Cable, 2002), they are of particular importance in EM settings (Bruton et al., 2002, 2004; Lockett et al., 2002; Wright et al., 2002), where institutional stability is not strong or is largely unknown. Thus, they can act as a substitute for laws, regulations and enforcement (Butler et al., 2003; Hoang and Antoncic, 2003; Peng, 2003) and take on more importance. For example, to minimise risk of investment in weaker legal systems, venture capitalists would rely on syndication (explained in section 2.2.2.1) as different venture capitalists may have complementary know-hows and expertise, which could better equip a

syndicate to cope with the inefficient legal framework (Manigart et al., 2006; Tykvova, 2017).

While the Institutional Theory adds a social and cultural view, which explains how networks in an institutional context impact the function of venture capitalists (Scott, 2002), other studies have also highlighted the role of networks in EM institutions. Zacharakis et al. (2007) categorise institutions into rule based and relationship based, where the former refers to transactions where exchanges are personal and the latter refers to impersonal exchanges. Their study examines the influence of economic institutions on VC decision policies, by comparing three different economic institutions: the US (a mature economy), South Korea (an emerging economy) and China (a transitional economy at that time). Their results found that the US relied on rule-based institutions, while the other two were relationship based. Furthermore, China put more weight on HC information (e.g. networks) than the other two. Nevertheless, in research it has been found that more developed economies rely more on market-oriented information, whereas transitional and emerging economies, with weaker law enforcement, rely more on HC information, such as networks and social influence (Marquis and Raynard, 2015). Additionally, in some economies the two may co-exist (Zacharakis et al., 2007). However, to conclude, they explain that, in cases like screening, research has shown that all venture capitalists from different economies rely on the same decision factors (Knight, 1994; Rah et al., 1994); however, they do not rely on the information in the same way, due to the influence of economic institutions. Differences in economic institutions introduce variations regarding which information is relied upon more heavily (Zacharakis et al., 2007).

2.4.3 Institutional Differences and the VC-E Relationship

The legal environment has an impact on the VC-E relationship and the efficiency of contract writing and enforcement (Lerner and Tag, 2015). The legal environment is represented by the court system, which consists of legitimate enforcement mechanisms to govern the contractual relationship between the entrepreneur and the venture capitalist (Fairchild, 2006). These mechanisms influence the nature of legal obligations that parties to an agreement have to each other, as well as how courts interpret and enforce these obligations (Shleifer and Vishny, 1997).

The stronger the law system the more likely it is for parties to abide by their contractual agreement, as breach of contract penalties are more likely to be enforced. This has an impact on how entrepreneurs are compensated, how venture capitalists screen and monitor them, and on the effort exerted by both (Lerner and Tag, 2015).

The way entrepreneurs are compensated is explained through choice of security. Lerner and Schoar (2005), who studied the impact of the legal environment on private equity firms in developing nations, found that in weaker legal environments (i.e. more difficult contract enforcement) these firms tend to rely more on direct ownership rather than on more complex convertible preferred stocks. It is also found that lower returns and valuations arise when investments occur within weak legal environments (Lerner and Schoar, 2005; Hazarika et al., 2009). Based on Institutional Theory, researchers are beginning to consider the characteristics of VC contracts around the world, particularly comparing VC in developed, well-established economies such as the UK or US with less-developed EMs, due to the different results found in many aspects.

Besides the variations in contracts across different contexts, trust is more prevalent in mitigating conflicts of interests in the VC-E relationships, in environments

with weak legal systems (Arthur and Busenitz, 2003; Vergara et al., 2016; Li et al., 2018).

As explained above, the institutional environment and stability of the nation in which the VC market exists have varying implications on the effect of entrepreneur characteristics, VC characteristics and the VC-E relationship, on portfolio firm performance. The core of this study is determined by those differences, as it is conducted on the emerging economy of Egypt, in which more informal institutional settings and a weaker legal system prevail.

2.5 Literature on Venture Capitalists in the Context of Egypt

The main focus of this research is the Egyptian emerging economy. There is almost no literature available on the VC market in Egypt. No studies have covered the impact of venture capitalists themselves, entrepreneurs, or the relationship between the two, on the performance of the portfolio companies. Hence, none are relevant to this research. However, a briefing on the available literature on VC markets in Egypt is provided below.

The first research conducted related to venture capitalists in Egypt focused on private equity activities in general and covered not only Egypt but the entire MENA region. This study, by Ismail (2009), focused on the fast growth of private equity activities in Egypt and the impact of private equity firms on their portfolio companies, as well as the economic development implications for their countries. The point relevant to this study is the impact of private equity firms on their portfolio companies. Results show that, in most transactions, “private equity firms acted as a catalyst for initiating, consolidating (multiple small companies into larger, more competitive ones), professionalising (mainly hiring experienced management teams), growing and

globalising their portfolio companies” (Ismail, 2009, p.18). In doing so, they increased their competitiveness and expanded their operations in regional and globalised markets, which in turn means private equity firms had a positive impact on portfolio or acquired companies.

A second study, conducted by Kenawy and Abd-el-Ghany (2012), analysed the obstacles facing the development of VC institutions and the important rules and policies necessary to support the success of this type of financing in developing countries. An important finding in this study showed that VC-backed projects in Egypt outperformed non-VC-backed ones; however, no explanation is provided for the outperformance.

Another study focused only on Egypt was conducted by El-Siefy (2013), in an attempt to test the applicability of determinants for VC in the US on Egypt, to check for consistency in results, and to find a proper system to facilitate the growth of VC investments and investigate the role they play in economic growth. The motive behind the study was the lack of experienced financial and labour markets, which made VC less active in Egypt. Even though this is not a relevant topic to the research area covered in this study, it is important to note that some of the indicators for variables used in previous literature were not found, due to the absence of data on Egypt.

Eisa (2014), through a sample of 13 VC-related establishments in Egypt out of an estimated total of 17, attempted to find economic implications of venture capitalists, determinants of VC development, and the effect of government support on the development of the industry in Egypt. As noted from this study, there is a problem with disclosure in the VC market in Egypt, which if required and enforced should lead to enhancement of the industry. To date, there remains no directory of the Egyptian VC

industry. Despite struggles with data collection, results have shown that VC in Egypt does have a positive economic impact.

The final study which included Egypt presented a public policy framework for supporting the emergence of the VC industry in Egypt, the UAE and Saudi Arabia (KSA) (Seoudi and Mahmoud, 2016).

There is a visible shortage of literature on VC in Egypt, especially relating to determinants of portfolio companies' performance, which emphasises the importance and contribution of this research. All the existing studies also highlight that there is a lack of disclosure of information on VC in Egypt.

This study is based on the Egyptian VC market, which makes it necessary to have a briefing on it.

2.5.1 VC Market in Egypt

The VC market in Egypt is relatively very recent. While the first private VC fund in the world was established in the US in the mid-1940s, which was called the American Research and Development (ARD) fund (Hsu and Kenney, 2005), the first VC fund established in Egypt, named Idevelopers, dates back to only 2004 (Cousin, 2016). It is important to note that there is no directory in Egypt for the VC industry, so, approximately, to date there are 16 VC firms (listed in the appendix) in Egypt and three large angel investor groups. The difference between angel investors and venture capitalists is mainly that the former invest smaller amounts, are involved less in the ventures, typically fund only start-ups or seed investments, and invest their own money rather than that from investors (Mason and Harrison, 2000).

As supported by evidence in the sectors funded, the largest industry financed by VC funds (in terms of number of transactions) in Egypt is the telecommunications and

information technology sector, while the industry with the biggest size transactions is the basic materials, such as cement (Ismail, 2009).

In this study, Egypt is viewed as an emerging economy and is accordingly considered to lack institutional stability and have a weak legal system (Hassan, 2010). The only study conducted on the Egyptian market that is relatively relevant to this research is by Hassan (2010), and explores the operation of private equity (PE) and VC firms in Egypt. It explores this in terms of the structure of these firms, the selection of potential investee companies and the roles of these firms after providing funds.

As for the structure of PE and VC firms in Egypt, Hassan (2010) explored them in terms of origin, sources of finance, industry and stage of development. PE and VC firms in Egypt were found to originate from developed markets operating in the Egyptian market or were domestic (from Egypt) and either competing with other Egyptian firms or with other emerging markets.

The sources of finance that Hassan (2010) found PE and VC firms in Egypt to rely on are either independent or captive (Manigart, and Wright, 2013). Independent firms are those that raise capital from a variety of sources including private investors and private financial institutions. Captive firms are those that are subsidiaries or divisions of larger financial institutions.

Some PE and VC firms in Egypt choose to specialise in investing in only one industry, such as technology or tourism, while others choose to diversify their portfolios by investing in any industry (Hassan, 2010). These latter firms at the time of the study chose to invest mostly in firms in later or expansion stages. They accepted the concept of funding early-stage companies or start-ups; however, the major obstacle they faced in doing so was finding the right entrepreneurs to fund, due to the lack of HC and

expertise in building start-ups in Egypt. Hence, they mostly resorted to selecting entrepreneurs based on personal connections and networks. In DMs, venture capitalists have a choice between passive and proactive investments (Boocock and Woods, 1997; Wright and Robbie, 1998; Busenitz et al., 2005); however, in EMs only the latter exists. Passive selection refers to investees approaching venture capitalists with offers to receive funding, where no effort is exerted by venture capitalists to find investment opportunities. On the other hand, proactive selection is when venture capitalists search for investees themselves through consultants or in the industries in which they are seeking to invest. In Egypt, passive investments are very rare, due to the limited information available on PE/VC firms online, lack of understanding of the VC industry amongst the public and the absence of an Egyptian VC association (Hassan, 2010). Instead, in Egypt it is more common for venture capitalists to reach investment offers through referrals from different parties, such as intermediaries, other successful entrepreneurs and other VC firms. Moreover, accountants play a major role in investment deals, by signing a statement confirming their responsibility for the financial section of the proposed business plans. The Institutional Theory explains that networks can be used as a substitute for regulations in the PE/VC industry in EMs (Peng, 2000; Bruton and Ahlstrom, 2003). Venture capitalists in Egypt confirm this by relying on networks and personal connections to find trusted investees.

The final section in the study of Hassan (2010) is related to the roles of private equity and venture capital firms in their portfolio companies in Egypt. Results show that the most difficult role they face, after the selection and funding phases, is persuading them that their goals are aligned, and that the main objective for both is the growth of the portfolio company. The role of monitoring the portfolio firms in Egypt is not as vigorous as it is in DMs, due to the lack of regulation in the former, and hence

venture capitalists find that building an early relationship is the most crucial factor to the success of the portfolio company.

Hassan's (2010) study has a few limitations that this study addresses. First, at the time of the Hassan's study, there were only 14 VC firms; however, the results were based on only seven interviews conducted with managers of both PE and VC firms, while at the time of this study there are 16 active VC firms, 14 of which are included in the results. Second, Hassan's study was conducted in 2010 and since then conditions in Egypt, as well as the capacity of investees available, have changed. Finally, Hassan's study only covered the views of some of the VC firms and neglected the demand side of VC, which refers to the entrepreneurs receiving funds. However, this study takes into consideration the views of both venture capitalists and entrepreneurs and hence reflects a fuller and more realistic picture of the VC market in Egypt.

The perspective that Egypt has a weak legal system and lacks institutional stability is supported by the Global Competitiveness Report (2018), which shows the most problematic factors in Egypt. For the factors relevant to this study, policy instability was ranked as the first problem, corruption came third and inefficient government bureaucracy was fourth.¹⁰ In addition, out of 137 countries covered by this report, Egypt ranked 77 in terms of Efficiency of Legal Framework in Settling Disputes (scored 3.5 in rating out of 7) and 106 in Legal Rights Index (scored a 2 out of 10 in the rating value for this index).

However, the business environment in Egypt is improving: in 2018, Egypt strengthened minority investor protection by increasing shareholder rights and role in major corporate decisions¹¹.

¹⁰ This data was derived from the World Economic Forum's Executive Survey.

¹¹ This data was derived from the World Bank's *Doing Business Report* (2018).

Table 2.2: Information on Business Environment in Egypt	
Business Index	Rank out of 190
Minority Investor Protection	81
Starting a business	103
Ease of doing business	128

To understand the rationale for focusing on non-contractual forms in the VC-E relationship, the following table explains the extent of contract enforcement and hence dependability in Egypt.

Table 2.3.: Information on Enforcing Contracts in Egypt¹²	
Enforcing contracts in Egypt	
Rank out of 190 countries	160
Score (0-100)	42.75
Time (days)	1,010
Cost (% of claim)	26.2
Quality of Judicial Process Index (0-18)	5.5

This justifies why the study perceives Egypt to have a weak legal system and hence relies on non-contractual measures in mediating the VC-E relationship.

2.6 Summary of Venture Capital Related Theories

The theory that justifies the purpose of this study is the Institutional Theory which explains that the characteristics that leverage a successful VC market in a developed nation will not necessarily hold in an emerging context (Bruton and Ahlstrom, 2006; Meyer and Peng, 2016). This is attributed to the different environments that exist in emerging markets, particularly weak legal systems and lack of formal institutions.

VC funding is known as risky capital as they are known to fund young entrepreneurial firms with innovative ideas, that have no track-record to enable them to receive funding from traditional sources such as banks (Aron and Lazear, 1990). This is an information asymmetry problem. It is explained by the Agency Theory, and it is applicable to both

¹² This data was derived from the World Bank's *Doing Business Report* (2018).

developed and emerging economies, as this market imperfection problem exists everywhere. The Agency Theory (Akerlof, 1970) explains the misalignment of goals of the venture capitalists and entrepreneurs, particularly with the lack of information that is present. Venture capitalists are known to be experts at solving information asymmetry problems because of the tools they possess which enable them to do so (Pettinger, 2017). These tools include their ability to screen and monitor those firms, their ability to finance at different stages as an incentive for entrepreneurs to increase returns and the contractual agreements. Contractual agreements based on the Financial Contracting Theory (Kaplan and Stromberg, 2004) allow venture capitalists and entrepreneurs to select contract covenants and agree on different terms that increase incentives to both, and hence, the willingness to exert effort. As explained by Institutional Theory that not all theories can be applied to emerging economies (Meyer and Peng, 2016), Financial Contracting Theory is one of them. Understanding this difference and how firms in emerging economies can substitute the reliance on such contracts, enables the response to the second research question: What impact does the relationship between the entrepreneur and the VC have on the success of VC-backed firms in Egypt (an emerging economy)?

The weak legal environments existing in emerging economies and the poor or lack of contract enforcement that exists in those nations, makes the contractual agreements unreliable to both parties. Instead in those nations, they resort to relying on other means to ensure the exertion of effort by both entrepreneurs and venture capitalists. Networks as explained by the Social Networking Theory (Laudan, 1997) are very important in such economies, where in many cases they are substitutes for the lacking formal institutions. The crucial role that networks play in emerging economies is emphasised by the Institutional Theory (Milosevic, 2018). Other studies also explain that in contexts

where contractual agreements are important to provide incentives to both entrepreneurs and venture capitalists to exert effort, and particularly in contexts when they are ineffective, both parties should view their roles as complements rather than substitutes. As supported by the Resource Dependence Theory (RDT) (Gabrielsson and Huse, 2002) (in both developed and emerging contexts), while entrepreneurs contribute their innovative ideas and the know-hows to produce them, they lack managerial expertise and other necessary aspects to run a business, that venture capitalists can provide them. According to this theory, resources provided by venture capitalists, include human and social capital as well. Which integrates with the Human Capital Theory (Becker, 1975) and again Social Capital/ Social Networking Theory (Hochberg et al., 2007). Other than the relative importance of the reliance on networks which differs between developed and emerging economies. The level of education available as well as the experience opportunities and hence, HC possessed by both entrepreneurs and venture capitalists in both economies may differ and in turn have different impact on the success of VC-backed firms (Unger et al., 2009). Investigating the differences between both allows for the investigation of the first research question: What role do characteristics of entrepreneurs and VC firms each play in the success of VC-backed firms in Egypt (an emerging economy)?

The brief explanation of the Institutional Theory as well as the differences between developed and emerging economies that impact the VC market, mentioned above, is a stepping stone to the explanation of how the third research question will be explained: How does the impact of entrepreneur characteristics, VC firms and the VC-E relationship change with the institutional environment in which they exist?

2.7 Chapter Summary

Previous literature shows that the performance of VC-backed firms can be enhanced by characteristics of the entrepreneurial firm and its founding team (Shane and Stuart, 2002; Davidsson and Honig, 2003; Wang and Ang, 2004), characteristics of VC firm managers (Dimov and Shepherd, 2005) and the value-added of non-financial activities they carry out for the firm (Croce et al., 2012), as well as the relationship between entrepreneurs and venture capitalists (Casamatta, 2003; Li et al., 2018). This relationship is determined by the effort they each exert and the contractual agreement between them (Vergara et al., 2016). The different results found in the literature¹³ are mainly attributed to contextual differences stemming from different institutional settings/stability. Hence, it is important to understand that the impact of those variables can differ from one economy to another (Bruton and Ahlstrom, 2006). The focus of this study is on the emerging economy of Egypt. Therefore, the legal environment in Egypt may impact the contractual agreement, the transparency of the entrepreneur and the effort exerted by the venture capitalists. Additionally, the institutional setting in Egypt can lead to different results and create a greater emphasis on the role of networks (Bruton and Ahlstrom, 2016) and trust (Li et al., 2018) for the VC firms. Accordingly, the following chapters will explain the model and hypotheses to be tested, as well as the examination methods that will enable the achievement of the objectives of this study. This will create an understanding of the impact of each variable on VC-backed firms' performance within the emerging economy of Egypt.

¹³ A summary of the literature and its relation to this study is provided in Appendix A Table A1.

Chapter Three

Conceptual Framework and Hypotheses Development

3.0 Introduction

Some previous research in DMs (Kortum and Lerner, 2000; Baum and Silverman, 2004; Rajan, 2010; Chemmanur et al., 2011) and EMs (Guo and Jiang, 2013; Otchere and Vong, 2016) including Egypt (Kenawy and Abd-el-Ghany, 2012) concludes that VC-backed firms outperform non-VC-backed ones. While some studies have failed to find causality for this outperformance (Baum and Silverman, 2004; Kenawy and Abd-el-Ghany, 2012), others have found the screening effect by or the value-added effect by venture capitalists (Engel, 2002; Davila et al., 2003; Balboa et al., 2006; Colombo and Grilli, 2010; Bertoni et al., 2011) or both (Chemmanur et al., 2011) to be the reason for this outperformance. VC firms' contribution is not limited to a financial one. How effective their non-financial contributions are on the performance of portfolio firms could also be determined by the relationship between the venture capitalists and the founders of those firms (Elitzur and Gaviious, 2001; Casmatta, 2003; Vergara et al., 2016).

The main aim of this research is to determine the factors that affect the success of VC-backed firms in Egypt, i.e. why some firms are more successful than others. The determinants of the portfolio firms' success have been discussed in previous literature. The results of previous studies have shown different variables to have an impact on the performance of firms. Some have found that entrepreneurs (Bates, 1990; Bruderl et al., 1992; Shane and Stuart, 2002) affect venture success through SC (Bruton et al., 2000; Hsu, 2004), HC (Cooper et al., 1994; Davidson and Honig, 2003; Rotefoss and Kolvereid, 2005; Dimov, 2010), or the RBCs of the venture (Barney, 1991; Grant,

1991; Mahoney and Panadian, 1992; Peteraf, 1993; Wang and Ang, 2004). Others have found VC firms to be the determinant of the portfolio firm's success, either through monitoring and funding (Sahlman, 1990; Lerner, 1995; Kaplan and Stromberg, 2003) or value-added activities (Sapienza et al., 1996; Sorenson, 1997). Additionally, other studies have found the relationship between entrepreneurs and venture capitalists to impact portfolio firm success (Elitzur and Gaviols, 2001; De Bettignies and Brander, 2007; Vergara et al., 2016), whether the interrelation between them is in terms of joint effort (Keuschnigg, 2004), cooperation (Cable and Shane, 1997), or the contract between them (Casamatta, 2003).

Some studies have found contradicting results to the abovementioned (Chan, 1983; Tyebjee and Bruno, 1984; Hunter and Schmidt, 1990; Gifford, 1997; Lerner et al., 1997; Amit et al., 1998; Unger et al., 1999; Inderst and Muller, 2004). The inconsistency in results is due to various reasons; the most crucial to this study is that they are conducted in different nations (different contexts), where developmental and institutional differences exist. Therefore, this research will test the impact of these variables on the venture-backed firms' success in Egypt to detect which has a more significant influence. The variables and interrelations are presented in section 3.1; the variables are explained in section 3.2, where the hypotheses are derived accordingly and the proxies that will be used to measure each variable are also included. Section 3.3 concludes the chapter with a summary of all the proxies for each variable.

3.1 The model¹⁴

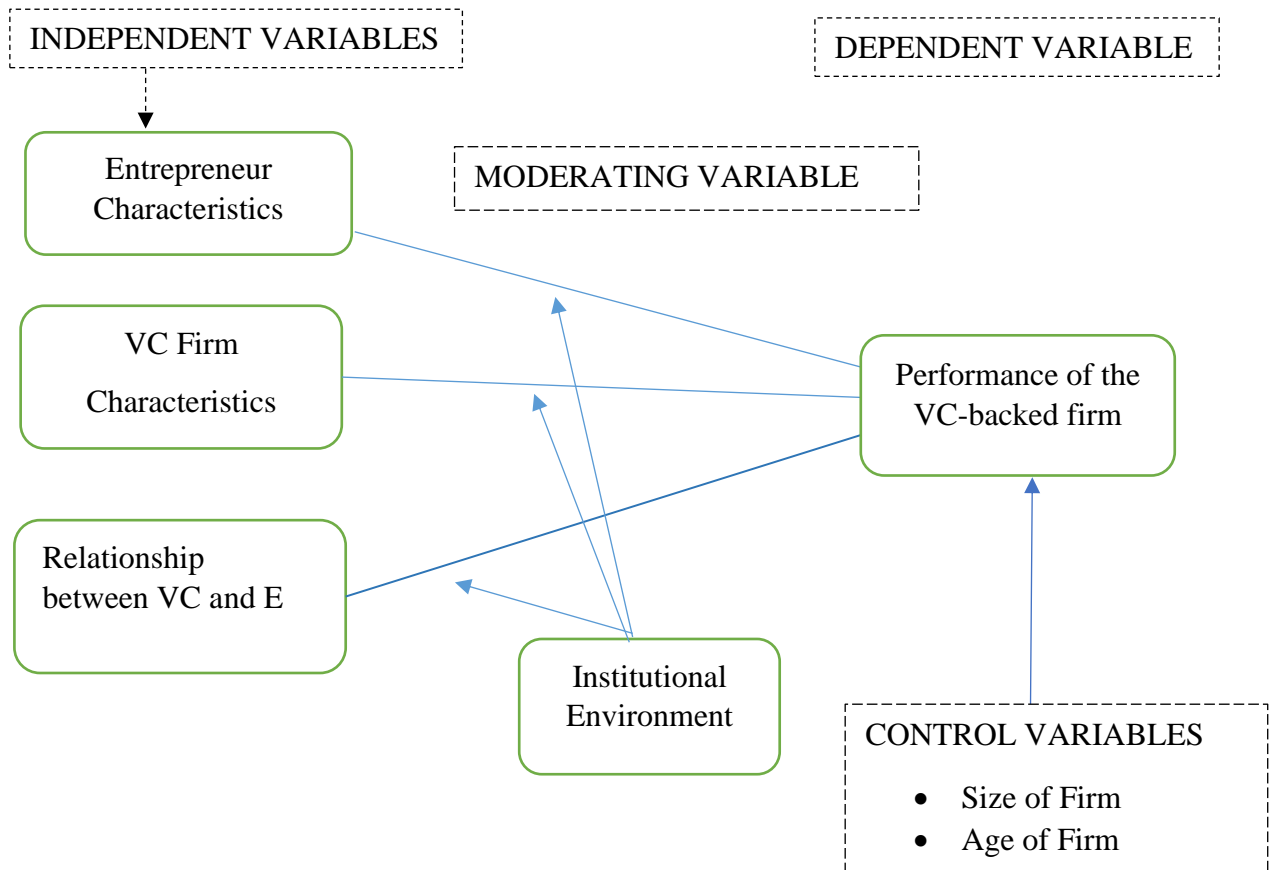


Figure 3.1: Conceptual Framework Model

¹⁴ Detailed explanation of this framework is provided below.

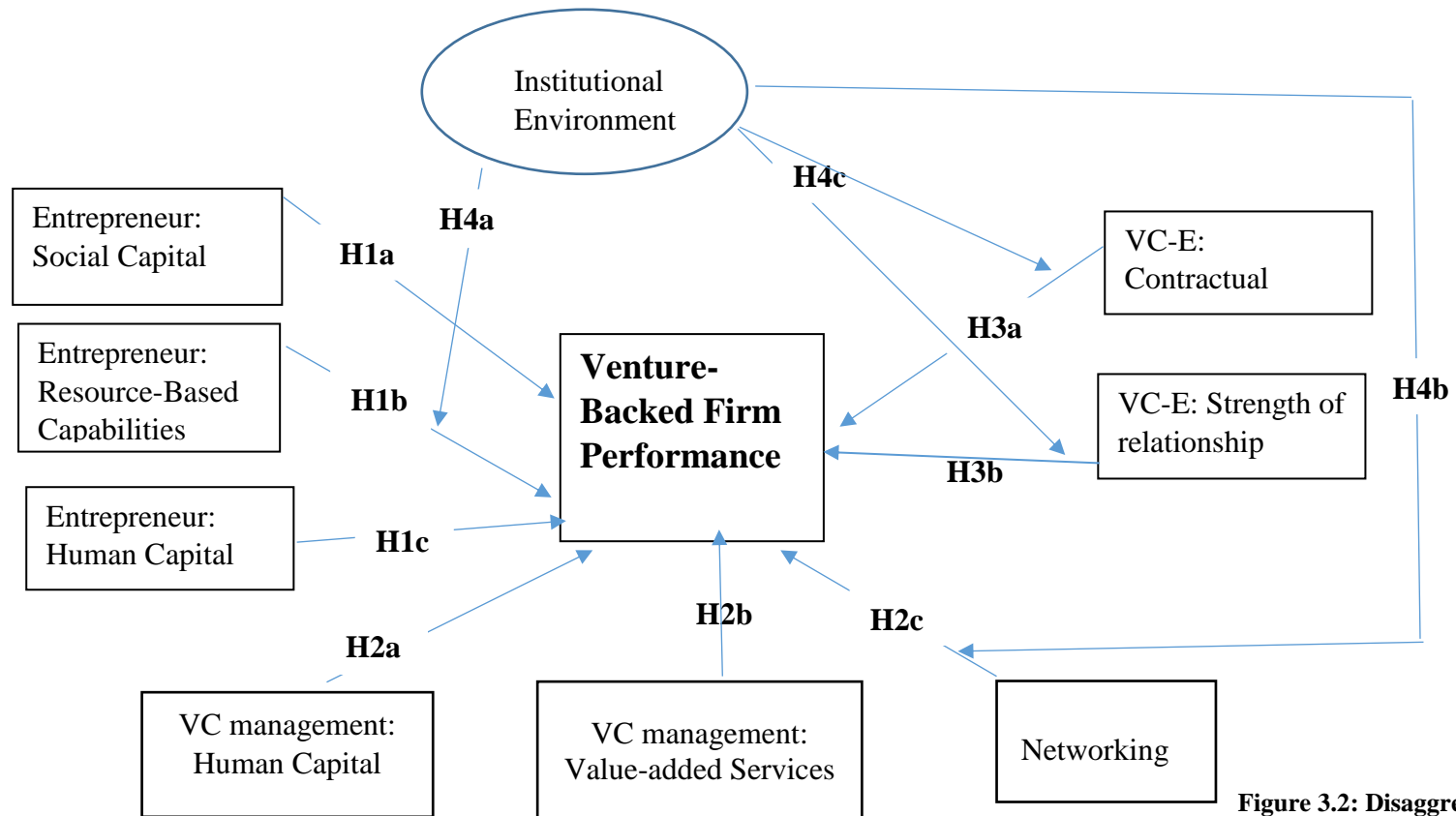


Figure 3.2: Disaggregate Model

3.2 Hypothesis Development and Proxies to Measure Variables

3.2.1 Dependent Variable(s)

1) VC-backed Firm Performance

The main aim of this study is to understand the effect that entrepreneurs, venture capitalists and the interrelation between them has on VC-backed firms' performance, within an institutional framework. This makes the performance of the VC-backed firm the dependent variable. Studying the factors that enhance firm performance is important in order to provide an understanding that enables such potential firms to succeed, which in turn plays a vital role in the prosperity of the economy, through increasing innovation, productivity and employment (Saxenian, 1994; Jeng and Wells, 2000).

3.2.2 Independent Variables

1) Entrepreneur Characteristics (Independent Variable)

Evidence in previous literature shows that different aspects of the entrepreneurial firm or founding team characteristics, which include the entrepreneur's social SC (Bruderl and Preisendorfer, 1998; Hallen, 2008), RBCs of the entrepreneurial firm (Mahoney and Pandian, 1992; Wang and Ang, 2004), and the entrepreneur's HC (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005; Dimov, 2010), impact the success of the venture. In this section, these aspects are discussed as their impact on firm performance is measured in this study.

Social Capital (SC)

An entrepreneur's SC refers to their network, or contacts, which enables them to exploit opportunities. These networks refer to either bonding capital or strong ties, which constitute personal business networks and relationships or bridging capital, which are

weak tie relationships with individuals in the business community (Aldrich and Zimmer, 1986; Davidson and Hong, 2003). The SC of starting entrepreneurs has widely played an important role in the evolution of firms and their eventual success (Bruderl and Preisendorfer 1998; Hallen 2008), through the access to information, positive reputation-building, and enabling recognition of opportunities (Burton et al., 2002; Hsu, 2004). These networks assist entrepreneurs in obtaining resources, such as capital (Hsu, 2007), information to facilitate transactions (Hsu 2004) and talented personnel (Bygrave and Timmons, 1992). An entrepreneur's network allows that entrepreneur to access capital from sources that include friends, angel investors and venture capitalists (Greene and Brown, 1997). Start-ups are perceived as riskier investments, as they may lack the credit history required by traditional sources of funding. Therefore, social connections and previous ties enable them to receive funding from other sources. For example, entrepreneurs are more likely to receive funding from venture capitalists¹⁵ with which they have had previous relationships (Hsu, 2007; Lim and Cu, 2012). Previous studies have also found these networks to be important for recruitment, whether of executive officers or technical staff (Bygrave and Timmons, 1992), and for establishing ties with venture capitalists (Shane and Cable, 2002) and establishing business networks that facilitate transactions (Davidsson and Honig, 2003), which are fundamental for enhancing venture performance.

Ability to recruit executives and talented personnel is analysed by Hsu (2007) as the share of non-founder executives recruited through any of the founding team's

¹⁵ The analysis of the entrepreneurs' ability to obtain financial capital namely from VCs through their social networks will be excluded from this study. Funding from VCs is facilitated through previous relations with VC, whether direct or indirect (Shane and Cable, 2002; Batjalar and Liu, 2004; Hallen, 2008). It shows the E's ability to receive funding from VC or the strength of the relationship between them, which would enhance the likelihood of success. In this research, the impact of VC funding is analysed from a post-funding perspective, where non-financial add-ons of VCs are relevant, rather than the financial. Moreover, this study focuses on the contribution of venture capitalists and entrepreneurs to the performance of their venture, assuming that funding has already occurred. The focus is not on the likelihood of the entrepreneur receiving funding from VC. Therefore, in this study, assuming the venture has already received VC funding, then the previous relation with VC will be more relevant when assessing the nature and impact of the relationship between the VC and the entrepreneur (Lim and Cu, 2012).

network. It shows the E's ability to use their own SC to recruit executives, rather than rely on the network of the VC firm (Hsu, 2007). It is important especially in the earlier stages of new venture development, where founders' models of employment relations and HR practices and policies are essential. Network ties that allow entrepreneurs to recruit talented personnel or executives, result in more successful ventures, through the performance of those recruited (Collins and Clark, 2003). Hence, an 'A-rated' quality team with a 'B-rated' quality idea is better than an 'A-rated' quality idea with a 'B-rated' quality team (Baron et al., 2016).

Other studies highlight the role of the entrepreneur's SC in facilitating the *access to information* (Koka and Prescott, 2002), as well as the importance of belonging to a social network to improve information exchange (Uzzi, 1997; Gulati et al., 2000) and to reduce those costs involved in accessing information (Baker, 1990). Additionally, Smeltzer et al. (1991) show that both the amount and quality of SC have a positive effect on access to and optimal use of information.

The above discussion leads to the following hypothesis:

- **H1a: *Entrepreneur social capital has a positive impact on the performance of the VC-backed firms***

Resource-based Capabilities (RBCs)

The idea that RBCs of the firm allow it to achieve higher performance is originally based on the Resource-Based View of the Firm Theory (RBVF), which explains that each firm may develop its own resources and capabilities differing from others in the industry in terms of value and rarity (Barney, 1991). This in turn enables each firm to position itself differently in the market by establishing its own competitive advantage. These advantages enable the building and improving of short- and long-term firm

performances (Barney, 1991; Eisenhardt and Martin, 2000; Powell, 2001; Ferreira and Fernandes, 2017).

In addition to RBVF, several studies have examined the role of RBCs in contributing to firm success and creating a competitive advantage for the firm (Barney, 1991; Grant 1991; Mahoney and Pandian, 1992; Peteraf, 1993; Wang and Ang, 2004, Ferreira and Fernandes, 2017).

Wang and Ang (2004) highlight that RBCs are what position a firm in the market and therefore compose its competitive strategies. In their studies, they segregate RBCs into three separate scales supportive of the three competitive strategies (innovation, quality and cost-leadership) (Chandler and Hanks, 1994). Innovation is one of the vital causes of the maintainable competitive advantage, as well as, success and survival of firms (Jimenez and Sanz-Valle, 2011). It consists of knowledge about how to enhance things in forms that are more efficient than the existing ones (Teece, 1986). According to Schumpeter (1934), there are four types of innovations: product, process, organisational and marketing. This study, as with most of the prior studies (Karlsson and Tavassoli, 2015), will focus on technological innovations (product and process), as they are mostly provided by entrepreneurs with no input from venture capitalists.

As explained in the literature, RBCs are not sufficient unless supported by a good strategy. Resources alone would turn out to be insufficient to attain a competitive advantage or high performance levels. These are only achievable if a company is able to link between those resources and a good strategy that can transform them into capacities (Ferreira and Fernandes, 2017). Accordingly, strategy is measured for each category of the abovementioned RBCs (innovation, quality and cost leadership

respectively). Firms may gain a sustainable competitive advantage if they choose the right strategy to implement for each of their available resources (Kuratko et al., 2005). Instead of just measuring the resource capabilities of each, the focus becomes on combining them with strategies that the firm follows to maintain an advantage in any of the three categories, hence a fit between both (strategies and RBCs) is also necessary.

In the light of the above discussion, the next hypothesis is stated as:

- **H1b: *The RBCs and strategies of venture-capital-backed firms have a positive impact on the performance of the VC-backed firms***

Human Capital (HC)

HC refers to the characteristics of a person, mainly education and experience, that can contribute to their productivity (Dimov, 2010). Based on the HCT (Beckher, 1975) and the results of previous work, HC has an impact on firm performance. The HCT states that the greater the HC the better the performance at a particular task. The study of Unger et al. (2009), which measures the relationship between entrepreneur HC and success, explains it further. Education and experience are HC investments, while knowledge and skills are the outcomes of those investments. It is actually knowledge and skills that improve the performance, as they are the direct indicators; however, they are attained and improved through HC investments. HC investments can be general as well as specific, and previous studies have found both general (Bates, 1990; Brudel et al., 1992; Cooper et al., 1994) and specific (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005) to increase the chances of a venture's survival and to have an impact on its success. The types of experience that matter most to firm success are *previous entrepreneurial experience* (Allinson et al., 2000; Eesley and Roberts, 2006a; Gompers et al., 2006) and *industry experience* (Bruderl et al., 1992, Chatterji, 2009), and hence

it is important to understand the background of the entrepreneur, whether s/he has previous experience in business start-ups or in the industry of the current start-up. To take it a step further, previous experience could be more valuable if it was *successful experience* (Hsu, 2007), as many studies have confirmed that a venture is more likely to succeed if its founders have had a previously successful venture (Allinson et al., 2000; Eesley and Roberts, 2006; Gomper et al., 2006). *Size of the founding team* should also be considered, as it is related to the amount of founding experience available (Eisenhardt and Schoonhoven, 1990) and can be used as an additional HC proxy (Baum and Silverman, 2004).

Previous education of the entrepreneur is another indicator of HC (general) (Hallen, 2008). Variation in HC is shown through the *formal education attained*, whether it is a master's or a doctorate degree (Hsu, 2007). An MBA degree can also be considered general managerial training, whereas a PhD can signal venture credibility and can also have a straightforward, scientific or specialised knowledge effect, which is especially valuable in technology-related new ventures in the field of the business's industry (Colombo and Grilli, 2005). Roberts (1991) argues that the relationship between education level and venture performance is an inverted U- shape one, because PhDs are more research oriented than commercially oriented. Additionally, for specific HC it is important to know if at least one of the founders has a relevant postgraduate degree in a relevant field, because *specialised education* may allow founders to identify unique technical opportunities (Shane, 2000).

Another aspect of HC is *managerial HC*, which shows the managers' past experiences in leadership and management (Hallen, 2008), which could enhance the performance of the venture.

The evidence of the role of HC characteristics found in the aforementioned studies leads to the following hypothesis:

- **H1c: *Entrepreneur human capital has a positive impact on the performance of VC-backed firms***

2) VC Managers' Characteristics (Independent Variable)

This study will focus solely on the impact of value-added activities, as portfolio firms have already been screened and selected and the aim of the study is to analyse the impact of entrepreneur characteristics, VC characteristics and the VC-E relationship performance of the portfolio firm. Before discussing value-added activities, it is important to understand the characteristics of those individuals carrying out those activities (Dimov and Shepherd, 2003).

Human Capital (HC)

Based on the HCT (Becker, 1975), similar to entrepreneurs, VC managers with higher HC (in terms of education and experience) achieve higher performance in executing relevant tasks, such as pre- and post-investment activities. Also based on UET, characteristics of the team should predict fund performance (Zarutskie, 2010). This study, similar to the model of Dimov and Shepherd (2005), will separate HC of VC managers into *task specific* (education and experience related to VC tasks) and *industry specific HC* (education and experience related to industry of company funded), as with entrepreneurs. This shows their past experience in VC-related activities or in the industry of the funded firm, as well as general HC (which is education or experience either in the VC industry or in the industry of the portfolio firm).

The *education* of the VC management team is also a part of their HC characteristics, and therefore it is important to study the impact of their *education field*

and degree. Dimov and Shepherd's (2005) results show that general HC is positively associated with portfolio firms that go public, while specific HC is positively associated with a lower level of firms going bankrupt.

Experience in finance (experience in commercial, investment or merchant banking and firms that provide financial consulting), consulting, law and entrepreneurial experience is related to VC work, and hence adds more value to the VC management team (Sapienza et al., 1996). Aside from prior work in VC, if any or more than one of the team members have an education or previous experience in the industry of the firm they are funding, it adds more value to the firm (Sapienza et al., 1996). More value is added because those fund managers with more experience in the VC market have the ability to select better portfolio companies, which in turn perform better (they will be excluded in this study). They also influence and add value to those companies in several ways (Sorenson, 2007): firstly, they will be more advanced at monitoring and managing the companies. Additionally, they are more likely have access to larger networks (Hellmann and Puri, 2002; Hochberg et al., 2007). Finally, the reputation of an experienced VC may lead to increase in the market value of the funded company (Megginson and Weis, 1991), where reputable VC firms give credibility to the IPOs.

Aside from the individual experiences of the management team, the experience of the VC firm itself matters. How experienced the venture capitalists are is a measure of their ability to influence and add value. In the literature, several proxies have been used to measure overall *VC firm experience*, including firm age, cumulative total amount invested (Gompers, 1996) and number of companies previously funded (Kaplan and Schoar, 2005; Hochberg et al., 2007). Firm age is a less favourable measure, since it does not differentiate between active and inactive investors. Alternatively, the number of investment rounds indicates the number of times the VC

has made an investment. Participating in more investments allows investors to learn more about managing and monitoring companies and to expand their network with managers, suppliers and customers. In this case, investment increases experience. Number of investment rounds is a better indicator than the number of companies funded, as it distinguishes between the stages of the funded companies. Funding earlier stages shows more influence by the VC on the firm's performance outcome, as opposed to later stages, which involves higher funding with less influence from the VC and hence is less indicative of the VC's abilities (Sorenson, 2007). This occurs because, in the former, the VC is more involved and provides more non-financial services than in the latter. Furthermore, as defined by Clingingsmith and Shane (2017), experienced investors are ones that make enough early-stage investments to have private information about the distribution of quality of early-stage companies, while inexperienced investors are ones that do not make enough early-stage investments to have private information about the distribution of quality of early-stage investments. The following hypothesis is derived from the findings discussed above:

- **H2a: VC human capital has a positive impact on the performance of VC-backed firms**

Value-added Activities

According to Carter et al. (1996), one of the most significant factors influencing the new venture's success is the interaction with external advisors such as venture capitalists (Bygrave and Timmons, 1996), which can make valuable contributions to the new venture (Sorheim et al., 2005). Venture capitalists can contribute or add value to their portfolio companies through financing, monitoring strategic and operational planning, management recruiting, and networking (Gorman and Sahlman, 1989).

Which of these activities the VC firm offers more, depends on the country and the type of economy in which it operates (Sapienza et al., 1996). Networks, for example, play a crucial role for venture capitalists in emerging economies that lack institutional stability (Bruton and Ahlstrom, 2006). This study is conducted in an emerging economy, and hence networking should be of utmost importance. Recruitment ability in this study will be combined with networking, as a VC's ability to recruit reputable managers depends on the connections it possesses. Accordingly, this section will discuss monitoring as well as strategic and operational planning, while networking will be covered in the following section.¹⁶

As a way to protect their investments, venture capitalists usually demand seats on the board of the portfolio firm to monitor activities and provide advice (Hellman, 1998; Cornelli and Yosha, 2003). In Goodstein et al.'s (1994) work, when classifying the functions of VCs on the board, they referred to the monitoring function as a way to screen and authorise investment proposals (Tirole, 2001), and discipline or even remove ineffective management teams. Strategic decision-making allowed them to participate in the strategic decision-making process to a certain extent (Fama and Jensen, 1983).

The strategic activities of VC firms are generally regarded as their major contribution to their portfolio companies (Gorman and Sahlman, 1989; MacMillan et al., 1988; Sapienza et al., 1996). Nevertheless, it is still ambiguous which specific strategic activities or other value-adding activities of the venture capitalist contribute to their portfolio company's performance. The strategic activities included are assessed by the venture capitalists' involvement in the portfolio firm, which enables them to play a role in the modernisation and restructuring of the recruitment policy, and the adoption

¹⁶ The effect of funding will be excluded from this study in order to focus on the effect of the other VC activities, which would not be provided by other sources of financing.

of stock options and the professionalisation of management teams (Ed-dafali, 2016). Venture capitalists also engage in monitoring of their portfolio firms, and other support and control activities.

This involvement of venture capitalists in the invested companies, whether for monitoring or strategic decision-making, can be used as a support by the venture team when managing various business risks and enhancing venture performance (Wijbenga et al., 2003). The above leads to the following hypothesis:

- **H2b: *Value-added services of venture capitalists have a positive impact on the performance of the VC-backed firm***

Networking

One of the most important value-added services provided by venture capitalists, as mentioned above, is *networking* (Lin, 1999). An organisation's network ties allow it to gain access to resources (investment opportunities and information) that may have been difficult otherwise (Granovetter, 1985; Burt, 1992; Hallen, 2008), and hence to provide better services to portfolio companies. Networking determines the VC's ability to affect the performance of the portfolio company by providing access to resources and services critical to the firm's success (Wijbenga et al., 2003). In addition, as this study is conducted on an emerging economy that lacks formal institutions, venture capitalists' networks are substitutes for those institutions (Bruton and Ahlstrom, 2006) and hence crucial to strengthen the role venture capitalists play in the firm's success, which should make them of upmost importance in an emerging economy.

Through networking activities, venture capitalists help to link the portfolio firm with its external environment and secure critical resources (Wijbenga et al., 2003). There are three main VC networks: syndicates for co-investment (Lerner, 1994;

Hochberg et al., 2007; Mas et al., 2008, Jin et al., 2015), service providers such as head hunters, patent lawyers, investment bankers and so on, to help the company succeed (Gorman and Sahlman, 1989; Sahlman, 1990), and institutional investors, as well as other investors (Lindsey, 2002; Hsu, 2004). One measure of a VC's network with service providers, which shows its value-added provision of services and resources, is called high networking resources rating, where the entrepreneur rates the VC's network resources (Hsu, 2004).

A VC's network of service providers allows it to recruit executives who may add expertise to the firm (Ed-dafali, 2016), such as the hiring of a vice-president of sales and marketing and replacing the founder with an outside CEO, if necessary. In addition, venture capitalists use their business networks to help the entrepreneur find suppliers, customers and potential partners. Through this relationship capital of the venture capitalist, the entrepreneur's accessibility to the external resources becomes easier (Ed-dafali, 2016).

Most of the previous literature on networking focused on syndicates. One of the reasons behind this emphasis is the positive impact syndication has on VC performance, and the venture capitalists' ability to add value to the portfolio firm (post-investment) (Pratch, 2005; Hsu, 2006). One of the explanations for this positive impact is that each VC firm has its own area of expertise; therefore, combining several VC firms increases the aggregate available knowledge and areas of expertise, which in turn increases each one's ability to invest and add value to their investments (Stuart and Sorensen, 2001). Moreover, another direct benefit of syndication is that it increases sharing of resources and information among venture capitalists, and allows them access to each other's networks. Having access to more information would also enhance the performance of

the VC firm as it allows for a more positive valuation of their portfolio companies (Tyebee and Bruno, 1984; De Clerq et al., 2006).

An indirect effect of VC networking on portfolio companies is that the latter gain access to professionals, or experts or other venture capitalists from the VC's networks (Sapienza et al., 1996; Dimov and Shepherd, 2005; Pratch; 2005; De Clerq et al., 2006).

- **H2c: *VC networking service is positively significant with performance of the VC-backed firm***

A VC's wide network or efforts in value-added activities is not sufficient on its own, unless combined with efforts from the entrepreneur, which is why the VC-E relationship, the third independent variable, is important for the success of the funded firm.

4) VC-E Relationship (Independent Variable)

Some young innovative firms fail because they are commercially inexperienced, whereas their survival chances would be much higher if they sought the managerial advice of an experienced VC. Entrepreneurs contribute key technological ideas, while venture capitalists provide them with managerial advice that draws on their industry's knowledge and commercial expertise. Entrepreneur's effort is critical, but combining it with VC advice, which adds value, increases a firm's survival chances and boosts its performance (Keuschnigg, 2004). Mutual cooperation between the venture capitalist and the entrepreneur is important for project success (Cable and Shane, 1997; Fu et al., 2018). Neither entrepreneur effort nor VC advice are contractible or verifiable; therefore, a double moral hazard problem exists, and these inputs must be elicited by financial incentives (Keushnigg, 2004). According to Casamatta (2003), both parties

choose effort level (expected to maximise their utility), then choose the financial contract (which determines their payoffs), i.e. it specifies the financial contribution of each party and the share of revenue allocated to each party in each state of nature.

The way the cash-flow is shared determines the effort each party will expend. Cash-flow rights vary with firm performance, depending on the instruments used in the contractual agreement. For example, if a firm's performance rises, and the VC has convertible bonds, while the entrepreneur has common stocks, then the former's cash-flow rights decrease while the latter's increase. Hence, it is crucial to recognise the *type of security* used by both parties, *and cash-flow rights*, and incentivise accordingly (Casamatta, 2003). In efforts to mitigate moral hazard problems, venture capitalists rely on *control rights*, which include voting rights, liquidation and board rights, which allow for monitoring of the portfolio firm (Casamatta, 2003; Cumming and Johan, 2007). Another way to deal with moral hazard is through *stage financing*. It allows venture capitalists to split the financing of the venture in successive rounds, and hence grants them the option to terminate the investment (Bergemann and Hege, 1998), which in turn decreases the risk. At each of the rounds, the entrepreneur is given just enough financial resources to achieve the next intermediate development stage (Hege et al., 2003). This also increases the effort incentives of both, as venture capitalists are more at ease with less risk, while entrepreneurs want to achieve higher results, in order to attain another financing round, in turn enhancing the firm's performance.

- **H3a: *The contractual agreement between VC and entrepreneur can have a negative impact on the performance of the VC- backed firm***

In emerging economies, more specifically in Egypt, type of security and in turn cash-flow rights may not be significant enough to mediate the VC and E relationship,

as there may not be much variation in types of securities attainable, where all contracts may rely on equities as convertibles are not commonly used (Hassan, 2010). The legal environment is weak and the financial market is not fully developed yet, in terms of availability of sufficient exit mechanisms for portfolio firms and types of securities for the investment (Hassan, 2010). These two factors make contract enforcement unreliable (Bruton and Ahlstrom, 2006), which accordingly makes the dependency on strength of VC-E relationship and trust between them more efficient. This is based on a similar environment captured by the study of Li et al. (2018) on VC-E relationships in China. In VC markets of developed economies, like those of the US and in Europe, researchers have found venture capitalists to provide valuable services to their portfolio companies, while relying on the prevalence of the rule of law, that their contracts will be enforced and their ownership rights will be preserved. In developing economies such as that captured in their study (China), this rule of law is unlikely to hold, and hence this reason is not sufficient for venture capitalists to contribute and add value to the portfolio firm. Instead, their study foregoes dependence on contractual agreements and analyses the value-adding effects of alternative non-contractual mechanisms, such as strategic consideration, trust and teamwork between the entrepreneurs and the venture capitalists. Their results show that indeed trust between venture capitalists and entrepreneurs contributes to the performance of new ventures. Moreover, their assessment of the impact of trust on the portfolio company performance was based on different types of trust or mechanisms (also used by Lewicki and Bunker, 1996) that enhance a firm's value. These types are strategic reputation-based (C-trust), knowledge-based (K-trust) and identification-based (I-trust). C-trust is based on a strategic consideration of the trade-off between the benefit of maintaining the relationship and the cost of terminating the trust and its effect on reputation (Kreps et al., 1982). More

specifically, this would be that venture capitalists and entrepreneurs will cooperate to increase the chances of the firm's success because of their mutual desire to obtain high returns and avoid financial loss as well as damage to reputation. This will therefore drive both of them to abide by the contractual obligations and each will expect the same of the other party (Li et al., 2018).

K-trust comes from the mutual trust built throughout the relationship. In this case, information relating to the other party is sought through observation of the way they react in different situations. Information asymmetry is reduced by time, as the other party's actions become predictable, which in turns leads to better decision-making and higher performance of portfolio companies. Finally, I-trust, which is the highest type of trust, is built on a close relationship between the venture capitalist and the entrepreneur, where there is a mutual understanding between them that could lead them to align their preferences, to the extent that both parties would cooperate in adverse situations even if one of them is to incur short-term losses. They both understand that the payoff arising from their cooperation is the increased likelihood of long-terms gains for both of them because of superior firm performance (Li et al., 2018). I-trust is also associated with positive team spirit in the portfolio companies (Campbell, 1993). Team spirit also improves firm performance as it leads to the adoption of cooperative behaviour, which subsequently increases overall performance (Li et al., 2018).

Hain et al. (2016) explain that as relational trust is built between venture capitalists and entrepreneurs they both move towards a more aligned information. Their findings also suggest that high geographical, cultural and institutional distance, is overcome by relational trust. Bruton and Ahlstrom (2003) also point out, through their

investigation of the Chinese VC market, that institutional factors in a different setting can create a VC industry with its own characteristics.

These previous findings and illustrations of VC-E relationships in different institutional settings lead to the following hypothesis:

- **H3b: *The extent of the VC-E relation has a positive impact on the performance of the VC-backed firm***

3.2.3 Moderating Variable

1) Institutional Environment

As explained thoroughly in the literature, organisations are impacted by the institutional arrangement of their industries as well as their own country-specific settings (Busenitz et al., 2000; Bruton and Ahlstrom, 2006). Hence, VC mechanisms need modification when implemented in EMs, as opposed to the more developed ones which have been the core of most VC research (Bruton and Ahlstrom, 2006). The deviation between EMs and DMs, specifically in the legal environment, which is represented by laws and regulations to protect entrepreneurs, investors and contractual rights, the court system, and consists of legitimate enforcement mechanisms, leads to alterations in the behaviour of entrepreneurs and venture capitalists, and in the relationship between them. These alterations include the behaviour of entrepreneurs who do not feel their innovations are protected (Yasar et al., 2011), difficulty in screening and monitoring activities by venture capitalists (Bonini and Alkan, 2012), the use of networks in VC activities to substitute for lack of formal institutions (Bruton and Ahlstrom, 2006), and the VC-E relationship relying more on trust than on contract covenants (Li et al., 2018).

Institutional Differences and the Entrepreneur

Entrepreneur's innovation is affected by the patenting laws in a country. Results from Lahr and Mina (2006) show that firms based in the US have a higher chance of success (in terms of patent applications being granted) than firms located in the UK due to the differences in patenting regulations of both nations. Patenting and intellectual property rights protection affect the way entrepreneurs do business (Smith and Ueda, 2006). The more available, transparent and predictable those laws and rules are, the more stable the entrepreneurs' expectations are and hence the more likely they are to engage in innovations (Li, 2006; Jiao et al., 2015). Law enforcement also contributes to the

increase of patent applications and in turn innovations (Jiao et al., 2015). When these legal environment characteristics are stronger, entrepreneurs are more likely to disclose information to their VC funders, whereas in an environment that lacks those strong laws and enforcement they would rather withhold it, in fear that their innovative idea would be exploited (Ueda, 2006).

In addition, in environments with low legal protection, venture capitalists place a heavier weight on entrepreneur experience (Nofsinger and Wang, 2011).

- **H4a: *The positive impact of innovation on VC-backed firms' performance becomes negative when moderated by laws and regulations in a weak legal environment.***

Institutional Differences and Venture Capitalists

An effective and efficient legal system is of utmost importance, to enable venture capitalists to properly screen and monitor new ventures (Bonini and Alkan, 2012). Studies from the late 90s have shown that law quality can significantly affect the costs and benefits associated with monitoring the entrepreneur (La Porta et al., 1998, 2000). Furthermore, EMs offer little protection for investors or private property (2001), which makes portfolio firm selection and monitoring processes more difficult (Bruton and Ahlstrom, 2003; Pruthi et al., 2003). Based on Search Theory, Silveira and Wright (2007) show that a better legal environment reduces the cost of entry into a market or the time spent monitoring an investment.

Cumming et al. (2010) conducted a study on 39 different countries to show the impact of the legal environment. Their results show that a stronger legal environment facilitates board representation in the portfolio firm, as marginal benefits of monitoring are higher, due to better information available regarding the firm's activities; it leads to

faster deal screening, as writing enforceable contracts is easier and government work procedures are faster.

In addition to screening and monitoring, venture capitalists provide value-added services to portfolio companies. The legal environment also affects effort provision: the better the legal environment, the more reassuring and motivating it is for venture capitalists to give non-contractible support to entrepreneurs, as it ensures that VC efforts will pay off (Bottazzi et al., 2009). The VC services, or the level of effort exerted by venture capitalists, are affected by investor protection rights. Those rights help protect the investor's funds. In this case, the higher the protection rights available in a context should decrease the risk faced by the VC and hence should increase the amount of effort exerted in the relationship (Sanz, 2006).

One of the services provided by venture capitalists is access to their business contacts (networks). Venture capitalists in DMs rely on laws and regulations such as: shareholder and creditor protection and property rights (Daily et al., 2014), company and bankruptcy laws, investor protection and/or reorganisation laws (Smith and Ueda, 2006), which are all affected by the structure of the legal system in place to safeguard their investments. With the lack of institutional stability in EMs, they rely on other aspects in the VC market, such as networks and trust. Even though networks are important to all VC firms (Bygrave, 1987, 1988; Staurt et al., 1999; Shane and Cable, 2002), they are of particular importance in EM settings (Bruton et al., 2002, 2004; Lockett et al., 2002; Wright et al., 2002), where institutional stability is not strong or is largely unknown. Therefore, they can act as a substitute for laws, regulations and enforcement (Butler et al., 2003; Hoang and Antoncic, 2003; Peng, 2003) and take on more importance.

- **H4b:** *The positive impact of monitoring and networking activities on VC-backed performance becomes more positive when moderated by a weak legal environment. However, the positive impact of advice dispensed and services provided becomes negative.*

Institutional Differences and the VC-E Relationship

The legal environment has an impact on the VC-E relationship and the efficiency of contract writing and enforcement (Lerner and Tag, 2015), through legitimate enforcement mechanisms (Fairchild, 2006). These mechanisms influence the nature of legal obligations that parties to an agreement have to each other, as well as how courts interpret and enforce these obligations (Shleifer and Vishny, 1997). Laws also matter in the relationship, as investor protection rights help protect the investor's funds. In this case, the higher the protection rights available in a context, the lower the risk the VC should face, which hence could impact the amount of effort exerted in the relationship and the leniency of contractual rights (Sanz, 2006). Intellectual property rights also influence the degree of information asymmetry and how willing entrepreneurs are to share information with venture capitalists (Ueda, 2004).

One way conflicts are mitigated in DMs is the contractual agreement between venture capitalists and entrepreneurs. The way entrepreneurs are compensated is explained through the choice of security agreed upon in the contract, and hence, in an environment with a weaker legal system, these firms tend to rely more on direct ownership than on more complex convertible preferred stocks (Lerner and Schoar, 2005). Other than security and compensation selection, as well as other variations in contracts, due to different institutional settings, previous studies have found that the strength of the VC-E relationship and the trust between both firms is more prevalent than contract provisions, in environments with weak legal systems (Arthur and

Busenitz, 2003; Vergara et al., 2016; Li et al., 2018). Individuals in those environments tend to rely more on networks (interconnections between them) to resolve conflicts and negotiate contracts (Meyer, 2001).

- **H4c:** *The negative impact of contract dependency on VC-backed firm performance becomes more negative when moderated by a weak legal environment. However, the positive impact of the extent of the dependency in the VC and entrepreneur relationship becomes more positive*

3.3 Summary of Information Sought

To sum it up, this figure shows the information needed for each variable to reach the objectives of this study.

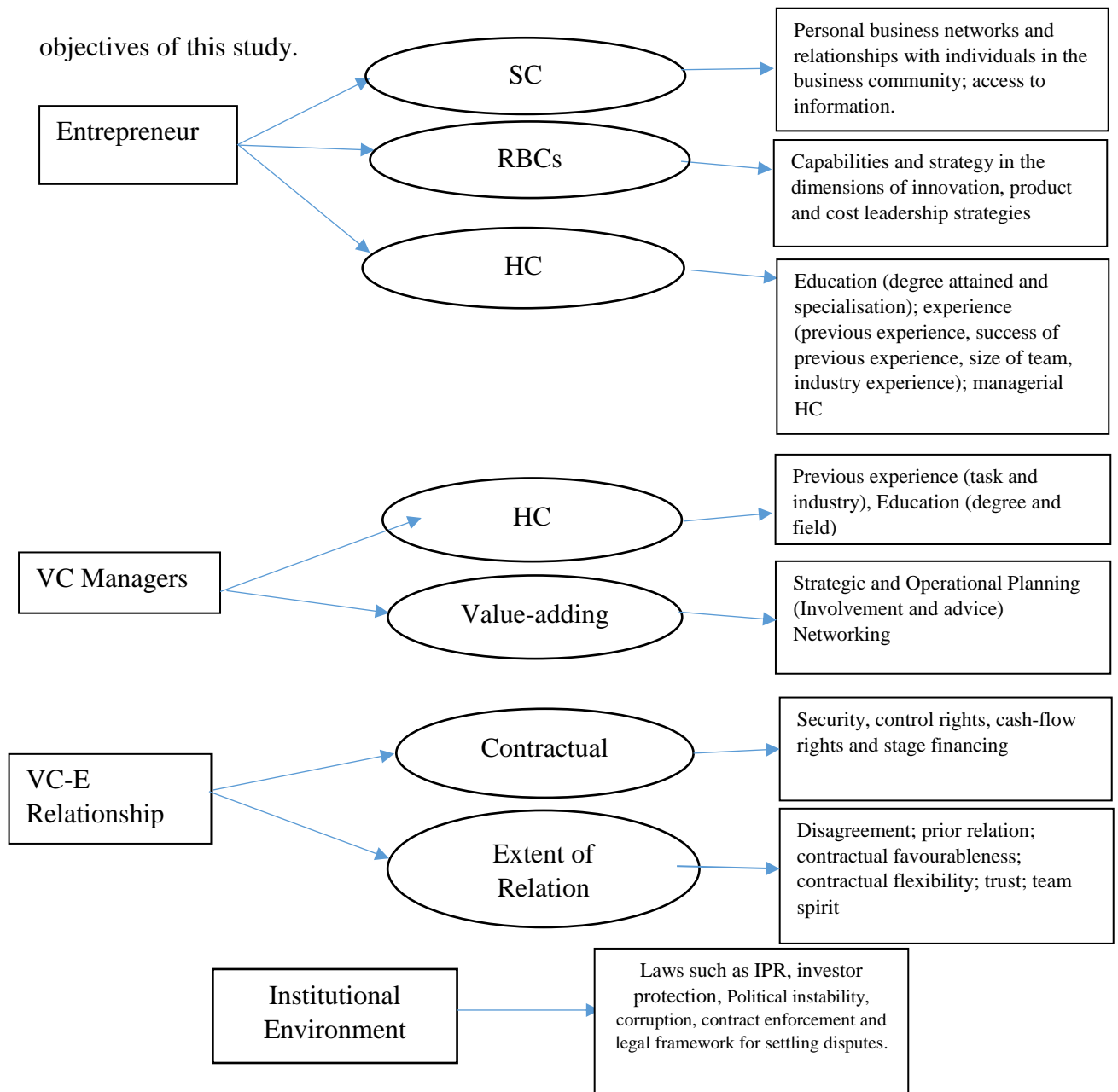


Figure 3.3: Summary of Proxies

Chapter Four

Research Methodology

4.0 Introduction

This chapter presents the entire research design, which includes all the data collection and methodology used to organise and perform tests using the appropriate data to achieve the objectives. The research design is important because it ensures that the evidence collected is suitable for theory testing (Boso, 2010). The research plan is necessary to test the hypotheses and reach this research's objectives. To do so, the research design issues are categorised into five parts. Section 4.1 will cover general data collection matters, sampling procedures and an explanation as to why a cross-sectional research design is used, and the survey administration methods were selected, as well as the choice of respondents. In section 4.2, the questionnaire design and administration activities are explained. Additionally, an explicit description of the content of questions and forms of response to both questionnaires is provided. Section 4.3 covers the pre-testing phase and the entire process implemented to achieve it. In section 4.4, issues relating to the main survey study are discussed, including survey bias assessments, after which, in section 4.5, the data analysis procedure is introduced, and methodological explanations for all the analysis tools applied is provided. This chapter then concludes with a summary of the methodology followed in this research.

4.1 Data Collection

The main aim of this study is to find the impact that the entrepreneurs themselves, the VCs that fund them and the interrelation between both has on the performance of those venture-backed firms. This study relies on primary data collected directly through a

questionnaire, as explained thoroughly in the upcoming sections, to gather all relevant information to test the hypotheses and achieve the required objectives.

4.1.1 Research Design and Survey Administration Methods

Data collection is one of the most thoroughly established aspects in quantitative research and must be well developed prior to the study (Mertler, 2016). This study follows a descriptive non-experimental research design approach. It is non-experimental, as it includes no manipulation of any of the variables, and descriptive, as it describes and interprets the status of individuals, settings, conditions or events (Mertler, 2016). There are different types of quantitative descriptive non-experimental approaches. The method that serves the purpose of the current research is a combination of survey research and correlation research. Survey research is a quantitative research technique that describes the characteristics of a group or population (Mertler, 2016), in which a researcher administers a survey or questionnaire to a sample or to the entire population to describe their attitudes, opinions, behaviours, experiences or other characteristics (Creswell, 2005). Survey research can further be used to investigate relationships between variables (Mertler, 2016) and correlational research design. Correlational studies aid in the discovery and measurement of relationships between two or more variables, as well as the strength of the relationship. The outcome of such study can either provide an understanding of certain related events, conditions and behaviours (explanatory correlational study), predict future conditions or behaviours in a variable (predictive correlational study), or sometimes can even provide strong indications that a variable may be causing another variable (causality correlational study) (Mertler, 2016).

When conducting surveys there are several data collection modes; interviews/surveys were adopted in this study. Although this is the costliest and most time-consuming approach, it guarantees the highest response rate, which is crucial for the purpose of this study. Moreover, given the small size of the VC market in Egypt, this will guarantee a response rate that is almost equal to population size. In addition, interview/survey research data collection is conducted in a conversational style, which increases the chance of more accurate answers, as any required clarification is available and leads to more information through discussions, which can also provide certain enhancements in understanding relationships and causes.

This study follows a cross-sectional type of survey research, which refers to data on two or more variables collected from samples or populations at a single point in time (Boso, 2010; Mertler, 2016), as opposed to a longitudinal type. Two reasons for choosing the cross-sectional type are lack of time to collect data and that the VC market in Egypt is relatively new, thus a longitudinal study will not be required.

4.1.2 Choice of Respondents

As mentioned above, the objective of this study is to understand the impact that entrepreneurs, VC firms and the interrelations between them has on the performance of venture-backed firms. In order to reach this understanding, both VC firms and entrepreneurs need to respond to questions in the distributed questionnaire. Hence, a different questionnaire was prepared for each party, targeting the information relevant to each. However, some questions on the relationship between them were common in both questionnaires.

The potential respondents for the VC survey comprise of a total of 16 firms in Egypt that provide VC services, given that they are based in Egypt, have all their

operations in Egypt and provide funding for Egyptian firms. There are 119 firms operating in Egypt that are funded by VC firms based in Egypt; constituting the target population for the entrepreneur survey.

4.2 Questionnaire Design

As previously determined, this study relies on questionnaires to collect data; therefore, this section provides a detailed description of the questionnaire design process, which includes issues related to the derivation and set-up of the questions included in the questionnaire, which help test the hypotheses and reach the main objectives of this study. The procedures followed to design the questionnaire of the current study resemble those used by Churchill (1979) and Boso (2010). After having determined the needed information (in section 3.2 and summarised in 3.3), the type of questionnaire and the choice of administration method (in section 4.1), Figure 4.1 below shows the steps to follow in order to design an adequate questionnaire.

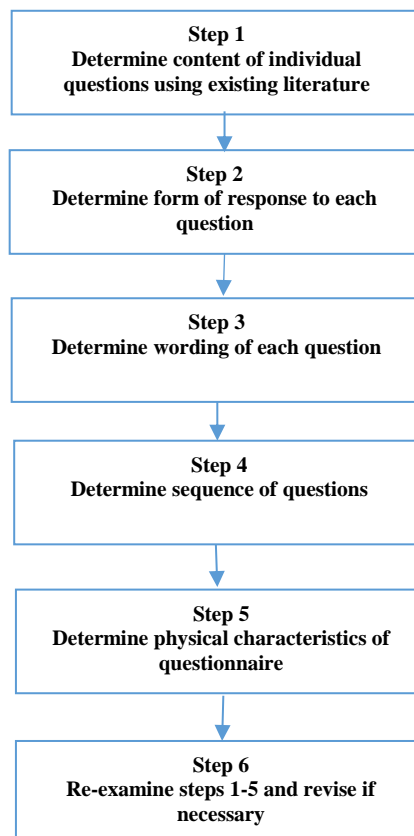


Figure 4.1: Questionnaire Design¹⁷

4.2.1 Content of Questions and Form of Response

To seek the information required to conduct this study, outlined in Figure 4.1, the existing literature was used to pinpoint suitable scales or proxies to measure the required aspects of each variable. Accordingly, each of the following sections provides a detailed explanation of the proxies used to measure each variable.

Each question has a different response type, whether YES/NO (a binary variable), which is transformed into a dummy of 0/1, a Likert Scale (an ordinal variable), a different rating or a numerical answer (continuous variable), depending on the content of the question. Likert-type scales and other attitude and opinion measures contain either five or seven response categories (Bearden et al., 1993). This study relies on the five response categories, as they are used to increase response rate, response quality and reliability, mainly because they are less confusing (Babakus and Mangold, 1992) and it is quite simple for the respondent or the interviewer to read out the complete list of scale descriptors (Dawes, 2008). Accordingly, it reduces respondents' 'frustration level' (Babakus and Mangold, 1992; Buttle, 1996).

4.2.1.1 Venture-backed Firms' Performance (Dependent Variable)

The dependent variable is the performance of the VC-backed firms. Firm performance, as suggested by Chandler and Hanks (1994), can be measured from a growth perspective or a business volume perspective. Growth includes perceived growth in the market share, cash-flows and sales. Business volume perspective includes sales, earnings and net worth. Even though there are several ways to measure firm performance, this study has used measures similar to those of Amankwah-Amoah et al.

¹⁷ Steps for questionnaire design, adapted from Churchill (1979).

(2018) to collect information on performance directly from the firm founders, through the questionnaire, rather than relying on any secondary data. To measure performance, information was collected on growth of sales, sales volume, return on assets (ROA), return on sales (ROS), growth in productivity, market share, growth in market share, profitability, growth in profitability and overall company performance. This information was collected based on subjective rather than objective data, as with most studies of the same nature. The reasons that this information was not objectively collected are, first, most small firms are unable or unwilling to provide objective information. Second, the firms surveyed in the study are for the most part unlisted and hence it would be difficult to check for accuracy of presented figures. Third, these entrepreneurial firms are from different industries, so comparison may be misleading as figures are attained for companies from different industries, and accounting data may be affected by industry-related factors.

4.2.1.2: Entrepreneur Characteristics (Independent Variable)

As derived from previous literature and used to develop the hypotheses, the different aspects of the entrepreneurial firm or founding team that may be positively related to the portfolio firm's success include SC (Bruderl and Preisendorfer, 1998; Hallen, 2008), HC (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005; Dimov, 2010) and RBCs (Mahoney and Pandian, 1992; Wang and Ang, 2004).

Social Capital

SC refers to the entrepreneur's network or contacts. In this study, the span of the entrepreneur's contacts was measured by collecting information on the bonding ties, as well as the bridging ties (Aldrich and Zimmer, 1986; Davidson and Honig, 2003). The means to measure those network types were captured from the work of Davisson and Honig (2003). Bonding ties were measured through the entrepreneur's *personal business networks and relations*; a dichotomous variable was used for YES or NO questions. A dummy equal to one was assigned if the entrepreneur had answered with a 'YES' to any of the following: if he/she has a parent that has owned a business before, close friends or neighbours that run their own businesses, and/ or family, spouse, relatives and close friends that were encouraging him/her to start business. A zero was assigned if the answer to all three is a 'NO'.

Information Sought	Proxies (to be answered by founders of start-ups)	Measure	Source
Firm Performance	Ten items were used to measure firm performance.	Likert Scale 1 to 5	AmankwahAmoah et al. (2018)

Bridging ties were measured through the entrepreneurs' *relationships with individuals in the business community*. Three YES or NO questions were used to indicate the entrepreneurs' connection with business organisations. The first is if the respondents were involved in any business networks, such as trade associations, chambers of commerce or service clubs, such as the Rotary. The second is if the entrepreneur has specific contacts with organisations that dispense business advice assistance. The final question asked in this area was whether the entrepreneur was a member of a start-up team, as opposed to having previous experience in a solo start-up. For all three questions, a dummy of one would indicate a 'YES' and zero otherwise.

Other measures used to understand the extent of the entrepreneur's ties or connections that can facilitate business were captured from the work of Adomako (2015). A Likert scale of 1 to 5 was used where the entrepreneur was asked to rate the extent to which he/she has utilised ties or connections with sources, such as political leaders, officials in regulatory institutions, top managers of other firms, etc.

Relevant literature has shown those networks to assist entrepreneurs in recruiting executives and other talented personnel (Bygrave and Timmons, 1992), as well as accessing information to facilitate transactions (Hsu 2004).

Entrepreneur SC captured through executive recruitment: the entrepreneur's ability to recruit executives was measured through the share of non-founder executives recruited through any of the founding team. Based on the work of Hsu (2007), data on the ability to recruit was gathered from the questionnaire through five items that show sources of recruitment of non-executive founders. The number gathered from each source was then divided by the total number of non-founder executives. After gathering results for all of the observed firms, the median was then calculated and any observation below the median was assigned a zero in the dummy and any above it was assigned a one (meaning it is in the top half of the sample).

Entrepreneur SC captured through access to information measures was captured from the work of Fornini et al. (2012). Entrepreneurs were asked to rate their perception of the number of contacts they have that would be able to provide them with information relevant to their business, how easily they can contact them and if they have actually helped them to access information.

Table 4.2: Entrepreneur Social Capital Proxies			
Information Sought	Proxies (to be answered by founders of start-ups)	Measurement Type	Source
Personal Business Networks	If founders have any parents, relatives, close friends or neighbours who have either owned a business or encouraged them to open a business.	Dummy 0/1	Davidson and Hong (2003)
Relationships with individuals in the business community	If the founders have contacts with business organisations, such as chambers of commerce, or organisations that dispense business advice, or have previously been on a start-up team.	Dummy 0/1	Davidson and Hong (2003)
	The extent of contact the founders have had in the past three years with eight different sources that can facilitate business transactions such as government officials, top managers at competitor firms, etc.	Likert Scale 1 to 5	Adomako (2015)
Executive Recruitment	The number of non-executive founders recruited through the founders, their friends, co-workers, advisors or others.	Dummy 0/1	Hsu (2007)
Access to Information	The availability of contacts that may provide access to information that is required for the business operations, the ease of communication with those individuals and their ability to provide information.	Likert Scale 1 to 5	Fornoni (2012)

Resource-based Capabilities (RBCs)

Measurement of RBCs were derived from the study of Wang and Ang (2004), which is based on the idea that RBCs of the firm are what position it in the market and therefore compose its competitive strategies. They are categorised into three separate scales supportive of the three competitive strategies (innovation, quality and cost leadership) (Chandler and Hanks, 1994). For each of the three scales, questions were included in the questionnaire related to the items that explain them. Entrepreneurs were asked to answer those questions based on a 1 to 5 Likert Scale, where ‘1’ represents strongly disagree and ‘5’ represents strongly agree. Questions on the six following items were included in the entrepreneur’s questionnaire, to determine a firm’s RBCs that support its *innovation strategy*: whether the firm has innovative marketing personnel,

employees that are good at marketing, marketing expertise, product development expertise, technical expertise and innovative employees. The five items that were used to determine a firm's RBCs that support its *quality strategy* were whether its employees provide superior customer service, expertise in customer service, quality customer service training, managerial expertise and flexibility to adapt. The five items that were used to determine a firm's RBCs that support its *cost-leadership strategy* were whether the firm depends on low-cost materials, low-cost distribution channels, low-cost labour, low-cost factors of production, availability of capital, highly productive employees and leading-edge facilities.

As explained in the literature, RBCs are not enough without a good strategy. To measure a firm's competitive strategy, it is segregated into the same three scales. A Likert-type scale of 1 to 5, where '1' represents strongly disagree and '5' represents strongly agree, was formed to collect data on the following information: *innovative competitive strategy*. This study tests only technical innovative strategies, which are limited to product and process innovation (Schumpeter, 1934; Karlsson and Tavassoli, 2015). Those measures have been derived from the study of Wang and Ang (2004), combined with measures from Karabulut (2015). Entrepreneurs were asked to give a score from 1 to 5 to reflect whether the venture strives to be the first to introduce new products, stresses new product development, researches new product opportunities continually, develops quality and performance of current products continually, makes changes in product development methods, and/or encourages innovation and engages in novel marketing.

For measures *related to product/service quality*, level of strict quality control, level of meeting quality requirements, level of customer service, level of product

quality and level of meeting customer needs were tested. Finally, for *cost leadership*, degree to which the firm focuses on cost reduction in all facets of business operations, improvements in employee productivity and efficiency, development of lower production cost via process innovations and reducing production cost via investing in machinery were assessed. To measure if there is a fit between the strategy and RBCS, the results of both on each separate category were multiplied, after which complementarity moderated regression analysis was used to test the form of moderation (Venkatraman, 1989; Wang and Ang, 2004).

Table 4.3: Proxies for RBCs of Entrepreneurial Firm			
Information Sought	Proxies (answered by founders of start-ups)	Measurement Type	Source
RBCs related to innovation	Five items were used, related to resources available in the firm to enable innovation.	Likert Scale 1 to 5	Wang and Ang (2004)
RBCs related to quality	Five items were used, related to resources available in the firm to assist in quality-related issues.	Likert Scale 1 to 5	Wang and Ang (2004)
RBCs related to cost leadership	Seven items were used, related to resources available in the firm allowing it to cut its costs.	Likert Scale 1 to 5	Wang and Ang (2004)
Proxies for Strategies related to resources of Entrepreneurial Firm			
Information Sought	Proxies (answered by founders of start-ups)	Measurement Type	Source
Strategies related to innovation	Three items were used, related to the extent of the firm's reliance on product innovation strategies.	Likert Scale 1 to 5	Wang and Ang (2004)
	In addition to the items derived from Wang and Ang (2004), four more items were used, to measure the firm's product and process innovation strategies.	Likert Scale 1 to 5	Karabulut (2015)
Strategies related to quality	Five items were used to assess the extent that the firm is keen on quality measures in its strategies.	Likert Scale 1 to 5	Wang and Ang (2004)
Strategies related to cost leadership	Four items were used, to assess the extent that the firm strives to cut costs through its cost leadership strategies.	Likert Scale 1 to 5	Wang and Ang (2004)

Human Capital (HC)

HC investments, education and experience (Becker, 1975; Unger et al., 2009; Dimov, 2010), based on HCT and previous studies, have been found to enable HC outcomes,

knowledge and skills, which increase performance. It is, however, education and experience that determine the improvement of skills and knowledge.

Education and experience can both be general or specific to running the business. Experiences which matter most to firm success are previous *entrepreneurial experience* (Allinson et al., 2000; Eesley and Roberts, 2006a; Gompers et al., 2006), and *industry experience* (Bruderl et al., 1992; Chatterji, 2009).

The HC characteristic *previous entrepreneurial experience*, was assessed based on the same measures used by Burton et al. (2002), Baum and Silverman (2004) and Hsu (2007). Two questions are necessary: if any of the founding team members have had experience in starting up a business, and the number of start-ups previously founded by the entrepreneurs. For the former, which is also a dichotomous variable, a 0/1 dummy was used. For the latter, a count of the start-ups collectively started by the founding team was gathered through the survey; however, multiple founders from a previous start-up team were collectively treated as one previous start-up. For entrepreneurial experience, other studies have used prior work experience in start-ups; however, the impact is different as founding experience includes experience in fund raising and employee recruitment, etc., which is not the case in the former.

For the HC characteristic *successful experience*, according to the study of Hsu (2007), a measure of previous start-up return may be included by finding its Internal Rate of Return (IRR). The dummy equals one if the start-up had liquidated with an IRR of 100% or higher on a series 'A' investment, and equals zero otherwise.

To capture the HC characteristic *industry experience*, the question asked was if at least one member of the founding team has had previous work or start-up experience in the industry of the current start-up; the answers were coded as 0/1.

The HC characteristic *size of the founding team*, which signifies the amount of founding experience available (Eisenhardt and Schoonhoven, 1990), was also enquired about (Baum and Silverman, 2004).

Previous education of the entrepreneur is another indicator of HC. Education in this study is based on formal education attained and specialised education.

Formal education attained (general HC) shows the variation in each individual's HC, whether he/she holds a master's or doctorate degree (Hsu, 2007). To measure education level, a dummy equal to one was created if the founder has a master's degree, and zero otherwise. This was repeated for PhD or MPhil level. Another dummy was created to show if any of the founders hold a Chartered Financial Analyst (CFA) or a Certified Management Accountant (CMA) certificate.

Specialised education (specific HC): the question asked is if at least one of the founders has a postgraduate degree in a relevant field to the industry of the firm (Shane, 2000); this was also measured with dichotomous variable 0/1.

Another aspect of HC is *managerial HC*, which had three measures, according to Hallen (2008). First, if any of the founding team has previously managed a public company. The answer was in the form of a dummy variable, assigned a '0' or '1'. Second, if the management team is functionally diverse, meaning each one has a different area of expertise. For example, one is experienced in management, another in the field of the venture and yet another in marketing. Third, founders were asked if they have any joint experience in a previous start-up (meaning if any of them have been on a start-up team together before the current one); answers were also recorded as 0/1.

Information Sought	Proxies (answered by founders of start-ups)	Measurement Type	Source
Size of Founding Team	To know amount of experience available	Specify #	Baum and Silverman (2004)
Experience	Two questions were asked to understand the entrepreneurs' previous entrepreneurial experience, one question about the success of this previous experience and two questions about the industry experience of the founding team members.	Dummy 0/1	Hsu (2007)
Managerial HC	Three items were used to gather if any of the founding team members have previous experience in managerial positions.	Dummy 0/1	Hallen (2008)
Education	Four questions were used concerning the degree and field of education of the entrepreneur.	Scale	Hsu (2007)

4.2.1.3 VC managers (Independent Variable)

As derived from previous literature and used to develop the hypotheses, the different aspects of VC firms that may be positively related to the portfolio firm's success include: i) HC of the VC management team (Dimov and Shepherd, 2005; Zarutskie, 2010) and ii) value-adding activities (Sorenson, 2007; Bertoni et al., 2011), particularly iii) networking, in emerging economies (Bruton and Ahlstrom, 2003).

i) Human Capital

This study, similar to the model of Dimov and Shepherd (2005), separates HC of VC managers into *task-specific HC* (education and experience related to VC tasks) and *industry-specific HC* (education and experience related to industry of company funded). Information on the education and experience of the VC management team was collected through the survey and biographies of VC management team members, when available, for reassurance. The team would include general partner, highest ranks in hierarchy partners, managing directors, directors and principals (Dimov and Shepherd, 2005).

Information on *education* (the HC aspect), was collected by asking whether each of the top management team members has a degree (master's, or doctorate) in

business, law or finance, or any other industry relevant to performing VC functions, in addition to whether any of the members have a general degree such as science (mathematics, natural science or engineering) or humanities (in art or social science excluding economics). For each field, members that have attained education in that field received a score, after which the total score was calculated. For example, if there were five members in the team and two had a law degree, then the score for law would be '0.4'. This allows members to hold more than 1 degree (Wiersema and Bantel, 1992).

For *industry experience of management team* (HC aspect), questions are included on industry of previous work and position held by each respondent. Industries such as finance (experience in commercial, investment or merchant banking and firms that provide financial consulting), consulting, law and business management show experience related to VC functions. In contrast, entrepreneurial experience (whether any of the team members has previously founded a business) as well as other experience not related to the previously mentioned ones is more general, and not specific to VC functions. In the same manner as that for fields of education, a score for experience in each industry for all partners was computed. If any or more than one of the team members have education or previous experience in the industry of the firm they are funding, it adds more value to the firm as they become more knowledgeable in the firm's operations, and hence can advise in that area (Sapienza et al., 1996). If a respondent had worked in any of the fields related to VC work, a dummy of '1' was given for task-related experience and zero otherwise. If a respondent had worked in the field of the funded firm's industry, a dummy of '1' was given for industry-related experience and zero otherwise.

Table 4.5: VC Managers' HC Proxies			
Information Sought	Proxies (to be answered by VC management team)	Measurement Type	Source
Education	How many of the VC management team have attained an MBA or any degree in law or finance (VC related)? How many hold a degree in the field of the firm's industry (industry related)? How many hold other unrelated degrees?	Scale	Dimov and Shepherd (2003)
Experience	If any of the management team have any past experience in business management, finance, law or consultancy (VC-related) or in the industry of the firm (industry-related).	Dummy 0/1	Dimov and Shepherd (2003)

ii) Value-added activities

VC value-added activities can add value to the firm in several aspects, whether it be financial¹⁸, strategic, interpersonal or networking.

The *strategic and operational planning value-added activities* are measured by the degree of the VC managers' involvement in the portfolio-company, as well as the level of advice they administer. First, there are six involvement measures, according to the work of Hege et al. (2003). These measures are boards (also supported by Hsu (2004)) (percentage of ventures in which VC has been present on BOD), reports (average number of monitoring reports requested from ventures/year), rounds (average number of investment rounds till exit for already achieved exits), convertibles (percentage of ventures in which convertible securities were used), replace (% of companies in which former entrepreneur was replaced before exit of the VC), and total number of meetings each month (Lim and Cu, 2012). Second, advice-level measures were also supported by the work of Cumming and Johan (2007) and Sapienza et al. (1996). Entrepreneurs were asked to evaluate the amount of advice received from

¹⁸ Financing value-added activities are excluded from this study; thus, this study focuses on post-funding activities.

venture capitalists in nine major areas in which the venture capitalists add value. For each area, a scale from ‘1’ to ‘5’ was used to rate advice given, ‘5’ being the highest rating, and N/A was used if advice was not given in a specified area. The nine aspects in which the extent of advice dispensed is assessed in this study are: strategic, marketing, finance, R&D, product development, HR, exit strategy, interpersonal and networking.

Table 4.6: Proxies for Strategic and Operational Planning Value-added Activities			
Information Sought	Proxies (to be answered by entrepreneurs)	Measurement Type	Source
Involvement Measures	VC managers were asked to provide information on boards, reports, rounds, convertibles, replaces and total number of meetings per month.	Scale	Hege et al. (2003), Hsu (2004), Lim and Cu (2012)
Advice Measures	Entrepreneurs were asked to rate the level of advice received from venture capitalists in relation to strategic, marketing, financial, R&D, product development, HR, exit strategy, interpersonal and networking advice.	Likert Scale 1 to 5	Sapienza et al. (1996), Cumming and Johan (2007)

iii) Networking

One of the most important value-added services provided by venture capitalists, as mentioned above, is *networking* (Lin, 1999). The VC has three main networks: i) service providers, ii) government officials and iii) syndicates.

a) Service Providers

To measure the VC’s network of *service providers*, a Likert Scale was created to assess the following: recruiting resources; contacts with customers and suppliers; and contacts with investment bankers (Hsu, 2004). A Likert scale was also used to determine if the VC or any of its businesses and professional contacts were used to hire or recruit senior managers, administrative and management personnel, and/or sales and marketing personnel (Hellmann and Puri, 2002). A final question was if the VC has had any influence in shaping the HR management or policies.

b) Government Officials

To measure the VC's network of *government officials*, a Likert Scale was created to examine whether venture capitalists are capable of networking, maintaining relationships, and frequently contacting government officials and regulatory departments. Additionally, whether the VC firm has introduced the portfolio firms to government officials or used its government network to meet the growing needs of the portfolio firms.

c) Syndicates

The analysis of the effect of VC syndication networking was based on the work of Hochberg et al. (2007), which is borrowed from the graph theory (Wasserman and Faust, 1997), which measures the relative centrality of each actor in the network. Those centrality measures cover five aspects of a VC firm's influence. First is the number of VCs with which it has relationships; this is a proxy for information, deal flow, expertise, contacts and pools of capital to which it has access. This is known as '*degree centrality*', where the more ties a VC firm has, the more important it is (Jin et al., 2015), as it allows it to gain more opportunities for exchange and makes it less dependent on other VCs for information or deal flow. If the VC firm has a tie with at least one other VC firm, then the number of relations is recorded, or otherwise zero. Degree centrality does not distinguish between receiver and initiator of the tie, which are the following two aspects referred to as indegree and outdegree respectively. Second, '*indegree*' is measured by enquiring about the frequency with which the VC firm is invited to co-invest in other VC deals, as this expands its investment opportunity set and resources, which it would not have had access to otherwise. Third, '*outdegree*' was measured by enquiring about the VC's frequency in initiating investments with other VCs, which indicates its ability

to generate co-investment opportunities by syndicating its own deals today. Fourth, is called ‘*closeness*’, which considers the quality of the ties, and it is measured by eigenvector centrality (Bonacich, 1972,1987). This weighs the VC firm’s ties to others by responsive centralities. Thus, it shows the extent to which it is connected to better-connected VCs. Fifth, is the VC firm’s ability to act as an intermediary who can bring together other VCs with complementary skills or investment opportunities, where the other VCs do not have a direct relationship with each other and are only connected through the original VC firm. This aspect is referred to as ‘*betweenness centrality*’.

Information Sought	Proxies (to be answered by VC management team)	Measurement Type	Source
Service Provider Networks	1) If the firm has access to recruiting resources, contacts with customer, supplier or investment bankers, 2) and if it has used any of its contacts to hire. 3) If the VC firm had influence in shaping the venture’s HR management or policies.	Likert Scale 1 to 5	1) Hsu (2004) 2,3) Hellmann and Puri (2002)
Government officials	Five items on the ability of venture capitalists to rely on government officials in their scope of work.	Likert Scale 1 to 5	Kotabe et al. (2011)
Syndicates	The VC’s relations with other VCs in terms of: degree centrality, indegree, outdegree, closeness, and betweenness centrality.	Scale	Hochberg et al. (2007)

4.2.1.5 VC-E Relationship (Independent Variable)

As derived from previous literature and used to develop the hypotheses, the strength of the VC-E relationship impacts the success of the venture (Keuschnigg, 2004). This relationship in more developed economies is normally refereed by the type of security chosen and accordingly cash-flow rights, to alleviate adverse selection problems, as well as control rights (which include voting rights, liquidation and board rights), and stage financing (Casamatta, 2003) to minimise the moral hazard problem. The literature available on VC firms in less developed economies shows that, when a lack of strong institutional environments exists, the extent of the relationship itself and the trust

between the VC and the entrepreneur is what determines the success of the venture. Moreover, it pushes them to align their incentives and makes their efforts complementary (Bruton and Ahlstrom, 2003; Hain et al., 2016; Li. et al., 2018). This was measured through the questionnaire by seeking information from both the venture capitalists and the entrepreneurs on different relational aspects, as explained in the following table:

Table 4.8: Proxies for VC and E Relationship			
Information Sought	Proxies (to be answered by venture capitalists and Entrepreneurs)	Measurement Type	Source
Complementary Roles	1) Both were asked to rank three items that would explain the complementarity of their roles in the relationship 2) Both were asked to rank if their expectations of effort from each other are met.	Likert Scale 1 to 5	1) Li et al. (2018) 2) Panda and Dash (2016)
Level of Disagreement	Both were asked to rank how they perceive the level of disagreement between them in eight different aspects.	Likert Scale 1 to 5	Lim and Cu (2012)
Ease of Negotiation	Both were asked four questions to rank how they perceive their ability to negotiate on new issues together.	Likert Scale 1 to 5	Li et al. (2018)
Contractual Flexibility*	Entrepreneurs were asked to rank the degree to which they perceive contract flexibility to be concerning the major business areas.	Likert Scale 1 to 5	MacMillan and Subbanarasimha (1987), Lim and Cu (2012)
Contractual Favourableness*	Entrepreneurs were asked to evaluate eight different contractual provisions in terms of their favourableness.	Likert Scale 1 to 5	Landstrom et al. (1998), Hsu (2004), Lim and Cu (2012)
Trust	Venture capitalists were asked to rate 12 items on how they perceive trust in their relationships with entrepreneurs, in terms of C-trust, K-trust and I-trust.	Likert Scale 1 to 5	Li et al. (2018)
Team Spirit	Venture capitalists were asked to rate five items on how they perceive the team spirit of their portfolio companies to be.	Likert Scale 1 to 5	1) Campbell (1993) 2) Li et al. (2018)

**Contractual favourableness* refers to the degree of favourableness the entrepreneur can perceive in certain contractual terms, which depends on how the entrepreneur views the relationship he/she has with the VC. Entrepreneurs who have a

higher degree of trust in the VC should be more willing to include investor provisions in the contract (Manigart et al., 2002).

**Contractual flexibility*, which shows the degree of flexibility around major contractual terms, was measured by asking entrepreneurs to rank how flexible the VC was around key business areas.

4.2.1.6 Institutional Environment (Moderating Variable)

Entrepreneur innovation and transparency depend on property rights and their enforcement (Ueda, 2004). Investor protection rights and the strength of the legal environment impact screening, monitoring, value-added services (Bonini and Alkan, 2012) and the extent of networks reliance (Bruton and Ahlstrom, 2003). The institutional and legal environment also affects the relation between venture capitalists and entrepreneurs, and the extent to which they both rely on trust, rather than contract enforcement (Li et al., 2018). How entrepreneurs and venture capitalists perceive the strength of the legal environment in their country and how it impacts their business and innovation were assessed through the following:

Table 4.9: Proxies for Institutional Environment			
Information Sought	Proxies (to be answered by Venture capitalists and Entrepreneurs)	Measurement Type	Source
Legal environment in Egypt	Four items were asked to understand the legal environment itself in Egypt.	Likert Scale 1 to 5	1) Li et al. (2018) 2) Panda and Dash (2016)
Law enforcement	Two items were used to show the extent to which firms perceive law enforcement to protect their rights.	Likert Scale 1 to 5	Yasar et al. (2011)
Impact on business	Two items were used to assess the impact of legal environment on the business itself.	Likert Scale 1 to 5	Akrofi (2016)
Impact on innovation	Four items were used to show the impact of the institutional environment on the extent of innovation of the firm.	Likert Scale 1 to 5	Akrofi (2016)

4.3.1 Pre-testing Process

The questions in both the questionnaire prepared for VC managers and that for the entrepreneurs were all derived from different empirical studies, yet in some cases adjusted for context. The first step in pre-testing was that the thesis supervisors provided comments and advice on the number of questions and the scales used. This led to some changes and an increase in the number of questions that measure certain variables. After which, both questionnaires were sent to an expert researcher, who is particularly experienced in the design and scaling of questionnaires. As a result, some of the questions were rephrased for consistency, in aspects such as the way of addressing the respondents, some questions in certain categories were added and one scale was changed. The final step in the pre-testing phase involved the questionnaire being administered to an expert in the Egyptian financial market. The cognitive method used to do so is called Cognitive Interviewing, which focuses on the mental processes respondents use to answer survey questions (Collins, 2010). The Cognitive Interviewing technique used in this research is Probing, rather than Think Aloud. Although the latter is used more often with questionnaires, the former is interview-driven and hence places a lower burden on the respondent. Probing involves the interviewer asking the respondent how s/he went about answering the questions. Questions asked included: how easy or difficult the respondent perceived the answering of questions to be, what was understood by certain terms used in the questionnaire, and if the answer that came to mind was found in the choices given.

The outcomes of this process were very beneficial. Some questions were eliminated as it was pointed out that their resemblance to other questions would confuse respondents. Some comments were also made about the selection of wording for the cover letter and hence it was amended. This led to executing another cognitive pre-

testing technique called Paraphrasing, which is used to identify comprehension problems. The field expert was also asked to paraphrase all questions which she did not understand as intended, in a structure/form that would facilitate comprehension of the questions for all other respondents.

Alongside pre-testing, it is also important to consider response rate. Only a few VC firms exist in Egypt, and hence obtaining a full VC firm population response is crucial to the success of this study. Several measures were taken to enhance the response rate. A letter from the university was made available to all firms for reassurance concerning the purpose of this research. A cover letter was also provided with the questionnaire, which explained the research topic and nature and, most importantly, guaranteed confidentiality. The letter also explained that a summary report providing results of the research, when completed, would be sent to the firms. This report can be used as a reference or a guidance for those firms to enhance the outcome of their portfolios, or their performance.

4.3 Pre-Testing

Survey questionnaires should be tested to ensure they meet their purpose (Collins, 2001). Pre-testing aims at improving the primary questionnaire and the response rate (Faux, 2010). It is necessary, especially when items are borrowed from previous studies (Hair et al., 2006) and even more when they are being applied to new contexts.

Several stages were needed for the questionnaire construction. In the earlier stages, questions were revised several times, to ensure that the questions provided are related to the concepts being tested (Faux, 2010). Additionally, general issues related to the flow of the questions, the usefulness of instructions and readability of the questions were also considered prior to the pre-testing.

During the pre-testing phase, four issues related to the questionnaire design were considered: content, form, instrument, and procedures and process (Faux, 2010). While these issues are important, it was also necessary to ensure that all respondents comprehended the questions, all respondents uniformly understood questions, and that respondents were able and willing to answer such questions. Cognitive questionnaire testing methods can be used to test those three assumptions and accordingly deliver better surveys and questionnaires (Collins, 2001).

Pre-testing with experienced researchers is crucial, but it is also important to pre-test on potential respondents, particularly to test assumptions about how they would perceive the questions. In this study, as explained in the following section, questionnaires were reviewed by an experienced researcher and an expert in the Egyptian financial market.

4.4 The Main Survey

After the questionnaire had been pre-tested and all the necessary amendments had been finalised, the main survey commenced on November 24th, 2018 and ended on March 4th, 2019. Before discussing the response rate and how the data was collected, it is important to first understand the research environment in Egypt.

4.4.1 Research Environment in Egypt

Data collection in Egypt is extremely challenging for many reasons. Firstly, the VC market in Egypt is relatively new; thus, there is no database that lists the VC firms, nor the entrepreneurial firms that are receiving VC funding. Some of those VC firms do not provide contact information on their websites, while others have phone numbers that are no longer working, as well as only general customer service emails, which do not enable enquirers to contact any of the fund managers or board members. This imposed

a problem in being able to reach the firms to begin with. Another problem is the lack of interest in research in Egypt, where in some instances the researcher received some replies from potential respondents stating ‘Sorry, we are not interested in helping research students’ or ‘Sorry, we do not have time for research purposes’. This leads to two points, one would be that in Egypt most people over-work; they do not have set working hours and hence can work more than 12 hours a day; each individual is taking on too many responsibilities. Two, in the business environment most work is done in return for monetary incentives; however, from a research perspective a monetary incentive issued for a survey response would be unethical. The incentive should be the complementary report offered that summarises the results, which would be beneficial to their scope of work. These struggles make it very difficult for anyone to collect primary data in Egypt; however, the Egyptian culture is known for relationships and connections: people in Egypt tend to get everything done through social connections, which was the only option that enabled the researcher to collect most of the data. These were the obstacles faced when administering the questionnaire to both the VC firms and the companies in their portfolios. Furthermore, another issue that was faced with entrepreneurs was their hesitancy to discuss their anything related to the funding they have received. Ninety percent of the companies in the Middle East are family businesses that contribute to 80% of the national income, account for 75% of the private sector and employ 70% of the workforce (Hassan, 2015). Individual entrepreneurship levels have begun to rise after the 2011 revolution in Egypt¹⁹; however, not only is the concept of entrepreneurship relatively new but so is receiving funding from untraditional sources such as VC firms, rather than relying on personal assets, funding from parents or bank loans. Hence, some entrepreneurs were not comfortable about

¹⁹ GEM (Global Entrepreneurship Monitor): Egypt National Report 2015-2016.

disclosing any information related to their deals. This remained the case in some instances even after the researcher explained the confidentiality of the study, or its academic purpose, and that the questions do not involve any financial disclosures. One of the responses for illustration on this matter is as follows: ‘Regarding [the researcher’s name], I am not very comfortable disclosing the details of my investment deal. I have discussed it with my investors as well, and I think I will refrain from completing her survey.’

4.4.2 Population, Samples and Response Rate

There are 16 VC firms in Egypt (population); 14 of them agreed to complete the questionnaire. The researcher approached the two remaining firms, but one of them did not complete it, even after several reminders. The other one’s fund managers were abroad for the entire data collection period, as their funding is not restricted to Egypt; however, the researcher’s data collection deadline could not wait for their return and they were not able to complete the survey while they were abroad, as they explained that their trip was running on a very tight schedule. The portfolios of the 16 VC firms that did complete the survey consisted of a total of 159 companies; however, only 119 of them are based in Egypt or have any operations in Egypt. Therefore, only the 119 are relevant to the study, as the focus is on performance of VC-backed firms in Egypt, which means the entrepreneurial firms need to be in Egypt and the VC firms need to at least have a base in Egypt, in cases where they are not completely founded in Egypt. The researcher was able to reach only 92 of the 119 firms. The remaining 27 were not reached, either because they provided no contact information, did not respond to messages via their websites, or the founders were unknown and their names were not listed anywhere. However, two of those firms had exceptional circumstances, as the researcher came to know that the founders had recently passed away. Out of the 92

firms that were contacted, only 52 have filled in the survey and returned it, which means that over 56% of those who were contacted completed the survey, and almost 44% of the entire population responded to the survey. Of the 92 firms contacted, 18 refused to answer it, whether because they were not interested in the study, had no time or simply did not reply to phone calls, emails or messages. On the other hand, 22 firms that agreed to fill out the survey and return it, failed to do so after three rounds of reminders.

4.4.3 Response Rate Improvement

As mentioned in section 4.4.1, the research environment in Egypt holds many obstacles for primary data collection, and Egypt is a country that usually relies on connections for almost anything. At the start of the survey administration process, the researcher tried to contact each firm, to set up an appointment with one of the fund managers to fill out the survey or to agree to have it sent by mail. That was very unsuccessful, as the responses would either be a set of questions about the research and why a fund manager is specifically needed, then the phone call would end with an agreement to call back, after discussing with the managers; however, in most cases the phone calls were not returned. The researcher then tried to obtain the addresses of these firms, either from Google Maps or from their websites, in attempt to show up at the firms' premises to set up an appointment or ask for contact information to reach the fund managers. However, the idea of showing up was not appealing to the firms. After about a month of such unsuccessful attempts, only one respondent agreed to give the researcher an appointment to fill out the survey face to face. This respondent is a VC firm manager from a management team that consists of five managers who was particularly interested in the research topic and filled it out (he was not Egyptian, but he manages the fund in Egypt).

The previous failed attempts left the researcher with no option but to resort to connections. The researcher then derived a list of all the VC fund managers or board members (they were available on the VC firm websites for the most part), created a file with their names and photographs (where available), and sent it out to people in the researcher's network that have connections in the capital market. This mechanism led to two new responses, one through a work colleague and one through a friend; both respondents filled in the questionnaire through meeting the researcher in person. However, the response rate was still low; consequently, the researcher looked up each one of those names on the social media application known for connecting people, Facebook, to try and find mutual connections or common links which would facilitate the process of reaching the individual fund managers. This worked to reach the rest of the intended participants and receive the surveys back, filled out, to total to 14 out of the 16 VC firms (87.5% of the population). The other two were approached by phone and through close connections; however, as explained above, one did not respond despite several reminders, and the other firm's managers were abroad.

The same approach was applied to gather the data from the portfolio companies through the questionnaire aimed at entrepreneurs; however, it was much harder as very few of the VC firms provide a list of the founders of their portfolio firms. It was a very time-consuming, rigid process to find who the founders of those firms are. Some were identified through Google by searching for founder of FIRM NAME. The names of one or two of the co-founders would then appear, either in an article (covering the funding round they came out of), in images (if they were speakers at an entrepreneurial event, such as Rise-Up Summit Egypt), or mentioned with their firm information on a database called Crunchbase, or finally through an application named LinkedIn, which is a network for business connections. The latter was the most efficient search method. The

researcher purchased a premium membership, to enable a larger number of searches. Through LinkedIn, entering the firm name provides a list of all employees who have an account in that firm and what their positions are, which assisted in acquiring the names of some of the co-founders. However, most of them have blocked receiving messages on LinkedIn. Their names were then looked up on Facebook, either to reach them on facebook directly, if they allow notifications from people with whom they are not connected (which was not the case in most instances), or to find a common connection and reach them through others. Moreover, some of the respondents were then reached through the Facebook page of their companies. Connections were exploited to reach 21 out of the 52 firms, who have sent their responses to the survey.

Another solution to improve response rate was suggested by the third respondent from the entrepreneurs. At the start of the data collection phase, the intent of the researcher was to collect data from the VC firms entirely, before proceeding to administer the other questionnaire to the entrepreneurs. However, receiving responses from the VC firms exceeded the estimated time; thus, the initiation of the administration of the questionnaire to the entrepreneurs was due. It was first sent to the entrepreneurial firms constituting the portfolios of the VCs that had already responded. The first two entrepreneurs chose to receive the questionnaire by email as an editable Word document rather than face to face. The third entrepreneur requested the researcher to transform the questionnaire into a Google survey form, which would expedite and facilitate the process of filling it out. The researcher agreed and accordingly the entrepreneur filled it out within 20 minutes. As of that point, the response rate increased and entrepreneurs exhibited a stronger will to respond than did the VC firms. The researcher then converted the VC questionnaire into a google survey format and resent

it to all the VC firms that had not yet responded; subsequently, the six remaining firms swiftly returned the questionnaire with full responses.

Table 4.10 Response Analysis Summary					
Questionnaire	Population	Approached	Returned survey	Agreed, but did not return survey	Refused/No response
VC	16	16	14	2	0
Entrepreneur	119	92	52	22	18

4.4.4 Survey Bias Assessment

Survey Bias Assessment was conducted by assessing non-response bias and common-method bias, which are the two most relevant to research relying on surveys.

Non-Response Bias Assessment

When relying on samples, it is important to be certain that the sample is representative of the entire population. To do so, the possibility of having non-response bias must be excluded (Hair et al., 2006). As explained above, different practices have been followed to reduce the non-response rate itself, which is the best way to handle non-response bias (Hair et al., 2006; Boso, 2010). The VC questionnaire received a response from almost 90% of the population and hence non-response bias assessment was not necessary. However, for the entrepreneur questionnaire, only 44% of the population responded and hence the impact of non-response bias on the sample quality can be estimated (Rindfleisch et al., 2008; Boso, 2010). To do so, the sample must be separated into early and late respondents, where the late respondents would represent the non-respondents, as they are assumed to be firms that respond less readily (Armstrong and Overton, 1977; Churchill, 1995). In this research, firms did not receive the questionnaires at the same time. As explained above, the research environment in Egypt turned out to be very challenging and hence receiving responses was mainly dependent on contacting entrepreneurs through personal connections or trying to reach them directly. However,

early and late can be assessed as those who responded before the first reminder was sent to them (within 10 days of receiving the questionnaire) and those who responded after a first or second reminder was sent. T-tests were performed to compare the means and standard deviations of the early and late respondents on all variables. Results showed differences in the means not to be significant, at a 5% level. Hence, it can be said that mean differences between the two observed samples are due to chance (Churchill, 1995). Furthermore, the t-test results confirm that non-response bias is not an issue in this study. Represented below in Table 4.11 are the t-test results showing no significant differences for the first variable in each group.

Variables	Early Respondents N=20		Late Respondents N=35		T-Test Result
	Mean	Std. Deviation	Mean	Std. Deviation	Sig (2-tailed)
Political leaders	1.65	0.988	1.59	0.798	0.811
TM customers	2.60	1.353	3.09	1.329	0.205
Religious leaders	2.00	1.298	2.06	1.318	0.873
Innovative marketers	3.40	0.995	3.13	1.157	0.393
Superior cust. serv.	3.55	1.234	3.53	0.983	0.949
Low-cost materials	3.10	1.021	3.31	1.330	0.549
New products	3.95	1.050	3.94	0.840	0.97
Quality control	3.95	0.999	4.00	0.880	0.851
Cost reduction	4.05	0.826	4.28	0.888	0.355
Strategic Advice	2.45	1.317	2.47	1.047	0.952
Resources	3.45	0.999	2.97	1.031	0.105
Strategy disagreements	2.35	0.988	2.59	0.946	0.386
Strategy flexibility	3.60	0.940	3.09	0.928	0.061
Co. Valuation	3.10	0.852	3.13	1.070	0.916
Negotiation	3.50	1.000	3.13	1.040	0.211
Trust court system	2.55	1.099	2.81	1.281	0.456
Political stability	3.65	1.226	4.13	1.008	0.156

Common-Method Bias Assessment

Recent studies have emphasised the importance of assessing the potential problem of Common-Method Bias (CMB). CMB is the measurement of error that is reflected by the tendency of respondents to want to provide positive answers (Chang et al., 2010).

CMB is a greater potential concern when data for the dependent and independent variables is collected from the same respondents, as it could lead to false internal consistency (Chang et al., 2010; Adomako, 2015). CMB can be tackled through several procedures, both ex-ante and ex-post (Podsakoff et al., 2003; Boso, 2010; Adomako, 2015). This study relies on intensive ex-ante procedures to ensure that no CMB exists or to minimise the possibilities of it. Ex-post procedures could not be applied, as they require a follow-up study, which is not a feasible option in Egypt, given the research environment explained above and how difficult data collection is.

Ex-ante procedures refer to those applied before the main survey. Six ex-ante measures are used to prevent CMB in this study. First is the application of different techniques when writing-up the questionnaire. The questions were mixed and breaks were included to allow temporal delays that enable recalled information to leave a participant's short-term memory before answering new questions. Different measurement scales were applied, for example, Likert Scale, Dichotomous Variable, etc. Using different response formats, as opposed to the same response format, can decrease the average correlation between independent and dependent variables, as evident in studies as early as Kothandapana (1971). Reverse coded items were also used (Adomako, 2015). Second, there were two questionnaires, one administered to the VC firms, which only contained questions that would refer to independent variables and did not include any items to measure the dependent variable. Third, one of the three independent variables, as well as the moderating variable items, was asked for in both the VC and entrepreneur questionnaires, to increase reliability. Fourth, respondents were reassured of the complete confidentiality of the information they provided (Chang et al., 2012; Boso, 2010; Adomako, 2015). Fifth, respondents were reminded to provide answers at their own discretion, as there were no right or wrong answers to the

questionnaire (Podsakoff et al., 2003; Boso, 2010; Adomako, 2015). Lastly, honesty and accuracy when answering the questions were requested from all respondents (Podsakoff et al., 2003; Boso, 2010).

After using t-tests to compare means and ensure that the sample is free of non-response bias and then applying the abovementioned six steps to procedurally prevent the occurrence of CMB, data analysis can be conducted to analyse data and check for validity of the hypotheses.

4.5 Data Analysis Procedure

The data in this study was analysed using very thorough descriptive statistics, as well as t-tests, to compare means of components of each sub-variable, in order to recognise the importance of each, which would provide a better understanding of the data and enable its explanation, with the support of the literature.

Descriptive statistics for all data include frequencies and percentages of responses to understand the data and the tendency of responses for each measure. Means and standard deviations are also calculated for all non-binary measures to further illustrate the responses. Parametric one sample t-tests are also calculated for all non-binary measures to rank the means of all the measures of one variable to understand their importance. For example, there are different types of entrepreneur networks, mean rankings would clarify which networks types are more important and which are the weakest. Parametric tests are selected as the data of this study is suitable for their assumptions, data is independent, collected randomly and approximately normally distributed (Armitrage and Berry, 2001). The normal distribution of different measures was assured using histograms with normal distribution curves. Non-parametric tests however, are used when data is not approximately normally distributed. One sample t-

tests compare the mean of a sample to a hypothesised or set mean. Through the t-test value and the value of significance provided by the results, it can be determined whether the sample mean is significantly different to the predetermined mean, at a given confidence level. The t determines the t-quantile with $n - 1$ degrees of freedom (Dupont, 1990). The t-test value is calculated as follows:

$$t = (\bar{x} - \mu)/(\sigma/\sqrt{n}), \quad (4.1)$$

Where, \bar{x} refers to the sample mean, μ is the specified population mean, σ is the standard deviation of the sample, and n is the sample size (Armitrage and Berry, 2001).

When using questionnaires in research, pre-existing measures are borrowed from previous surveys to allow for comparability across studies, instead of deriving new ones. Therefore, construct validation and an analysis of whether these measures are invariant across groups or time is then necessary. Additionally, the questionnaire contains a vast number of questions or items to be analysed, which need to be reduced into variables or constructs. Those items that provide a proper fit or measure for a construct are aggregated. Moreover, this allows for a smaller number of variables. All constructs should be valid, reliable and unidimensional. Construct validation and data reduction in this study are both achieved through Confirmatory Factor Analysis (CFA) (Joreskog, 1969; Harrington, 2009).

CFA is used to examine if the original form of the measure is well adapted to the new population. Construct validity is defined by Cronbach and Meehl (1955) as an examination of a measure of an attribute (or construct) that is not operationally defined or measured directly. During the process of establishing construct validity, researchers test hypotheses about how measures are related to each other, based on a certain theory. Construct Validity consists of convergent, discrimination and theoretical (also known

as nomological) validity (Koeske, 1994). Discrimination validity refers to low correlation between constructs, which means the measures within a concept are different. Furthermore, questions in the survey related to a certain concept are different (Bagozzi et al., 1991). Convergent validity refers to having no problems with shared method variance; therefore, measures of the same construct are highly correlated, but are using different methods (Koeske, 1994; Bagozzi et al., 1991), which means questions in the survey are measuring the same concept in a similar way but using a different method or from a different perspective.

In addition to construct validation, CFA is also used to determine scale reliability (Harrington, 2009). As explained above, researchers most commonly administer two or more measures (referred to as a scale) that are alternative indicators of the same construct (Bhattacharjee, 2012). A composite score is calculated as an unweighted sum of the respondents' score of these measures, which provides an estimate of the corresponding construct (Petrescu, 2013). A composite score, however, is only meaningful if each of the measures is unidimensional, which means that a single trait or construct commonly exists between the measures. It is important to note that the meaning of a measure as intended by the researcher may not be the same as that comprehended by the respondent; therefore, the scale assessment process should include an assessment of whether the multiple measures that define a scale are acceptably regarded as alternative indicators of the same construct. CFA is applied in this study to evaluate unidimensionality, as it carries out a relatively stricter interpretation of it than other approaches (Boso, 2010).

CFA is of better use when the variables have a strong theoretical base (Williams, 1995), which is the case for this research. It enables the examination of expected causal connections between variables.

To conduct CFA, Pearson's Correlation Matrix is calculated first, to determine correlations between variables and subsequently allow for an indication to group variables into appropriate indices. This systematically ensures that the data is free from multicollinearity problems, as all correlated variables are grouped into one main variable. Furthermore, as the model of this study is based on variables as well as sub-variables, which include different measurement aspects, accordingly two-step factor analysis is applied. All the highly correlated indices that represent sub-variables are grouped into an index that represents the variable itself. Moreover, in some instances, more than one index is created to represent the different measurement aspects of a sub-variable. Therefore, correlations for these indices are measured in order to create a new index comprising those indices that have high significant correlations, possibly representing the sub-variable.

After validation and aggregation of data measures, a multiple regression model is then implemented to further analyse the data. Multiple regression is one of the most commonly used statistical techniques in research (Mason and Perreault, 1991). The application of multiple regression in this study, conditional on statistically significant overall prediction, is to draw conclusions about individual predictor variables (the independent variables in this study). In other words, it is used to test the hypotheses of the effect of each predictor on the dependent variable, and to evaluate their relative importance (Mason and Perreault, 1991), which is why most researchers rely on it. They often seek to investigate the effect one variable has on another, e.g. how the

change in X would affect the change in Y, as per their hypotheses. Not only is it used to establish relationships between two variables but also to determine the statistical significance of the relationship (Best and Wolf, 2015).

One of the frequently found limitations of the OLS model is misinterpretation of coefficients due to collinearity between independent variables (referred to as X-variables) (Best and Wolf, 2015). However, multicollinearity is not an issue in this study as correlations are measured between variables and all correlated variables are grouped into indices through CFA.

Another assumption of OLS is that the data is free from autocorrelation. Autocorrelation refers to the degree of correlation between the values of the same variables across different observations in data. It is an issue when dealing with time series data (Baum, 2006), in which observations occur at different points in time. This study however, relies on cross-sectional data and hence, autocorrelation is not an issue in the data.

Another assumption in OLS is that the error term has a constant variance meaning no heteroscedasticity. Heteroscedasticity occurs more often in datasets that have a large range between the largest and the smallest observed values (Gujarati and Porter, 2009). In this study almost, all measures were either based on binary values, Likert scales from 1 to 5, or continuous variables with responses in the form of a scale that ranges from 0 to a maximum of 7. Hence, a large range is not possible and therefore, heteroscedasticity assumption is not violated.

A final assumption of OLS regression is the normal distribution of the error term. A normality test was conducted to assure its normal distribution. Skewness- Kurtosis test (Joanes and Gill, 1998) was applied rather than a Jarque -Bera normality test (Jarque and Bera, 1980; Best and Wolf, 2015) as the latter is used for very large samples, as it

yields more robust results with larger samples.. Skewness-Kurtosis test shows a normal distribution of residuals for the variables used in this study. Results are shown in Table A2 in appendix A.

The linear relationship between the dependent and predictable variables in a multiple regression model is measured as follows:

$$y = \sum_{i=0}^n \beta_i x_i + u_i, \quad (4.2)$$

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + u_i, \quad (4.3)$$

In the above equations the y denotes the dependent (endogenous) variable and the x 's refer to the independent (exogenous) variables. β_0 signifies the intercept, which is the value of y at which the regression line intercepts the y axis. The β_1 to β_n refer to the coefficient or slope which determines how shallow or steep the regression line is. Therefore, for each unit of change in variable x_1 , y changes by the amount of β_1 (Diamond and Jefferies, 2001; Best and Wolf, 2015).

$$\beta_n = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sum(x-\bar{x})^2}, \quad (4.4)$$

Finally, u_i symbolises the error term or residual. It is equal to the difference between the observed values of y and the values predicted by the independent variables.

Researchers (such as Ehrlich et al., 1994; Pruthi et al., 2003; Dimov and Shepherd, 2005; and Florin, 2005) have relied on analysis of variance (ANOVA), which is a statistical technique that assesses potential differences in a continuous dependent variable by a categorical variable or set of variables (Muller and Fetterman, 2003). Thus, most studies that use ANOVA have a set of categorical independent variables, while other studies that have continuous independent variables use regression analysis. In this study, the independent variables were initially a hybrid set of binary, ordinal and

continuous variables. After which they were all reduced through CFA to form indices that are used in the model as continuous variables, which in turn makes regression more fit for the analysis of this study. Regression analysis is used to assess the quantitative relation between variables (the explanatory and the dependent), which is very relevant to the nature of this study. ANOVA on the other hand allows the assessment of the impact of the explanatory variables on the residuals, meaning how much of the variance in the data is explained or reduced by those variables. Moreover, ANOVA is mainly a test of equal population means for more than three variables (Maxwell et al. 2017), which is not relevant to the objectives of this study.

4.5.1 Robustness

The questionnaire in this study has many different types of questions (Scale, Ordinal and Nominal). The dependent variable in this study is an Ordinal one (Likert Scale), hence, it is best analysed using Ordered Probit Regression, whereas, in Ordinary Least Square (OLS) regression, the dependent must be a continuous (scale) variable; therefore, it is represented by an index, created through CFA. This index includes the grouping of the performance measures selected for this study.

For a robustness check, the best measure of the dependent variable has been selected and ordered probit regression was applied to confirm results of the regression analysis. Ordered probit is put to use when the dependent variable is an ordinal one (Mckelvey and Zavoina (1975). Order Logistic Regression can also be used when the dependent variable is an ordinal one, however, Ordered Probit is used for robustness as it is more suitable for a random effects model such as the one used in this study, whereas ordered logistic is more commonly used when the data is fixed. Additionally, ordered probit

assumes that residuals in this model follow a normal distribution while ordered logistic regression does not (Boes and Winkelmann, 2005):

. The reason ordered probit regression was not the main analysis method in this study is because it can only rely on one measure for the dependent variable. However, the VC-backed firms investigated by this study are mostly start-ups that may have not realized all measures of performance yet. Moreover, the dependent variable is subjective and not objective as explained in section 4.2.1 and hence having a set of measures to represent performance is more reliable in this case.

For robustness using ordered probit, one of the ten performance measures included in this study is selected. The selection of the best measure was based on three criteria: 1) no respondents have omitted the question, 2) the measure that is most highly correlated with all other measures and 3) the measure with the highest factor loading found using CFA.

The relationship between variables is determined using ordered probit as follows:

The observed dependent variable is Y_i , $i = 1, \dots, n$ where n is the number of observations. The values of Y_i are determined by a latent or unobservable variable (Y^*).

The observable dependent variable is the entrepreneurs' responses to the question: 'Compared to your industry average, how would you grade your company's performance on Sales Growth?' Is it 0 (below average), 1 (average) and 2 (above average)? A higher value indicates higher sales growth.

The outcome equation can be expressed as a function of a vector of explanatory or independent variables (X_i) weighted by a vector of unknown parameters (β), using the following relationship:

$$Y_i^* = X_i' \beta + u_i, \tag{4.5}$$

Where, u_i is a normally distributed variable, with a variance normalised to 1. In this case, the observed Y is related to the unobserved Y^* using θ_j as thresholds partitioning the real line into series of regions corresponding to the various ordinal categories. The observable Y can take 3 distinct values, 0 ('far below average', 'below average' and 'neutral'), 1 (average), 2 (above average). Therefore, this would be (Boes and Winkelmann, 2005):

$$Y_i = 0 \text{ if } -\infty < Y_i^* \leq \theta_0 = -\infty < X'_i \beta + u_i \leq \theta_0, \quad (4.6)$$

$$Y_i = 1 \text{ if } \theta_0 < Y_i^* \leq \theta_1 = \theta_0 < X'_i \beta + u_i \leq \theta_1, \quad (4.7)$$

$$Y_i = 2 \text{ if } \theta_1 < Y_i^* \leq +\infty = \theta_1 < X'_i \beta + u_i < +\infty \quad (4.8)$$

Where $u_i \sim N(0, \sigma^2)$

The probabilities of observing $Y = 0, 1$ or 2 can be defined as follows where Φ refers to the cumulative distribution function operator for the standard normal

$$\Pr(Y = j) = \Phi(\theta_j - X'_i \beta) - \Phi(\theta_{j-1} - X'_i \beta) \text{ for } j=0,1,2, \quad (4.9)$$

Maximum likelihood estimation is then used to estimate the above model, and the log-likelihood function is given as:

$$L = \sum_{i=1}^n \sum_{j=0}^2 \delta_{ij} \ln [\Phi(\theta_j - X'_i \beta) - \Phi(\theta_{j-1} - X'_i \beta)], \quad (4.10)$$

Where δ_{ij} is an indicator variable = 1 if the i^{th} individual's response falls within the j^{th} category, and = 0, otherwise.

4.6 Chapter Summary

This study relies on primary data collected through a survey originally intended to be administered in person and through email, depending on the preference of each firm. A

very detailed descriptive analysis is relied upon to understand and explain the data. Comparison of means is used to rank the measures and detect their relative importance. The survey questions were derived from the work of previous researchers, after which they were tested by two experts, a researcher who is specialised in questionnaires and an expert from the market. CFA is used to aggregate the measures into related groups to narrow them down as well as validate them and eliminate unnecessary ones, after which the data is analysed using OLS multiple regression and results are confirmed through ordered probit regression.

The following chapters will present the descriptive statistics and provide a discussion of the results of this analysis, from which the findings of this studies will be drawn.

Chapter Five

Characteristics of Entrepreneurs and Venture Capitalists

Variables, Descriptives, and Results

5.0 Introduction

This chapter presents the descriptive analysis of the sample results and the variables used in regression analysis. First, in section 5.1, descriptive statistics are presented for measures related to the characteristics of entrepreneurs and VC managers as well as the services provided by venture capitalists. Descriptive statistics for the performance of VC-backed firms are also presented in this section. The chapter demonstrates the CFA process used for dimensionality and validity assessment, as well as data reduction procedures for these measures, in section 5.2. Section 5.3 summarises all the new aggregated variables related to entrepreneur and VC characteristics, which are used in the regression model. Finally, section 5.4 explains the results for the OLS regression conducted on these two independent variables and their effect on the performance of VC-backed firms.

5.1 Descriptive Statistics

This section shows the general characteristics of the respondents, which provides information for this study, and details of their responses. Frequencies and percentages are calculated for all the measures related to the characteristics of entrepreneurs and venture capitalists as well as the services provided by the latter. Means and standard deviations are calculated for all non-binary variables (for ordinal and scale variables). Parametric tests (t-tests) are also implemented to derive mean rankings.

As previously explained, this study relies on data collected from two different questionnaires. One questionnaire was sent to the funded entrepreneurs. It consists of

131 questions that focus on the characteristics of the entrepreneurs, as well as the resources held by their firms (independent variable one), the value-added services provided by venture capitalists from the entrepreneurs' perspective (independent variable two), the VC-E relationship (independent variable three) and the institutional environment in Egypt (moderating variable). The other questionnaire was distributed to the venture capitalists. It consists of 79 questions, which focus on VC fund managers' characteristics and the services they provide (independent variable two), the VC-E relationship (independent variable three) and the institutional environment in Egypt (moderating variable). This chapter will focus on responses related to independent variables one and two only, as well as the dependent variable.

5.1.1 Entrepreneur Descriptive Statistics

The questionnaire distributed to the entrepreneurs that have received VC funding for their firms was filled out and returned by 52 respondents. Details of the age, size and industry of each firm are provided in the appendix A in Table A3, while an overview will be given in this section.

Table 5.1 Firm Age and Size Descriptives						
Variable	Obs.	Mean	Std. Dev.	Min	Max	Mode
Firm Age	52	32.08	24.23	2	119	12
Firm Size	52	33.94	53.06	3	250	5
Firm age is measured through number of months the firm has been operating. Firm size is measured through number of employees in each firm. This table shows minimum and maximum firm age and size for all 52 firms, as well as mean mode and std. deviation.						

Firm age (a control variable) is measured through the number of months that the portfolio firm has been operating. Responses show the oldest firm to have been in operation for almost 10 years, while the newest firm has been operating for just two months. Moreover, the most common firm age in the sample is one year. The difference in age could have an impact on results (Evans, 1987; Hall, 1987; Brown, 2005) and performance; however, it is a control variable in this study and the focus is on other

variables. Firm size is another control variable that could otherwise have an impact on performance (Botman et al., 2004; Pommet, 2011). The number of employees in the firm measures firm size in this study. It shows great variance amongst firms, with the largest firm having 250 employees, whilst the smallest has as little as three employees. The most common response to the number of employees, however, is 5, whereas the mean of the number of employees in each firm is about 34 employees.

These 52 firms are from diverse industries, as shown in Figure 5.1 below. The industries to which these firms belong are also controlled for in this study.

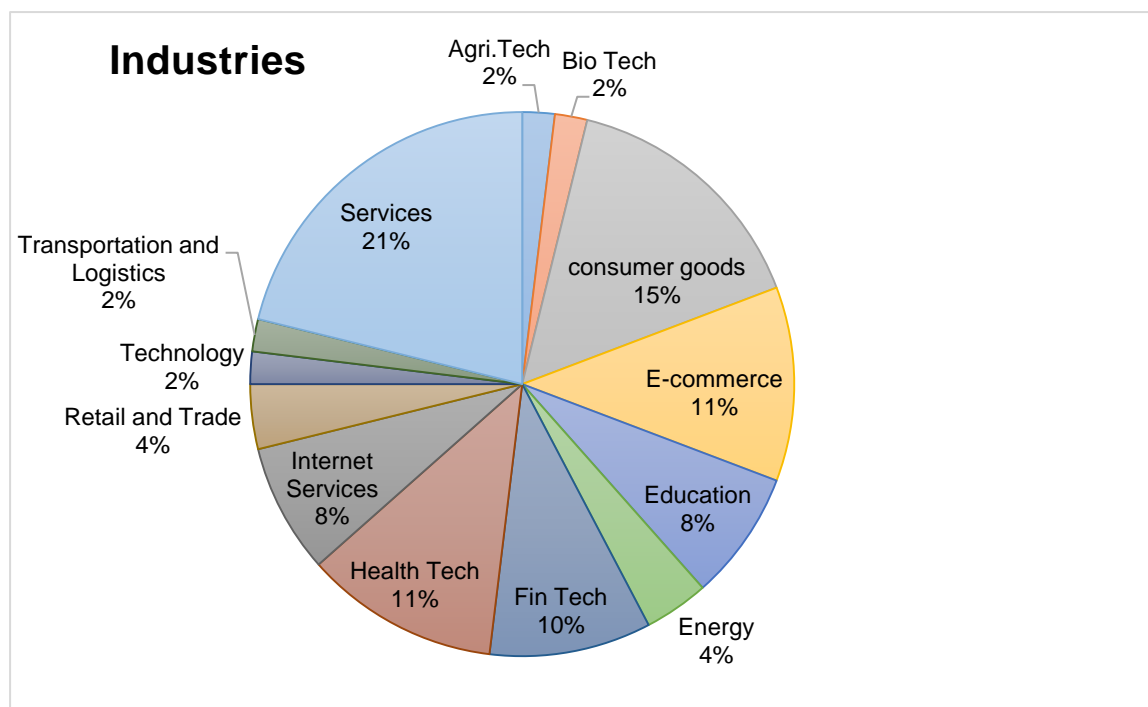


Figure 5.1 Industries of Entrepreneurial Firms

Questionnaire responses of these 52 firms are presented in the following sections. The questionnaire contains a section on the dependent variable which is the performance of the VC-backed firm. The questionnaire includes a section on Entrepreneur HC and SC, as well as the RBCs of the firm, which are all categorised under Entrepreneur characteristics (independent variable one). Another section focuses very briefly on the value-added services provided by venture capitalists from the

entrepreneurs' perspective (independent variable two), followed by a section on the VC-E relationship (independent variable three), and a final section on the institutional (legal) environment (moderating variable).

Dependent Variable

i) Company Performance

The dependent variable company performance is measured through the 10 following indicators: growth of sales, sales volume, return on assets, return on sales, growth in productivity, market share, growth in market share, profitability, growth in profitability, and overall company performance. Ten Likert-scale questions asked entrepreneurs to grade their company performance based on those 10 indicators in comparison to industry averages.

	1	2	3	4	5	Total
Sales Growth	11.5	13.5	40.4	25	9.6	100
Sales Vol	15.4	19.2	40.4	21.2	3.8	100
ROA	13.5	19.2	42.3	15.4	7.7	98.1
ROS	11.5	11.5	50	21.2	1.9	96.2
Productivity Growth	7.7	5.8	34.6	44.2	7.7	100
Market Share	28.8	17.3	25	19.2	9.6	100
Growth Market Share	11.5	21.2	32.7	25	7.7	98.10
Profit	19.2	36.5	25	13.5	3.8	98.1
Profit Growth	21.2	23.1	34.6	13.5	5.8	98.1
Company Performance	5.8	7.7	55.8	28.8	1.9	100

	Mean	Std. Deviation
Test value=3		
Productivity Growth	3.38***	0.993
Company Performance	3.13	0.817
Sales Growth	3.08	1.118
Growth in Market Share	2.96	1.131
ROS	2.9	0.953
ROA	2.84	1.102
Sales Volume	2.79	1.073
Market Share	2.63*	1.344
Profit Growth	2.59**	1.152
Profit	2.45***	1.083

The scale for these 10 performance indicators ranges from '1' to '5', where '1' represents far below average and '5' represents far above average.

Results in Table 5.2 show that the performance measure with the highest rate of 'above average' and 'far above average' responses is 'growth in productivity'.

Approximately 52% of entrepreneurs believed their firm's growth in productivity is above or far above the industry average. This is also reflected in mean ranking, as growth in productivity also has the highest mean (3.38) amongst the 10 measures. It is also the only measure that is significantly (at 1% level) higher than the set test mean of '3'. The second-highest measure in terms of performance is 'overall company performance'. Approximately 31% of the entrepreneurs perceive their company's performance to be above or far above average. This measure has the second-highest mean ranking (3.13), not because of the above average responses alone but also because it has very low responses in the below and far below average categories. The only other measure that has a mean ranking above the set test mean of '3' is growth in sales (3.08). Sales growth and overall company performance both have means higher than the set test mean; however, they are not significantly higher.

It is also important to note that many responses are neither above nor below industry average, instead they are at the average. However, the performance measures that are perceived by entrepreneurs to be the lowest are 'profitability' (significant at the 1% level) and 'growth in profitability' (significant at the 5% level). These two measures have the lowest means (see Table 5.2).

Independent Variable

i) Entrepreneur Characteristics

SC of Entrepreneurs

The entrepreneur questionnaire covered questions used to understand the SC of the entrepreneurs. In the questionnaire, this was grouped into three sets of questions related to the entrepreneurs' ability to recruit executives, their personal and community business networks, and their ability to utilise their networks.

The entrepreneurs' ability to recruit executives was measured by a continuous variable, to know how many non-founder executives exist in the portfolio firm (PF), how many of those were recruited through the founder, a friend of the founder, the founder's co-workers and how many through other means.

	0	1	2	3	4	5	6	Total
# non-exec	30.8	17.3	9.6	19.2	9.6	5.8	7.7	100
Through founder	26.9	23.1	21.2	17.3	3.8	3.8	3.8	100
Through friend	55.8	30.8	5.8	5.8	1.9	0	0	100
Through co-worker	69.2	26.9	0	0	0	0	3.8	100
Other	63.5	17.3	11.5	3.8	1.9	0	1.9	100

	Mean	Std. Deviation
# non-exec	2.08***	1.949
Through founder	1.75***	1.607
Other	0.71***	1.226
Through friend	0.67***	0.964
Through co-worker	0.5***	1.196

The responses from these measures vary from '0' to '6', where '0' refers to none and '6' refers to any number of non-founder executives higher than 5. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

As shown in the percentages as well as mean rankings in the table above, the entrepreneurs' ability to recruit non-founder executives is not very high. However, it is important to note that 31% of the entrepreneurs do not have non-founder executives in their firms yet. The highest form of recruitment is through the founder him or herself and the lowest form is through co-workers. However, it is evident that 73% of the entrepreneurs have relied on recruitment through the founder for at least one of their non-founder executives, while only 30% approximately have relied on recruitment through co-workers for at least one of their non-founder executives. These percentages are in line with mean rankings. The highest mean was for the measure recruitment through founder him or herself (1.75) and the lowest was through co-workers of the founder (0.5). Overall, all recruitment measures are too low and they are all significantly (at the 1% level) lower than the set test mean of '3.5'.

Regarding the personal or community business networks of the entrepreneurs, three binary variables are used to capture personal business networks: whether any of the entrepreneurs' parents or close friends have ever owned a business and if they have been encouraged by friends or family to start their businesses. Three other binary variables measure the business networks in relation to business community itself: whether any of the co-founders have been involved in a business network, have any contact with business advisory organisations or have previously been part of a start-up team.

	0	1	Total
Parents	42.3	57.7	100
Friends	19.2	80.8	100
Encouragement	28.8	71.2	100
Business networks	65.4	34.6	100
Business Advisories	51.9	48.1	100
Previous Start-ups	48.1	51.9	100

These six measures are based on YES or NO if the measure exists a '1' is given and if does not exist a '0' is given. This table shows % response in each category.

Results show that more than 80% have close friends that own businesses and more than 70% have been encouraged by friends and family to start a business, whilst almost 60% have parents that own businesses. In Egypt, 75% of the private sector are family-owned businesses (Hassan, 2015); hence, having parents who own businesses does lead to personal experience, as well as connections. Responses show that personal business networks (percentages of parents, friends and encouragement, see Table 5.4) exist at a greater scale than community business networks (percentages of business networks, business organisations and previous start-ups, see Table 5.4) of entrepreneurs in Egypt. The lowest rate of response was for any of the co-founders being involved in a business network such as chambers of commerce or service clubs such as Rotary; 65% of the co-founders were not involved with any associations of that sort.

The final aspect of the entrepreneurs' SC is their ability to utilise networks or the connections they have with government officials (political leaders, officials in regulatory institutions, metropolitan/municipal/district chief executives, and regional and national government politicians), business contacts (top managers at customer firms, top managers at supplier firms, top managers at competitor firms and members of trade associations) and community leaders (religious leaders, close friends with political connections and close friends with business connections). This was conducted through Likert-scale questions used to ask respondents about the extent to which they have utilised connections with anyone in the 11 positions mentioned above throughout the past three years.

	0	1	2	3	4	5	TOTAL
Political leaders	1.9	61.5	9.6	17.3	9.6	0	100
Regulatory officials	1.9	55.8	23.1	17.3	1.9	0	100
Chief executives	1.9	57.7	11.5	17.3	9.6	1.9	100
Politicians	1.9	53.8	23.1	13.5	7.7	0	100
Top Managers (TM) at customer	0	19.2	15.4	28.8	23.1	13.5	100
TM suppliers	0	23.1	11.5	30.8	21.2	13.5	100
TM competitors	1.9	36.5	15.4	23.1	13.5	9.6	100
Trade associations	1.9	48.1	25	19.2	5.8	0	100
Religious leaders	1.9	69.2	5.8	21.2	1.9	0	100
CF political connections	1.9	50	11.5	19.2	13.5	3.8	100
CF business connections	0	3.8	19.2	17.3	25	34.6	100
E- SC Network Use Mean Ranking and Standard Deviations							
Test value=3				Mean		Std. Deviation	
CF business connections				3.67***		1.248	
TM customers				2.96		1.313	
TM suppliers				2.9		1.347	
TM competitors				2.38***		1.402	
CF political connections				2.04***		1.298	
Chief executives				1.81***		1.172	
Trade associations				1.79***		0.977	
Political leaders				1.71***		1.091	
Politicians				1.71***		0.997	
Regulatory officials				1.62***		0.867	
Religious leaders				1.52***		0.918	
These items are based on a scale from '1' representing very low to '5' representing very high. This table shows response % in each category.							
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively							

Results in Table 5.5 show that the measure of utilisation of resources with the most responses (60%) in the 'high' and 'very high' categories is close friends that have

business connections. However, the category with the most responses in the 'high' or 'very high' categories is business contacts, followed by community contacts, and the one with the least responses is contacts with government officials. Moreover, mean rankings confirm that close friends that have business connections (mean of 3.67) is the most utilised type of connection by entrepreneurs. It is significantly greater than the other measures and is the only measure than has a mean that is significantly higher (at the 1% level) than the set mean of '3'. The two following measures in the ranking are top managers at customer and supplier firms, chronologically, which have means almost equal to the set test mean. All other network use measures are significantly (at the 1% level) below the test mean. The most unutilised connection is that with religious leaders in the community. This shows that responses for those measures were mostly below average at 'low' or 'very low'.

Resource-based Capabilities of Entrepreneurial Firms

The second category that measures entrepreneurs' characteristics is RBCs of entrepreneurial firms. These RBCs and the firm strategies that match them are each split into three categories (innovation, quality and cost leadership).

Innovation RBCs rely on five measures: whether the firm has innovative marketers, employees good at marketing, marketing expertise and/or product development expertise, and innovative employees.

Table 5.6 E-Innovative RBCs Percentages						
	1	2	3	4	5	Total
Innovative marketers	5.8	15.4	28.8	28.8	21.2	100
Good marketing	5.8	21.2	28.8	32.7	11.5	100
Marketing expertise	9.6	13.5	38.5	21.2	17.3	100
PD expertise	5.8	9.6	32.7	32.7	19.2	100
Innovative employees	1.9	7.7	23.1	36.5	30.8	100
E-Innovative RBCs Mean Ranking and Standard Deviations						
Test value=3	Mean			Std. Deviation		
Innovative employees	3.87***			1.01		
PD expertise	3.5***			1.094		
Innovative marketers	3.44***			1.162		
Good marketing	3.23			1.096		
Marketing expertise	3.23			1.182		
These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

Results presented in Table 5.6 show that 67% of entrepreneurs have selected 'agree' or 'strongly agree' for innovative employees. This is the highest selection, which shows that entrepreneurs believe that the category innovative employees is the strongest innovation RBC their firms possess. It also has the highest mean, 3.87. The highest selection of 'strongly disagree' and 'disagree' is for having marketing expertise. Approximately 23% of the entrepreneurs believe that their firms do not have marketing expertise. In turn, it also has the lowest mean, 3.23. Additionally, mean rankings show that all five measures have means greater than the set test value of '3', which means that, overall, entrepreneurs possess innovation RBCs that are above average. However, innovative marketers, product development expertise and innovative employees are significantly (at the 1% level) above the set test mean of '3'. Employees good at marketing and marketing expertise have means higher than '3' but not significantly higher.

In relation to quality RBCs, four measures are used to understand whether the venture provides superior as well as quality customer service, has managerial as well as customer service expertise, and has flexibility to adapt.

	1	2	3	4	5	Total
Superior CS	3.8	3.8	26.9	40.4	25	100
Expert CS	3.8	11.5	32.7	30.8	21.2	100
Quality CS	13.5	15.4	40.4	15.4	15.4	100
Managerial expert	3.8	5.8	26.9	42.3	21.2	100
Flexibility	1.9	5.8	15.4	28.8	48.1	100

Test Value=3	Mean	Std. Deviation
Flexibility	4.15***	1.017
Superior CS	3.79***	0.997
Managerial expert	3.71***	0.997
Expert CS	3.54***	1.075
Quality CS	3.04	1.22

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

Responses in Table 5.7 show that 48.1% of the entrepreneurs strongly agree that the venture has flexibility to adapt. This was the highest response rate for 'strongly agree', out of the four quality RBC measures. This measure also has the highest mean ranking, 4.15. This confirms that flexibility to adapt is perceived by entrepreneurs to be the most important quality RBC their firms possess. The lowest response rate for strongly agree is 15.4%, which is for providing quality customer service. This measure also had the lowest mean ranking (3.04). Furthermore, all four measures, as shown in Table 5.7, are higher at the high end of the scale and accordingly their means are significantly (at 1% level) greater than the set test mean of '3'. The only exception is quality customer service, which has a mean higher than '3' but not significantly higher.

Cost leadership measures are the final set of RBCs that a firm can possess. These measures explain whether the venture depends on low-cost materials, distribution channels, labour and/or factors of production (FOP), in addition to whether it depends on availability of capital, highly productive employees and/or leading-edge facilities.

	1	2	3	4	5	Total
Material	3.8	26.9	34.6	23.1	11.5	100
Distribution	9.6	15.4	36.5	19.2	19.2	100
Labour	28.8	26.9	23.1	19.2	1.9	100
FOP	17.3	23.1	34.6	13.5	11.5	100
Availability of Capital	7.7	11.5	36.5	32.7	11.5	100
Productive Employees	0	3.8	19.2	32.7	44.2	100
Facilities	7.7	23.1	26.9	28.8	13.5	100

Test value=3	Mean	Std. Deviation
Productive Employees	4.17***	0.879
Availability of Capital	3.29**	1.073
Distribution	3.23	1.215
Facilities	3.17	1.167
Material	3.12	1.06
FOP	2.79	1.226
Labour	2.38	1.157

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

Results of entrepreneurs' cost leadership RBCs are presented in Table 5.8 above. Approximately 77% of the entrepreneurs have agreed that their venture possesses productive employees. This is the cost leadership measure they have agreed on the most, and hence has the highest mean of 4.17, which is significantly (at 1% level) above the test mean of '3'. It is followed by availability of capital, which is also significantly (at the 5% level) above the test mean. The measure the entrepreneurs have disagreed on the most (56%), is that 'venture depends on low-cost labour'. Accordingly, it is the measure with the lowest mean, 2.38, which is significantly (at 1% level) below the test mean of '3'. The only other measure with a mean below the set test mean of '3' is FOP; however, it is not significantly lower. The three remaining measures are whether the firm depends on low-cost materials and distribution and whether it depends on leading-edge facilities. They have means that are above the average set mean; however, not significantly above.

It is also worthy of mention that the measure 'depending on highly productive employees' has the highest mean (4.17) amongst all the three types of RBCs and accordingly the highest percentage of respondents (77%) in the 'agree' and 'strongly

agree' categories combined. This makes it the most important RBC to entrepreneurs. Overall, the means of the quality RBCs measures are greater than those of innovation and cost reduction RBCs, making quality RBCs the highest RBCs that funded firms possess generally.

However, possessing RBCs is not sufficient to achieve superior performance, unless accompanied with a strategy that supports it (Wang and Ang, 2004). Therefore, there are three groups of strategies that correspond to the RBCs possessed by the ventures. All are measured by 5-point Likert-scale questions, with '1' being strongly disagree and '5' being strongly agree.

For innovation strategies, seven Likert-scale questions are used to understand whether the strategies of the venture focus on: being the first to introduce new products, new product development, engaging in novel marketing, researching new product opportunities, developing quality and performance of current products, changing PF method and encouraging innovation activities.

Table 5.9 E-Innovation Strategy Percentages						
	1	2	3	4	5	Total
New products	1.9	7.7	21.2	40.4	28.8	100
New PD	0	9.6	15.4	46.2	28.8	100
Novel Marketing	0	7.7	34.6	40.4	17.3	100
Product opportunities	0	1.9	19.2	40.4	38.5	100
Quality performance	0	1.9	7.7	34.6	55.8	100
Change PD	0	3.8	7.7	38.5	50	100
Innovation	0	1.9	7.7	32.7	57.7	100
E-Innovation Strategy Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Innovation	4.46***			0.727		
Quality performance	4.44***			0.725		
Change PD	4.35***			0.789		
Product Opportunities	4.15***			0.802		
New PD	3.94***			0.916		
New products	3.87***			0.991		
Novel marketing	3.67***			0.857		
These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

As shown in Table 5.9, the measures with the most 'agree' and 'strongly agree' responses are innovation (approximately 90%), quality performance (approximately 90%) and change PD (approximately 89%). This means that the most important strategies that portfolio firms work to achieve are strategies that focus on innovation activities and the development of current products as well as enhancing product development methods. These three measures also have the highest mean rankings, 4.46, 4.44, and 4.35 respectively. The lowest mean ranking (3.67) is for the measure novel marketing, which shows that the ventures' strategies focus the least on engaging in novel marketing. The lowest innovation RBC possessed by entrepreneurs is marketing expertise. The highest innovation RBCs possessed by entrepreneurs are innovative employees and PD experts. This shows that innovation strategies are compatible with the innovation RBCs (see Table 5.6, p. 158) possessed by entrepreneurial firms.

Five measures are used to capture the quality strategies on which these firms rely: whether they focus on implementing strict quality control, as well as meeting quality requirements, a strong customer service level, a high level of product quality, and customer needs. Responses to these measures are shown below in Table 5.10.

	1	2	3	4	5	Total
Quality Control	0	11.5	28.8	36.5	23.1	100
Quality Requirements	0	7.7	19.2	40.4	32.7	100
Customer SL	0	5.8	9.6	42.3	42.3	100
HL product Quality	0	3.8	9.6	44.2	42.3	100
Customer Needs	1.9	0	11.5	32.7	53.8	100
E-Quality Strategy Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Customer needs	4.37***			0.841		
HL product quality	4.25***			0.789		
Customer SL	4.21***			0.848		
Quality requirements	3.98***			0.918		
Quality Control	3.71***			0.957		
These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.						

All measures of quality strategies are above average, as evident by their means. All means are significantly (at the 1% level) above the set test mean of '3'. The strategy with the highest mean ranking, 4.37, is the strategy that focuses on meeting customer needs. The quality strategy that is least implemented by entrepreneurs and has the lowest mean ranking, 3.71, is applying strict quality control. Quality strategies are also matched well with quality RBCs for firms (see Table 5.7, p. 159). Customer services RBCs have high mean ranking, while the quality RBC with the lowest mean ranking is quality control.

This strategy supports the customer service RBCs, which also have high ranking. Also consistent with mean ranking for RBCs, the quality RBC with the lowest ranking is 'quality CS' and the quality strategy with the lowest mean ranking is 'quality control'. These results show that there is a fit between the RBCs that firms possess and

the strategies on which they rely, which would enable the RBCs to have an impact on the performance of the ventures.

The final category for firm strategies is cost reduction, which measures whether the firm focuses on: cost reduction, improvement of employee productivity, development of lower production cost through process innovation and/or investing in machinery.

Table 5.11 E-Cost Reduction Percentages						
	1	2	3	4	5	Total
Cost reduction	5.8	17.3	28.8	23.1	25	100
Employee productivity	0	5.8	11.5	40.4	42.3	100
Process innovation	5.8	5.8	28.8	34.6	25	100
Invest machinery	32.7	15.4	19.2	21.2	11.5	100
E-Cost Reduction Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Employee productivity	4.19***			0.864		
Process innovation	3.67***			1.098		
Cost reduction	3.44**			1.211		
Invest machinery	2.63*			1.428		
These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

The cost reduction strategy with the highest 'agree' and 'strongly agree' responses is employee reduction (83%). It also has the highest mean rank, 4.19. This means that entrepreneurs aim to focus in their firms on improving employee productivity and efficiency. The strategy entrepreneurs focus on after employee productivity is process innovation, which also has a mean (3.67) that is significantly (at 1% level) higher than the set test mean of '3'. The strategy they thrive the least to implement is investing in machinery. Only 33% agreed that they focus on lowering production costs through investing in machinery. It is the only cost-reduction strategy measure with a mean (2.63) significantly (at 10% level) lower than the set test mean of '3'. Cost-reduction strategies are aligned with the cost-reduction RBCs that exist in the

firm. As results in Table 5.8 (p. 160) show, the most important cost-reduction RBC is employee productivity.

Overall, when comparing mean rankings from tables 5.9, 5.10 and 5.11, cost-reduction strategies have the lowest means, which explains that entrepreneurial firms focus the least on cost-reduction strategies. This is also the case for RBCs, as the lowest RBCs that these firms possess are cost-reduction RBCs.

Results show that RBCs that firms possess are matched well with the strategies that these firms follow. This means that RBCs are effective since they are supported by strategies. Firm strategies are necessary alongside RBCs to fully and effectively support these capabilities and the firm's unique characteristics (Wang and Ang, 2004). Strategies are the ways by which ventures match their internal strengths and weaknesses with the opportunities and threats in the environment (McDougall et al., 1994). Performance is found in previous studies to be a function of an adequate fit between the firm's strategy and resources, as without it the result would be unfocused and unproductive efforts (Wang and Ang, 2004).

HC of Entrepreneurs

The final aspect related to entrepreneur characteristics is HC. In this study, HC refers to the previous experience as well as education of the entrepreneurs.

The five previous experience (entrepreneurial or industrial) measures are: if any of the co-founders have been on the management team of a previous start-up, have previously started a business, have previously started a business that was successful, have previously worked in the industry of their current start-up or have previously owned a business in the industry of their current start-up. The three previous managerial

experience measures are: whether they have previously managed a public company, started a business together and/or if they consider the start-up team to be functionally diverse.

	0	1	Total
Managed start-up	32.7	67.3	100
Previous start-up	32.7	67.3	100
IRR 100%	92.3	7.7	100
Previous industry work	46.2	53.8	100
Previous industry start-up	75	25	100
Public company	84.6	15.4	100
Business together	63.5	36.5	100
Functional diversity	17.3	82.7	100
These eight measures are based on dichotomous variables (YES or NO questions). The selection of '1' represents that any of the founders of the firm have the specified experience, and '0' means they do not. This table shows response % in each category.			

Responses show that entrepreneurial experience is higher than industrial experience. Entrepreneurial experience measures show that approximately 67% of the entrepreneurs have previously started up or managed businesses. Industry experience measures show that only 25% of those who had previous start-ups had them in the same industry as the current one, and approximately 54% have had previous work experience in the same industry. These results are not in line with previous studies that conclude that previous experience in the industry of the current start-up has a greater effect on the venture than entrepreneurship experience (Sirinivasan et al., 2004). Previous studies also explain that, while previous experience in entrepreneurship is important, it is more effective on performance when the previous experience is a successful one (Gompers et al., 2006). However, results in Table 5.12 show that, even though 67% of the entrepreneurs have previous entrepreneurial experience, only approximately 8% were successful in terms of being liquidated with an IRR of 100% or higher. The success of previous start-up in terms of IRR is the weakest measure of experience as it has the lowest rate.

As for managerial experience, measures show a low response rate (see last three measure in Table 5.12) with the exception of ‘functional diversity’, as 83% of the respondents consider their start-up management team to be functionally diverse. However, only 15% approximately have previously managed a public company, and 36% of the co-founders have previously started a different business together.

Other than experience, education also constitutes the HC of entrepreneurs. Four continuous variables are used to measure the educational background of the business founders. The degrees enquired about to measure education are doctorate, master’s, professional qualification (such as Chartered Financial Analyst, Certified Managerial Accountant etc.) or a degree in the field of their current start-up.

Table 5.13 E- HC Education Percentages						
	0	1	2	3	4	Total
Doctorates	88.5	9.6	1.9	0	0	100
Masters	57.7	30.8	11.5	0	0	100
Professional qualification	86.5	9.6	1.9	1.9	0	100
Field of start-up	46.2	32.7	17.3	3.8	0	100
E-Education Mean Ranking and Standard Deviation						
Test value=2	Mean			Std. Deviation		
Field of start-up	0.79***			0.871		
Masters	0.54***			0.699		
Professional qualification	0.21***			0.667		
Doctorates	0.13***			0.397		
Responses range from ‘0’ to ‘4’. A ‘0’ is selected when none of the co-founders of the venture hold a degree in the enquired about category, the choice are chronological till ‘4’. Where ‘4’ is selected if more than 3 of the co-founders hold a degree in the enquired about category. This table shows response % in each category.						
For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively						

Results shown above in Table 5.13 show that diversity in education of entrepreneurs is very low in Egypt. Most responses are very similar: 88.5% of the entrepreneurs do not hold a doctorate degree and 86.5% do not hold a professional qualification. Almost 60% do not have any co-founders who hold a master’s degree while 30% have one founder that does. Approximately 46% of the portfolio firms do not have any co-founders who hold any degree in the field of their venture.

For education to have an impact, it needs to have variation and hence it is only effective in nations where this happens (Unger et al., 2009). Not only is the lack of variation in education amongst entrepreneurs a factor that may have an adverse effect on performance, the lack of appropriate education amongst entrepreneurs is also a factor (Davidsson and Honig, 2003; Dimov and Shepherd, 2005; Rotefoss and Kolvereid, 2005; Dimov, 2010). This lack is evident in the low percentages as well as means. The highest ranking for each education measure is ‘4’; however, all firms scored a ‘0’ in the highest category. This is also supported by the very low means for each measure shown in the table above, which are all significantly (at the 1% level) below the set mean of ‘2’.

5.1.2 VC Firm Descriptive Statistics

Fund managers from 14 different VC firms filled out the VC questionnaire sent to venture capitalists. It is important to show the number of fund managers in each firm (see Table 5.14 below), before providing details about venture capitalists’ responses.

VC Firm ²⁰	VC1	VC2	VC3	VC4	VC5	VC6	VC7	VC8	VC9	VC10	VC11	VC12	VC13	VC14
No. of Fund Managers	10	4	10	12	10	8	4	4	3	5	8	5	7	15

The average number of fund managers is 8.2. These firms generally invest in various sectors. Detailed information about the responses provided by VC managers on their HC characteristics, value-added services (independent variable two), VC-E relationship (independent variable three) and perception of the legal environment in

²⁰VC firm names will not be mentioned in this study as complete confidentiality of their responses and their identities was guaranteed to them.

Egypt and its impact on their scope of work (moderating variable) is presented in the following sections.

i) VC Management Characteristics

The HC and SC of the VC management team, as well as the value-added services that they provide measure the VC management characteristics.

HC of VC Managers

HC is measured by the education and experience of the team managers. Education is captured through scale variables to understand how many of the team members have degrees in the field of the start-ups they fund, post-graduate degrees, as well as degrees in finance, law, medicine, engineering and any other field.

	0	1	2	3	4	Total
Deg . Field	14.3	7.1	21.4	7.1	50.0	100.0
Post grad	7.1	21.4	14.3	28.6	28.6	100.0
Finance Degree	7.1	14.3	21.4	50.0	7.1	100.0
Law degree	42.9	28.6	7.1	21.4	0	100.0
Med/Eng. Degree	42.9	35.7	7.1	7.1	7.1	100.0
Other degree	35.7	7.1	28.6	14.3	14.3	100.0
Mean Ranking and Standard Deviations for VC Education						
Test Value= 2	Mean			Std. Deviation		
Deg. Field	2.71			1.541		
Post grad	2.5			1.345		
Finance degree	2.36			1.082		
Other degree	1.64			1.499		
Law degree	1.07**			1.207		
Med/ Eng. Degree	1***			1.24		
This table shows VC management teams' education. Responses vary from '0' to '4', where a '0' shows that none of the fund managers in the VC firm hold such degree. '4' shows that a VC firm has four or more fund managers that hold a certain degree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

Results presented in Table 5.15 show that educational backgrounds of fund managers do not show a high degree of variation from firm to firm. For each type of degree, it is either held by the majority of fund managers, or not held by the majority

of fund managers. To explain this further, 57.1% of the VC firms have three or more fund managers that hold a degree in the field of the start-ups they fund. It is the same case for fund managers that hold a post-graduate or finance degree. However, approximately 43% of the VC firms have '0' fund managers that hold a degree in law, medicine or engineering.

Mean rankings show that the three degrees with highest mean rankings and above the stated test mean are degrees in the field of the start-up, post-graduate degrees and degrees in finance. However, they are all insignificantly above the mean. Degrees in law (significant at 5% level), medicine/engineering are the lowest (significant at 1%) and are below the stated test mean, with means of 1.07 and 1 respectively. As shown above, the stated mean shows that the majority of VC managers' responses are above average. These mean rankings are consistent with response percentages; both emphasise the lack of variation amongst VC managers in education, where the majority hold a degree in the field of the start-ups funded, and the majority also hold post-graduate as well as finance degrees (however, they are all insignificantly higher than the set mean of '2'). None of these three degrees possessed by fund managers would create a unique competitive advantage for them. A background in law is one of the requirements relevant to task requirements of venture capitalists, which allows for critical analysis of business plans, negotiation of contract structures, etc., all to detect and minimise risks (Gimeno et al., 1997). However, as evident in Table 5.15, 43% of the VC firms do not have any fund managers that hold a law degree, which means that 43% lack an essential factor that assists in execution of VC tasks.

In addition to education, HC is also determined by experience. The previous experience of the VC management team is captured by five binary questions. The

questions collected data about the VC managers and whether or not they had experience in: the industries in which their portfolio firms operate, business management, law, finance or consultancy. The results relating to respondents' previous experience are shown in the table below.

	0	1	Total
Industry experience	7.1	92.9	100
Business experience	0	100	100
Law experience	64.3	35.7	100
Finance experience	7.1	92.9	100
Consulting experience	14.3	85.7	100

A '0' represents none of the VC managers in the firm have previous experience in the stated field, and a '1' if any of the VC managers do. This table shows response % in each category.

The results of VC management experience are consistent with their educational background. Experience of VC managers across firms is very similar and hence does not give firms a competitive advantage. Results show that 93% of the firms have at least one of their management team with previous experience in their start-up's industry and at least one with experience in finance. All the VC firms (100%) have at least one of the management team with experience in business. Although business experience is relevant to the execution of the tasks of VC managers, having a 100% response rate makes the measure ineffective.

Almost 86% of the VC firms have at least one person on the VC management team with consulting experience, while only 36% of them have at least one VC manager with experience in the field of law. This gives those firms an added value as law experience is useful in structuring and negotiating contracts, and analysing business plans, which minimises business risks (Gimeno et al., 1997; Pennings et al., 1998).

Overall, results show that there is a lack of variation in the HC (experience and education) of VC managers, as results are to a great extent consistent across respondents. However, HC is more effective when it is variant, so the degree of

competency between managers can vary across firms and hence create a competitive advantage for their firm, through the unique education or knowledge they possess (Zarutskie, 2008).

Value-added Services of Venture Capitalists

Another measure of the VC characteristics, other than HC, is the value-added services they provide. Value-added services are measured by the services that VC firms provide and VC involvement in the portfolio company. These services include: aid in strategic and operational planning, management recruitment and compensation, and access to their network of contacts (Gorman and Sahlman, 1989; Sahlman, 1990; Sapienza et al., 1996; Gompers and Lerner, 1998; Sorenson, 2007). The extent to which venture capitalists provide services is not only measured by the provision of the service itself, but also by the extent to which the venture capitalists are involved in their portfolio firms, while the access to their networks is measured by the SC of the VC managers, as well as their ability to network with government officials and syndicate networks.

The questionnaire distributed to VC managers captured most of the measures of value-added services they provide, with the exception of advice. Advice is the only criterion used in the questionnaire distributed to entrepreneurs related to the value-added services they receive. Likert-scale questions are used for the entrepreneurs to rate the level of advice they receive from their VC funders in nine different aspects (strategic, marketing, financial, R&D, product development (PD), HR, exit strategy, interpersonal and networking).

	1	2	3	4	5	Total
Strategic advice	9.6	19.2	19.2	38.5	13.5	100
Marketing advice	25	25	34.6	9.6	5.8	100
Financial advice	13.5	13.5	26.9	28.8	17.3	100
R&D advice	30.8	26.9	25	7.7	9.6	100
PD advice	23.1	21.2	32.7	11.5	11.5	100
HR advice	25	28.8	23.1	13.5	9.6	100
Exit advice	28.8	19.2	25	15.4	11.5	100
Interpersonal advice	21.2	15.4	28.8	26.9	7.7	100
Networking advice	9.6	13.5	25	21.2	30.8	100

Test value=3	Mean	Std. Deviation
Networking advice	3.5***	1.321
Strategic advice	3.27	1.206
Financial advice	3.23	1.277
Interpersonal advice	2.85	1.258
PD advice	2.67*	1.279
Exit advice	2.62*	1.36
HR advice	2.54**	1.275
Marketing advice	2.46***	1.146
R&D advice	2.38***	1.27

The scale for these nine measures of advice, ranges from '1' very low to '5' very high. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

As shown in Table 5.17, entrepreneurs state that the highest form of advice they receive from venture capitalists is networking advice. Mean ranking results show that networking advice has the highest mean, 3.5, which is significantly (at 1% level) higher than the set mean of '3'. This outcome is consistent with the Institutional Theory (Bruton and Ahlstrom, 2003) and with previous studies which explain that, in emerging economies or economies with weaker institutional settings, networks tend to be more important and people rely more on their networks and connections. Moreover, some studies on more developed nations find strategic advice to be one of the most valued contributions from the VC (Gorman and Sahlman, 1989; Manigart and Struyf, 1997). In this study, strategic advice is ranked second after networking, as it is conducted in an emerging economy. Literature also explains that, for venture capitalists to dispense strategic advice, it is more valuable when they have general business knowledge. In this case, referring to VC education (see Table 5.15, p.169), it is found that many VC

managers do hold a business or finance degree, which enables them to give strategic advice to their funded firms.

Entrepreneur responses show that financial advice is ranked third, with a mean of 3.23. It is the only other advice aspect, aside from networking and strategic advice, that has a mean above the set test mean of '3'. Strategic and financial advice, however, are higher than the set mean but not significantly higher. The means of all other aspects are lower. The lowest is R&D advice.

To measure VC involvement, VC managers were asked to respond through continuous variables on the average total meetings they had each month with their portfolio companies, the average number of boards each manager is placed on, the average number of reports they receive from the portfolio firms each year and the average number of investment rounds till exit. VC management responses were as follows:

Table 5.18 VC Involvement Percentages										
	0	1	2	3	4	5	6	7	8	Total
Meetings per month	0	21.4	21.4	0	35.7	7.1	0	0	14.3	100
Average boards	7.1	0	21.4	0	21.4	14.3	0	7.1	28.6	100
Average reports	0	0	0	0	64.3	0	0	0	35.7	100
Average rounds	0	28.6	28.6	28.6	14.3	0	0	0	0	100
Mean Ranking and Standard Deviations for VC Involvement										
Test Value=4				Mean				Std. Dev.		
Average Reports				5.43***				1.989		
Average Boards				4.79				2.694		
Meetings per month				3.57				2.311		
Average Rounds				2.29***				1.069		
VC involvement measures are based on a scale from '0' to '8' where '0' refers to none and '8' refers to any number more than seven. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.										

The highest response for the average meetings per person is four, which means that 36% of the VC firms have someone on their management team that meets with portfolio firm managers once a week. The majority of the remaining firms met less than once a week, 43% met once a month or bi-weekly combined, while the remaining few

(approximately 21%) met more than once a week. The majority of firms had a below average number of meetings per month (less than once a month). This reflects the extent to which VC firms are involved in and aware of the portfolio company activities, hence how much they monitor them.

For the average number of boards in portfolio firms on which each VC manager sits, the highest response rate was 30%. This rate was given for more than seven boards, which means that managers are sitting on many boards of their portfolio companies. However, other managers who did not attend as many boards, sat on as few as two or four boards per manager. The more boards on which each VC manager sits may show their involvement in VC firms, but the more the boards per person the less the focus on each firm (Hege et al., 2003).

As for responses related to the number of reports requested from the portfolio firm per year, almost 65% chose four times a year, which is a quarterly report, while the remainder responded with more than seven reports, as many firms also ask for monthly reports. The higher the number of reports requested the more the VC is involved in the portfolio firm and the stricter monitoring is.

As for number of rounds in which VC managers participate till exit, there were no responses exceeding four rounds. VC firms responded with approximately 30% to each of one, two and three rounds till exit, while the remaining 14% of the VC firms have participated or agreed to participate in four funding rounds till they exit their portfolios. Funds can be given all at once or at different stages. The financing stage is a type of monitoring of the portfolio firms by venture capitalists and it also increases entrepreneurs' incentive to exert effort (Casamatta, 2003). Mean and standard deviations are calculated for these continuous measures and t-test results show mean

rankings (see Table 5.18 above). Reports per year has the highest mean (5.43), which is the only measure that is significantly (at 5% level) higher than the set test mean of '4'. It is followed by average boards per month, which has a mean of 4.79, which is insignificantly higher than the test mean of '4'. Meetings per month and average rounds, however, have means below the set mean of '4'. The mean of the measure meetings per month is 3.57, which is only slightly below average, hence insignificantly lower than the test mean, while the mean of average rounds till exit is 2.29, which is significantly (at 1% level) lower than the test mean of '4'.

To measure value-added activities of venture capitalists, in addition to the extent of VC involvement, the services provided were investigated. The measures related to services provided by venture capitalists and the networks they use to provide them are captured through questions that identify whether the VC firm has introduced the portfolio company to any recruitment firms, customers and/or suppliers (networking services); and whether the VC firm has had influence in shaping their HR management team or policies, or has been involved in senior management and/or administrative and management personnel or in shaping financial policies. The percentage responses for these measures as well as the ranking of their means are shown in the table below.

	1	2	3	4	5	Total
Recruit Intro.	14.3	7.1	28.6	28.6	21.4	100
Intro. To Customers	7.1	0	7.1	28.6	57.1	100
Intro. To Suppliers	7.1	7.1	1.1	35.7	42.9	100
HR mgt.	7.1	21.4	28.6	21.4	21.4	100
HR policy	7.1	21.4	50.0	7.1	14.3	100
Mgt. Recruit	21.4	28.6	21.4	14.3	14.3	100
Recruit admin.	35.7	21.4	21.4	14.3	7.1	100
Recruit Sales	14.3	42.9	28.6	14.3	0	100
Financial Policy	14.3	0	35.7	28.6	21.4	100
Mean Ranking and Standard Deviation VC Services						
	Mean		Std. Deviation			
VC introduced to customers	4.29***		1.139			
VC introduced to suppliers	4***		1.24			
Financial policy	3.43		1.284			
VC introduced to recruitment firms	3.36		1.336			
HR management	3.29		1.267			
HR policy	3		1.109			
Management recruit	2.71		1.383			
Recruit sales	2.43*		0.938			
Recruit admin	2.36**		1.336			
VC services measures are based on a Likert scale from '1' to '5', where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

As shown in Table 5.19, services related to networks (which are VC introducing portfolio firms to customers, supplier or recruitment firms) have higher responses in higher scales than other services. The two highest means are introducing the portfolio firm to customers (4.29) and suppliers (4), which are both networking services. They are the two measures that are significantly (at the 1% level) higher than the set mean of '3'. Below these two measures is the venture capitalists' involvement in shaping financial policies (3.43), then another networking service, which is introducing portfolio firms to recruitment firms. These results are consistent with previous studies which found access to contacts (use of networks) to be the most important value-added service provided by venture capitalists, especially in countries with emerging economies (Bruton and Ahlstrom, 2003). Aside from networking, results in Table 5.19 show VC involvement in financial and HR policies to be above average and their mean rankings are above the test mean of '3'. However, the only measures below average are the VC firms' involvement in recruiting staff inside portfolio firms. Venture capitalists' participation in recruitment of management (2.71), sales staff (2.43) and administrative

staff (2.36) is all below the set mean of ‘3’. These mean ranking results are also confirmed by percentage responses, where these three recruitment measures have more responses in ‘strongly disagree’ and ‘disagree’, than in ‘neutral’, ‘agree’ or ‘strongly agree’. Recruitment of management, however, is insignificantly lower than the set mean.

Government networking is also a form of networking provided by venture capitalists. Five other measures are used to understand it. These measures explain the VC managers’ ability to: network with government, maintain relationships with government officials, contact government officials for portfolio company-related issues, introduce portfolio firms to government officials and use government networks to meet the needs of portfolio companies. Venture capitalists have responded to these measures as follows:

	1	2	3	4	5	Total
Gov’t network	14.3	0	21.4	21.4	42.9	100
Gov’t officials	7.1	14.3	14.3	21.4	42.9	100
Contact government	21.4	0	35.7	14.3	28.6	100
Introduction government	7.1	28.6	21.4	14.3	28.6	100
Gov’t needs	7.1	21.4	21.4	14.3	35.7	100

Test Value=3	Mean	Std. Deviation
Network with gov.	3.79**	1.424
Gov. officials	3.79**	1.369
Contact government	3.5	1.401
Introduction government	3.29	1.49
Gov’t needs	3.29	1.383

VC government networking measures also are based on a scale from ‘1’ to ‘5’, with ‘1’ being strongly disagree and ‘5’ strongly agree. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

On a scale from one to five, with five being the highest, five was scored most often for the venture capitalists’ ability to maintain a network with government and relationships with government officials. However, five was scored less with measures related to the use of those maintained networks (contact government officials for portfolio company-related issues, introduce portfolio firms to government officials, and

use government networks to meet the needs of portfolio companies). This is also reflected in the mean ranking evident above in Table 5.20. All government networking measures had means higher than the set test mean of '3', which means that responses were more towards 'agree' and 'strongly agree' for all five measures. However, the venture capitalists' ability to maintain a network with government and to maintain relationships with government officials had the two highest means (both at 3.79). While all measures are above the set mean, these are the only two measures that are significantly (at 5% level) higher.

The final networking aspect is the VC's syndicate network. Its measures are: degree centrality, closeness, out-degree, in-degree and betweenness. These measures are labelled as connections, well-connected, invite, initiate and connect through, respectively.

Table 5.21 Syndicate Networking Percentages									
	0	1	2	3	4	5	6	7	Total
Connections	0	0	0	0	7.1	14.3	7.1	71.4	100
Well Connected	7.1	0	7.1	14.3	14.3	21.4	7.1	28.6	100
Invite	7.1	0	21.4	7.1	14.3	14.3	0	35.7	100
Initiate	0	0	21.4	21.4	14.3	0	0	42.9	100
Connect through	71.4	7.1	0	14.3	0	0	0	7.1	100
Mean Ranking and Standard Deviation Syndication									
Test value=4					Mean		Std. Deviation		
Connections					6.43***		1.016		
Well connected					4.64		2.134		
Initiate					4.64		2.205		
Invite					4.43		2.377		
Connect through					1***		2.038		
These five measures of syndication are continuous variables. Where '0' is selected if no such connection exists and '7' is selected for any number larger than 6, which means the VC firm has more than six of that specific connection measure. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.									

Results as presented in Table 5.21 show that 71.4 % of the VC firms have more than six connections with other VC firms. Having connections with other firms is referred to as degree centrality and this is the syndication measure for which VC firms have mainly selected '7'. It is also the syndicate measure that has the highest mean ranking, 6.43, which is well above the set test mean of '4', as it is significant at the 1%

level. However, how well connected (closeness) these VC connections are perceived to be is not as high (insignificant). For instance, while 71% of VC firms have more than six connections with other VC firms, only 28.6% believe that they have more than six connections with other VC firms that are well connected. Results show that out-degree (initiating a joint investment) is more common than in-degree (being invited to co-invest) syndication. This is evident in the higher percentages for initiate and higher mean ranking. Finally, more than 70% of the venture capitalists do not have any other VC firms that are only connected to each other through them. Hence, betweenness is very weak or not evident in many instances. This is also confirmed in mean ranking results, as betweenness has a mean equal to '1', which is far below (significant at 1%) the means of the other measures and far below the set test mean of '4'.

These syndication results show that syndication in the Egyptian VC market is more evident in the measure of degree centrality. Initiating co-investments is more common than being invited to co-invest and betweenness is very weak.

After measuring the HC and value-added services of VC managers including their SC or networking services, their relationship with entrepreneurs is then measured in the following section.

After presenting and explaining the responses of both questionnaires, the data is then reduced, to enable its analysis. An overview of the reduction method and results is presented in section 5.2.

5.2 Confirmatory Factor Analysis

To understand how the variables are grouped, this section will start with a review of segmentation of the questions presented in each survey, related to VC-backed firm

performance measures, followed by the characteristics of entrepreneurs and venture capitalists as well as value-added services provided by the latter.

5.2.1 Data Reduction for VC-backed Firm Performance Measures

The dependent variable, company performance is captured in the questionnaire through 10 indicators. These indicators are combined into one continuous, instead of each of the indicators existing as ordinal variables, to run an OLS regression analysis in this study. Correlation results for these indicators are as follows (see Table 5.22):

	Sales Growth	Sales Volume	ROA	ROS	Product Growth	Market Share	G. M. Share	Profit	Profit Growth	Co. Perf
Sales Growth	1.00									
Sales Vol.	0.815*	1.00								
ROA	0.678*	0.692*	1.00							
ROS	0.673*	0.664*	0.780*	1.00						
Product Growth	0.644*	0.575*	0.616*	0.672*	1.00					
Market Share	0.542*	0.490*	0.439*	0.411*	0.563*	1.00				
Growth M.Share	0.728*	0.654*	0.580*	0.514*	0.685*	0.860*	1.00			
Profit	0.494*	0.426*	0.524*	0.621*	0.415*	0.288*	0.336*	1.00		
Profit Growth	0.641*	0.569*	0.643*	0.718*	0.449*	0.427*	0.508*	0.729*	1.00	
Co. Perf.	0.740*	0.682*	0.662*	0.661*	0.587*	0.510*	0.612*	0.570*	0.650*	1.00

* Denotes statistical significance at 10% level

All 10 indicators have positive, significant correlations; however, Sales G (sales growth) mostly has the relatively highest correlations with all other indicators. Additionally, if they were to be combined into one variable, it has the highest factor loading, 8.76, while the lowest is profit, with 0.633. However, there were missing responses for ROA, ROS, market share growth, profit and growth of profit. Therefore, an index is created to include only the performance indicators that have responses from the full sample, whereas indicators that any of the respondents have omitted are

excluded. The New Company Performance variable created by factor analysis, has an eigenvalue of 3.08 and the factors loadings are as follows:

Table 5.23 Variables in Company Performance and their Factor Loadings	
New company Performance	3.08
Sales G	0.897
Sales Vol.	0.837
Product. G	0.730
M. Share	0.636
Co. Performance	0.798
This table presents the factor loading of each variable in the VC-backed firm Performance index. The eigenvalue of the index is presented next to the index.	

5.2.2 Data Reduction for Entrepreneur Characteristics Measures

This section provides all details of data reduction for all entrepreneur characteristics (independent variable one), extracted from the questionnaire administered to the entrepreneurs or portfolio firms (PFs). This consists of all measures related to the SC and HC of entrepreneurs as well as the resources held by their firms.

Factor loadings for all the indices representing the variables and sub-variables capturing the entrepreneurs' characteristics are listed in Table 5.24 below, after which they are all explained thoroughly.

Table 5.24 Variables in Each Factor and their Factor Loadings (Entrepreneur Characteristics Indices)					
E- Business networks		1.30	E- previous experience		1.73
Parents	0.456	Managed start-up		0.859	
Close friends	0.489	Previous start-up		0.829	
Encouragement	0.589	IRR 100%		0.060	
Business Networks	0.367	Previous industry work		0.330	
Business advisories	0.608	Previous industry start-up		0.443	
E- Network use		1.57	RBC and Strategy Fit		1.36
Govt official networks	0.839	Moderated Innovation		0.658	
Business contact networks	0.502	Moderated Quality		0.489	
Community networks	0.781	Moderated Cost-leadership		0.142	
E- proportional Education		1.3			
Doctorates Degree	0.683				
Master's Degree	0.278				
CFA	0.731				
Degree in industry	0.468				
This table presents all indices (factors) in which the different variables are aggregated. As well as, the factor loading of each variable in the index. The eigenvalue of each index is presented next to the index name.					

The first independent variable entrepreneur characteristics is reflected in the questionnaire in the sections relating to entrepreneur SC, RBCs of the firm and entrepreneur HC.

The SC of entrepreneurs extended from aspects of ability to recruit executives, their personal and community business networks, to their ability to utilise their networks.

The four continuous variables representing the forms of recruitment measuring the entrepreneurs' ability to recruit executives are divided by the number of founders in each firm, to make the figures comparable across different firms. All four means of recruitment are positively and significantly correlated; however, they could not be combined into a factor, as their eigenvalue is less than one, which makes the index too weak. An average is calculated for the means of recruitment in each firm, after which it is standardised to allow for consistency when used with other indices.

In relation to the entrepreneurs' business networks, the three binary variables used for entrepreneurs' personal business networks were all significantly correlated with the three binary variables used for entrepreneurs' community business networks. Correlations were calculated for the six binary variables together. They are all significantly correlated, except for the last variable, whether they have been part of a start-up team²¹. Therefore, they were combined into variable created by factor analysis called E-business network, which had an eigenvalue of 1.3 and the following factor loadings shown in the table above.

Regarding the entrepreneurs' ability to utilise networks, Likert-scale questions were used to ask respondents about the extent to which they have utilised connections in the past three

²¹ The measure "whether they have been part of a start-up team" has been dropped from the E-business network as it is not correlated with the other measures.

years with government officials (four measures), business contacts (four measures) and community leaders (four measures). Each set of questions from each of the three categories had high significant correlations and hence are grouped into indices named government official networks, business contacts networks and community networks, respectively. These three indices had high correlations and hence two-step factor analysis is used to reduce them further into one variable called Network Use, with an eigenvalue of 1.57 and the following factor loadings shown in the table above.

The second section in the questionnaire related to entrepreneur characteristics is to understand the RBCs of the PF through Likert-scale questions. RBCs, as explained in the literature, are not sufficient to lead to performance enhancement unless accompanied by a good strategy (Mahoney and Pandian, 1992; Wang and Ang, 2004). An average is calculated for each of the following: the seven innovation-related RBC measures, the five quality-related RBC measures and the seven cost- leadership-related RBC measures. An average was also calculated for the seven innovation-related strategy measures, the five quality-related strategy measures and the four cost-leadership-related strategy measures. To calculate the fit between the RBCs and the strategy, the average of the RBC and the average of the corresponding strategy are multiplied and named moderated innovation, moderated quality and moderated cost-leadership respectively. These variables were then combined into a variable with an eigenvalue of 1.367, called Fit RBC Strategy, and it had factor loadings as shown in Table 5.24, p. 182.

The final aspect of entrepreneur characteristics in the questionnaire is related to HC of entrepreneurs, which is their previous experience and education. The five measures of previous experience are incorporated into one variable created through factor analysis named previous experience founders, with an eigenvalue of 1.735.

To measure if any of the co-founders have had previous experience in management, a score of '1' is given if they have previously managed a public company, previously started a business together or believe they are functionally diverse. The score is then standardised (named Z previous managerial experience) to enable consistency when combined with other indices used in the model.

For education of founders, the number of those who held a doctorate degree, a master's degree, CFA or a degree in the field of their current start-up is each divided by the number of founders in the PF, to allow each founder to have more than one degree. After which, those proportions were combined, as they were shown to be correlated, into one variable named proportional education. This variable has an eigenvalue of 1.3, and the measures had loaded as shown in Table 5.24, p. 182.

5.2.3 Data Reduction for Measures of VC Managers' Characteristics and Services

This section provides all details of data reduction for all characteristics of venture capitalists and the services they provide (independent variable two). These measures are extracted from the questionnaire administered to the venture capitalists as well as one section from the questionnaire administered to entrepreneurs. This includes HC characteristics of VC managers and all the value-added services they provide including networking. Factor loadings for the indices representing the abovementioned variables and sub-variables are listed in Table 5.25 below, after which they are all explained thoroughly.

Table 5.25 Variables in Each Factor and their Factor Loadings (VC Indices)					
VC Education		1.85	VC Gov't Network		4.04
Prop. Degree in field		0.53	Gov. Needs		0.828
Prop. Post grad degree		0.810	Gov. officials		0.944
Prop. Finance degree		0.808	Contact gov for PF issues		0.903
Prop. Law degree		0.263	Intro. PF to gov off		0.867
Prop. Medical/ Eng. Degree		0.442	Network with gov.		0.946
VC Experience		1.49	VC involvement		1.15
Experience in same field		0.853	Average boards		0.131
Law Experience		0.182	Average reports		0.766
Consultancy experience		0.859	Average rounds		0.741
VC services		2.72	Advice		4.52
Meetings per month		0.384	Strategic advice		0.833
Intro. To recruitment firms		0.432	Marketing advice		0.645
Intro. To customers		0.629	Financial advice		0.645
Intro. To suppliers		0.772	R&D advice		0.774
Shaping HR management		0.580	PD advice		0.776
Shaping HR policies		0.660	HR advice		0.715
Recruit senior managers		0.513	Exit strategy advice		0.742
Recruit admin		0.380	Interpersonal advice		0.583
Shaping financial policies		0.884	Networking advice		0.625
This table presents all indices (factors) in which the different variables are aggregated. As well as, the factor loading of each variable in the index. The eigenvalue of each index is presented next to the index name.					

Most measures of independent variable two (VC characteristics and services) are found in the questionnaire distributed to VC firms. There is only one section related to this variable in the entrepreneur questionnaire, which is VC advice. The effect of value-added activities of the venture capitalists from the perspective of the entrepreneurs, are measured through the nine aspects of advice, which are all significantly and positively correlated and loaded into factor analysis variable called Advice, with an eigenvalue of 4.52.

The first section covered in the questionnaire refers to the VC fund managers' HC education and experience. For education measures, the respondents' choice of each of the five continuous variable questions about the different degrees held by the VC management team was divided by the number of founders in the firm to allow for comparability between firms and allow each founder to hold more than one degree. First, the correlations between those firms were calculated, to group those that are highly correlated. The only measure that is negatively correlated with the remaining

five measures is degree in any other field.²² Moreover, a variable named VC Education is created, through factor analysis, with the five positively correlated education measures, which has an eigenvalue of 1.85 and the factor loadings shown in the table above.

As for experience of the VC management team, two of the five binary variables could not be grouped with the rest to form a variable.²³ Therefore a variable is created which includes previous experience in the industry of the portfolio firms, and law and consultancy experience. This variable is named VC Experience and has an eigenvalue of 1.49, as shown in the table above.

VC characteristics also include the value-added activities provided by the VC firms, which consist of strategic and operational value-added activities and the networking the venture capitalists provide. The former is measured by the involvement of venture capitalists in the portfolio firms and the latter is measured by the services they provide, as well as, the networks on which they rely to provide them. Networking activities also involve the venture capitalists' government networking and syndication.

Initially, in the questionnaire to measure VC involvement, VC managers were asked to respond through the four continuous variables, previously described in section 5.1.2. related to Table 5.18, p. 174. A variable named VC Involvement was created containing the three significantly correlated involvement measures.²⁴ This variable had an eigenvalue of 1.15 and the factor loadings provided in Table 5.25, p. 186. The

²² Degree in any "other field" is not correlated with all other degrees, hence loads negatively in the VC-education index. It is therefore dropped from the index.

²³ Experience in the business management field is dropped from the model, as all respondents answered with a yes, hence there is no variation in the answers and it would have no impact. Experience in finance is also dropped as it is negatively correlated with all the other measures, and hence produces a negative loading on the proposed index.

²⁴ The number of meeting per month is not correlated with the three other measures of VC involvement and therefore is dropped from the VC involvement variable.

average meetings per month was, however, positively and significantly correlated with the other group of questions covering the value-added activities of venture capitalists in the questionnaire. These are the questions representing the services that venture capitalists provide and the networks they use to provide them; hence, how many times they meet their portfolio companies is highly correlated with the extent of the services they provide. Moreover, there are nine measures for services and networks provided by, which are mostly significantly positively correlated. Hence, they could all load into one factor except for whether the VC firm has been involved in recruiting sales or marketing personnel, as it had no significant correlation with any of the other measures. It loads negatively into the variable. Therefore, this variable created through factor analysis is named VC Services and includes only the eight positive measures, plus the number of meetings per month. It has an eigenvalue of 2.72 and the following factor loadings shown in Table 5.25, p. 186. The highest factor loadings are introduction to suppliers, customers and shaping financial policies, which are also the measures with the highest mean rankings, however not in the same order.

All five government networking measures have high, positive and significant correlations and hence load into a variable called VC Government Networks, which has an eigenvalue of 4.04 and the factor loadings shown in Table 5.25.

As for the five measures of syndicate networks, only number of connections and number of times the firm has been invited to invest or initiated an investment were significantly correlated. However, when syndication measures were reduced into a factor, it showed to be relatively weak with an eigenvalue of less than one and hence it could not be created. Furthermore, an average was calculated for the three correlated variables, to show the average of each respondent's syndicate network. However, since

this measure is to be compared with indices, the values were standardised for consistency during analysis.

5.3 Data Reduction Summary

Variable	Type of variable
New Comp. Perf.	Dependent
VC education	Independent
VC experience	Independent
VC involvement	Independent
VC services	Independent
VC gov't network	Independent
Avg. Connections	Independent
Executive Recruitment	Independent
E- Business Network	Independent
Network use	Independent
Fit RBC strategy	Independent
Previous experience founders	Independent
Previous managerial experience	Independent
Proportion education	Independent
Advice	Independent
Firm Size	Control
Firm Age	Control

Through CFA, the measures related to the characteristics of entrepreneurs and venture capitalists as well as, services provided by the latter are all reduced into 14 independent variables. Table 5.26 above represents these variables as well as the dependent variable and the 2 control variables.

5.4 Regression Results (Characteristics of Entrepreneurs and Venture Capitalists)

The quantitative analysis of this study is conducted through multiple linear regression analysis and its estimation using Ordinary Least Squares (OLS), being the most widely used tool given the continuous nature of the dependent variables (Schmidheiny, 2018). It allows for the estimation of the relation between a dependent variable and a set of

independent or explanatory variables, assuming a linear (in parameters) relationship between the dependent the explanatory variables.

These 14 independent variables representing the characteristics of entrepreneurs and venture capitalists as well as the services provided by the latter, were fit into a regression model to predict their effect on the performance of VC-backed firms. The results are shown in Table 5.27 below.

Table 5.27 Characteristics of Entrepreneurs and VCs- OLS Regression Results	
Variables	Coefficient (Std. error)
Executive Recruitment	.0536 (.1489)
E- Business Network	.1243 (.1297)
Network use	.0531 (.1399)
Fit RBC strategy	.4522** (.1828)
Previous experience founders	-.1484 (.1564)
Previous managerial experience	-.1442 (.1386)
Proportion education	-.0241 (.1383)
Advice	.2481* (.1356)
VC education	.0432 (.1711)
VC experience	.0576 (.2951)
VC involvement	-.2555 (.2748)
VC services	-.0010 (.2252)
VC gov't network	-.0757 (.2261)
Avg. Connections	.03795 (.2052)
Firm age	.3471 (.2664)
Firm size	.7071*** (.2520)
R-Squared	58.58%
Adjusted R-Squared	36.94%
No. of observations	52
Standard errors in provided in parenthesis ***, **, * denote statistical significance at 1, 5, 10% levels, respectively. NA represents cells in which no coefficients or stand errors are calculated, as no moderators are applicable to that certain model.	

Advice by VC firms is shown to have a positive significant impact on the performance of VC-backed firms, and the RBCs of VC-backed firms matched to their firm strategies also have a positive significant impact on the performance of VC-backed firms. This model showed R-squared of 58.5% and an adjusted R-squared of 39.6%. Which means that 58.5% of the variation in the performance of VC-backed firms is explained by the entrepreneurs' characteristics variables, the venture capitalists' characteristic variables and variables related to VC services. However, another regression analysis is performed using all the variables in this study (those included here as well as the variables related to VC-E relationship and institutional environment). Results of the second regression shows an increase in the R-squared and the adjusted R-squared value which shows that including all the variables together explains the change in the performance of the VC-backed firms, more than relying on variables related to characteristics of entrepreneurs and venture capitalists only. This supports the contribution of this study, that including all the variables in the model provides more rigorous results than when analysing them separately. Thus, the results of the second model will be discussed in section 6.4, as they provide a better explanation.

5.5 Chapter Summary

This chapter demonstrated the responses of entrepreneurs and venture capitalists to both questionnaires. A description of responses was presented through descriptive statistics. Parametric t-tests were used to rank the means of all measures and in turn highlight the most important ones, after which a depiction of all CFA steps was provided. All indices created for the analysis model and their factor loadings were listed. The results of the regression model and an explanation of the significance of all the variables included are explained in Chapter six, as well as a clarification to why this model will not be relied on for the results of this study.

Chapter Six

VC-E Relationship and Legal Environment

Variables, Descriptives, and Results

6.0 Introduction

This chapter presents the descriptive analysis of the sample results and the variables used in regression analysis. First, in section 6.1, descriptive statistics are presented for measures related to the VC-E relationship (independent variable three) from the perspective of both entrepreneurs and venture capitalists. As well as descriptive statistics the legal environment in Egypt (moderating variable), from the perspective of both entrepreneurs and venture capitalists. After which this chapter demonstrates the CFA process used for dimensionality and validity assessment, as well as data reduction procedures for these measures, in section 6.2. Finally, all the new aggregated variables which are added to the regression models are summarised in section 6.3. Results of the second regression analysis which includes all the variables related to entrepreneur characteristics, VC characteristics and services, VC-E relationship as well as legal environment are presented in section 6.4.

6.1 Descriptive Statistics

This section shows the general characteristics of the respondents, which provides information for this study, and details of their responses. Frequencies and percentages are calculated for all the measures related to the VC-E relationship and to the legal environment in Egypt. Means and standard deviations are calculated for all non-binary variables (for ordinal and scale variables). Parametric tests (t-tests) are also implemented to derive mean rankings.

This chapter will focus on responses from the two questionnaires to explain the perception of both entrepreneurs and VCs, of the VC-E relationship, as well as their perception of the legal environment in Egypt.

6.1.1 VC- E Relationship Descriptive Statistics

i) VC-E Relationship (from entrepreneurs' perspective)

The third independent variable, VC-E relationship, is measured based on five categories from the entrepreneurs' perspective: VC-E complementarity, VC-E disagreements, contract flexibility, contract favourableness and VC-E ease of relationship. Each of those categories is presented through a set of related questions in the survey.

VC-E complementarity measures rely on questions covering the venture capitalists' perception of the extent they: each contribute different resources, have complementary strengths, have abilities that can be combined, and find VC managers meet their expectations.

	1	2	3	4	5	Total
Resources	5.8	19.2	25	34.6	15.4	100
Strengths	7.7	15.4	38.5	30.8	7.7	100
Abilities	3.8	17.3	36.5	23.1	19.2	100
Expectations	13.5	19.2	32.7	25	9.6	100
E-Complementary Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Abilities	3.37**			1.103		
Resources	3.35**			1.136		
Strengths	3.15			1.036		
Expectations	2.98			1.18		
These four complementarity measures are based on a Likert scale where '1' represents very low and '5' represents very high. This table shows response % in each category. For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively.						

Table 6.1 above shows the entrepreneurs' responses; the highest responses were at the neutral section of the scale, meaning neither low nor high. The measure for which respondents have selected 'very high' the most (19.2%) is 'abilities'. Entrepreneurs believe that their abilities can be combined with the abilities of venture capitalists.

Overall, as evident in the mean ranking above in Table 6.1, complementarity does exist between the VC and E, as all means are above the set level of ‘3’, showing that their responses are mostly on the ‘high’ or ‘very high’ side, for the measures related to abilities, resources and strengths. Therefore, entrepreneurs believe that their abilities, resources and strengths complete or add on to those possessed by VC firms. The only measure that is insignificantly below the mean is expectations, as it is almost equal to 3.

To measure the VC-E disagreements that the VC managers perceive themselves to have with the portfolio company, they were asked about several related issues: strategy, marketing, financial, R&D, product development (PD), human resources (HR), chief executive officer (CEO) and other issues. The lower the responses, the better, as a lower rate of disagreements makes the extent of the relationship stronger.

	1	2	3	4	5	Total
Strategy disagreements	15.4	21.2	40.4	17.3	5.8	100
Marketing disagreements	19.2	25	42.3	13.5	0	100
Financial disagreements	17.3	23.1	28.8	19.2	11.5	100
R&D disagreements	30.8	13.5	36.5	17.3	1.9	100
PD disagreements	19.2	25	40.4	7.7	7.7	100
HR disagreements	25	21.2	42.3	3.8	5.8	100
CEO disagreements	53.8	13.5	23.1	5.8	3.8	100
Other disagreements	36.5	17.3	40.4	3.8	1.9	100

Test value= 3	Mean	Std. Deviation
Financial disagreements	2.85	1.258
Strategy disagreements	2.77	1.096
PD disagreements	2.6**	1.125
Marketing disagreements	2.5***	0.96
R&D disagreements	2.46***	1.163
HR disagreements	2.43***	1.1
Other disagreements	2.17***	1.043
CEO disagreements	1.92***	1.169

Likert-scale questions were also used to show the extent of disagreements from very low ‘1’ to very high ‘5’. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

Results in Table 6.2 show that the highest rate of disagreements as perceived by VC managers is on financial issues. Approximately 31% of the VC managers perceive

that disagreements with entrepreneurs on financial issues are high or very high. Financial disagreements also has the highest mean, 2.85. This is followed by disagreements on strategy-related issues, which has a mean of 2.77. The lowest rate of disagreements perceived by entrepreneurs is on CEO-related issues and the second lowest is on other issues than the stated seven. However, all disagreements are below average, as evident by their means, which are all significantly lower than the set test mean of '3', except for financial and strategy disagreements, which are insignificantly lower.

To measure the contractual relationship between the VC and E, the entrepreneurs were asked to provide their perception concerning the degree of contract flexibility on certain issues and how favourable they believe the contract to be, on based on different terms.

First, contract flexibility is assessed from the perspectives of strategic, marketing, financial, R&D, product development and HR issues. The respondents' percentages as well as mean ranking and standard deviations for the measures are provided in Table 6.3 below.

	1	2	3	4	5	Total
Strategy flexibility	5.8	13.5	44.2	23.1	13.5	100
Marketing flexibility	3.8	11.5	48.1	25	11.5	100
Financial flexibility	9.6	11.5	42.3	25	11.5	100
R&D flexibility	11.5	17.3	40.4	21.2	9.6	100
PD flexibility	7.7	11.5	46.2	23.1	11.5	100
HR flexibility	7.7	17.3	44.2	21.2	9.6	100
Contract Flexibility Mean Ranking and Standard Deviation						
	Mean			Std. Deviation		
Marketing flexibility	3.29**			0.957		
Strategy flexibility	3.25*			1.046		
PD flexibility	3.19			1.049		
Financial flexibility	3.17			1.098		
HR flexibility	3.08			1.045		
R&D flexibility	3			1.12		
The six measures of flexibility are based on a scale from '1' very low to '5' very high. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

The total responses for ‘high’ and ‘very high’ are almost equal for marketing (36.5%), strategic (36.6%) and financial (36.5%) issues. However, marketing had the fewest ‘very low’ and ‘low’ responses (approximately 15%) and hence it has the highest mean ranking (3.29). Financial issues had the highest rate of low and very low responses and accordingly is rated the lowest of the three. PD issues also exceeded financial issues in ranking, even though PD has fewer ‘high’ responses, but also fewer ‘low’ responses. Overall, as shown in Table 6.3, entrepreneurs perceive contractual terms with venture capitalists to be most flexible on marketing and strategy-related issues (both have means significantly higher than the set test mean of ‘3’) and least flexible on R&D and HR-related issues.

The contractual terms assessment comprised the rating of the entrepreneurs’ contract favourableness according to their perception of: company valuation, type of security, amount and timing of investments, number of directors, voting rights, vesting founder stocks, management control and conversion rights.

	1	2	3	4	5	Total
Company Valuation	3.8	5.8	51.9	23.1	15.4	100
Type of security	5.8	15.4	50	19.2	9.6	100
Amount of investments	5.8	25	36.5	25	7.7	100
No. of directors	9.6	11.5	48.1	21.2	9.6	100
Voting Rights	7.7	7.7	51.9	17.3	15.4	100
Vesting Founder Stocks	5.8	9.6	48.1	19.2	17.3	100
Management Control	5.8	5.8	59.6	15.4	13.5	100
Conversion Rights	5.8	7.7	61.5	13.5	11.5	100
Contract Favourableness Mean Ranking and Standard Deviation						
Test value= 3	Mean			Std. Deviation		
Company Valuation	3.4***			0.955		
Vesting founder stocks	3.33**			1.061		
Voting rights	3.25*			1.064		
Management control	3.25*			0.968		
Conversion rights	3.17			0.944		
Type of security	3.12			0.983		
No. of directors	3.1			1.053		
Amount of investments	3.04			1.028		
These eight items’ contract favourableness measures were assessed on a scale where ‘1’ represents strongly disagree and ‘5’ represents strongly agree.						

As shown through mean ranking in Table 6.4, entrepreneurs find the most favourable contractual terms to be the valuation of their companies by venture capitalists (3.4), followed by the vesting of founder stocks (3.33), while the least favourable are the number of directors (3.1) as well as the amount of investments granted by the VCs (3.04). All measures were slightly above the set mean of ‘3’, but only company valuation, vesting founder stocks, voting rights and management control are significantly above the mean of ‘3’. However, contractual favourableness cannot be labelled as favourable by entrepreneurs as the highest response rate category for all the measures was neutral, whereas favourableness was neither high nor low.

The VC-E ease of relationship from the entrepreneurs’ perspective is the final category to measure the extent of the VC-E relationship. It is measured through five questions: ease of negotiation, speed of agreement on issues not in contract, ease of agreement on major new venture issues, speed of agreement on major new venture issues, and whether they need a third party to resolve their conflicts.

Table 6.5 VC-E Relationship Ease Percentages						
	1	2	3	4	5	Total
Negotiation ease	7.7	5.8	42.3	30.8	13.5	100
Non- contract agreement speed	5.8	13.5	40.4	28.8	11.5	100
New venture ease of agreement	5.8	11.5	38.5	32.7	11.5	100
New venture agreement speed	7.7	11.5	40.4	32.7	7.7	100
Third party	3.8	7.7	34.6	17.3	36.5	100
VC-E Relation Ease Mean Ranking and Standard Deviation						
Test Value=3	Mean			Std. Deviation		
Third party	3.75***			1.153		
Negotiation ease	3.37**			1.048		
New venture ease of agreement	3.33**			1.024		
Non- contract agreement speed	3.27*			1.031		
New venture agreement speed	3.21			1.016		
The answers ranged from ‘1’ to ‘5’ where ‘1’ represents strongly disagree and ‘5’ represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

As shown in Table 6.5 above, the highest measure of VC-E relationship ease on which entrepreneurs agreed is third party. Approximately 54% of venture capitalists agree that they do not need a third party to resolve any conflicts with entrepreneurs.

Third party also had the highest mean ranking (3.75). Entrepreneurs' responses, as reflected in mean ranking, show that the ease of reaching an agreement or negotiating on new venture decisions is less of an issue than the time the agreement takes. Means for the five measure are significantly above the set test mean of '3', except for new venture agreement speed, which is insignificantly higher than the set mean.

ii) VC-E Relationship (from venture capitalists' perspective)

Five categories are used to measure VC-E relationship from the VC perspective: VC-E complementarity, VC-E disagreements, VC-E ease of relationship, venture capitalists' perception of their portfolio companies' team spirit and the extent that the VC firm has trust in the portfolio firm. These categories are similar to those in the questionnaire distributed to entrepreneurs; however, these capture the VC-E relationship from the perspective of VC managers. A set of related questions in the survey is used to explore each of those categories.

VC-E complementarity measures cover the venture capitalists' perception of the extent to which they: each contribute different resources, have complementary strengths, have abilities that can be combined and find portfolio companies meeting their expectations.

	1	2	3	4	5	Total
Resources	0	7.1	21.4	28.6	42.9	100
Strengths	0	0	28.6	35.7	35.7	100
Abilities	0	0	35.7	50.0	14.3	100
Expectations	0	0	57.1	35.7	7.1	100

Test value=3	Mean	Std. Deviation
Resources	4.07***	0.997
Strengths	4.07***	0.829
Abilities	3.79***	0.699
Expectations	3.5**	0.65

These complementarity measures are enquired about in the form of a scale, were '1' represents very low and '5' represents very high. This table shows response % in each category.
For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively.

The highest response rate for 'strongly agree' by venture capitalists is 43%, which is for the extent to which the VC believes that itself and the portfolio company both contribute different resources. When combining responses of high and very high, then VC firms would perceive funded firms to have complementary strengths and abilities of about 70% and 65% respectively. The lowest response rate for very high is the extent to which VC firms perceived funded companies to meet their expectations; the majority of VC firms (57%) responded with neutral.

The highest mean rankings are for the measures complementary resources and strengths (both at 4.07). The lowest mean (3.5) is for the measure expectations, which is still significantly (at 5% level) above the set mean of '3'. The three other measures are above the set test mean of '3', but significant at the 1% level. Although responses to the entrepreneur questionnaire (see Table 6.1, p.193) show that the measure of VC firms meeting portfolio firm expectations also has the lowest mean ranking, it was below the set mean of '3'. This shows that VC managers perceive portfolio companies to meet their expectations more than portfolio companies perceive VC managers to meet theirs. Additionally, VC managers perceived that they and their funded firms had the highest complementary levels, in terms of resources and strengths, while entrepreneurs of those firms perceive it to be in terms of abilities.

Overall, from the perspective of both entrepreneurs and venture capitalists, complementarity appears to be above average. These results are in line with previous studies which explain that efforts and resources of venture capitalists and entrepreneurs should be complementary rather than substitutes (Vergara et al., 2012).

To measure the VC-E disagreements that the VC managers perceive themselves to have with the portfolio company, they were asked about several related issues: strategy, marketing, financial, research and development (R&D), product development (PD), human resources (HR), chief executive officer (CEO) and other issues. Disagreements are different to all previous measures: the lower the means and the selected responses on the Likert scale the better. Disagreements have an inverse effect on VC-E relationship: the lower the disagreement rate the stronger the relationship is.

Table 6.7 VC-E Disagreement Percentages						
	1	2	3	4	5	Total
Strategy disagreements	28.6	21.4	42.9	7.1	0	100
Marketing disagreements	14.3	14.3	71.4	0	0	100
Financial disagreements	14.3	14.3	35.7	28.6	7.1	100
R&D disagreements	21.4	28.6	42.9	0	7.1	100
PD disagreements	0	35.7	50.0	0	14.3	100
HR disagreements	28.6	21.4	35.7	7.1	7.1	100
CEO disagreements	14.3	21.4	35.7	21.4	7.1	100
Other disagreements	50.0	7.1	28.6	14.3	0	100
VC-E Disagreement Mean Ranking and Standard Deviation						
Test Value=3	Mean		Std. Deviation			
Financial disagreements	3		1.177			
PD disagreements	2.93		0.997			
CEO disagreements	2.86		1.167			
Marketing disagreements	2.57		0.756			
R&D disagreements	2.43*		1.089			
HR disagreements	2.43*		1.222			
strategy disagreements	2.29**		0.994			
other disagreements	2.07**		1.207			
VC-E disagreement from perspective of VC managers are based on a scale to show the extent from very low '1' to very high '5' of disagreement on these eight issues. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

The lowest level of disagreements between venture capitalists and entrepreneurs, as shown by the mean rankings in Table 6.7 above, is on 'other issues'. However, from the seven specified, the lowest is disagreements on strategy-related issues, with a mean of 2.29, which is significantly (at 5% level) below the set mean of '3'. The most disagreements are on financial issues, with a mean of 3, followed by disagreements on product development issues (3) and issues related to the CEO (2.86), which are insignificantly lower than the set mean.

All means are below the set test mean, which shows that the means of all disagreement issues were not higher than average, with the exception of financial issues, which had a mean exactly equal to the test value. Looking at percentages, 37% of the VC firms perceived disagreements on financial issues with portfolio firms to be high or very high. Most responses on disagreement level are average, neither low or very low, nor high or very high. The highest rate of response in the average category was for PD disagreements. Exactly 50% of the VC firms found disagreements on PD issues to be average.

From the entrepreneurs' perspective, disagreements on financial issues were also the highest, which confirms the consistency and robustness of the results. PD issues are also in the top three issues from the entrepreneurs' perspective.

To measure the VC-E ease of relationship, five questions were used: the ease of negotiation, speed of agreement on issues not in contract, ease of agreement on major new venture issues, speed of agreement on major new venture issues, and whether they need a third party to resolve their conflicts.

Table 6.8 VC-E Ease of Relationship Percentages						
	1	2	3	4	5	Total
Negotiation ease	0	21.4	28.6	42.9	7.1	100
Non contract agreement speed	0	28.6	7.1	50.0	14.3	100
New venture agreement ease	0	14.3	28.6	57.1	0	100
New venture agree speed	0	7.1	35.7	57.1	0	100
Third party	0	0	7.1	21.4	71.4	100
VC-E Ease of Relationship Mean Ranking and Standard Deviation						
Test Value=3	Mean			Std. Deviation		
Third party	4.64***			0.633		
Non contract Agreement speed	3.5**			1.092		
New venture agree speed	3.5**			0.65		
New venture agreement Ease	3.43**			0.756		
Negotiation ease	3.36			0.929		
These five ease of relationship measures from the perspective of VC managers are based on a 5 point scale, where '1' stands for strongly disagree and '5' stands for strongly agree. This table shows response % in each category.						
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

The highest rate of responses which show agreement is for third party: 93% of VC firms show that they do not need a third party to resolve conflicts with their portfolio firms. It is also confirmed in mean ranking (see Table 6.8 above), as not requiring a third party to resolve major issues between the VC and E has the highest mean, 4.64. Results show that, overall, there is an ease in dealing with portfolio firms, as means of the five measures are all above the test mean of '3'. However, agreeing on major new venture decisions is slightly easier than agreeing on issues that were not written in the contract initially. Moreover, responses on the five measures of ease of relationship were all significantly above the set mean of '3', except for negotiation ease, which was above the mean but not significant.

Ease of relationship from the entrepreneurs' perspective (see Table 6.5, p. 197) also shows that the highest measure on which entrepreneurs agreed is third party, which confirms the consistency and reliability of responses. However, while the rest of the mean rankings are different, both venture capitalists and entrepreneurs find it easier to negotiate on issues not in the contract than on new venture decisions.

Another measure of the VC-E relationship is team spirit. The way VC fund managers perceive portfolio firms' (PF) team spirit is measured through five Likert-scale questions: PF has a clear goal, PF team members work hard, PF team members put interests of their team first, PF team members try their best to improve their abilities, and PF team members accept personal responsibility for team success.

	1	2	3	4	5	Total
Clear Goal	0	0	14.3	64.3	21.4	100
Work Hard	0	7.1	21.4	42.9	28.6	100
Team Interest	0	0	50.0	35.7	14.3	100
Try Best	0	0	14.3	78.6	7.1	100
Responsibility	0	14.3	21.4	42.9	21.4	100

Test Value=3	Mean	Std. Deviation
Clear goal	4.0788	0.616
Work hard	3.93***	0.917
Try best	3.93***	0.475
Responsibility	3.71***	0.994
Team Interest	3.64**	0.745

These five measures of portfolio firms' team spirit are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

As evident in the percentage responses and mean ranking in Table 6.9, the most important team spirit measure is that the venture capitalists perceive their portfolio firms to have a clear overall goal that they can achieve. It has the highest mean ranking (4.07) and about 85% of the VC firms agree on this measure. On the other hand, the measure with the lowest mean ranking (3.64) is portfolio team members putting the interests of their team before their personal interests. This measure had the lowest mean ranking as it had the lowest responses for 'agree' or 'strongly agree' (approximately 50%). The remaining VC firms (50%) perceived team interest to be 'neutral'. None of the VC firms selected 'disagree' for this measure.

Overall, percentage responses and mean ranking, which are all significantly higher than the set test mean, show that VC firms perceive portfolio firms to have a high team spirit. This is important, as it improves firm performance through the adoption of cooperative behaviour, which subsequently increases overall performance (Li et al., 2018).

The final aspect in the questionnaire that focuses on the VC-E relationship is the level of trust VC firms have in their PFs. This is measured through eight Likert-scale questions: whether the PF firm respects the contract because it knows the benefits

of doing so, or because it knows the economic consequences of not doing so; if the PF is dependable, and if it acts fairly and promptly; if the PF is open in describing its strengths and weaknesses; whether the VC firm has little reason to doubt the PF's competence; if the PF responds constructively to concerns and problems; and, finally, whether both firms share common business values.

	1	2	3	4	5	Total
Benefits	0	7.1	7.1	57.1	28.6	100
Economic Consequences	0	7.1	21.4	50.0	21.4	100
Dependable	0	28.6	28.6	35.7	7.1	100
Act Fairly	0	14.3	50.0	35.7	0	100
PF-Openness	7.1	28.6	21.4	28.6	14.3	100
No Doubt	0	21.4	28.6	28.6	21.4	100
Responds constructively	7.1	7.1	35.7	50.0	0	100
Common Bus. Values	0	7.1	21.4	50.0	21.4	100

Test Value=3	Mean	Std. Deviation
Benefits	4.07***	0.829
Economic Consequences	3.86***	0.864
Common Bus. Values	3.86***	0.864
No doubt	3.5	1.092
Respond constructively	3.29	0.914
Dependable	3.21	0.975
Act fairly	3.21	0.699
PF- openness	3.14	1.231

These eight measures of trust are based on a scale that ranges from '1' very low to '5' very high. This table shows response % in each category.
For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively.

Responses shown in Table 6.10 show that the highest responses were for the first measure of trust. Most VC firms believe that the portfolio company will respect the contract because it knows the benefits of doing so, 86% of the VC firms' responded with 'high' or 'very high'. This was followed by two factors: the economic consequences, which shows that portfolio firms respect the contract because they know the economic consequences of loss of reputation, and that both the VC firm and the PF share common business values. Over 71% of the VC firms responded with 'agree' or 'strongly agree' to both those measures. These percentages are also confirmed by mean rankings. The measure that PFs will respect the contract because they know the benefits of doing so had the highest mean rank, 4.07. This was followed by the measures

economic consequences and common business values, which both had mean ranking of 3.86. Although all measure of trust are higher than the set mean of '3', these three measures are the only ones that are significantly (at 1% level) higher. As for the lowest measures of trust, portfolio firms' openness about their strengths and weaknesses had the lowest mean, 3.14.

It is important to note that the VC-E relation depends on a high level of trust, as shown by the fact that all eight measures of trust have a mean higher than the test mean of '3'. This shows that the means of their responses are all towards high and very high. Even though percentage responses show that act fairly has the lowest high and very high responses, according to mean ranking VC-openness has the lowest mean ranking as it has the most responses in the low and very low categories (36%). It is important to note the different types of trust explained in the literature and capture which of those are more important in Egypt. Strategic reputation-based (C-trust) is built on a strategic consideration of the trade-off between the benefit of maintaining the relationship and the cost of terminating the trust and its effect on reputation (Li et al., 2018), which is reflected by the first two measures, benefits and economic consequences. Knowledge-based (K-trust) comes from the mutual trust built throughout the relationship, and is captured through measures three to six: common business values, no doubt, respond constructively and be dependable. Finally, identification-based (I-trust), which is the highest form of trust, is built on a close relationship between the venture capitalist and the entrepreneur, where there is a mutual understanding between both that could lead them to align their preferences (Li et al., 2018). As evident by mean ranking, C-trust is the most important type of trust in the VC-E relationship in Egypt, followed by I-trust and, finally, K-trust is lowest.

I-trust is also associated with positive team spirit in the portfolio companies (Campbell, 1993; Li et al., 2018). The results of this study show that I-trust items are positively significantly correlated with the team spirit measures explained above, ‘interest’ and ‘accept responsibility’.

	Clear Goal	Work Hard	Team Interest	Try Best	Responsibility	Responds constructively	Common Bus. Values
Clear Goal	1						
Work Hard	0.5548*	1					
Team Interest	0.0599	0.0724	1				
Try Best	0.5451*	0.6944*	0.5750*	1			
Responsibility	0.4128	0.1446	0.3708	0.4423	1		
Responds constructively	0.3711	-0.0656	0.5004*	0.4054	0.6892*	1	
Common Bus. Values	0.3097	-0.1109	0.5119*	0.3482	0.6647*	0.7372*	1

* Denotes statistical significance at 10% level

6.1.2 Legal Environment in Egypt Descriptive Statistics

i) Institutional (Legal) Environment (from entrepreneurs’ perspective)

The final section in the questionnaire administered to entrepreneurs was used to enquire about the moderating variable, the legal environment in Egypt, how they perceive it and how they believe it would impact their businesses or scope of work. Seven Likert-scale measures are used to capture the perception of the entrepreneurs (trust in the court system, confidence in political stability, corruption is being mitigated, crime and theft are not common, laws and regulations affecting the business are predictable, confidence that contractual rights as well as property rights are enforced). The questions, however, are phrased in a positive form; hence, answers in ‘strongly disagree’, ‘1’, and ‘disagree’, ‘2’, would show a weak legal environment. For example, the first measure, trust, is stated in the questionnaire as ‘The court system in Egypt can be trusted’. Therefore, if venture capitalists disagree this would mean the court system cannot be trusted (weak legal system), and if they agree it would mean the court system can be trusted.

Table 6.12 E- Legal Perception Percentages						
	1	2	3	4	5	Total
Trust	23.1	23.1	36.5	13.5	3.8	100
Confidence	23.1	13.5	40.4	15.4	7.7	100
Corruption	21.2	23.1	40.4	13.5	1.9	100
Crime	9.6	23.1	40.4	25	1.9	100
Contract enforcement	17.3	19.2	51.9	7.7	3.8	100
Investor Protection	19.2	15.4	50	11.5	3.8	100
E- Legal Perception Mean Ranking and Standard Deviation						
Test value=3	Mean		Std. Deviation			
Crime	2.87		0.971			
Confidence	2.71*		1.21			
Investor protection	2.65**		1.046			
Contract enforcement	2.62***		0.993			
Trust	2.52***		1.111			
Corruption	2.52***		1.038			
The six legal perception measures are based on a scale where '1' represents strongly disagree and '5' represents strongly agree. This shows response % in each category. For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.						

Results in Table 6.12 show that only approximately 17% of the entrepreneurs believe that the court system in Egypt can be trusted, whereas 46% believe that it cannot be trusted. Approximately 23% have confidence in the political stability in Egypt, whereas 37% do not. Approximately 15% believe that corruption is being mitigated, while 44% do not. About 27% believe that crime and theft are not common in Egypt, which is the legal environment aspect that entrepreneurs perceived to be the strongest. Contract enforcement had the lowest agree responses, which means it is perceived by entrepreneurs to be the weakest legal factor. Entrepreneur responses related to the judicial system show that only 11.5% believe it can enforce their contractual rights and only 15.5% believe it can enforce their investor protection rights. As shown above in Table 6.12, all mean rankings for E- legal perception measures are below the set test mean of '3'. Furthermore, this explains that entrepreneurs perceive the legal environment aspects to be weak in all the aspects listed above. Mean rankings in this section are explained from lowest to highest; thus, the lowest mean is 2.52, which is the mean for the 'corruption as well as trust measures', which shows that the biggest issues from the perception of entrepreneurs are corruption in Egypt not being mitigated

and not trusting the court system. These are followed by the measure ‘contract and investor rights being enforced’ and, finally, the highest means are ‘confidence and crime’, which implies that having confidence in the political stability and the crime and theft rates in Egypt are the legal environment that entrepreneurs are least concerned about. However, crime is the only measure that is insignificantly lower than the set mean of ‘3’. It is important to note, however, that the highest rate of response in all measures was neutral, which shows that many entrepreneurs decided to give answers that are neither implying strong nor weak, due to the sensitivity of the issue discussed.

The way entrepreneurs perceive the impact of the legal environment on their businesses is captured through eight scale questions. These questions enquire whether their businesses are affected by political stability and government legislation; whether external legal environment factors have affected their ability to provide innovative products, innovative ideas, and use modern technology to improve productivity and efficiency; and whether the innovative outcome of the business is impacted by patent laws, and the extent to which the legal environment conditions make them resort to relying on networks and/or personal relationships.

	1	2	3	4	5	Total
Stability	5.8	9.6	28.8	25	30.8	100
Gov't Legislation	3.8	5.8	23.1	26.9	40.4	100
Innovative Products	1.9	1.9	28.9	38.4	28.9	100
Modern Technology	1.9	1.9	36.5	30.8	28.9	100
Innovative Ideas	0	5.8	32.7	25	36.5	100
Patents	11.5	9.6	38.4	25	15.4	100
Rely networks	0	1.9	34.6	11.5	51.9	100
Rely relations	0	3.8	32.7	17.3	46.2	100

Test value=3	Mean	Std. Deviation
Rely networks	4.13***	0.971
Rely relations	4.06***	0.978
Gov't Legislation	3.94***	1.11
Innovative Ideas	3.92***	0.967
Innovative Products	3.9***	0.913
Modern Technology	3.83***	0.944
Stability	3.65***	1.186
Patents	3.23	1.182

The eight legal impact measures are based on a scale where '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category.
For mean ranking ***, **, * denote statistical significance, at 1, 5, 10% levels, respectively.

Responses of the entrepreneurs and ranking of means, as shown in Table 6.13, show that the most important measures for legal environment impact are that they do rely more on networks and relationships. Relying on networks and personal relationships had means of 4.13 and 4.06 respectively. This is consistent with the Institutional Theory and with previous studies which explain that networks have a greater role in emerging economies, as they substitute for formal institutions (Meyer, 2001; Peng 2000). Additionally, economies with weak financial institutions become more dependent on their personal relationships and networks in all aspects of the VC process, starting with selection.

The third mean, after relying on networks and personal relationships, is government legislation (3.94.), which shows that respondents do agree that government legislation does have an impact on their businesses. The lowest means are those of stability (3.65) and patents (3.23), which shows that entrepreneurs believe that political stability and patent laws in Egypt currently have a lower impact on their businesses than other legal environment measures. Moreover, mean rankings of all the measures are significantly

(at 1% level) above the set mean of three (expect for patents, which is insignificant), which shows that the legal environment does have an impact on the VC-backed firms in Egypt.

i) Institutional (Legal) Environment (from VC perspective)

The final section in the VC questionnaire is used to test the moderating variable legal environment, how VC managers perceive it and how they believe it would impact their businesses or scope of work. This section is very similar to the one administered to entrepreneurs, but it captures the entrepreneurs' point of view instead.

Seven Likert-scale measures (trust in the court system, confidence in political stability, corruption is being mitigated, crime and theft are not common, laws and regulations affecting the business are predictable, confidence that contractual rights are enforced, confidence that investor protection rights are enforced) were used to capture the perception of the VC managers.

Table 6.14 VC Legal Perception Percentages						
	1	2	3	4	5	Total
Trust	35.7	28.6	21.4	14.3	0	100
Confidence	14.3	21.4	35.7	21.4	7.1	100
Corruption	35.7	14.3	28.6	14.3	7.1	100
Crime	14.3	35.7	21.4	14.3	14.3	100
Laws	7.1	57.1	14.3	21.4	0	100
Contractual rights	14.3	50	14.3	14.3	7.1	100
Investor protection rights	28.6	28.6	14.3	21.4	7.1	100
VC Legal Perception Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Confidence	2.86			1.167		
Crime	2.79			1.311		
Laws	2.5			0.941		
Contractual Rights	2.5			1.16		
Investor protection	2.5			1.345		
Corruption	2.43*			1.342		
Trust	2.14**			1.099		
These seven measures of legal perception are based on a scale from '1' representing strongly disagree to '5' representing strongly agree. This table shows response % in each category. For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively.						

The questions related to legal perception, are phrased in a positive form, as explained for entrepreneur legal perception (Table 6.12, p. 207). Hence, answers in

‘strongly disagree’, ‘1’, and ‘disagree’, ‘2’, would show a weak legal environment. It is evident that respondents do not perceive the legal environment in Egypt to be strong; the highest percentages of ‘strongly agree’ (which shows a strong legal environment) for any of the measures is 14%. This means that only 14% of the VC managers strongly agree that crime and theft is not common in Egypt. The highest percentage for ‘strongly agree’ and ‘agree’ combined is only 28%. This 28% appeared for three measures. Only 28% of the VC managers have confidence in the political stability. Only 28% perceive crime and theft not to be common in Egypt (‘agree’ and ‘strongly agree’). Only 28% have confidence that the judicial system can enforce their investor protection rights, while 57% disagreed, showing that they do not have confidence, that their protection rights can be enforced. Moreover, only 14% agreed that they have trust in the court system in Egypt, while 64% disagreed or strongly disagreed, which shows that the majority do not have trust in the court system. VC managers’ responses show that 64% do not have confidence that their contractual rights will be enforced by the judicial system and believe that the laws affecting their operations and growth are unpredictable. The mean ranking of the seven VC legal perception measures (see Table 6.14 above) reinforces these percentages of responses. All means are beneath the set test mean of ‘3’, implying that most of the responses to the positive statements were either ‘disagree’ or ‘strongly disagree’. Moreover, this concludes that the legal environment in Egypt is not perceived to be a strong one. In this case, mean rankings are explained from lowest to highest, where the lowest mean is that of trust, which shows that the biggest issue is that the court system cannot be trusted, followed by corruption being mitigated, and contractual as well as investor rights being enforced. The two measures that are significantly below the set test mean (showing a weaker legal environment) are trust and corruption, at 5% and 1% significantly. Confidence in the

political stability, however, has the highest mean, which implies it is the least of the problems that are currently perceived by venture capitalists in Egypt; however, it is still below the mean of 3.

Overall responses conclude that, from the VC managers' perception, the legal system in Egypt is considered weak. These results are extremely realistic, as they confirm the responses of entrepreneurs. Having similar perceptions, as seen in Table 6.12, p. 207, through mean ranking from two different samples conveys that the results are realistic and do reflect the situation in Egypt.

Regarding the other legal environment aspect, eight measures are used to capture how VC managers perceive the impact of the legal environment on their business. These are: whether stability of political systems and stability government legislation have an impact on their business; despite the external legal environment factors. Whether they have been able to provide various as well as sufficient value-added services to portfolio companies; whether contract enforcement and investor protection laws have had an impact on the service level they provide; and whether it is more important to rely on networks and connections as well as personal relationships, due to the legal conditions in the country. These questions are very similar to those administered to entrepreneurs; however, they are only tailored to reflect the different natures of both businesses.

	1	2	3	4	5	Total
Stability	0	7.1	7.1	57.1	28.6	100
Government Legislations	0	0	7.1	50	42.9	100
Various services	0	0	14.3	57.1	28.6	100
Sufficient services	0	0	14.3	78.6	7.1	100
Contract enforcement	0	7.1	21.4	64.3	7.1	100
Investor protection laws	21.4	21.4	42.9	14.3	21.4	100
Rely on networks	0	0	14.3	57.1	28.6	100
Rely on personal relationships	0	7.1	7.1	57.1	28.6	100
VC Legal Impact Mean Ranking and Standard Deviation						
Test value=3	Mean			Std. Deviation		
Gov. legislation	4.36***			0.633		
Various services	4.14***			0.663		
Rely on networks	4.14***			0.663		
Stability	4.07***			0.829		
Rely on personal relations	4.07***			0.829		
Sufficient services	3.93***			0.475		
Contract enforcement	3.71***			0.726		
Investor protection Rights	3.5*			1.019		
These right measures of legal impact from VC perspective are based on a scale were '1' represents strongly disagree and '5' represents strongly agree. This table shows response % in each category. For mean ranking ***,**,* denote statistical significance, at 1, 5, 10% levels, respectively.						

Results presented in Table 6.15 show that 86% of the VC firms agree and strongly agree that the stability of political systems in Egypt does have an impact on their business. Approximately 93% agree and strongly agree that government legislation has an impact on their business. Moreover, 86% of them also agree that, despite external legal factors, they are able to provide various as well as sufficient value-added services to their funded companies. Approximately 71% of the VC firms agree and strongly agree that contract enforcement level has an impact on the service level they provide. Only 36% agree that investor protection laws have an impact on the service level they provide, while 43% disagree. It is important to note that, as explained in the VC legal perception section (see Table 6.14), VC firms do not appear to have confidence in contract enforcement and investor protection rights by the judiciary system, and hence this is interpreted as they would have a negative impact on the service level. The majority (86%) of the VC firms also agree that the legal conditions make it crucial for them to rely on their networks and connections as well as personal relationships.

Mean rankings also show that the highest mean is government legislation, which shows that respondents mainly agree that government legislation has an impact on their business, while the lowest is investor protection rights having an impact on their service level. Overall, the eight measures are significantly above the set mean of 3, showing that respondents agree that all the measures do have an impact on their services. These results are in line with the Institutional Theory (Bruton and Ahlstrom, 2003, 2006), which explains the importance of relying on networks and personal relationships, in environments with weak legal systems. These results are also in line with previous which show that firms tend to rely more on networks (interconnections between them) to resolve conflicts and negotiate contracts in cases where legal systems are weak (Meyer, 2001; Vergara et al., 2016).

In support of responses on the legal environment and how these responses show the legal environment in Egypt to be weak, some statistics and official worldwide indices are included in section 2.4.1. These show that responses of venture capitalists and entrepreneurs are not just perceptions; instead, they do reflect the reality of the legal and institutional environment in Egypt.

After presenting and explaining the responses of both questionnaires on VC-E relationship and the institutional environment in Egypt, the data is then reduced, to enable its analysis. An overview of the reduction method and results is presented in section 6.2.

6.2 Confirmatory Factor Analysis

6.2.1 Data Reduction for VC-E Relationship Measures

To measure VC-E relationship from the perspective of entrepreneurs, it is split into five categories: VC-E complementarity, VC-E disagreements, contract flexibility, contract favourableness and VC-E ease of relationship. Each of those categories is presented through a set of related questions in the survey. The factor loadings for the indices of those five categories are listed in Table 6.16 below.

Table 6.16 Variables in Each Factor and their Factor Loadings (VC-E Relation Indices)								
E- flexibility		3.95	E-Ease of Relationship		3.07	VC-E Relation		1.77
Strategy flexibility	0.85	Negotiate	0.767	VC complementarity	0.421			
Marketing flexibility	0.814	Agreement speed	0.831	VC disagreements ²⁵	-0.008			
Financial flexibility	0.648	Ease of agreement	0.839	Ease of relation	0.681			
R&D flexibility	0.877	Agree speed on new venture	0.808	Team Spirit	0.6791			
PD flexibility	0.823	Third party	0.656	PC trust	0.8148			
HR flexibility	0.833							
E- complementarity		2.9	E-Extent of Relationship		1.12	VC- Complementarity		1.88
Resources	0.84	E-Complementarity	0.655	Resources	0.942			
Strengths	0.862	Disagreements	-0.438	Strengths	0.831			
Abilities	0.844	E-Ease of relation	0.707	Abilities	0.547			
Expectations	0.863							
E- disagreements		3.76	E-favourableness		4.49	Trust		4.20
Strategy disagreements	0.753	Company Valuation	0.683	Benefits	0.885			
Marketing disagreements	0.703	Type of security	0.774	Economic Consequences	0.636			
Financial disagreements	0.62	Amount of investments	0.5	Dependable	0.694			
R&D disagreements	0.876	No. of directors	0.805	Act Fairly	0.756			
PD disagreements	0.79	Voting Rights	0.854	VC-Openness	0.509			
HR disagreements	0.65	Vesting Founder Stocks	0.795	No Doubt	0.703			
CEO disagreements	0.711	Management Control	0.76	Responds constructively	0.894			
Other disagreements	0.753	Conversion Rights	0.766	Common Bus. Values	0.637			
VC- Ease of Relationship		1.94	Team Spirit		2.24	VC- Disagreements		2.58
Negotiate	0.642	Clear Goal	0.638	Strategy disagreements	0.822			
Agreement speed	0.812	Work Hard	0.702	Marketing disagreements	0.649			
Ease of agreement	0.232	Team Interest	0.484	Financial disagreements	0.471			
Agree speed on new venture	0.434	Try Best	0.926	R&D disagreements	0.552			
Third party	0.642	Responsibility	0.501	PD disagreements	0.705			
				HR disagreements	0.510			
				Other disagreements	0.435			
This table presents all indices (factors) in which the different variables are aggregated. As well as, the factor loading of each variable in the index. The eigenvalue of each index is presented next to the index name.								

²⁵ Looking at the coefficient scores to be loaded into regression, disagreements loads with a negative - 0.0086, which is consistent with data as the higher the disagreements between the VC and E the lower the extent of the relationship between them.

i) VC-E Relationship from Entrepreneurs' Perspective

The VC-E complementarity measures are significantly correlated. Therefore, they are loaded into a variable named E-complementarity, with an eigenvalue of 2.9.

To measure the VC-E disagreements, Likert-scale questions are also used to show the extent (from very low to very high) of disagreements on different issues that the VC managers perceive themselves to have with the portfolio company. All eight issues are reduced into a factor named E-disagreements, with an eigenvalue of 3.76.

To measure the contractual relationship between the VC and E, the entrepreneurs are asked to provide their perception on the degree of contract flexibility on certain issues and how favourable they believe the contract to be on different contractual terms. Contract flexibility on strategic, marketing, financial, R&D, product development and HR issues are measured through a Likert scale. The six variables are highly and significantly correlated and fit into an variable, named E- flexibility, with an eigenvalue of 3.95.

The contractual terms included to rate the entrepreneurs' contract favourableness are company valuation, type of security, amount and timing of investments, number of directors, voting rights, vesting founder stocks, management control and conversion rights. Those eight measures had significant correlations and fit into an variable called E-contractual Favourableness, with an eigenvalue of 4.49.

The VC-E ease of relationship from the perspective of the entrepreneur is measured through five Likert-scale questions, which all have significant correlations and hence, fit into one variable named, E-ease of relation, with an eigenvalue of 3.07.

To measure the extent of the VC-E relationship, contract flexibility and favourableness were excluded to capture their effect separately, from the relationship factors that do not include any contractual agreements. Additionally, they could not be combined as the correlations between them were very low and they cannot fit into a variable. On the other hand, E-complementarity, E-disagreements and E-Ease of relation have significant correlations, hence were reduced further into one variable, called E-Extent of relation, with an eigenvalue of 1.12.

It is important to note that disagreements naturally load negatively into the variable created by factor analysis, as the higher the disagreements the lower the extent of relationship.

ii) VC-E Relationship from Venture Capitalists' Perspective

To measure VC-E relationship from the perspective of VC managers, VC-E relationship, is measured through five categories: VC complementarity, VC disagreements, Ease of relation, Team spirit and PC trust. A factor is created for each category, after which they are aggregated further through two-step CFA, as explained below. Factor loadings for all the indices are shown in Table 6.16, p. 216.

The four measures of the first category VC-E complementarity, are significantly correlated except for meeting VC firm expectations²⁶. The remaining three are combined into a variable named, VC complementarity, which, has an eigenvalue of 1.88.

²⁶ Meeting firm expectations was dropped from the index as it loads negatively.

All VC-E disagreement issues had significant correlations, except for, marketing issues²⁷. All other seven issues were reduced into a variable named VC disagreements, with an eigenvalue of 2.58.

All five measures of VC-E ease of relationship have significant correlations and hence fit into one variable named Ease of relation, with an eigenvalue of 1.94, without dropping any measures.

All team spirit measures were positively and significantly correlated. Therefore, these five measures were grouped into one variable with an eigenvalue equal to 2.24. This variable was named Team spirit.

The final aspect in the questionnaire used to understand the VC-E relationship is the level of trust that VC firms have in their PFs. These eight measures, were significantly and highly positively correlated and hence, grouped into a variable named, PC trust, with an eigenvalue of 4.20.

Overall, the five indices related to VC-E relationship are positively significantly correlated, therefore, two- step factor analysis was applied, and a variable was created, and these indices were grouped into a new variable, called VC-E relationship with an eigenvalue of 1.77 and they had the factor loadings shown in Table 6.16, p. 216. The eigenvalues of these five indices show that the most important category in the VC-E relationship is trust, as it had the highest eigenvalue (4.20). This is consistent with the work of Li. et al. (2018), which emphasises the importance of trust between the VC and the entrepreneur in an emerging economy.

²⁷ Disagreements on marketing issues was dropped from the index as it loads negatively.

6.2.2 Data Reduction for Institutional (Legal) Environment Measures

To measure the legal environment, entrepreneurs and venture capitalists were asked to respond to different measures that investigate their perception towards the legal environment and the impact it has on their firms. Each of those categories is presented through a set of related questions in the survey. The factor loadings for the indices of those five categories are listed in Table 6.17 below

Table 6.17 Variables in Each Factor and their Factor Loadings (Legal Environment Indices)					
E-Legal Perception		3.48	VC- Legal Perception		4.89
Trust		0.757	Trust		0.869
Confidence		0.765	Confidence		0.944
Corruption		0.727	Corruption		0.842
Crime		0.435	Crime		0.645
Contract enforcement		0.886	Laws		0.622
Investor Protection		0.904	Contractual rights		0.92
			Investor protection rights		0.943
E- Legal Impact		2.89	VC- Legal Impact		3.03
Stability		0.46	Stability		-0.257
Govt Legislation		0.502	Government Legislations		-0.229
Innov. Prdt		0.713	Various services		-0.66
Modern Tech		0.678	Sufficient services		-0.757
Innov. Idea		0.784	Contract enforcement		0.878
Patents		0.218	Investor protection laws		0.766
Rely networks		0.669	Rely on networks		0.283
Rely relations		0.595	Rely on personal relationships		0.671
This table presents all indices (factors) in which the different variables are aggregated. As well as, the factor loading of each variable in the index. The eigenvalue of each index is presented next to the index name.					

The final section in the questionnaire administered to entrepreneurs is used to enquire about the moderating variable, Legal Environment in Egypt. The seven Likert-scale measures used to capture the entrepreneurs' perceptions are very highly and significantly positively correlated and hence are all loaded into a variable named E-Legal Perception, with an eigenvalue of 3.48 and factor loadings shown in Table 6.17 above.

The way entrepreneurs perceive the impact of the legal environment on their business is captured through eight Likert-scale measures, most of which have

significant correlations and hence they are grouped into one variable called E-Legal Impact, which has an eigenvalue of 2.89.

Venture capitalists responded to questions about the Legal Environment in Egypt as well, how they perceive it and how they believe it would impact their businesses or scope of work. The seven Likert-scale measures used to capture the perception of the VC managers of the legal environment were very highly and significantly positively correlated and hence were all loaded into a variable named VC Legal Perception with an eigenvalue of 4.89.

The way VC managers perceive the impact of the legal environment on their business is captured through eight Likert-scale questions in the questionnaire they received. Most of these measures had significant correlations and hence they were grouped into one variable called VC Legal Impact, which had an eigenvalue of 3.03. The loadings of these measures are shown in Table 6.17, p.220; however, those that have loaded negatively have not been excluded due to the nature of the questions.

Legal impact and legal perception were left as two separate indices, as they are not correlated and do not create a strong factor; additionally, there are only two factors which would not be sufficient to create a variable.

6.3 Data Reduction Summary

Table 6.18 Final Variables after Reduction	
Variable	Type of variable
E-Extent of relation	Independent
E- contractual flexibility	Independent
E- contractual favourableness	Independent
VC-E relationship	Independent
E- Legal Perception	Moderating
E- Legal Impact	Moderating
VC- Legal Perception	Moderating
VC- Legal Impact	Moderating

Through CFA, the measures related to the VC-E relationship were reduced into 4 independent variables. The measures related the legal environment were reduced into 4 moderating variables (2 from entrepreneurs' perspective and 2 from venture capitalists' perspective). Table 6.18 above represents these variables.

6.4 Regression Results (All Variables)

Multiple linear regression is applied but for all variables in this study (those listed in Tables 5.26 and 6.18), covering entrepreneur characteristics, VC characteristics and services, and VC-E relationship. Findings of this study will be based on results of this regression model as opposed to the model discussed in section 5.4, as the results provide a more comprehensive explanation of the variation in VC-backed firm performance. Starting with a smaller number of variables in a regression and then increasing the number of variables is referred to as step-wise regression (Diamond and Jefferies, 2001; Best and Wolf, 2015). When adding more variables, the R-squared increases, however, if the adjusted R-squared increases it shows that the increase is not just due to the rise in the number of variables but because they do provide a more complete explanation. In this study the adjusted R-squared of the regression presented in Table 6.19 (pg. 224), model 1 (with no moderators), the adjusted R-squared rose to 46.19% compared to 39.1% in the regression analysis discussed in section 5.4. Thus, results of the first regression analysis are not considered as the second regression provides more reliable results.

Table 6.19 below (pg. 224) presents the regression outcome for the four different specifications of the regression model. The first model represents results of the regression analysis without including moderating variables. The second and third

models add the moderating variables from the entrepreneur and the VC perspective, respectively. The fourth model adds the moderators from both the VC and entrepreneurs' perspectives. Presented in the table are the coefficients, standard error and significance for each variable. The coefficients indicate the sign and the magnitude of the effect a variable is having on the dependent variable, *Ceteris Paribus*. Together the coefficient and the standard error indicate on the level of significance of the variable.

As seen in Table 6.19 (pg. 224), the model is estimated for the 52 observations using the compiled list of variables. These 52 observations are the responses of the entrepreneur questionnaire matched with their corresponding (the entrepreneurs in the VCs portfolios) 14 responses for the VC questionnaire. This matching process ensures the investigation of the impact on VC-backed firms' performance, when VCs and entrepreneurs co-exist and are interacting in the system. Hence, matching entrepreneurs with the VC that fund them in the analysis, leads to non-generic results.

As evident in the table below, and for each of the four models, the variation in the performance of the VC-backed firms is well explained with the variation in the independent variables, ranging from R-squared values of 67.67% to 70.09%. Results presented in the table show that four out of the 18 variables are found to be significant at the 10% level. This means that 22.2% of the variables are significant.

Table 6.19 OLS Regression Results				
Variables	No moderators	E-moderators	VC-moderators	E&VC moderators
	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
VC education	-.0263 (.1343)	-.0216 (.1726)	.0066 (.1890)	.0053 (.2020)
VC experience	.0883 (.2832)	.0860 (.2147)	.1247 (.3594)	.0384 (.3488)
VC involvement	-.1924 (.2219)	-.2883 (.2201)	-.1832 (.2544)	-.2767 (.2496)
VC services	.0425 (.2218)	.1413 (.1794)	.0245 (.2257)	.1657 (.2549)
VC gov't network	-.1735 (.2185)	-.2180 (.1899)	-.1978 (.1721)	-.2103 (.1750)
Avg. Connections	-.0528 (.1986)	.0427 (.1493)	-.0226 (.2257)	-.0059 (.1330)
VC-E relationship	-.0262 (.1498)	-.0295 (.1300)	-.0381 (.1138)	-.0059 (.1330)
Executive Recruitment	.1837 (.1534)	.1742 (.1987)	.2058 (.1958)	.1698 (.2077)
E- Business Network	.2427* (.1358)	.2360** (.1142)	.2474** (.1179)	.2345* (.1178)
Network use	.1245 (.1404)	.1314 (.1546)	.1341 (.1626)	.1334 (.1641)
Fit RBC strategy	.5765*** (.1853)	.5967*** (.1888)	.0066*** (.1890)	.5827*** (.1917)
Previous experience founders	-.1654 (.1497)	-.1433 (.1312)	-.1725 (.1407)	-.1455 (.1338)
Previous managerial experience	-.3071** (.1535)	-.3184** (.1358)	-.3078** (.1332)	-.3067** (.1478)
Proportion education	-.0800 (.1386)	-.1040 (.1010)	-.0822 (.0965)	-.1009 (.1056)
Advice	.1108 (.1615)	.1087 (.1888)	.0950 (.1965)	.1171 (.1975)
E-Extent of relation	.3420 (.2227)	.3352 (.2924)	.3549 (.3075)	.3308 (.3060)
E- contractual flexibility	.1876 (.1595)	.2455 (.2061)	.1861 (.2143)	.2511 (.2154)
E- contractual favourableness	-.2871** (.1426)	-.2419 (.1708)	-.2965* (.1660)	-.2436 (.1848)
Firm age	-.0096 (.2776)	.0799 (.2958)	-.0028 (.3035)	.0882 (.3084)
Firm size	.6120** (.2430)	.6685** (.3012)	.5990* (.3163)	.6582** (.3184)
E- Legal Perception	NA	.1846 (.1294)	NA	.1835 (.4346)
E-Legal Impact	NA	.1544 (.1323)	NA	.1650 (.1407)
VC- Legal Perception	NA	NA	.0571 (.3183)	-.0554 (.2965)
VC-Legal impact	NA	NA	.0610 (.10600)	.0226 (.1300)
R-Squared	0.6767	0.7003	0.6786	0.7009
No. of observations	52	52	52	52

Standard errors in provided in parenthesis
***, **, * denote statistical significance at 1, 5, 10% levels, respectively.
NA represents cells in which no coefficients or stand errors are calculated, as no moderators are applicable to that certain model.

Firm age and size are not relevant to this scope of research, and therefore are included in the model as control variables. Firm size is significant at the 10% level in all four specifications of the model. For the sake of validating previously discussed hypotheses, the significance level of the variables, together with the sign of the coefficients are investigated. Entrepreneurs' business networks show a positive and significant coefficient leading to accepting hypothesis 1a. In model one, where no moderator variables are included and in model four, where moderating variables are included from the perspective of venture capitalists and entrepreneurs, business networks is significant at the 10% level.

In models two and three, where the moderating variables from entrepreneur and VC perspectives respectively are added, entrepreneur business networks are significant at the 5% level. The proper match between RBCs' of the firms and their corresponding strategies shows a positive and significant effect (at the 1% level in all four implications of the model), which leads to accepting hypothesis 1b. Entrepreneurs' previous managerial experience, on the other hand, is negative and significant (at the 5% level in all four implications of the model), which leads to rejecting hypothesis 1c. Finally, contract favourableness is negative and significant at the 5% level, when no moderators are added to the model and at the 10% level, when the moderating variable from the VC perspective is included. It shows no effect in the model where only the moderating variable from the entrepreneurs' perspective is included and when the moderating variables from the perspectives of both are included. This leads to rejecting hypothesis 3a. Hypotheses testing will be discussed in depth in Chapter seven.

6.5 Chapter Summary

This chapter presented a description of responses of both entrepreneurs and venture capitalists related to the VC-E relationship and to the legal environment in Egypt. A

ranking of the means for the measures of those variables is also provided. After which CFA was used to reduce the correlated measures into indices. The results of the regression model are presented however, a discussion of these results is provided in Chapter seven.

Chapter 7

Discussion of Results

7.0 Introduction

7.1 Hypotheses Testing

In this section, each hypothesis is presented and compared to the results derived from this study.

7.1.1 Hypotheses for Independent Variable One (Entrepreneur Characteristics)

- **H1a: E- SC has a positive impact on the performance of the VC-backed firms**

In this study, entrepreneurs' SC is measured by their ability to recruit, their business network and their utilisation of all their networks (government networks, business contacts and community contacts). All three measures have a positive effect on the performance of the VC-backed firms. However, only business networks have a significant effect. The business networks of entrepreneurs are found to be significant across all models (whether moderators are included or excluded).

Statistics in Table 5.3, p. 154 show that the entrepreneurs' ability to recruit is very weak and needs to be improved, which explains why its effect in Egypt is not significant. However, entrepreneurs' ability to recruit is found in the literature to have a positive and significant impact on VC-backed firm performance, especially in the early stages of the new venture. This occurs because recruiting talented personnel or executives leads to more successful ventures, due to their superior performance (Collins and Clark, 2003). As mentioned in the literature, a start-up with a quality 'B-rated' idea and a quality 'A-rated' team is more effective on a venture than a quality 'A-rated' idea with a quality 'B-rated' team (Baron et al., 2016).

The significant effect of E-SC in Egypt is attributed to business network, which affects performance by allowing access to information, recognition of opportunities and reputation building (Burton et al., 2002; Hsu, 2004). Business networks of entrepreneurs in Egypt, which allow access to information, are quite strong, particularly personal business networks more than business organisations. The following percentages derived from the results of entrepreneurs' responses (Table 5.4, p.155) show that the strength of business networks leads to enhanced performance of VC-backed firms:

- 58% had parents who already own businesses
- 81% had very close friends who already own businesses
- 71% were supported or encouraged by friends and family
- 35% belong to a business network
- 48% had close connections with firms that dispense business advice
- 52% previously belonged to a start-up team.

These figures show how the entrepreneurs are strongly surrounded by individuals in the business community, which enables their access to information and increases their chances for opportunity recognition, and hence increases the performance of their ventures (Bruton et al., 2002; Hsu, 2004).

Do not reject hypothesis H1a

- ***H1b: The RBCs and strategies of venture-capital backed firms have a positive impact on the performance of the VC- backed firms***

This hypothesis is not rejected, as the variable that represents a proper match between the resources the firms possess and their corresponding strategies, is found to be significant in all four models. This is consistent with RBVF, which states that each firm

possesses unique resources and capabilities. They form its competitive advantage in the market and increase its success chances and performance (Ferreira and Fernandes, 2017). It is also consistent with previous studies which explain that firms with certain resources will achieve competitive advantages through different strategies and therefore achieve superior performance (Camison and Villar- Lopes, 2014; Karlsson and Tavassoli, 2018). Strategies make better use of resources through focused and productive efforts (Wang and Ang, 2004).

Moreover, firms achieve a sustainable competitive advantage if the right strategy is selected for each of its available resources (Kuratko et al., 2005).

Statistics prove that firms possess resources and strategies that have a good fit with those resources. The entrepreneurs' responses and mean ranking confirm that RBCs with higher means also have corresponding strategies with higher means. The analysis also confirms that the alignment of resources and strategies has a significant positive impact on the firm performance.

Do not reject hypothesis 1b

- ***H1c: E-HC has a positive impact on the performance of VC-backed firms***

HC of entrepreneurs refers to the experience and education of those entrepreneurs, both of which are found in previous studies to have an impact on firm success (Dimov, 2010). However, the results of this study are not in line with most previous findings, and hence this hypothesis is not accepted. Education of entrepreneurs is found to have an insignificant effect on venture-backed firm performance. Experience has a negative and insignificant effect; managerial experience, however, has a significant effect, yet it is a negative one. These results can be explained by the differences in the Egyptian

market, relative to other markets studied, which is captured through the descriptive statistics and can be supported by some previous studies.

First, the finding that education has an insignificant effect on firm performance can be explained by the work of Unger et al. (2009), which explains that the effectiveness of HC depends on the development of the nation in which it exists. Education is more effective in nations that have a higher diversity in the offered education. As seen in Table 5.13, p. 167, there is very little diversity in education amongst entrepreneurs in Egypt. Additionally, there is a lack in the higher education level, where the majority of the entrepreneurs do not hold any degrees higher than a bachelor's degree.

In addition to the study of Davidsson (2004), the work of Unger et al. (2009) also provides another justification for why education does not have an impact on the performance of the VC-backed firms in this study. Education is an investment and not an outcome and therefore does not necessarily or directly impact firm performance. It is the knowledge attained from this education that does. This study, however, does not measure knowledge or capture the effect of the outcomes of education and hence this can be tested for in future studies.

Previous experience, on the other hand, also has an insignificant impact on the performance of VC-backed firms. This is also justified by the work of Unger et al. (2009): similar to the theory relating to education, experience is also dependent on whether the nation is developed or not. In nations that are not very developed and unemployment is high, many people are forced into entrepreneurship as an alternative, instead of being skilled individuals that are willingly making the choice to become

entrepreneurs (Reynold et al., 2002). Unemployment in Egypt is relatively high: in 2018 the country was ranked 33 out of 181 in terms of unemployment.²⁸

The results of the studies of Davidsson (2004) and Unger et al. (2009) are applicable to experience in the same way they are to education. The outcomes of experience are more essential in impacting performance than the experience itself. Previous experience is an investment, however, while the skills attained from the experience (the outcome of the experience) are necessary to achieve higher performance. This study does not test the outcome; it only attempts to measure experience (the investment).

Additionally, the explanation as to why previous experience in this study does not have a positive and significant relationship with VC-backed firm performance can also be justified by the statistics evident in data collected in this study and supported by previous literature. First, as explained in earlier studies, industry experience is shown to have a more positive impact on venture emergence than entrepreneurship experience (Delmar and Shane, 2003; Honig and Karlsson, 2004; Dimov, 2010). In this study, however, entrepreneurial experience is more dominant than industry experience. Statistics in Table 5.12, p. 166 show that 67% of entrepreneurs examined in this study have previous experience in entrepreneurship, in terms of having a previous start-up, while only 25% have had this experience in the same industry or field of the current start-up. Having a previous start-up in the same industry as the current one increases the latter's success chances (Sirinivasan et al., 2004). Furthermore, 67% have also had previous entrepreneurship experience in terms of working in a previous start-up or any job related to entrepreneurship, whereas 53% have previously worked in the industry

²⁸ Source: The World Bank, TheGlobalEconomy.com.

of their current start-up. Second, not only does having a previous start-up, especially in the field of the start-up, have an impact on the performance of the VC-backed firm, but having a previous start-up that was a success gives a 30% chance that the current one will be successful (Gompers et al., 2006). According to the statistics related to experience of entrepreneurs in Table 5.12, p. 166, even though 67% of the entrepreneurs have had previous start-up experience, only 7.7% had successful experience in terms of achieving an IRR of 100% or higher. Finally, an additional aspect that should be taken into consideration when assessing why experience did not show a positive significant impact on VC-backed firm performance is the explanation provided by Dimov (2010). It states that neither entrepreneurship nor industry experience are sufficient without early planning efforts and opportunity confidence. This study does not measure early planning efforts and opportunity confidence. Hence, their effect can be examined as an extension of this study in future research.

As for managerial experience, it has a negative but significant effect. The statistics coming from the entrepreneurs' responses show that the percentage of responses are very high, above average, which shows no diversity, where the HC of entrepreneurs does not position them with a competitive advantage or present qualities that place them in a unique position to deliver better results. The majority, 64%, did not have a previous business together, 85% had never worked on the management team of a public company before, and, although 67% had previously managed a start-up, only 7.7% of those start-ups were successful. Eighty-three percent of the firms believed their management team to be functionally diverse, in terms of tasks they perform within the firm. These statistics are high, which shows that they lack diversity amongst entrepreneurs; hence, they do have an effect but not a positive one.

Reject hypothesis 1c

7.1.2 Hypotheses for Independent Variable Two (VC Characteristics)

- **H2a:** *VC- HC has a positive impact on the performance of VC- backed firms*

Results for HC characteristics relating to experience as well as education are fairly consistent among VC managers. As shown in Tables 5.15, p. 169 and 5.16, p. 171, variation in responses is very low, hence there is no impact on performance of VC firms. HC is more effective when it is variant, so degree of competency between managers can vary across firms and hence create a competitive advantage for their firms through the unique education or knowledge they possess (Zarutskie, 2008). Furthermore, this is a valid case in Egypt, as education is not variable, as with most developing nations (Unger et al., 2009).

Both education and previous experience can be task specific or general. Task specific can be more effective on performance, as it provides exposure to trial and error, as well as experience that cannot be gained elsewhere, not even through education (Zarutskie, 2007). Task-related HC, in the case of the VC managers, refers to business and law experience. Moreover, this explains further why the results are insignificant, business experience is ineffective and in turn excluded from the model to begin with, as all respondents have experience in business and only 35% have law experience, while 43% do not have anyone on the fund management team with a law degree.

Since results show that education and experience backgrounds of the VC managers in Egypt are very similar then, based on RBVF (Barney, 1991), a significant impact on performance cannot be present. Superior performance is associated with possession of resources that are valuable, rare and not substitutable; therefore, it is necessary for fund managers of a firm to have unique or different HC to outperform the other firms.

Reject hypothesis 2a

- ***H2b: Value-added services of Venture Capitalists have a positive impact on the performance of the VC-backed firm***

Literature extensively covered the contradicting views on the effect of VCs on performance of VC-backed firms regarding whether it is attributed to screening, funding, monitoring or value-added services. This study excludes screening and funding. Instead, it focuses on value-added services by venture capitalists and provides briefer insights on monitoring. Value-added services and monitoring both have a positive insignificant effect on VC-backed firms' performance. Therefore, a future study can be conducted in Egypt to analyse if screening or funding are more effective than value-added services in the Egyptian VC market.

Monitoring of the funded firms, as explained by the Agency Theory, provides portfolio firms with the ability to detect problems, reduce agency costs and increase portfolio firm performance, and hence adds value to the VC-backed firm. Monitoring is measured by how involved the VC is in the portfolio company. Monitoring in Egypt is relatively low and hence had an insignificant impact. For number of meetings per month, 35% responded with four times a month; however, 43% stated that meetings were held once or twice a week, while the remaining few responded with more than once a week. The majority of firms had a number of meetings per month that are below average. The number of rounds till exit provides a way of monitoring that minimises risk as, where funding is provided on several rounds instead of one, it also increases the effort incentive of entrepreneurs. Number of rounds among venture capitalists in Egypt is very low: most venture capitalists had one, two or three rounds equally and the maximum was four rounds till exit, which was provided by 14% of the VC firms. The

average number of boards on which each VC manager sits also shows involvement and a way of monitoring. Responses show that 36% are on seven or eight boards and another 36% are on four or five boards (average) and the remaining are below average. However, a VC manager sitting on too many boards may mean less focus on each (De Clerq et al., 2006). The measure of involvement that reflects monitoring, and is above average in Egypt, is the number of reports the VC receives from the portfolio firm a year: 64% provide quarterly reports, while the remaining provide reports more than seven times a year, which could be monthly.

Value-added services consist of involvement in strategic and operational planning through dispensing advice, management recruitment and providing the companies with access to contacts (networking). Literature has shown that these services are dependent on the venture capitalists' knowledge and expertise to enhance the performance of VC-backed firms (Dimov and Shepherd, 2005; Erli et al., 2006; Zarutskie, 2007 and Croce et al., 2012). Fund managers that have previous start-up experience can also give better advice and hire better-calibre staff. Business knowledge of VC managers is important to providing strategic advice, which is the most crucial advice for helping entrepreneurs through short-term crises. Furthermore, results show that none of the VC firms hold a competitive advantage in terms of education and experience of the managers. Additionally, how involved the VC firm is in its portfolio companies is also an indicator of how much influence they have over strategic issues. Advice dispensed is measured through entrepreneur responses. Statistically, the nine different aspects of advice that were investigated have shown very low results, all below average, with three exceptions: networking, strategic and financial advice. However, networking is the highest measure, at 52%, strategic advice is 50%, while financial is

only 46%. The advice level provided by venture capitalists needs to improve in Egypt, in order to have an impact on VC-backed firm performance.

Results also show that venture capitalists' involvement in recruitment of different members in portfolio companies is below average. Recruitment of different personnel was as low as 14%. Networking services provided by venture capitalists have the highest results, which is consistent in responses of both venture capitalists and entrepreneurs.

Reject hypothesis 2b

- ***H2c: VC networking service is positively significant with performance of the VC-backed firm***

Although the networking services provided by venture capitalists did not show a significant impact, it is still consistent with Institutional Theory, which explains that, in developing nations with low institutional environments, networking becomes more important and firms rely on it more than on other variables. This is evident in measures of advice dispensed by venture capitalists, where networking has the highest rank. Moreover, when comparing all services provided by venture capitalists, networking services are also by far ranked the highest, in terms of introducing their portfolio companies to customers and suppliers, which is providing them with access to contacts, hence networking services. Responses of venture capitalists show that 85% of VC firms introduced their portfolio companies to customers. The final aspect of networking provided by venture capitalists is government networking. Its impact was insignificant, which is attributed to the fact that responses show that the networks or contacts that venture capitalists possess with government officials are higher than the use of those connections on behalf of their portfolio firms. Having the contacts does not have an impact on performance; it is the utilisation of those contacts which does.

Reject hypothesis 2c

7.1.3 Hypotheses for Independent Variable Three (VC-E Relationship)

- **H3a: *The contractual agreement between VC and E can have a negative impact on the performance of the VC-backed firms***

The structure of the contract between principal and agent aids in mitigating conflicts of interest between them, through the selection of security, control rights and cash-flow rights. For proper contract implementation, the contract design must also consider incentives of both agents and hence provide expected return equal to at least their investment (Casamatta, 2003). It mitigates information asymmetry problems and hence leads to both the entrepreneur and venture capitalist being more confident in exerting efforts as incentives are clear and more aligned (Kaplan and Stromberg, 2001; De Bettignies and Brander, 2007; Vergara et al., 2016).

In Egypt, contracts are not expected to have a positive impact on performance of VC-backed firms, not only because the legal environment in Egypt is not perceived as a strong one, hence, contract enforcement is not reliable, but also because many contract provisions such as different types of securities available for VC funding elsewhere do not exist in Egypt. In emerging economies, more specifically in Egypt, the type of security used and in turn cash-flow rights may not be significant to mediate the VC-E relationship, as there may not be much variation in the types of securities available (shown in survey responses), where all contracts may rely on equities, as convertibles are not available. Hence, the VC market is not fully developed yet. The majority of answers to measures of contract favourableness fell into the very low, low or average, categories, while very few were evident in high or very high. Therefore, contract favourableness was shown to have a negative impact on VC-backed

performance, meaning the level of contractual favourableness in Egypt (perceived by entrepreneurs as unfavourable) has a negative impact on VC-backed firms' performance. For example, the highest level of high and very high responses combined for any of the measures was 38% for how favourable entrepreneurs perceived company valuation to be. The majority of responses for all measures of favourableness were average.

Many of the main contract covenants should have an impact on incentives provided to venture capitalists and entrepreneurs. Hence, contract covenants determine their effort level, which in turn has an effect on firm performance (De Bettignies and Brander, 2007). For example, the greater the share of VCs in the firm, the greater their effort, but the lower the effort of the entrepreneur. The type of security agreed upon between the venture capitalist and the entrepreneur determines the incentives they both receive and hence the effort they both exert, as well as allocation of cash-flow and voting rights. Allocation of cash-flow rights is sensitive to performance (Holstrom, 1979; Lazear, 1986). While these rights are conditional to the firm's performance, they are more common in the early stages of the VC-E relationship (Aghion and Bolton, 1992; Dewatripont and Tirole, 1994). In descriptive statistics shown in this study, none of these rights are found to be highly favourable by entrepreneurs.

It is important to note that the negative impact of contractual favourableness was not significant in all four models. It only appears as significant when no moderators are included in the model or when moderators from the VC perspective only are included but those from the entrepreneurs' perspective are excluded. This will be discussed further with hypothesis 4c, in section 6.2.4 when the institutional environment is considered.

Another aspect when viewing contractual environment is contract flexibility. Results show that contract flexibility has a positive impact on performance; however, a non-significant one. All six aspects of flexibility considered do show mean rankings slightly above the set mean, except for R&D flexibility (shown in Table 6.3, p. 195), which is exactly equal to the set mean. Hence, the non-significance is justified by the fact that they are only slightly above the mean, which means that agree and strongly agree responses were not too high. However, as evident in the results, shown in the descriptive statistics, most of the responses were neutral rather than agree or disagree, and hence not strong enough to have an effect on performance.

Do not reject hypothesis 3a

- ***H3b: The extent of the VC-E relation has a positive impact on the performance of the VC-backed firm***

The VC-E relationship from the perspective of venture capitalists and entrepreneurs does not have a significant impact on the performance of VC-backed firm.

Mutual-cooperation and the relationship between venture capitalists and entrepreneurs itself are important for VC-backed firms' success (Fu et al., 2018). Vergara et al. (2016) emphasise the importance of complementarity in the VC-E relationship, where they find that efforts of both should be complements rather than substitutes. This is based on the previously mentioned concept of joined inputs from both the venture capitalists and entrepreneurs. Venture capitalists provide marketing and networking while entrepreneurs have skills in technology and production and experience in innovation (Fairchild, 2011), hence they should complement each other. In this study, complementarity from the venture capitalists' perspective is found to be high, as shown in Table 6.6, p. 198, while entrepreneurs do find it to be above average

in three out of four measures; however, not too high. It is important to note that there are many different measures for performance and hence not all studies use the same measures, i.e. Vergara et al. (2016) find VC-E complementarity to have a positive, significant effect on the market value of the firm (a performance measure). Therefore, complementarity maybe strong enough to have an effect on VC-backed firm performance, even when combined with other relational measures in the index; however, on certain measures of performance and not the others.

Another measure of the VC-E relationship is the level of disagreements. From the VC perspective, disagreements on different aspects are average or slightly lower than average, as shown in Table 6.7, p.200, whereas, from the entrepreneurs' perspective, they are below average but not too low, as shown in Table 6.2, p. 194. As for the ease of VC-E relationship, results show that the way venture capitalists perceived it was slightly above average; with the exception of 'not requiring third party interference', it was highly above average. As for the entrepreneurs' perception, the ease of the relationship was average to high. Other measures related to VC perception only are team spirit and trust. Team spirit, as shown in the literature, improves firm performance as it leads to the adoption of cooperative behaviour, which in turn increases overall performance (Li et al., 2018). In this study, venture capitalists are found to generally view the team spirit of VC- backed firms as high. As for trust, the only type of trust that was shown to be high is C-trust, which is the trust based on strategic consideration, which is a trade-off between the benefit of maintaining the relationship and the cost of terminating the trust as well as its effect on reputation (Li et al., 2018).

Statistics show that the VC-E relationship overall is perceived to be above average from the perspective of both. Theory emphasised the importance of the VC-E relationship on the performance of VC-backed firms, especially in emerging economies (Li et al., 2018). Hence, the non-significance can be justified by the fact that in the literature it has shown significance only for certain measures of performance; therefore, it does not have to hold for all the measures.

Reject hypothesis 3b²⁹

7.1.4 Hypotheses for Moderating Variable (Legal Environment)

- ***H4a: The positive impact of innovation on VC-backed firms' performance becomes negative when moderated by laws and regulations in a weak legal environment***

Generally, in previous studies, it has been found that the stronger the IPR protection in a nation, the more reassurance to entrepreneurs that their idea would not be given away to the venture capitalists, and thus they would not feel the need to avoid revealing critical information. Furthermore, they would be able to improve innovations and increase innovative ideas (Ueda, 2004). This, however, is not evident in the results of this study. Descriptive statistics (Table 6.13, p.209) show that this is not the case in Egypt. On the contrary, entrepreneurs' responses show that, despite the legal factors, 67.3% of the entrepreneurs agree that their firm has been able to provide innovative products and services to customers, and 59.7% agree that their firm has been able to use modern technology to improve production and efficiency. Additionally, 61.5% agree that their firm has been able to come up with innovative ideas to obtain distinctive competencies than competitors, and 40.4% believe that government patent laws and

²⁹ After a robustness check, this hypothesis will be accepted and an explanation is provided in section 6.3.

licensing have an impact on the innovative outcomes of their business; however, the questions asked do not state whether the impact is positive or negative.

The explanation as to why the results are not compatible with the expected hypothesis can be clarified by the trust measures, which, as evident in Table 6.10, p. 204, show that the degree of trust between entrepreneurs and venture capitalists is above average for each measure. Since trust is relatively high between them, then this would explain why the entrepreneurs would still be able to innovate, despite the lack of protection rights or their enforceability.

Reject hypothesis 4a

Bruton and Ahlstrom (2003) point out through their investigation of the Chinese VC market that institutional factors in a different setting can create a VC industry with its own characteristics; therefore, the outcomes that are certain in one economy are not necessarily applicable in a different one.

- ***H4b: The positive impact of monitoring and networking activities on VC-backed performance becomes more positive when moderated by a weak legal environment. However, the positive impact of advice dispensed and services provided becomes negative***

Venture capitalists and entrepreneurs working in environments with weak legal systems have been found in previous studies to rely more on networks (interconnections between them) to resolve conflicts and negotiate contractual agreements between them (Meyer, 2001). Venture capitalists in developed countries are more likely to dispense advice and provide value-added services, as their contracts are enforced and their rights are protected; however, as this is not applicable in emerging markets, dispensing advice

and providing services would be expected to have a lower rate. Moreover, networking services should be more important than they would be in developed countries.

In this study, entrepreneurs view the level of advice dispensed by venture capitalists to their firms as low (six of the advice types are below average). Additionally, networking services provided by venture capitalists are found to be insignificant in this study. However, in the descriptive statistics, networks are found to be the most important services provided by venture capitalists in Egypt, as evident in Table 5.19, p.177. The introduction of portfolio firms to customers and their introduction to suppliers have the highest mean rankings amongst all services provided by venture capitalists. This is also confirmed by these two measures having the highest factor loadings in the VC services factor analysis variable (Table 5.25, p.186). Likewise, when checking the VC governmental relations, networking with government also has the highest factor loading in the variable and the highest mean ranking (Table 5.20, p. 178). As for advice dispensed by venture capitalists, entrepreneurs assess that networking advice is the main aspect on which they receive advice from venture capitalists (Table 5.17, p. 173). Furthermore, when entrepreneurs and venture capitalists were asked about their perception of the legal environment in Egypt, both explained that it was necessary to rely more on networks and personal relationships, as shown in Table 6.13, p.209. The legal environment leads to relying more on networks and personal relationships has the highest ranking (E- perspective). In Table 6.15, p.213, relying on networks has the second-highest mean ranking whereas relying on personal networks has a mean that is highly above average (VC- perspective). These statistical findings confirm previous studies and are consistent with Institutional Theory, even though the regression results are not significant.

Do not reject hypothesis 4b

- **H4c: *The negative impact of contract dependency on VC-backed firm performance becomes more negative when moderated by a weak legal environment. However, the positive impact of the extent of the dependency in the VC and entrepreneur relationship becomes more positive***

Results of the study show that entrepreneurs did not perceive contracts as favourable in Egypt, and hence they had a negative, significant impact on the performance of the VC-backed firms. Thus, including the legal environment from the entrepreneurs' perception in the analysis, results become insignificant. This is in line with the Institutional Theory and previous literature, which explain that, in countries where financial markets are not fully developed yet and the legal environment is weak (Bruton and Ahlstrom, 2006), contract enforcement is therefore unreliable, and dependency on the strength of the VC-E relationship would be more efficient in such environments. Previous studies on the VC markets of developed economies show that venture capitalists rely on the rule of law: that their contracts will be enforced and their ownership rights will be preserved. However, in developing economies results show that this rule of law is unlikely to hold and hence dependence on contractual agreements is forgone. Subsequently, alternative non-contractual mechanisms, such as strategic consideration, trust and teamwork between the entrepreneurs and the venture capitalists, become the incentives for venture capitalists to provide value-added services. More specifically, this would be that venture capitalists and entrepreneurs will work together to increase the chances of the firm's success, because of the desire they both have to obtain high returns and to avoid financial loss as well as loss of reputation. This will therefore drive each of them to abide by the contractual obligations and expect the same of the other party (Li et al., 2018).

Do not reject hypothesis 4c

In this study, the importance of the VC-E relationship does increase when legal environment is included in the model, however, it is not shown in the results in section 6.1 Rather it is explained next, in section 6.3, after the robustness check is presented.

7.3 Robustness Check

Initially, the dependent variable in this study was an ordinal value derived from a Likert scale. The dependent variable is the performance of VC-backed firms, which is captured by 10 different firm performance measures, all in the form of five-point Likert-scale questions. Five out of these 10 measures which had complete responses from all firms were reduced into an index to be fit (as a continuous variable) for the OLS regression applied in the analysis.

A robustness check was conducted using Ordered Probit Regression, which is a regression type that is suitable for a dependent variable that is ordinal or responses that are in the form of a scale or ranking. The dependent variable originally relied on ten ordinal scales measures for reassurance. However, when applying the ordered probit regression, the only measure for VC-backed firm performance considered out of the 10 is Sales Growth, which is used as a proxy for the dependent variable. Sales Growth was selected as it is the best fit out of the 10 measures for several reasons. First, it is the most highly correlated measure with all the other measures of performance, as shown in Table 5.22 p. 181. Second, when assessing the variables after they were grouped into an index, Sales Growth had the highest factor loading, as shown in Appendix A, Table A36 in the appendix. Finally, it had a full set of respondents, meaning no respondents have omitted this measure.

Ordered Probit Regression was selected for this study as it is more fit than Ordered Logistic Regression which is also used when the dependent variable is an

ordinal one. The main reason for this choice is that ordered probit is used more when the data presented in the model is random while ordered logistic is more fit when the data is fixed. However, ordered logistic regression was used to highlight consistency of results as the analysis was also conducted and the results yielded have reassured robustness as shown in Appendix A, Table A65. Results showed no differences when using ordered probit or ordered Logit.

Results of ordered probit regression below in Table 7.1 below show coefficients, standard error and significance for each variable. Coefficients (the top number in each cell) indicate the size of the effect that each independent variable is having on the dependent variable, while the sign in ordered probit regression is irrelevant. Standard errors (the lower number in parenthesis in each cell) provide an estimate of the standard deviation of the coefficient, the amount it varies across cases.

Variables	No moderators	E-moderators	VC-moderators	E&VC moderators
	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
VC education	.1511 (.2696)	.1363 (.2754)	.2225 (.3314)	.2536 (.3432)
VC experience	.0276 (.4952)	.0677 (.5652)	.1971 (.6055)	-.0371 (.6969)
VC involvement	-.1766 (.4673)	-.5440 (.5115)	-.2844 (.4936)	-.5338 (.5273)
VC services	.0723 (.3728)	.3745 (.4227)	.0529 (.3893)	.4443 (.4608)
VC gov't network	-.2597 (.3611)	-.3918 (.3714)	-.3493 (.3853)	-.3951 (.3934)
Avg. Connections	-.3722 (.3426)	-.1977 (.3584)	-.3182 (.4027)	-.2714 (.4164)
VC-E relationship	-.4803* (.2905)	-.5374* (.3128)	-.4890 (.3534)	-.4617 (.3654)
Executive Recruitment	.1386 (.2768)	.0905 (.2888)	.1780 (.2811)	.0889 (.2950)
E- Business Network	.5009** (.2420)	.5093** (.2480)	.5086** (.2433)	.5067** (.2487)
Network use	.3381 (.2381)	.3613 (.2446)	.3708 (.2416)	.3823 (.2493)
Fit RBC strategy	.8535** (.3422)	.9452** (.3840)	.9341*** (.3621)	.9188** (.4063)
Previous experience founders	-.5177* (.2663)	-.4954* (.2757)	-.5363** (.2687)	-.5084* (.2782)
Previous managerial experience	-.4222 (.2643)	-.4937 (.2815)	-.4173* (.2710)	-.4495* (.2934)
Proportion education	.1750 (.4310)	.2139 (.4736)	.1450 (.4234)	.2102 (.4738)
Advice	.0723 (.2691)	.0868 (.2790)	.0310 (.2798)	.1044 (.2936)
E-Extent of relation	.7361* (.3802)	.7779** (.3887)	.7668** (.3852)	.7720** (.3930)
E- contractual flexibility	.8003 (.2688)	.2475 (.2900)	.0578 (.2726)	.2598 (.2975)
E- contractual favourableness	-.4459* (.2528)	-.3556 (.2665)	-.4703* (.2547)	-.3789 (.2716)
Firm age	.0838 (.4809)	.3362 (.5029)	.1662 (.4925)	.3914 (.5126)
Firm size	1.5472*** (.4615)	1.8658*** (.4928)	1.5521*** (.4672)	1.8311*** (.4968)
E- Legal Perception	NA	.5060** (.2464)	NA	.4837* (.2554)
E-Legal Impact	NA	.4391* (.2542)	NA	.4721* (.2554)
VC- Legal Perception	NA	NA	.1743 (.4690)	-.1174 (.5009)
VC-Legal impact	NA	NA	.2532 (.3052)	.1671 (.3229)
Pseudo R-squared	0.3325	0.3698	0.3376	0.3821
No. of Observations	52	52	52	52
Standard errors in provided in parenthesis ***, **, * denote statistical significance at 1, 5, 10% levels, respectively.				

Ordered probit regression results are consistent with those of OLS regression, where the business network of entrepreneurs, the fit between their RBCs and strategies,

and their previous experience all have a significant impact on the performance of VC-backed firms in all four models. Contractual favourableness, from the perception of entrepreneurs, is also consistent with OLS results and has a significant impact on VC-backed firms, when no moderators are included in the model and when the legal environment from the perspective of venture capitalists only is included. Firm size (control variable) as well as the legal environment moderators are also significant in all four models. Both are consistent with the results of the OLS regression analysis.

The only difference in both results is that ordered probit regression shows the relationship between the venture capitalists and entrepreneurs to be significant in addition to the other variables.

VC-E relationship is captured twice in this study, once from the perspective of entrepreneurs and once from that of the venture capitalists. Ordered probit regression results show the former to have a significant effect of performance in all four models and the latter only when no moderators are included, or when moderators from the entrepreneurs' perspective only are included. The reason there is a difference in results is because, Therefore, the variables VC-E relationship from the perspective of the venture capitalists and from that of the entrepreneurs have an impact on the performance measure, sales growth, but not on the rest of the measures, when combined together. Moreover, this can be tested in a future study. An analysis can be conducted on the effect of all the variables on each performance measure separately. Hence, some variables may be effective on certain firm performance measures and not the others.

The significance of the VC-E relationship is consistent with the Institutional Theory and with the literature, which shows that, in emerging countries, which lack formal institutions and have weak legal environments, the VC-E relationship becomes of ultimate importance. Rules, laws and court systems are not reliable and hence

reliability is dependent on the relationships built (Bruton and Ahlstrom, 2003, 2006) and on the trust between venture capitalists and entrepreneurs (Li et al., 2018). From the perspective of entrepreneurs, the extent of the relationship includes VC-E complementarity, which is consistent with previous literature that efforts and resources of both should complement each other, rather than act as substitutes (Casamatta, 2003; Veragara et al., 2012; Panda and Dash, 2016; Li et al., 2018). The extent of the relationship also includes level of disagreement (Lim and Cu, 2012), as well as ease of negotiations (Li et al., 2018). In addition to those, the VC-E relationship from the VC perspective also includes trust and perception of the team spirit of the VC-backed firm; hence, their significance is consistent with previous studies that highlighted their importance (Campbell, 1993; Huang, 2000; De Clerq and Sapienza, 2000; Botazzi et al., 2012; Vergara et al., 2016).

In ordered probit regression models, only the sign of the coefficient is meaningful in results; however, to detect the value of the coefficient and the actual change in variables, whether they are positive or negative, it is essential to calculate the marginal effects for each variable, as shown in Table A66 in appendix A. Marginal effects are more reliable when sample size is large, thus the variation in marginal effects in this study is not too high because of the small sample size. Therefore, the magnitude of the effects cannot be relied on. However, the sign and significance can still be considered in the same manner that they are with ordered probit coefficients. Table A66 in appendix A can be used to illustrate the results of marginal effects but not to be included in the analysis. It can also be noted that marginal effects are significant at certain levels but not others, excluding the exact magnitude.

Results of marginal effects show that, for every 1% increase in the business networks of entrepreneurs, the probability of being in the sales growth category 2- below average decreases; however, the probability of being in category 4- above average, increases. Network use by entrepreneurs shows that, for every 1% increase in network use, the probability of having sales growth above average increases. This is consistent with previous work (Bruton et al., 2002, 2004; Lockett et al., 2002; Wright et al., 2002; Butler et al., 2003; Hoang and Antoncic, 2003; Peng, 2003; Manigart et al., 2006; Tykvova, 2017) and theories such as the Institutional Theory, as it highlights the importance of networks in the emerging economy of Egypt, especially with the legal environment existing in Egypt, which drives individuals in businesses to rely more on networks, connections and relations. Having portfolio firms that possess RBCs that fit with their strategies decreases the probability of having below average sales growth and increases the probability of having above average sales growth. Furthermore, this highlights the importance of having RBCs which provide firms with a competitive advantage; however, their performance increases when they are combined with a good strategy. Having this fit leads to above average sales growth (a measure of performance) and lacking it would decrease performance.

Previous experience that entrepreneurs in Egypt are exposed to is very similar, as discussed below, and additionally lacks many of the requirements that would lead to effectiveness on performance. For example, entrepreneurs have previous experience in start-ups, but those start-ups have not shown success. Accordingly, every 1% of previous experience increases the chance of having below average performance and decreases the chance of having above average performance.

An emphasis is placed on the importance of relationships in EM or economies with weak legal environments. This is consistent with previous studies such as Li et al. (2018), and with Institutional Theory (Bruton and Ahlstrom. 2006). Hence, the VC-E relationship and trust between the VC and the entrepreneur are important in Egypt, where the effect of contracts is not significant and contract enforcement is perceived to be very low. The extent of the VC-E relationship shows that every 1% increase leads to a decrease in the probability of having below average sales growth; on the other hand, it leads to an increase in the probability of having above average sales growth.

Although firm size is a variable that is controlled for in this study, the results show that it has a significant impact on firm performance. Every 1% increase in firm size shows a chance of a decrease in the likelihood of having below average sales growth. However, it increases the likelihood of having above average sales growth. This means that, the bigger the firm, the more likely it is to have above average sales.

The abovementioned variables are those that have a significant impact on the performance of VC-backed firms and hence the extent to which they increase or decrease performance is important.

7.4 Chapter Summary

This chapter demonstrated the results of the analysis. It also explained how the results reflected the hypotheses and which of these hypotheses were rejected. Each hypothesis was also compared to previous studies and to the descriptive statistics provided in Chapters five and six. These descriptive statistics reflect the environment in which entrepreneurs as well as VC managers exist. The robustness check conducted to check for consistency of the results was also explained thoroughly in this chapter.

OLS regression is used in this study to determine the impact of entrepreneur characteristics, VC firm characteristics and the VC-E relationship on the performance of VC-backed firms. OLS regression was conducted on the indices created, using CFA as well as a group of standardised variables, which could not be reduced into indices.

Results show entrepreneurs' business networks and fit RBC strategy to have a positive and significant impact on VC-backed firms' performance. On the other hand, entrepreneurs' previous managerial experience and contract favourableness have a negative and significant impact on VC-backed firms' performance.

Ordered probit regression is used for robustness check as it is fit for an ordinal dependent variable. Ordered probit and ordered logit results are similar to regression results, with the exception of the VC-E relationship, having a positive and significant impact on VC-backed firms (namely sales growth). This is most significant with the Institutional Theory (Bruton and Ahlstrom, 2003, 2006), which explains the importance of the VC-E relationship as well as networks in emerging economies, where legal systems are weak. Additionally, when calculating the marginal effects of ordered probit, network use is also found to have a positive significant impact on achieving above average sales, hence emphasising the effect of networks in Egypt.

Chapter Eight

Conclusion

8.0 Introduction

This chapter summarises the contribution of this thesis (section 8.1), the literature that is relevant to the VC market in emerging economies and particularly Egypt. It also highlights the main findings (section 8.2), industry recommendations (section 8.3), and limitations and implications of this study to future research (section 8.4).

8.1 Findings of the Study

The data in this study was analysed using, very thorough descriptive statistics, as well as parametric tests (t-tests), to compare means of components of each sub-variable, in order to recognise the importance of each, which would provide a better understanding of the data and enable its explanation, with the support of the literature. CFA was also applied to the data of this study for three purposes: construct validation, data reduction and to allow for consistent comparison of measures, specifically that many of the measures including the dependent variable (VC-backed firms' performance) are ordinal (Likert scale). After which, a multiple regression model was implemented on the 19 indices or variables created as well as the four moderators measuring the legal environment in Egypt, to further analyse the data. OLS multiple regression is used to test the hypotheses of the effect of each predictor on the dependent variable and to evaluate their relative importance. The dependent variable in this study is an ordinal one (Likert-Scale), hence it is best analysed using ordered probit regression. For a robustness check, the best measure of the dependent variable (Sales Growth) has been selected and ordered probit regression was applied to confirm results of the regression analysis.

The analysis carried out in this study produced five main findings. First, variables tested in this study can have an impact on certain performance measures and not others. The robustness check in this study was conducted using the most fit measure of portfolio firm performance, rather than all 10 performance measures combined. Results did show a slight difference where VC-E relationship had a significant impact on sales growth but not on all performance measures combined.

Second, entrepreneurs' SC assists them in obtaining resources, such as capital (Hsu, 2007), information to facilitate transactions (Hsu, 2004), and talented personnel (Bygrave and Timmons, 1992). In Egypt, the networking area of weakness is evident (shown in Table 5.3, p.154) in the entrepreneurs' ability to utilise their own social networks to recruit or obtain talented personnel, rather than those of the VC firm, and hence their impact on VC-backed firms' performance is insignificant. Business networks of entrepreneurs, however, have a positive and significant impact on VC-backed firms' performance, and the use of all the entrepreneurs' different networks has a positive and significant impact on achieving above average sales growth. Therefore, the hypothesis expecting SC of entrepreneurs to have a positive impact on VC-backed firms' performance (H1a) was accepted.

In contrast to the effectiveness of the entrepreneurs' networks, regression results show that the value-added services provided by venture capitalists including networking services have no significant impact on the performance of VC-backed firms in Egypt, hence the hypothesis that claimed the positive impact of VC value-added services on VC-backed firms' performance (H2b) was rejected. However, the results of the parametric t-tests used to produce mean rankings show that networking services have the highest means of all the VC services offered (see Table 5.19, p.177).

Additionally, network advice is the main form of advice provided to entrepreneurs out of all the advice aspects available, as evident in the highest mean (see Table 5.17, p.173). The findings related to networks of entrepreneurs and of venture capitalists are consistent with Social Networking Theory (Laudan, 1977), which is also in line with SC Theory. A firm's social network is only possible through the SC it possesses (Bordieu, 1983; Coleman, 1988; Putman, 1993), which suggests that a firm's external network is a major contributor to its performance. Results also reflect the Institutional Theory (Bruton and Ahlstorm, 2003, 2006) and previous studies (Li et al., 2018), which emphasise that networks play an important role in emerging economies.

Third, RBCs of the firms and the compatibility of those RBCs with the strategies of their firm have the most significant positive impact on VC-backed firms' performance. Therefore, the hypothesis stating that the RBCs of the firms and the strategies that support them have a positive impact on VC-backed firms' performance (H1b) was accepted. This is consistent with RBVF (Barney, 1991), which associates superior performance with the possession of resources that are valuable, rare and not substitutable, and hence contribute to firm success and create a competitive advantage for the firm (Barney, 1991; Grant 1991; Mahoney and Pandian, 1992; Peteraf, 1993; Wang and Ang, 2004; Ferreira and Fernandes, 2017). Strategies make better use of resources through focused and productive efforts (Wang and Ang, 2004); therefore, if the right strategy is selected for each of its available resources (Kuratko et al., 2005), firms will achieve superior performance (Camison and Villar-Lopes, 2014; Karlsson and Tavassoli, 2018).

Fourth, regressions results show that previous experience (a HC factor) of entrepreneurs in Egypt has a significant but negative impact on VC-backed firms'

performance. Education of both entrepreneurs and VC managers has an insignificant effect on VC-backed firms' performance, and experience of VC managers also has an insignificant effect. Thus, the hypotheses that HC of entrepreneurs and that of VC managers lead to a positive impact on VC-backed firms (H1c, H2a respectively) were both rejected. The results shown to reject this hypotheses are contradictory to previous studies in the literature and to the HCT (Becker, 1975). This theory suggests that HC characteristics of both the entrepreneurs and the fund managers determine their performance. In the case of entrepreneurs, some HC characteristics, mainly industry or entrepreneurial experience, have been found to impact their venture performance (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005). In the case of VC managers, HC is separated into *task-specific HC* (education and experience related to VC tasks) and *industry-specific HC* (education and experience related to industry of company funded) (Dimov and Shepherd, 2005).

There is a lack of diversity in the previous experiences of most of the entrepreneurs in Egypt, as they mainly have similar backgrounds. Some requirements that enable previous experience to have a positive impact on portfolio firm success do not occur sufficiently among entrepreneurs in Egypt. Industry experience is shown throughout the literature to have a more positive impact on venture emergence than entrepreneurship experience (Delmar and Shane, 2003; Honig and Karlsson, 2004; Dimov, 2010). In this study, however, descriptive statistics show that entrepreneurial experience is more dominant than industry experience: 67% of entrepreneurs examined in this study have previous experience in entrepreneurship, in terms of having a previous start-up, while only 25% have had this experience in the same industry or field of the current start-up. Another requirement is a previous successful entrepreneur experience. Not only does having a previous start-up, especially in the same field as the

current start-up, have an impact on the performance of the VC-backed firm, but having a previous start-up that was a success gives a 30% chance that the current one will be successful (Gompers et al., 2006). The results of this study show that, even though 67% of the entrepreneurs have had previous start-up experience, only 7.7% had successful experience in terms of achieving an IRR of 100% or higher. Additionally, descriptive statistics from the entrepreneur results in this study show that managerial experience responses are very high, above average, which shows that most respondents have similar experiences; hence, no diversity is evident. Therefore, managerial experience does not position them with a competitive advantage or present qualities that place them in a unique position to deliver better results. The majority, 64%, did not have a previous business together, and 85% had never worked on the management team of a public company before, but 67% had previously managed a start-up. These statistics explain why managerial experience does not have a positive effect on VC-backed firms' performance.

As for the experience of VC managers, results of all VC firms examined in this study show that they have at least one of the management team with previous experience in the industry of the start-ups they are funding and at least one with finance experience. All the VC firms had at least one of the management team with experience in business. Almost 86% of the VC managers have consulting experience, while only a few have experience in the law field. Results show that there is a lack of variation in HC (experience and education) of VC managers, as results are to a great extent consistent across respondents. However, HC is more effective when it is variant: as explained in the literature, variation in HC of firm managers can create a competitive advantage for firms through the unique knowledge or skills they possess (Zarutskie, 2008).

Not only is there a lack of diversity in experience, but in education of both entrepreneurs and VC managers in Egypt. Education is more effective in nations that have more variant education (Unger et al., 2009). Results show that more than 50% of VC firms have three or more of the managers that hold degrees in the fields of the startups they fund, post-graduate degrees or finance degrees, while more than 50% have only one or none of the managers that hold degrees in law, medicine or engineering or degrees in any other field. Results for the entrepreneurs show that the vast majority do not hold a doctorate degree or a CFA. Almost 60% do not have any of the co-founders of the firm that hold a master's degree, and only 30% have one founder that does. These results clarify why the HC aspect education has an insignificant impact on VC-backed firms' performance.

Finally, when controlling for legal environment, contracts are not viewed by entrepreneurs as favourable, and hence they have a negative impact on VC-backed firms' performance. However, when the legal factors are incorporated in the model, contract favourableness is then found to be insignificant. This is in line with the Institutional Theory (Bruton and Ahlstrom, 2003, 2006) and with previous studies (Arthur and Busenitz, 2003; Lerner and Schoar 2005; Lerner and Tag, 2015; Vergara et al., 2016; Li et al., 2018). As explained in the theory and confirmed by the results of this study, when in a weak legal environment contracts are not significant. Alternatively, both parties who are bounded by the contract rely on the extent of their relationship. The extent of the VC-E relationship is found to have a positive and significant impact on VC-backed firms' performance in this study. However, this significant impact is only evident when the performance of VC-backed firms is measured by sales growth only, rather than when it is measured through the index that combines all of the firm performance measures. The entrepreneurs find that legal

environment factors drive them to rely more on their networks, as well as personal relationships, which is the case in most emerging countries, which lack formal institutional systems and have weak legal systems.

8.2 Contribution of the Study

This study can be used a reference in Egypt as there is no proper disclosure of any data related to the VC market, not even a database containing all the existing VC firms. The Egyptian market has mainly consisted of 80% of businesses owned and run by families. After the Egyptian 2011 Revolution, this has started to change. Statistics have shown a more positive societal perception of entrepreneurship, especially for youth. Entrepreneurship and venture capitalists are interdependent; both are crucial to economic development, which has been a main goal of the Egyptian government since the revolution. Despite its importance, there is a lack of research on this topic. Accordingly, given how crucial they are to economic development, it is important to have a full understanding of what impacts the success of VC-backed firms and to try and capture the most significant aspects that enhance their performance. This study can also be used as a guide for venture capitalists to select firms based on criteria that would enhance their portfolios and for VC-backed firms to have a better understanding of the market and the factors that currently have an impact on performance. This is achievable through the provision of recommendations to venture capitalists and entrepreneurs in the Egyptian market, to inform them about the necessary measures that would enhance the performance of the portfolio firms. Moreover, this study will provide a stepping-stone to research on the VC market in Egypt.

This study contributes to the VC market literature in general as well as the Egyptian VC market. To the best of our knowledge, this study is the first to combine

entrepreneur characteristics (Batjargal and Liu, 2004; Hallen, 2008; Unger et al., 2009; Dimov, 2010; Karabulut, 2015; Karlsson and Tavassoli, 2015; Ferriera and Fernandes, 2017), VC characteristics (Hellmann and Puri, 2002; Rajan 2010; Croce et al., 2012; Rosenbusch et al., 2012) and VC-E relationship (Elitzur and Gaviious, 2001; Arthurs and Busenitz, 2003; Casamatta, 2003; Lim and Cu, 2012; Vergara et al., 2016; Li et al., 2018), and examine their impact on VC-backed firms' performance. Each variable may have a significant impact when considered alone but the impact may vary when it is combined with other variables. Hence, the approach of this study to view the variables together should provide significant implications to the industry. All the variables exist together in the market, rather than solely; thus, their impacts should be studied together. Previous literature shows that some of the variables are included in studies to capture the impact on firm performance in general rather than VC-backed firms' performance, while this study focuses entirely on VC-backed firms.

8.3 Recommendations to Improve the VC market in Egypt

The results of this study clarify the areas of strengths and weaknesses possessed by entrepreneurs and venture capitalists in Egypt. Through the witnessed weaknesses highlighted in the results, recommendations can be provided to entrepreneurs to enhance the performance of their firms, to venture capitalists to enhance the performance of their portfolio firms, and for the relationship between venture capitalists and entrepreneurs, which would in turn enhance the performance of VC-backed firms.

Recommendations to Entrepreneurs

Entrepreneurs should improve their ability to recruit talented personnel and executives through their own networks rather than those of venture capitalists. This is their area of weakness in networking (shown in Table 5.3, p. 154), which is evident in the findings of this study. The entrepreneurs' ability to recruit increases the valuations

of their ventures (Shane and Stuart, 2002). The talented personnel and executives they recruit increases their chances of success (Baron et al., 2016; Collins and Clark, 2003). The entrepreneurs' strongest networks in Egypt are personal business networks (shown in Table 5.4, p. 155), however they should consider increasing their community businesses networks, by joining any business associations such as chambers of commerce, rotary etc.

Entrepreneurs should focus on creating a competitive advantage for their firm through their unique education and experience. Responses related to education and experience (evident in tables 5.12 and 5.13, pp. 166 and 167 respectively) show minimal diversity amongst entrepreneurs. Not only does this require improvement in education and opportunities available in Egypt, but it also leaves room for entrepreneurs to seek unique knowledge opportunities. Entrepreneurs should also seek education in entrepreneurship, which is commencing in Egypt. If attained, it should enhance the performance of the entrepreneur's firm as it provides a more precise education to endure the nature of their risky jobs (business owners) (Dickson et al., 2008; Macko and Tyszka, 2009).

Recommendations to Venture Capital Managers

VC managers, on the other hand, should also focus on attaining distinctive education, to allow them to offer superior value-added advice and other services which other VC firm managers cannot. The educational background of the VC management teams in Egypt also shows very low variation and hence can be improved to enable distinctive value-added services for their VC firms. Results also show that most VC teams do not have a law expert on their management teams; however, it is found to be important. Law background is essential for the performance of VC task requirements, such as critical analysis of business plans and negotiation of contract structures, which

can detect and minimise risks (Dimov and Shepherd, 2005). Hence, it is advisable for VC firms to have a person with a strong legal background on their management team.

As for the selection of portfolio firms, venture capitalists should take into consideration characteristics of entrepreneurs. When VC managers select entrepreneurs with previous entrepreneurial experiences, they should know that it is not sufficient. To enhance the performance of VC-backed firms, previous entrepreneurial experience should be successful and preferably in the same field as the current venture. This is important as the literature on VC-backed firm performance shows that entrepreneurs who have succeeded in a prior venture have a 30% chance of succeeding in their next venture (Gompers et al., 2006). In addition, a start-up owned by an entrepreneur with a track record of success is more likely to succeed, regardless of whether it is funded by a top- or lower-tier VC firm. Entrepreneurs that have previous experience in the same industry as their current start-up are also shown throughout previous studies to have higher success chances than those that do not (Bruderl et al., 1992; Chatterji, 2009).

Other than selection, VC services are essential. VC firms should work on increasing the advice they provide to their portfolio firms, as it is crucial to add value to portfolio firms; thus, it increases their survival chances and boosts their performance (Nofsinger and Wang, 2011; Wise and Valliere, 2014). Results show that entrepreneurs perceive the level of advice provided by venture capitalists to be below average on most advice aspects (PD, exit, HR, marketing and R&D), slightly above average for others (financial and strategic advice), and only highly above average for networking advice (Table 5.17, p.173).

Recommendations to both Venture Capitalists and Entrepreneurs

Venture capitalists and entrepreneurs should work more on negotiation to reach terms that are more favourable to both, and thus provide an incentive for both to exert more effort and have a positive impact on performance (Vergara et al., 2016). The VC-E relationship is governed either by the contract binding both or by the extent of their relationship. Therefore, negotiation is crucial as results show that, in Egypt, entrepreneurs do not find the contractual terms to be favourable and hence this has a negative impact on performance. Additionally, the choice of securities has an impact on the control rights and voting rights, and on the incentives given to both venture capitalists and entrepreneurs, and hence the efforts of both (Kaplan and Stromberg, 2001; Hart and Moore, 2004). The choice of securities can also differ based on the stage of financing of the firm (early or later stage) (Cumming and Johan, 2007). These choices can include convertible preferred securities and convertible bonds; however, in Egypt they mainly use equities in contracts between venture capitalists and entrepreneurs, and hence it is recommended for these firms to explore other options for securities.

Venture capitalists and entrepreneurs should also focus on building and maintaining a strong relationship. When considering the legal environment factors in Egypt, results show that entrepreneurs and venture capitalists tend to rely more on networks and personal relationships, since contract enforcement is weak; in that case, the importance of trust arises. Both parties should be aware of the necessity of trust between them and that the strength of their relationship plays a role in enhancing the performance of the VC-backed firm.

Recommendations to Policy Makers

Recommendations to policy makers can be extracted from the results of this study. Given the crucial roles that VCs play in boosting economic growth, the government should work towards enhancing the VC market in Egypt. Given that entrepreneurship and VC are interdependent, they are already on the right track as they have commenced the establishment of entrepreneur training centres. They should continue building towards increasing entrepreneurship education, in order to have more successful entrepreneurs. Moreover, a VC association should be created and hence it would maintain a database of all VC firms in the market and promote the VC market in Egypt to create awareness to potential investors and investees. A well-established system for the regulation of these institutions should be developed and disclosure requirements should be generated and enforced.

Additionally, policy makers should also be aware that enhancing patenting laws and their enforcement would increase innovations and encourage the formation of your entrepreneurial firms. Whereas, enhancing investor protection laws and their enforcements would increase the number of investments as investors would be more willing to provide funds, knowing that their investments are secured.

8.4 Limitations of the Study and Implications for Future Research

This study is conducted on the Egyptian VC market, which is a very small market. Research conducted on a small number of respondents is assumed to have an effect on robustness. However, in this study almost the entire population was covered (87.5%) and hence increasing the sample size of the study is not feasible. Robustness checks were carried out, and their outcomes showed consistent results. Moreover, although it was not feasible for the reasons explained in section 4.4.1, the analysis would have been more in-depth if semi-structured interviews were executed after the questionnaires.

Reaching out to respondents for the first time was not facile; it was full of obstacles, and most respondents did not even agree to meet. Hence, after they had completed a questionnaire there was no way to reach out to them again for interviews. However, a different study may build on the results found through the surveys in this research, by the use of interviews that provide a more in-depth analysis.

Another limitation in this study is that respondents feared in some cases, particularly in questions related to the legal environment in Egypt, to give answers that truly reflected their perceptions. Instead, they chose to select 'neutral' for a response. As the descriptive statistics show (Tables 6.12, p.207 and 6.14, p.210), in the legal environment sections many of the responses were neither agree nor disagree, but neutral. This research would have provided an even more realistic outcome if they had not chosen neutral. Despite this, results are reflective of previous literature as well as theories and confirm both.

This study is a stepping-stone for literature on VC-backed firm performance in Egypt and other EMs. Most of the previous studies have investigated the variables that affect VC-backed firms separately, whereas this study aggregates most variables, which not only brings insights that are closer to reality by delivering a full perspective but also establishes a strong ground for future research. Most VC studies in the literature have been based on the USA or developed countries, and have mainly investigated the impact of each of the variables separately, with more focus on the effect of each variable alone. Therefore, a study can be conducted to aggregate the variables as this model did and see how different the results of the aggregated variables would be in a developed economy.

In Egypt there is much more to be studied. If this study provides a reference or an overview to the status quo, then the starting point could be studying each variable in more depth. First, for HC of entrepreneurs as well as VC managers, research can be conducted to examine the effect of HC outcomes rather than HC investments. This study focuses on HC investments only, while previous studies have concluded that the outcomes of education and experience are the variables that trigger the effectiveness of the firms' performance (Davidsson, 2004; Unger et. al., 2009).

Additionally, when looking at previous experience of entrepreneurs, regardless of the experience they possess, the extent to which they focus on early planning and opportunity confidence is necessary for performance enhancement (Dimov, 2010). Neither factor is incorporated in this study, and hence they can be investigated in a future study to find if their presence along with previous experience would have an impact on VC-backed firm performance.

Results of this study show no variation in HC in Egypt, particularly for education. Variation in education and differences in degrees of education attained, as well as the field in which these degrees are attained, is important to create a competitive advantage for individuals or management teams and hence can play a role in enhancing firm performance (Unger et al., 2009). Future research could also focus on understanding further the education available in Egypt and the degree of variation that exists. If the degrees are similar, then it is necessary to explore the quality of each one, as the institution from which the degree is attained may have an impact on the quality of the degree and accordingly the knowledge extracted from it.

Another important point to note when considering education is the lack of entrepreneurship education in Egypt. Most universities do not have an entrepreneurship

programme or offer extensive entrepreneurship courses. Only recently did the government start to shed light on the importance of such courses and start to provide them. Two centres have been established in Egypt for entrepreneurship training, one established in 2010 and the other in 2015. One university launched an entrepreneurship summer programme in 2015. With those programmes in place, future research can produce a comparative study for the pre- and post-effect of the newly commenced entrepreneur education on VC-backed firms' performance, after this aspect is enhanced in Egypt.

Second, there are also external factors in the entrepreneur environment impacting the performance of the firm itself, such as the laws and regulations for start-ups and labour laws as well as tax laws. These macro factors were not explored in this study, as it focuses on the characteristics and roles of the parties involved in the firm.

Additionally, while many studies have tested whether it is VC selection of firms or the value-added services provided by venture capitalists that enhance VC-backed firms' performance (Colombo and Grilli, 2010; Bertoni et al., 2011; Chemmanur et al., 2011), none of these studies were conducted on emerging markets or on Egypt in particular. As the results of this study find that value-added services by venture capitalists are not significant, then future research can investigate the role of portfolio firm selection in Egypt.

As for the third variable, VC-E relationship, all available studies failed to include the effect of bargaining and negotiation between the VC and the E, until the recent study by Fu et al. (2018) covered the bargaining power of the entrepreneur and the VC. However, to date, no work has included the effect of syndication in the VC-E contractual relationship. As for Egypt, contract favourableness was shown in this study

to be low. This can be explored further in Egypt and VC experience can also be taken into consideration, when studying the contractual relationship between the venture capitalist and the entrepreneur. The more experienced venture capitalists are, the less concerned they are with clauses in the contract that would hedge their risk (Bengtsson and Sensoy, 2011). Venture capitalists with better governance abilities avoid clauses involving costs of risk sharing and focus more on influencing venture development, such as negotiating more on board representation rights. Studies can be conducted in Egypt to examine the applicability of these results.

The first VC fund in Egypt was established in 2004. This study covers all VC funds in Egypt since 2004 to date. Future research can reach more influential conclusions by utilising moving windows. Moving windows allow the segregation of periods instead of studying the period as a whole, to compare the effect of the variables on performance corresponding with any institutional changes. Additionally, studies can also investigate consistency of results when considering industry, and size and/or stage of portfolio firm, which are all controlled for in this study.

The robustness check in this study was conducted using the most fit measure of portfolio firm performance, sales growth, rather than all 10 performance measures combined. Results did show a slight difference and hence this verifies that some variables may have an impact on certain measures of performance and not necessarily on all measures. This provides ground for research to build on. A study can test the impact of each of the nine remaining performance measures separately, to understand which are enhanced by the variables.

Taking the research even further, macro-level factors such as tax, labour, and start-up laws and regulations, can be combined with the variables of this study to investigate further the determinants of the success of VC-backed firms. A future study could also focus on

finding common covariates to measure performance of VC-backed firms vs. non-VC-backed firms. Finally, this study covers VC firms based in Egypt only; a comparative study could compare the performance of portfolio firms backed by VC firms based in Egypt vs. VC firms based abroad.

All of the above suggestions for further research can enrich the literature relevant to the performance of VC-backed firms in emerging economies, namely that of Egypt, as well as allow for improvements in the VC market.

8.5 Chapter Summary

This chapter demonstrated the contribution of this study to the literature on the performance of VC-backed firms and to the VC market in Egypt and other emerging economies. It also summarised the main findings of this study as well as the methods used to reach those findings. Recommendations to benefit the entrepreneurs and VC managers in the Egyptian market were also established in this chapter, based on the findings of the study, after which the limitations of this study were presented as well as implications for future research in this area.

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APPENDIX A

Table A1 Summary of Literature in Relation to this Study		
Theories	Previous Studies	Relation to this Research
Macroeconomic Theory and information asymmetries	Amit el al. (1999) Lerner and Tag (2013) Pettinger (2017)	To justify importance of VC firms
Agency Theory and Financial Contracting	Cumming and Johan (2009)	To explain the relationship between VC & E
Institutional Theory	Kaplan and Stromberg (2000) Bruton and Ahlstrom, (2003/6/9) Li et al. (2018)	To explain how this relationship may not be applicable in every context
Resource Dependence Theory	Sapienza et al. (1996) Jeng and Wells (2000) Gabrielsson and Huse (2002)	Entrepreneur contributes innovative ideas and VC contribution is not limited to financial support
Human Capital Theory	Davidsson and Honig (2003) Zarutskie (2007) Dimov (2010)	Importance of HC of both venture capitalists and entrepreneurs
Social Capital Theory	Hochberg et al. (2005) Hsu, (2007) Hallen (2008) Coleman (2009) Milosevic (2018)	Importance of SC of VC and entrepreneur and the networks of venture capitalists

Table A2 Skewness Kurtosis Tests for Normality					
Variable	Observations	Pr(skewness)	Pr(Kurtosis)	Adj chi2(2)	Prob > Chi 2
Residuals	5	0.6448	0.6618	0.41	0.8142

	INDUSTRY	Age in months	Size by employees		INDUSTRY	Age in months	Size by employees
E1	Health Tech	12	11	E27	Recycling	10	3
E2	Trading & distribution	18	15	E28	Health Tech	36	20
E3	Event Mgt	54	9	E29	Fintech	12	5
E4	Health Tech	72	180	E30	Mobile Application for Disabilities	12	5
E5	Tech	24	15	E31	Internet	6	70
E6	Waste management	24	5	E32	Fintech	8	4
E7	Home services	48	25	E33	Education	48	7
E8	Education	36	250	E34	Automotives	12	14
E9	Industrial Solutions	119	50	E35	Logistics	2	200
E10	Mobility	12	40	E36	EdTec	48	9
E11	Healthtech	48	25	E37	Consumer services	12	5
E12	SAAS	36	8	E38	Entrepreneurship	42	10
E13	Education	36	30	E39	Home services	6	30
E14	E-commerce	36	7	E40	F&B	60	20
E15	Food tech	42	30	E41	F&B	72	45
E16	FinTech	30	28	E42	Fintech	18	5
E17	HR Solutions	48	10	E43	F&B	12	6
E18	Saas Retail Tech	36	56	E44	F&B	66	8
E19	Online Gaming	72	25	E45	Home services	24	40
E20	Furniture & Fashion Design	72	9	E46	Design	11	8
E21	IOT MANUFACTURER	9	6	E47	Footwear	24	16
E22	Crowdfunding	60	10	E48	Service	36	50
E23	E-commerce	48	185	E49	Health Tech	18	8
E24	ICT (E- Commerce)	12	3	E50	FMCGS	5	70
E25	E-commerce/Automotive	10	14	E51	Life sciences	48	24
E26	Sports/Tech	12	0	E52	E-commerce	24	50

	0	1	2	3	4	5	6	Total
# non-exec	16	9	5	10	5	3	4	52
thru founder	14	12	11	9	2	2	2	52
thru friend	29	16	3	3	1	0	0	52
thru co-worker	36	14	0	0	0	0	2	52
Other	33	9	6	2	1	0	1	52

The number responses from these measures vary from '0' to '6', where '0' refers to none and '6' refers to any number of non-founder executives higher than 5.

	0	1	Total
Parents	22	30	52
Friends	10	42	52
Encouragement	15	37	52
Business networks	34	18	52
Business Advisories	27	25	52
Previous Start-ups	25	27	52

These six measures are based on YES or NO if the measure exists a '1' is given and if does not exist a '0' is given.

	0	1	2	3	4	5	Total
Political leaders	1	32	5	9	5	0	52
Regulatory officials	1	29	12	9	1	0	52
Chief executives	1	30	6	9	5	1	52
Politicians	1	28	12	7	4	0	52
TM customer	0	10	8	15	12	7	52
TM suppliers	0	12	6	16	11	7	52
TM competitors	1	19	8	12	7	5	52
Trade Associations	1	25	13	10	3	0	52
Religious leaders	1	36	3	11	1	0	52
CF political connect	1	26	6	10	7	2	52
CF business connect	0	2	10	9	13	18	52

These items are based on a scale from '1' representing very low to '5' representing very high.

	1	2	3	4	5	Total
Innov marketers	3	8	15	15	11	52
Good marketing	3	11	15	17	6	52
Marketing expert	5	7	20	11	9	52
PD expert	3	5	17	17	10	52
Innov employees	1	4	12	19	16	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Superior CS	2	2	14	21	13	52
Expert CS	2	6	17	16	11	52
Quality CS	7	8	21	8	8	52
Managerial expert	2	3	14	22	11	52
Flexibility	1	3	8	15	25	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Material	2	14	18	12	6	52
Distribution	5	8	19	10	10	52
Labour	15	14	12	10	1	52
FOP	9	12	18	7	6	52
Availability of Cap	4	6	19	17	6	52
Productive Employees	0	2	10	17	23	52
Facilities	4	12	14	15	7	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
New products	1	4	11	21	15	52
New PD	0	5	8	24	15	52
Novel Marketing	0	4	18	21	9	52
Product opportunities	0	1	10	21	20	52
Quality performance	0	1	4	18	29	52
Change PD	0	2	4	20	26	52
Innovation	0	1	4	17	30	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Quality Control	0	6	15	19	12	52
Quality Requirements	0	4	10	21	17	52
Customer SL	0	3	5	22	22	52
HL product Quality	0	2	5	23	22	52
Customer Needs	1	0	6	17	28	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Cost reduction	3	9	15	12	13	52
Employee productivity	0	3	6	21	22	52
Process innovation	3	3	15	18	13	52
Invest machinery	17	8	10	11	6	52

These measures are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	0	1	Total
Managed start-up	17	35	52
Previous start-up	17	35	52
IRR 100%	48	4	52
Previous industry work	24	28	52
Previous industry start-up	39	13	52
Public company	44	8	52
Business together	33	19	52
Functional diversity	9	43	52

These eight measures are based on dichotomous variables (YES or NO questions). The selection of '1' represents that any of the founders of the firm have the specified experience, and '0' means they do not.

	0	1	2	3	4	Total
Doctorates	46	5	1	0	0	52
Masters	30	16	6	0	0	52
CFA	45	51	1	1	0	52
Field of start up	24	17	9	2	0	52

Responses range from '0' to '4'. A '0' is selected when none of the co-founders of the venture hold a degree in the enquired about category, the choice are chronological till '4'. Where '4' is selected if more than 3 of the co-founders hold a degree in the enquired about category.

	1	2	3	4	5	Total
Sales Growth	6	7	21	13	5	52
Sales Volume	8	10	21	11	2	52
ROA	7	10	22	8	4	51
ROS	6	6	26	11	1	50
Product Growth	4	3	18	23	4	52
Market Share	15	9	13	10	5	52
Growth M. Share	6	11	17	13	4	51
Profit	10	19	13	7	2	51
Profit Growth	11	12	18	7	3	51
Co. Performance	3	4	29	15	1	52

The scale for these 10 performance indicators ranges from '1' to '5', where '1' represents far below average and '5' represents far above average.

	1	2	3	4	5	Total
Strategic advice	5	10	10	20	7	52
Marketing advice	13	13	18	5	3	52
Financial advice	7	7	14	15	9	52
R&D advice	16	14	13	4	5	52
PD advice	12	11	17	6	6	52
HR advice	13	15	12	7	5	52
Exit advice	15	10	13	8	6	52
Interpersonal advice	11	8	15	14	4	52
Networking advice	5	7	13	11	16	52

These four complementarity measures are based on Likert scale were '1' represents very low and '5' represents very high.

	1	2	3	4	5	Total
Resources	3	10	13	18	8	52
Strengths	4	8	20	16	4	52
Abilities	2	9	19	12	10	52
Expectations	7	10	17	13	5	52

These four complementarity measures are based on Likert scale were '1' represents very low and '5' represents very high

	1	2	3	4	5	Total
Strategy disagreements	8	11	21	9	3	52
Marketing disagreements	10	13	22	7	0	52
Financial disagreements	9	12	15	10	6	52
R&D disagreements	16	7	19	9	1	52
PD disagreements	10	13	21	4	4	52
HR disagreements	13	11	22	2	3	52
CEO disagreements	28	7	12	3	2	52
Other disagreements	19	9	21	2	1	52

Likert-scale questions were also used to show, the extent of disagreements from very low '1' to very high '5'

	1	2	3	4	5	Total
Strategy flexibility	3	7	23	12	7	52
Marketing flexibility	2	6	25	13	6	52
Financial flexibility	5	6	22	13	6	52
R&D flexibility	6	9	21	11	5	52
PD flexibility	4	6	24	12	6	52
HR flexibility	4	6	23	11	5	52

The six measures of flexibility are based on a scale from '1' very low to '5' very high.

	1	2	3	4	5	Total
Company Valuation	2	3	27	12	8	52
Type of security	3	8	26	10	5	52
Amount of investments	3	13	19	13	4	52
No. of directors	5	6	25	11	5	52
Voting Rights	4	4	27	9	8	52
Vesting Founder Stocks	3	5	25	10	9	52
Management Control	3	3	31	8	7	52
Conversion Rights	3	4	32	7	6	52

These eight items contract favourableness measures were assessed on a scale were '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Negotiate	4	3	22	16	7	52
Agreement speed	3	7	21	15	6	52
Ease of agreement	3	6	20	17	6	52
Agree speed on new venture	4	6	21	17	4	52
Third party	2	4	18	9	19	52

The answers ranged from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Trust	12	12	19	7	2	52
Confidence	12	7	21	8	4	52
Corruption	11	12	21	7	1	52
Crime	5	12	21	13	1	52
Contract enforcement	9	10	27	4	2	52
Investor Protection	10	8	26	6	2	52

The six legal perception measures are based on a scale where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Stability	3	5	15	13	16	52
Govt Legislation	2	3	12	14	21	52
Innov. Product	1	1	15	20	15	52
Modern Technology	1	1	19	16	15	52
Innov. Idea	0	3	17	13	19	52
Patents	6	5	20	13	8	52
Rely networks	0	1	18	6	27	52
Rely relations	0	2	17	9	24	52

The eight legal impact measures are based on a scale where '1' represents strongly disagree and '5' represents strongly agree.

	0	1	2	3	4	Total
Degree Field	2	1	3	1	7	14
Post grad. Degree	1	3	2	4	4	14
Finance degree	1	2	3	7	1	14
Law degree	6	4	1	3	0	14
Med./Eng. Degree	6	5	1	1	1	14
Other degree	5	1	4	2	2	14

This table shows VC management teams' education. Responses vary from '0' to '4', where a '0' shows that none of the fund managers in the VC firm hold such degree. '4' shows that a VC firm has four or more fund managers that hold a certain degree.

	0	1	Total
Industry experience	1	13	14
Business experience	0	14	14
Law experience	9	5	14
Finance experience	1	13	14
Consulting experience	2	12	14

A '0' represents none of the VC managers in the firm have previous experience in the stated field, and a '1' if any of the VC managers do.

	0	1	2	3	4	5	6	7	8	Total
Meetings per month	0	3	3	0	5	1	0	0	2	14
Average boards	1	0	3	0	3	2	0	1	4	14
Average reports	0	0	0	0	9	0	0	0	5	14
Average rounds	0	4	4	4	2	0	0	0	0	14

VC involvement measures are based on a scale from '0' to '8' where '0' refers to none and '8' refers to any number more than seven.

	1	2	3	4	5	Total
Recruit Intro.	2	1	4	4	3	14
Intro. To Customers	1	0	1	4	8	14
Intro. To Suppliers	1	1	1	5	6	14
HR mgt.	1	3	4	3	3	14
HR policy	1	3	7	1	2	14
Mgt. Recruit	3	4	3	2	2	14
Recruit admin.	5	3	3	2	1	14
Recruit Sales	2	6	4	2	0	14
Financial Policy	2	0	5	4	3	14

VC services measures are based on a Likert scale from '1' to '5', where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Gov't network	2	0	3	3	6	14
Gov't officials	1	2	2	3	6	14
Contact government	3	0	5	2	4	14
Introduction government	1	4	3	2	4	14
Gov't needs	1	3	3	2	5	14

VC government networking measures also are based on a scale from '1' to '5', with '1' being strongly disagree and '5' strongly agree.

	0	1	2	3	4	5	6	7	Total
Connections	0	0	0	0	1	2	1	10	14
Well Connected	1	0	1	2	2	3	1	4	14
Invite	1	0	3	1	2	2	0	5	14
Initiate	0	0	3	3	2	0	0	6	14
Connect through	10	1	0	2	0	0	0	1	14

These five measures of syndication are continuous variables. Where '0' is selected if no such connection exists and '7' is selected for any number larger than 6, which means the VC firm has more than six of that specific connection measure.

	1	2	3	4	5	Total
Resources	0	1	3	4	6	14
Strengths	0	0	4	5	5	14
Abilities	0	0	5	7	2	14
Expectations	0	0	8	5	1	14

These complementarity measures are enquired about in the form of a scale, were '1' represents very low and '5' represents very high.

	1	2	3	4	5	Total
Strategy disagreements	4	3	6	1	0	14
Marketing disagreements	2	2	10	0	0	14
Financial disagreements	2	2	5	4	1	14
R&D disagreements	3	4	6	0	1	14
PD disagreements	0	5	7	0	2	14
HR disagreements	4	3	5	1	1	14
CEO disagreements	2	3	5	3	1	14
Other disagreements	7	1	4	2	0	14

VC-E disagreement from perspective of VC managers are based on a scale to show the extent from very low '1' to very high '5' of disagreement on these eight issues.

	1	2	3	4	5	Total
Negotiate	0	3	4	6	1	14
Agreement speed	0	4	1	7	2	14
Agreement Ease	0	2	4	8	0	14
New venture agree speed	0	1	5	8	0	14
Third party	0	0	1	3	10	14

These five ease of relationship measures from the perspective of VC managers are based on a 5 point scale, where '1' stands for strongly disagree and '5' stands for strongly agree.

	1	2	3	4	5	Total
Clear Goal	0	0	2	9	3	14
Work Hard	0	1	3	6	4	14
Team Interest	0	0	7	5	2	14
Try Best	0	0	2	11	1	14
Responsibility	0	2	3	6	3	14

These five measures of portfolio firms' team spirit are based on a scale from '1' to '5' where '1' represents strongly disagree and '5' represents strongly agree.

	1	2	3	4	5	Total
Benefits	0	1	1	8	4	14
Economic Consequences	0	1	3	7	3	14
Dependable	0	4	4	5	1	14
Act Fairly	0	2	7	5	0	14
VC-Openness	1	4	3	4	2	14
No Doubt	0	3	4	4	3	14
Responds constructively	1	1	5	7	0	14
Common Bus. Values	0	1	3	7	3	14

These eight measures of trust are based on a scale that ranges from '1' very low to '5' very high.

	1	2	3	4	5	TOTAL
Trust	5	4	3	2	0	14
Confidence	2	3	5	3	1	14
Corruption	5	2	4	2	1	14
Crime	2	5	3	2	2	14
Laws	1	8	2	3	0	14
Contractual rights	2	7	2	2	1	14
Investor protection rights	4	4	2	3	1	14

These seven measures of legal perception are based on a scale from '1' representing strongly disagree to '5' representing strongly agree.

Performance Measure	Factor loading
Sales Growth	0.8767
Sales Volume	0.8327
ROA	0.8118
ROS	0.8313
Production Growth	0.7600
Market Share	0.6472
Growth of Market Share	0.7907
Profit	0.6327
Profit Growth	0.7796
Company performance	0.8288

Factor loadings for all performance measures.

	Parents	Close friends	Encouragement	Business Networks	Business advisories	Previous start-ups
Parents	1.000					
Close friends	0.372*	1.000				
Encouragement	0.228	0.355*	1.000			
Business Networks	0.050	0.149	0.195	1.000		
Business advisories	0.278*	0.176	0.442*	0.351*	1.000	
Previous start-ups	0.188	0.214	0.151	0.133	0.078	1.000

* Denotes statistical significance at 10% level

	Govt official networks	Business contact networks	Community networks
Govt official networks	1.000		
Business contact networks	0.472*	1.000	
Community networks	0.737*	0.354*	1.000

* Denotes statistical significance at 10% level

	Mod. Innovation	Mod. Quality	Mod. Cost leadership
Mod. innovation	1.000		
Mod. Quality	0.5552*	1.000	
Mod. Cost leadership	0.888*	0.0578	1.000

* Denotes statistical significance at 10% level

	Previous manage	Previous St. up	IRR	Previous Ind. work	Previous Ind. St. up
Previous manage	1.000				
Previous St. up	0.8252*	1.000			
IRR	0.0473	-0.1065	1.000		
Previous ind. work	0.1771	0.1771	0.0233	1.000	
Previous ind. St. up	0.3077*	0.2130	0.333*	0.4454*	1.000

* Denotes statistical significance at 10% level

	Doctorates	Masters	Professional Qualifications	Degree in field of st. up
Doctorates	1.000			
Masters	0.2880	1.000		
Professional Qualifications	0.6303*	0.1715	1.000	
Degree in field of st. up	0.3671*	0.1264	0.3487*	1.000

* Denotes statistical significance at 10% level

	Strategic	Marketing	Finance	R&D	PD	HR	Exit	Inter-personal	Network
Strategic	1.000								
Marketing	0.5184*	1.000							
Finance	0.7095*	0.4216*	1.000						
R&D	0.6348*	0.5358*	0.5000*	1.000					
PD	0.5664*	0.5734*	0.3831*	0.7908*	1.000				
HR	0.5285*	0.4977*	0.3315*	0.4870*	0.5549*	1.000			
Exit	0.5663*	0.4938*	0.4246*	0.4732*	0.4674*	0.6985*	1.000		
Interpersonal	0.4927*	0.2542*	0.3762*	0.3321*	0.3336*	0.4313*	0.5949*	1.000	
Network	0.5905*	0.3110*	0.4067*	0.4089*	0.5048*	0.4307*	0.392*	0.4718*	1.000

* Denotes statistical significance at 10% level

	Resources	Strengths	Abilities	Expectations
Resources	1.000			
Strengths	0.7703*	1.000		
Abilities	0.6953*	0.7389*	1.000	
Expectations	0.7369*	0.7402*	0.7739*	1.000

* Denotes statistical significance at 10% level

	Strategy	Marketing	Finance	R&D	PD	HR	CEO	Other
Strategy	1.000							
Marketing	0.5965*	1.000						
Finance	0.6990*	0.3733*	1.000					
R&D	0.5932*	0.5974*	0.5782*	1.000				
PD	0.5593*	0.6628*	0.4401*	0.7152*	1.000			
HR	0.5124*	0.4848*	0.3787*	0.6485*	0.7874*	1.000		
CEO	0.2767*	0.4193*	0.2051	0.4306*	0.6619*	0.6554*	1.000	
Other	0.5505*	0.4800*	0.5288*	0.4828*	0.5289*	0.5134*	0.4938*	1.000

* Denotes statistical significance at 10% level

	Strategy	Marketing	Finance	RD	PD	HR
Strategy	1.000					
Marketing	0.7695*	1.000				
Finance	0.7304*	0.5678*	1.000			
RD	0.6864*	0.7136*	0.4465*	1.000		
PD	0.5813*	0.6473*	0.3623*	0.8179*	1.000	
HR	0.6461*	0.5658*	0.5018*	0.7872*	0.7915*	1.000

* Denotes statistical significance at 10% level

	Co. Valuation	Type of Security	Amount of Invest	No. Directors	Voting Rights	Vest. Founder stocks	Mgt. Control	Conversion Rights
Co. Valuation	1.000							
Type of Sec.	0.6176*	1.000						
Amount of Invest	0.5030*	0.4998*	1.000					
No. Directors	0.4872*	0.6331*	0.4675*	1.000				
Voting Rights	0.5933*	0.7215*	0.2240	0.7308*	1.000			
Vest. Founder Stocks	0.4475*	0.4893*	0.2578*	0.6382*	0.7075*	1.000		
Mgt. Control	0.4615*	0.4431*	0.2858*	0.5919*	0.6046*	0.7590*	1.000	
Conversion Rights	0.4864*	0.5696*	0.3566*	0.5749*	0.6198*	0.6666*	0.6816*	1.000

* Denotes statistical significance at 10% level

	Negotiation ease	Non-contract agreement speed	New venture ease of agreement	New venture agreement speed	Third party
Negotiation ease	1.000				
Non- contract agreement speed	0.6690*	1.000			
New venture ease of agreement	0.6539*	0.6394*	1.000		
New venture agreement speed	0.6438*	0.6556*	0.7615*	1.000	
Third party	0.4665*	0.6517*	0.5526*	0.4143*	1.000

* Denotes statistical significance at 10% level

	E-complementarity	E-disagreements	E-ease of relation
E-Complementarity	1.000		
E-disagreements	-0.2692*	1.000	
E- ease of relation	0.5673*	-0.3610*	1.000

* Denotes statistical significance at 10% level

	Trust	Confidence	Corruption	Crime	Contract Enforcement	Investor protection
Trust	1.000					
Confidence	0.6239*	1.000				
Corruption	0.5095*	0.8082*	1.000			
Crime	0.1751	0.1833	0.2263*	1.000		
Contract enforcement	0.6997*	0.5095*	0.5017*	0.5147*	1.000	
Investor Protection	0.6808*	0.5704*	0.5480*	0.5134*	0.9077*	1.000

* Denotes statistical significance at 10% level

	Stability	Govt Legisl.	Innovate prdt	Modern Tech	Innovate idea	Patents	Rely Network	Rely Relation
Stability	1.000							
Govt Legisl.	0.6994*	1.000						
Innovate prdt	0.2402*	0.2459*	1.000					
Modern Tech	0.1030	0.1213	0.7538*	1.000				
Innovate idea	0.2669*	0.1785	0.7465*	0.7799*	1.000			
Patents	0.2819*	0.2346*	0.0755	0.0717	0.0502	1.000		
Rely Network	0.1945	0.3167*	0.2361*	0.1971	0.3663*	0.1946	1.000	
Rely Relation	0.1189	0.3101*	0.1600	0.1384	0.2742*	0.1409	0.8793*	1.000

* Denotes statistical significance at 10% level

	Degree in field	Post grad degree	Finance degree	Law degree	Med./Eng. degree	Other degree
Degree in field	1.000					
Post grad degree	0.3280*	1.000				
Finance degree	0.2435*	1.985	1.000			
Law degree	-0.5300*	-0.3633*	-0.3282*	1.000		
Medical/ Eng. Degree	0.3266*	0.6875*	0.3434*	-0.2782*	1.000	
Other degree	-0.3549*	-0.3003*	0.0997	0.1386	0.1341	1.000

* Denotes statistical significance at 10% level

	Industry experience	Law experience	Finance experience	Consulting experience
Industry experience	1.000			
Law experience	0.1394	1.000		
Finance experience	-0.0577	-0.4142*	1.000	
Consulting experience	0.8083*	0.1724	-0.0714	1.000

* Denotes statistical significance at 10% level

	Meetings per month	Avg. boards	Avg. reports	Rounds till exit
Meetings per month	1.000			
Avg. boards	-0.3575*	1.000		
Avg. reports	-0.1356	0.1769	1.000	
Rounds till exit	0.0618	0.0117	0.6690*	1.000

* Denotes statistical significance at 10% level

	Meet/ month	Intro. To recruit	Intro. To cust.	Intro. To sup.	Shape HR mgt	Shape HR policies	Recr. Senior manag	Recr. admin	Recr. Sales	Shaping fin. policies
Meet/month	1.00									
Intro. To recruitment firms	0.0879	1.00								
Intro. To customers	0.3157*	0.5487*	1.00							
Intro. To suppliers	0.1424	0.6132*	0.5763*	1.00						
Shaping HR management	0.0592	-0.301*	0.1308	0.01921	1.00					
Shaping HR policies	0.2723*	-0.1196	0.05106	0.2189	0.3894*	1.00				
Recruit senior managers	0.2140	0.1088	0.1026	-0.0596	0.3035*	0.0716	1.00			
Recruit admin	-0.3157*	0.0880	-0.1537	-0.1833	0.3448*	0.3560*	0.3643*	1.00		
Recruit sales	-0.4659*	-0.000	-0.7853*	-0.3335*	-0.1045	0.784	-0.0580	0.5236*	1.00	
Shaping financial policies	0.4795*	0.5861*	0.5413*	0.7496*	0.2804*	0.5213*	0.1358	0.1105	-0.273*	1.00

* Denotes statistical significance at 10% level

	Gov. needs	Gov. officials	Contact gov for PF issues	Intro. PF to gov. officials	Network with gov.
Gov. Needs	1.000				
Gov. officials	0.9268*	1.000			
Contact gov for PF issues	0.8343*	0.8951*	1.000		
Intro. PF to gov off	0.6728*	0.7461*	0.8785*	1.000	
Network with gov.	0.7758*	0.8550*	0.9039*	0.9107*	1.000

* Denotes statistical significance at 10% level

	Connections	Well- connected	Invite	Initiate	Connect Through
Connections	1.000				
Well-connected	-0.3278*	1.000			
Invite	0.2427*	0.3726*	1.000		
Initiate	0.1321	-0.0546	0.0227	1.000	
Connect through	-0.3662*	0.3252*	0.3706*	0.2699*	1.000

* Denotes statistical significance at 10% level

	Resources	Strengths	Abilities	Expectations
Resources	1.000			
Strengths	0.9034*	1.000		
Abilities	0.5690*	0.4603*	1.000	
Expectations	-0.1043	0.1028	0.2720*	1.000

* Denotes statistical significance at 10% level

	Strategy	Marketing	Finance	R&D	PD	HR	CEO	Other
Strategy	1.000							
Marketing	0.1105	1.000						
Finance	0.4133*	-0.1613	1.000					
R&D	0.2437*	-0.2485*	-0.0851	1.000				
PD	0.3631*	-0.3218-	0.2954*	0.7228*	1.000			
HR	0.7096*	-0.1740	0.2454*	0.3926*	0.2711*	1.000		
CEO	0.3080*	0.1825	-0.3661*	0.4536*	0.3229*	0.3731*	1.000	
Other	0.4905*	0.3611*	-0.0289	0.2078	-0.0270	0.5759*	0.5456*	1.000

* Denotes statistical significance at 10% level

	Negotiation ease	Non-contract agreement speed	New venture ease of agreement	New venture agreement speed	Third party
Negotiation ease	1.000				
Non- contract agreement speed	0.5646*	1.000			
New venture ease of agreement	0.6897*	0.5415*	1.000		
New venture agreement speed	0.3263*	0.1316	0.4225*	1.000	
Third party	-0.2358*	-0.0036	0.1589	0.0180	1.000

* Denotes statistical significance at 10% level

	Clear Goal	Work Hard	Team Interest	Try Best	Responsibility
Clear Goal	1.000				
Work Hard	0.7614*	1.000			
Team Interest	0.0745	0.2426*	1.000		
Try Best	0.6814*	0.7901*	0.6521*	1.000	
Responsibility	0.6496*	0.5432*	0.3820*	0.6260*	1.000

* Denotes statistical significance at 10% level

	Benefits	Economic Consequences	Dependable	Act Fairly	VC Openness	No Doubt	Responds Constructively	Common Bus. Values
Benefits	1.000							
Economic Consequences	0.7510*	1.000						
Dependable	0.4701*	0.4776*	1.000					
Act Fairly	0.5432*	0.3074*	0.5381*	1.000				
VC-Openness	0.4297*	0.1791	-0.2349*	0.2934	1.000			
No Doubt	0.4770*	0.6594*	0.6924*	0.5780*	-0.0056	1.000		
Responds constructively	0.7640*	0.5386*	0.7339*	0.5287*	0.1716	0.5108*	1.000	
Common Bus. Values	0.4289*	0.0799	0.2654*	0.0751	0.2849*	0.1426	0.6763*	1.000

* Denotes statistical significance at 10% level

	VC complementarity	VC disagreements	Ease of relation	Team Spirit	PC Trust
VC complementarity	1.000				
VC disagreements	0.2448*	1.000			
Ease of relation	-0.0830	0.3455*	1.000		
Team Spirit	0.5945*	0.8910*	0.1646	1.000	
PC trust	0.6425*	0.4958*	-0.3882*	0.7540*	1.000

* Denotes statistical significance at 10% level

	Trust	Confidence	Corruption	Crime	Laws	Contractual rights	Investor protection
Trust	1.000						
Confidence	0.7203*	1.000					
Corruption	0.4368*	0.7829*	1.000				
Crime	0.4917*	0.6376*	0.4819*	1.000			
Laws	0.4046*	0.6130*	0.6728*	0.3988*	1.000		
Contractual rights	0.8148*	0.8234*	0.5240*	0.5032*	0.6090*	1.000	
Investor protection rights	0.6221*	0.8713*	0.7427*	0.7203*	0.6532*	0.8348*	1.000

* Denotes statistical significance at 10% level

	Stability	Govt Legisl.	Value-added	Sufficient	Contract Enf.	Protection	Rely Network	Rely Relation
Stability	1.000							
Govt Legisl.	0.6108*	1.000						
Value-added	-0.3526*	0.0369	1.000					
Sufficient	0.0711	0.2136	0.7051	1.000				
Contract Enf.	-0.2048	-0.0643	-0.5484*	-0.6569*	1.000			
Protection	-0.2521*	-0.1068	-0.5039*	*0.5140*	0.8522*	1.000		
Rely Network	0.3328*	0.0875	0.3753*	-0.1064	0.2861*	0.2821*	1.000	
Rely Relation	-0.4485*	-0.1577	0.0495	-0.5148*	0.6703*	0.5039*	0.7410*	1.000

* Denotes statistical significance at 10% level

Table A65 Ordered Logistic Regression Results				
Variables	No moderators	E-moderators	VC-moderators	E&VC moderators
	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
VC education	.4432 (.5218)	.4128 (.3671)	.5021 (.4982)	.4976 (.5021)
VC experience	.1034 (.8225)	.1640 (.9397)	.5454 (1.097)	.1429 (1.1483)
VC involvement	-.4173 (.7821)	-1.114 (.8728)	-.6504 (.8621)	-1.1468 (.8980)
VC services	.3193 (.5906)	.9130 (.7088)	.1924 (.6924)	.9699 (.8087)
VC gov't network	-.5709 (.6282)	-.7838 (.6577)	-.6971 (.6590)	-.7970 (.6838)
Avg. Connections	-.4902 (.5074)	-.0953 (.5499)	-.2437 (.6191)	-.0716 (.6251)
VC-E relationship	-.4902* (.5064)	-1.046* (.5534)	-.9991* (.5714)	-1.0176* (.6130)
Executive Recruitment	.2424 (.5033)	.0598 (.5484)	.29804 (.5116)	.1389 (.4950)
E- Business Network	.8971** (.4237)	.9327** (.4356)	.8986** (.4222)	.9370** (.4363)
Network use	.5463 (.4331)	.6769 (.4490)	.6098 (.4518)	.6862 (.4609)
Fit RBC strategy	1.4751** (.5872)	1.6902** (.6695)	1.6241*** (.6254)	1.6868** (.6977)
Previous experience founders	-.9197* (.4606)	-.8864* (.4822)	-.9037* (.4760)	-.8863* (.4824)
Previous managerial experience	-.81405* (.4475)	-.9129* (.4745)	-.8324* (.4510)	-.8963 (.4806)
Proportion education	.2297 (.6923)	.2614 (.7601)	.1681 (.6896)	.2313 (.7657)
Advice	.0948 (.4948)	.1534 (.5143)	-.0022 (.5152)	.1362 (.5343)
E-Extent of relation	1.3380* (.7334)	1.373* (.7475)	1.3985* (.7477)	1.3962** (.7589)
E- contractual flexibility	.2414 (.4794)	.4933 (.5181)	.1846 (.4938)	.4988 (.5365)
E- contractual favourableness	-.8426* (.4514)	-.7521 (.4968)	-.9015** (.4585)	-.7731 (.5057)
Firm age	.0125 (.4304)	.3072 (.4646)	.0927 (.4504)	.3318 (.4745)
Firm size	1.4292*** (.4447)	1.8212*** (.5095)	1.4841*** (.4657)	1.8164*** (.5108)
E- Legal Perception	NA	.5060** (.4295)	NA	.9004** (.4411)
E-Legal Impact	NA	.4391* (.4513)	NA	.8485* (.4602)
VC- Legal Perception	NA	NA	.4955 (.8440)	-.01509 (.8247)
VC-Legal impact	NA	NA	.2935 (.4731)	.1290 (.4971)
Pseudo R-squared	0.3316	0.3599	0.3323	0.3789
No. of Observations	52	52	52	52

Standard errors in provided in parenthesis
***, **, * denote statistical significance at 1, 5, 10% levels, respectively.

Table A66 OP Marginal Effects					
Prob. Outcome	1	2	3	4	5
Variables	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
VC education	-.0097 (.0129)	-.0410 (.04764)	-.0497 (.05265)	.0885 (.0977)	.0042 (.00668)
VC experience	.0111 (.02933)	.0471 (.12064)	.0481 (.12662)	-.1016 (.25861)	-.0048 (.01346)
VC involvement	.0039 (.02119)	.0167 (.08795)	.0171 (.09002)	-.0362 (.18915)	-.0017 (.00922)
VC services	-.0115 (.01815)	-.0486 (.07025)	-.0497 (.07664)	.1048 (.14777)	.0050 (.00897)
VC gov't network	.0049 (.01509)	.0209 (.06145)	.0214 (.06385)	-.0452 (.13201)	-.0021 (.00662)
Avg. Connections	.0158 (.01858)	.0667 (.06752)	.0683 (.08055)	-.1440 (.13873)	-.0068 (.01016)
VC-E relationship	.0072 (.0156)	.0306 (.0609)	.0313 (.0700)	-.0660 (.1360)	-.0031 (.0072)
Executive Recruitment	-.0031 (.0105)	-.0130 (.0427)	-.0133 (.0441)	.0281 (.0919)	.0013 (.0045)
E- Business Network	.0194 (.0172)	-.0818* (.0425)	-.0837 (.0698)	.1766** (.0876)	.0084 (.0100)
Network use	-.0163 (.0157)	-.0689 (.0467)	-.0705 (.0574)	.1487* (.0857)	.0071 (.0085)
Fit RBC strategy	-.0296 (.0265)	-.1248* (.0673)	-.1276 (.1060)	.2691** (.1362)	.0128 (.0151)
Previous experience founders	.0201 (.0185)	.0847* (.0468)	.0866 (.0742)	-.1827* (.0981)	-.0087 (.0103)
Previous managerial experience	.0154 (.0154)	.0649 (.0466)	.0664 (.0613)	-.1401 (.0936)	-.0067 (.0085)
Proportion education	-.0188 (.0172)	-.0458 (.0690)	-.0469 (.0863)	.0989 (.1568)	.0047 (.0094)
Advice	-.0012 (.0101)	-.0053 (.0430)	-.0054 (.0434)	.0114 (.0919)	.0005 (.0045)
E-Extent of relation	-.0324 (.0293)	-.1368* (.0735)	-.1399 (.1124)	.2924** (.1428)	.0141 (.0167)
E- contractual flexibility	-.0109 (.0131)	-.0459 (.0481)	-0.4703 (.0556)	.0991 (.0988)	.0047 (.0071)
E- contractual favourableness	.0172 (.0170)	.0727 (.0506)	.0744 (.0637)	-.1569 (.0958)	-.0075 (.0095)
Firm age	-.0159 (.0227)	-.0651 (.0792)	-.0667 (.0814)	.1407 (.1582)	.0071 (.0116)
Firm size	-.0834 (.0589)	-.2372*** (.0922)	-.2307 (.1355)	.4993** (.1389)	.05216 (.0487)
E- Legal Perception	-.0177 (.0160)	-.0746* (.0450)	-.0762* (.0608)	.1609* (.0827)	.0076 (.0092)
E-Legal Impact	-.0164 (.0154)	-.0693 (.04567)	-.0709 (.0623)	.1495* (.0900)	.0071 (.0089)
VC- Legal Perception	.0053758 (.01371)	.0226 (.0568)	.0231 (.0582)	-.0488 (.1201)	-.0023 (.0064)
VC-Legal impact	-.0152 (.0163)	-.0642 (.0531)	-.0656 (.0644)	.1385 (.1063)	.0066 (.0087)

Standard errors in provided in parenthesis
***, **, * denote statistical significance at 1, 5, 10% levels, respectively.

APPENDIX B

Appendix B1: VC Managers' Questionnaire

Questionnaire Cover Letter

Survey on the Performance of venture capital backed firms in Egypt

This survey is conducted to capture the impact of certain factors (entrepreneurs' (E) characteristics, venture capital (VC) fund managers' characteristics and the VC-E relationship), on the performance of the VC-backed portfolio firms. I am a lecturer at Arab Academy for Science, Technology and Maritime Transport (AASTMT), studying for my PhD at De Montfort University (UK). Findings of this study will be used entirely for academic purposes. Your full participation in this study will assist to include the Egyptian VC market perspective in the analysis. As such, your cooperation in completing this questionnaire is central to the success of this research.

Each question should be viewed as a separate independent judgement. Kindly answer the questions as fully and accurately as possible and remember there are **no right answers** to the questions asked, as each firm and each manager has their unique ways and capabilities. Your name is not asked for on the survey, as you are guaranteed **complete confidentiality and anonymity**. Only general findings from the study will be reported.

As a way of expressing appreciation for your assistance in this survey, you are guaranteed a complimentary report containing a summary of this study. Please include a business card, email or mobile number to ensure that the summary report is sent to your preferred contact address. Again, there is no way this will be linked to the answers provided.

SECTION I: REGARDING VC MANAGER'S HC

Question 1: Experience and Education of VC managers

Please indicate the number of VC management team members?

Please circle the figures that are most relevant to previous education of the VC management team						
1.	How many of VC management team hold a degree in the same field as the funded start-ups?	0	1	2	3	≥4
2.	How many of VC management team hold a post graduate degree or a CFA?	0	1	2	3	≥4
3.	How many of VC management team hold a finance degree?	0	1	2	3	≥4
4.	How many of VC management team hold a law degree?	0	1	2	3	≥4
5.	How many of VC management team hold a medical or engineering degree?	0	1	2	3	≥4
6.	How many of VC management team hold a degree in any other field? Specify the field: _____	0	1	2	3	≥4
Please circle yes or no to indicate the answers to best describe the previous experience of founders of the VC management team						
7.	At least one of the VC management team has previous work experience in the industry of the portfolio firms				YES	NO
8.	At least one of the VC management team has previous work experience in business management				YES	NO
9.	At least one of the VC management team has previous work experience in law				YES	NO
10.	At least one of the VC management team has previous work experience in finance				YES	NO
11.	At least one of the VC management team has previous work experience in consultancy				YES	NO

SECTION II: REGARDING VC VALUE-ADDED ACTIVITIES

Question 1: Strategic and Operational Value-Added Activities

Please circle the figures that are most relevant to the following statements indicating your firm's involvement in the portfolio company.										
1.	Total number of meetings each month on average	0	1	2	3	4	5	6	7	>7
2.	The average number of boards most VC partners are members of.	0	1	2	3	4	5	6	7	>7
3.	Average number of monitoring reports requested from ventures/ year	0	1	2	3	4	5	6	7	>7
4.	Average number of investment rounds in portfolio firms till exit	0	1	2	3	4	5	6	7	>7

Question 2: VC Networking activities

To what extent do you agree or disagree with the following statements describing your networking activities related to service providers. Please circle the number that best represents your opinion.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The VC firm has introduced recruitment firms to the portfolio.	1	2	3	4	5
2.	The VC firm has introduced new customers to the portfolio firm.	1	2	3	4	5
3.	The VC firm has introduced new suppliers to the portfolio firm.	1	2	3	4	5
4.	The VC has influence in shaping HR management team of portfolio firm.	1	2	3	4	5
5.	The VC has influence in shaping HR policies of the portfolio firm.	1	2	3	4	5
6.	The VC firm management is involved in recruiting senior managers of the portfolio firm.	1	2	3	4	5
7.	The VC firm management is involved in recruiting administrative and management personnel of the portfolio firm	1	2	3	4	5
8.	The VC firm management is involved in recruiting sales and marketing personnel of the portfolio firm.	1	2	3	4	5
9.	The VC firm management is involved in shaping financial policies and procedures of the portfolio firm.	1	2	3	4	5

To what extent do you agree or disagree with the following statements describing your networking activities related to government officials. Please circle the number that best represents your opinion.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Our VC firm/managers are capable of networking with government and regulatory department.	1	2	3	4	5
2.	Our VC firm/ managers maintain relationships with many Egyptian government officials and regulatory departments	1	2	3	4	5
3.	Our VC firm frequently contacts Egyptian government officials and regulatory departments for important issues concerning the portfolio firms	1	2	3	4	5
4.	Our VC firm has introduced the portfolio firms to government officials.	1	2	3	4	5
5.	Our VC firm has used its government network to meet growing needs of the portfolio firms.	1	2	3	4	5

Please answer the following inquiries describing your firm's networking activities related to syndicates, circling the number that best represents your firm.									
1.	How many other VC firms does your firm have relationships or connections with?	0	1	2	3	4	5	6	>6
2.	How many of the firms stated in the previous question, are known to be very well-connected VCs?	0	1	2	3	4	5	6	>6
3.	How many times has your firm been invited by other VC firms to invest in a venture?	0	1	2	3	4	5	6	>6
4.	How many times has your firm initiated an investment or invited other VC firms to co-invest?	0	1	2	3	4	5	6	>6
5.	How many VC firms are only connected to each-other through your firm and have no direct relationship otherwise?	0	1	2	3	4	5	6	>6

SECTION III: REGARDING VC-E RELATIONSHIP

How would you perceive the complementary roles of your firm as well as the portfolio firm? Please circle the option that is most relevant.		Very Low	Low	Average	High	Very High
1.	We both contribute different resources to achieve the common goal.	1	2	3	4	5
2.	We have complementary strengths that are useful to our new venture.	1	2	3	4	5
3.	We each have separate abilities that, when combined, enable us to achieve goals beyond our individual reach.	1	2	3	4	5
4.	Your expectations of the effort exerted by the start-up' founders are met.	1	2	3	4	5

How would you perceive your <u>level of disagreement</u> with the portfolio firm managers on the following issues? Please circle the option that is most relevant.		Very Low	Low	Average	High	Very High
1.	Strategy related issues	1	2	3	4	5
2.	Marketing related issues	1	2	3	4	5
3.	Financial related issues	1	2	3	4	5
4.	R&D related issues	1	2	3	4	5
5.	Product development related issues	1	2	3	4	5
6.	HR related issues	1	2	3	4	5
7.	CEO replacement issues	1	2	3	4	5
8.	Other issues Please specify: _____	1	2	3	4	5

Please rate how you perceive the following statements regarding your relationship with portfolio firms' management team. Please circle the option that is most relevant.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	We can easily negotiate over the issues which were not written in detail in the contracts before the investment started.	1	2	3	4	5
2.	We can reach an agreement quickly over issues not written in detail in the contracts before the investment started.	1	2	3	4	5
3.	It is easy for us to agree on major new venture decisions.	1	2	3	4	5
4.	We do not need a long time to reach an agreement on major new venture decisions.	1	2	3	4	5
5.	We did not need an external third party to resolve any conflicts between us.	1	2	3	4	5

Please rate how you perceive the portfolio firms' team spirit through the following statements. Please circle the option that is most relevant.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The portfolio firm team has a clear overall goal and I believe we can achieve it.	1	2	3	4	5
2.	The portfolio firm team members all work hard to make the team successful.	1	2	3	4	5
3.	The portfolio firm team members put the interest of the team before their personal interests.	1	2	3	4	5
4.	The portfolio firm team members try their best to improve their ability and master more resources to improve the overall team performance constantly.	1	2	3	4	5
5.	As a team everyone accepts personal responsibility for the success of the team.	1	2	3	4	5

Please circle the level that reflects your trust to portfolio firm on the following relational aspects:		Very Low	Low	Average	High	Very High
1.	The portfolio company will respect our contract because it knows clearly the benefits of doing so.	1	2	3	4	5
2.	The portfolio company will respect our contract because it knows clearly the economic consequences of the loss of reputation.	1	2	3	4	5
3.	From past dealing we know that the portfolio company is dependable.	1	2	3	4	5
4.	From past dealings, we know the portfolio company will act fairly and promptly.	1	2	3	4	5
5.	We know the portfolio company has been open in describing its strengths and weaknesses in past negotiations.	1	2	3	4	5
6.	Given the portfolio company's track records, we generally see little reason to significantly doubt their competence.	1	2	3	4	5
7.	We can freely share concerns and problems about our company and know that the portfolio company will respond constructively.	1	2	3	4	5
8.	We share common business values with the portfolio company.	1	2	3	4	5

SECTION IV: REGARDING LEGAL ENVIRONMENT

Please circle the figure that best describes how you perceive the legal environment in Egypt.		Strongly	Disagree	Neutral	Agree	Strongly Agree
1.	The court system in Egypt can be trusted.	1	2	3	4	5
2..	I have confidence in the political stability in Egypt.	1	2	3	4	5
3.	Corruption in Egypt is being mitigated	1	2	3	4	5
4.	Crime and theft is not common in Egypt.	1	2	3	4	5
5.	Laws or regulations that materially affect the operation and growth of your business are predictable.	1	2	3	4	5
6.	I am confident that the judicial system will enforce my contractual rights in business disputes.	1	2	3	4	5
7.	I am confident that the judicial system will enforce my investor protection rights in business disputes.	1	2	3	4	5

Please indicate the extent to which you perceive the legal environment in Egypt, to impact your business and innovation.		Strongly	Disagree	Neutral	Agree	Strongly Agree
1.	Stability of political systems in Egypt have an impact on your business	1	2	3	4	5
2.	Government legislations have an impact on your business	1	2	3	4	5
3.	Despite the external legal environment factors on your business, your firm has been able to provide various value-added services to portfolio companies.	1	2	3	4	5
4.	Despite the external legal environment factors on your business, your firm has been able to provide sufficient service to portfolio firms.	1	2	3	4	5
5.	Contract Enforcement in your country has an impact on the service level your company provides.	1	2	3	4	5
6.	Investor protection laws have an impact on the service level your company provides.	1	2	3	4	5
7.	In my opinion, due to the legal conditions in the country, it is more important to rely on networks and connections.	1	2	3	4	5
8.	In my opinion, due to the legal conditions in the country, it is important to rely on personal relationships.	1	2	3	4	5

ADDITIONAL INFORMATION:

1. Please specify the number of funds raised since operation_____
2. Please specify the number of firms that exist under your current portfolio_____
3. In your view what's your optimum duration of investment in portfolio companies_____
4. What is the security type you most commonly agree to use in the agreement with the portfolio company? _____
5. Please provide the names of the highest performing companies in your portfolio in Egypt _____
6. Please provide the names of other (least performing) companies in your portfolio in Egypt _____

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION

Appendix B2: Entrepreneurs' Questionnaire

SECTION I: REGARDING ENTREPRENEUR'S SOCIAL CAPITAL

Question 1: Executive Recruitment

Please circle the figures that are most relevant to describe executive recruitment in your firm							
1.	How many non-executive founders exist in this firm?	1	2	3	4	5	>5
2.	How many of them were recruited through the founder?	1	2	3	4	5	>5
3.	How many of them were recruited through a friend or classmate of the founder?	1	2	3	4	5	>5
4.	How many of them were recruited through a co-worker or advisor of the founder?	1	2	3	4	5	>5
5.	How many were recruited through other means? Please specify the source of recruitment: _____	1	2	3	4	5	>5

Question 2: Personal Business Networks

Please circle yes or no to indicate the answers to best describe your personal business network			
1.	Have you or any of your co-founders' parents ever owned a business?	YES	NO
2.	Have you or any of your co-founders' close friends or neighbours ever owned a business?	YES	NO
3.	Have you or any of your co-founders' family, spouse or close friends encouraged you/them to start a business?	YES	NO

Question 3: Relationships with individuals in the business community

Please circle yes or no to indicate the answers to best describe your relationships with individuals in the business community			
1.	Have you or any of your co-founders' been involved in any business networks such as trade associations, chambers of commerce or service clubs e.g. Rotary?	YES	NO
2.	Have you or any of your co-founders' had specific contacts with organisations that dispense business advice assistance?	YES	NO
3.	Have you or any of your co-founders' been previously involved in a start-up team rather than an individual start-up?	YES	NO

Please circle the number that best represents extent to which you have utilised personal ties, networks, and connections during the past three years with:		Very	Low	Average	High	Very
		1	2	3	4	5
Any government officials:						
1.	Political leaders in various levels of the government (e.g. Ministers of State)	1	2	3	4	5
2.	Officials in regulatory and supporting institutions (e.g., Tax authorities)	1	2	3	4	5
3.	Metropolitan/municipal/district chief executives	1	2	3	4	5
4.	Regional and national government politicians (e.g. regional or national party chairman/chairperson)	1	2	3	4	5
Business contacts:						
5.	Top managers at buyer/customer firms	1	2	3	4	5
6.	Top managers at supplier firms	1	2	3	4	5
7.	Top managers at competitor firms	1	2	3	4	5
8.	Members of trade associations or chambers of commerce	1	2	3	4	5
Community contacts:						
8.	Religious leaders (e.g., sheikh, priest)	1	2	3	4	5
9.	Close friends that have political connections	1	2	3	4	5
10.	Close friends that have business connections	1	2	3	4	5

SECTION II: REGARDING ENTREPRENEURIAL FIRM RESOURCE BASED CAPABILITIES (RBCs)

Question 1: Resource Based Capabilities

To what extent do you agree or disagree with the following statements describing your firm's RBCs. Please circle the number that best represents your opinion.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
INNOVATION RELATED RBCS						
1.	This venture has innovative marketers.	1	2	3	4	5
2.	This venture has employees that are good at marketing.	1	2	3	4	5
3.	This venture possesses marketing expertise.	1	2	3	4	5
4.	This venture possesses product development expertise.	1	2	3	4	5
5.	This venture has innovative employees	1	2	3	4	5
QUALITY RELATED RBCS						
1.	The employees in this venture provide superior customer service.	1	2	3	4	5

2.	The venture possesses expertise in customer service.	1	2	3	4	5
3.	This venture provides quality customer service training.	1	2	3	4	5
4.	This venture possesses managerial expertise.	1	2	3	4	5
5.	This venture has flexibility to adapt.	1	2	3	4	5
COST LEADERSHIP RELATED RBCS						
1.	This venture depends on low cost materials.	1	2	3	4	5
2.	This venture depends on low cost distribution channels.	1	2	3	4	5
3.	This venture depends on low cost labour.	1	2	3	4	5
4.	This venture depends on low cost factors of production.	1	2	3	4	5
5.	This venture depends on availability capital.	1	2	3	4	5
6.	This venture depends on highly productive employees.	1	2	3	4	5
7.	This venture depends on leading-edge facilities.	1	2	3	4	5

Question 2: Strategies related to resources

To what extent do you agree or disagree with the following statements describing your firm's strategies. Please circle the number that best represents your opinion.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
INNOVATION RELATED STRATEGIES						
1.	The strategies of this venture drive it to be the first to introduce new products.	1	2	3	4	5
2.	The strategies of this venture stress on new product development	1	2	3	4	5
3.	The strategies of this venture focus on engaging it in novel marketing	1	2	3	4	5
4.	Our firm researches new product opportunities continually	1	2	3	4	5
5.	Developing quality and performance of current products continually is important for our firm	1	2	3	4	5
6.	Making changes in product development method sometimes is important for our firm	1	2	3	4	5
7.	Innovation activities are encouraged in this firm	1	2	3	4	5
QUALITY RELATED STRATEGIES						
1.	The strategies of this venture focus on implementing strict quality control.	1	2	3	4	5
2.	The strategies of this venture focus on meeting quality requirements.	1	2	3	4	5
3.	The strategies of this venture focus on meeting a strong customer service level.	1	2	3	4	5

4.	The strategies of this venture focus on meeting a high level of product quality.	1	2	3	4	5
5.	The strategies of this venture focus on meeting customer needs.	1	2	3	4	5
COST LEADERSHIP RELATED STRATEGIES						
1.	The strategies of this venture focus on cost reduction in all facets of business operations.	1	2	3	4	5
2.	The strategies of this venture focus on improvement of employee productivity and efficiency	1	2	3	4	5
3.	The strategies of this venture focus on the development of lower production cost via process innovation.	1	2	3	4	5
4.	The strategies of this venture focus on the development of lower production cost via investing in machinery.	1	2	3	4	5

SECTION III: REGARDING ENTREPRENEURIAL HUMAN CAPITAL

Question 1: Experience and Education of Entrepreneur

Please indicate the number of founders of this this start-up?

Please circle yes or no to indicate the answers to best describe the previous experience of founders of the venture				
1.	Have you or any of your co-founders been on the management team of a previous start-up?	YES	NO	
2.	Have you or any of your co-founders previously started up a business? IF YES, please specify the total number of starts-ups that founders were involved in	YES	NO	<input style="width: 100px; height: 30px; border: 1px solid black;" type="text"/>
3.	Has your or any of your co-founders' previous start-ups liquidated an IRR of 100% or higher on a series A investment?	YES	NO	
4.	Have you or any of your co-founders previously worked in the industry of the current start-up?	YES	NO	
5.	Have you or any of your co-founders previously had a start-up in the industry of the current start-up?	YES	NO	
Please circle yes or no to indicate the answers to best describe the previous managerial experience of the founders				
1.	Have you or any of your co-founders previously managed a public company?	YES	NO	
2.	Have you or any of your co-founders previously started a business together?	YES	NO	
3.	The management team of the start-up can be considered functionally diverse.	YES	NO	

Please circle the figures that are most relevant to previous education of the founders of the firm						
6.	How many of the founders hold a doctorates degree?	0	1	2	3	≥4
7.	How many of the founders hold a master's degree?	0	1	2	3	≥4
8.	How many of the founders are CFA holders?	0	1	2	3	≥4
9.	How many of the founders hold a degree specialised in the field of this start-up?	0	1	2	3	≥4

SECTION VI: REGARDING YOUR COMPANY'S PERFORMANCE

Compared to your industry average, how would you grade your company's performance on the following indicators? Please circle the number that best represents your opinion.		Far Below Average	Below Average	Average	Above Average	Far Above Average
1.	Growth of sales	1	2	3	4	5
2.	Sales volume	1	2	3	4	5
3.	Return on assets	1	2	3	4	5
4.	Return on sales	1	2	3	4	5
5.	Growth in productivity	1	2	3	4	5
6.	Market share	1	2	3	4	5
7.	Growth in market share	1	2	3	4	5
8.	Profitability	1	2	3	4	5
9.	Growth in profitability	1	2	3	4	5
10.	Overall company performance	1	2	3	4	5

SECTION VII: REGARDING VALUE-ADDED OF VENTURE CAPITALISTS

How would you rate the level of advice given to your firm from your VC investor? Please circle the number that best represents your opinion.		Very Low	Low	Average	High	Very High
1.	Strategic advice	1	2	3	4	5
2.	Marketing advice	1	2	3	4	5
3.	Financial advice	1	2	3	4	5
4.	R&D advice	1	2	3	4	5
5.	Product development advice	1	2	3	4	5
6.	HR advice	1	2	3	4	5
7.	Exit Strategy advice	1	2	3	4	5
8.	Interpersonal advice	1	2	3	4	5

9.	Networking advice	1	2	3	4	5
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SECTION VIII: REGARDING VC-E RELATIONSHIP

How would you perceive the complementary roles of your firm as well as the VC firm? Please circle the option that is most relevant.		Very Low	Low	Average	High	Very High
1.	We both contribute different resources to achieve the common goal.	1	2	3	4	5
2.	We have complementary strengths that are useful to our new venture.	1	2	3	4	5
3.	We each have separate abilities that, when combined, enable us to achieve goals beyond our individual reach.	1	2	3	4	5
4.	Your expectations of effort exerted by VC manager are met.	1	2	3	4	5

How would you perceive your <u>level of disagreement</u> with the VC managers on the following issues? Please circle the option that is most relevant.		Very Low	Low	Average	High	Very High
1.	Strategy related issues	1	2	3	4	5
2.	Marketing related issues	1	2	3	4	5
3.	Financial related issues	1	2	3	4	5
4.	R&D related issues	1	2	3	4	5
5.	Product development related issues	1	2	3	4	5
6.	HR related issues	1	2	3	4	5
7.	CEO replacement issues	1	2	3	4	5
8.	Other issues	1	2	3	4	5

How would you perceive the Venture Capitalists' level of <u>contractual flexibility</u> on the following issues? Please circle the option that is most relevant for each of the following issues		Very Low	Low	Average	High	Very High
1.	Strategy related issues	1	2	3	4	5
2.	Marketing related issues	1	2	3	4	5
3.	Financial related issues	1	2	3	4	5
4.	R&D related issues	1	2	3	4	5

5.	Product development related issues	1	2	3	4	5
6.	HR related issues	1	2	3	4	5

How would you perceive your level of <u>favourableness</u> of contractual terms agreed upon with the VC managers? Please circle the option that is most relevant according to each of the following contractual terms		Very Low	Low	Average	High	Very High
1.	Company Valuation	1	2	3	4	5
2.	Type of security	1	2	3	4	5
3.	Amount and timing of investments	1	2	3	4	5
4.	Number of elected directors	1	2	3	4	5
5.	Voting Rights	1	2	3	4	5
6.	Vesting of founders Stock	1	2	3	4	5
7.	Management Control	1	2	3	4	5
8.	Conversion Rights	1	2	3	4	5

How you perceive the following statements regarding your relationship with VC firm management team Please circle the option that is most relevant.		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	We can easily negotiate over the issues which were not written in detail in the contracts before the investment started.	1	2	3	4	5
2	We can reach an agreement quickly over issues not written in detail in the contracts before the investment started.	1	2	3	4	5
3.	It is easy for us to agree on major new venture decisions.	1	2	3	4	5
4.	We do not need a long time to reach an agreement on major new venture decisions.	1	2	3	4	5
5.	We did not need an external third party to resolve any conflicts between us.	1	2	3	4	5

SECTION IX: REGARDING LEGAL ENVIRONMENT

Please indicate the extent to which you perceive the legal environment in Egypt.		Strongly	Disagree	Neutral	Agree	Strongly
		y	e			y
1.	The court system in Egypt can be trusted.	1	2	3	4	5
2.	I have confidence in the political stability in Egypt.	1	2	3	4	5
3.	Corruption in Egypt is being mitigated.	1	2	3	4	5
4.	Crime and theft is not common in Egypt.	1	2	3	4	5
5.	I am confident that the judicial system will enforce my contractual rights in business disputes.	1	2	3	4	5
6.	I am confident that the judicial system will enforce my property rights in business disputes.	1	2	3	4	5

Please indicate the extent to which you perceive the legal environment in Egypt, to impact your business and innovation.		Strongly	Disagree	Neutral	Agree	Strongly
		Disagree	Disagree			Agree
1.	Stability of political systems in Egypt have an impact on your business	1	2	3	4	5
2.	Government legislations have an impact on your business	1	2	3	4	5
3.	Despite the external legal environment factors on your business, your firm has been able to provide innovative products or services to customers.	1	2	3	4	5
4.	Despite the external legal environment factors on your business, your firm has been able to come out with modern technology to improve productivity and efficiency.	1	2	3	4	5
5.	Despite the external legal environment factors on your business, your firm has been able to come out with innovative ideas to obtain distinctive competencies than competitors.	1	2	3	4	5
6.	Government patent laws and licensing have an impact on the innovative outcomes of your business.	1	2	3	4	5
7.	In my opinion, due to the legal conditions in the country, it is more important to rely on networks and connections.	1	2	3	4	5
8.	In my opinion, due to the legal conditions in the country, it is important to rely on personal relationships.	1	2	3	4	5

ADDITIONAL INFORMATION

1. What is your current position in the company? _____
2. Which industry does your company operate in? _____
3. How long has your company been in business? _____
4. What is the total number of employees in your company? _____

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION