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THE NET EFFECT:
THE IMPACT OF ENTREPRENEURIAL ALLIANCE NETWORKS ON NEW VENTURE PERFORMANCE

BY

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Abstract

The economic impact of successful new venture performance is undeniable; however, most empirical research examining the factors driving the successful growth of entrepreneurial businesses has focused on established firms with existing capital resources and market presence. Using the Kauffman Firm Survey data (the largest-ever longitudinal study of new ventures), this study analyzes a sample of 1757 U.S.-based new ventures (all founded in 2004), over a seven-year period and provides important insights into the interrelationships between the background of the entrepreneur, start-up team size, and the nature and intensity of alliance networks on financial performance (revenue and profits). This study illustrates the wide variation in new venture performance and the disproportionate economic importance of a relatively small number of high-performance businesses. While entrepreneurial background showed some impact on performance, the results were not conclusive; however, the importance of initial team size (number of founders) was shown to be an important driver of growth and long-term business profitability. Although the success of high-performance ventures was not shown to be mediated by industry type or location, there appears to be a positive "net effect" that exists when companies form alliances that provide them with access to important resources that are often inherently lacking in early stage businesses. This study demonstrates an inverse U-shaped relationship between the number of alliances formed and financial performance, suggesting that entrepreneurs need to focus on forming a selective number of high-quality alliances that will have strategic value for the enterprise.

Table of Contents

LIST OF TABLES

List of Figures

The Net Effect:
The Impact of Entrepreneurial Alliance Networks on New Venture Performance

CHAPTER 1 – INTRODUCTION

The study of entrepreneurship has become an important area of research focus across the disciplines of business, economics, and sociology. Scholars have studied the attributes, traits, and characteristics of entrepreneurs and entrepreneurial teams (Belàs & Kljucnikov, 2016; Laguir & Den Besten, 2016; Lanyi, 2016; Luca & Robu, 2016), why they try to start a new venture (Zanakis, Renko & Bullough, 2012), their work motivation (Estay, Durrieu & Akhter, 2013), how important new ventures are for the economy (Lamotte & Colovic, 2015; Smith, Judge, Pezeshkan & Nair, 2016) as well as why entrepreneurs leave the market (Raunelli, Power & Galarza, 2016).

According to Zimmerman & Zeitz (2002), the first 5 years of a new venture existence are characterized by 3 phases: venture creation, market entry, and early growth and development. As researchers seek to identify factors that are a determinant of new venture success throughout these phases, there has been increased focus and interest in the importance of entrepreneurial teams and networks. Some authors have suggested that companies will become increasingly dependent upon their capability to change and manage networks (Doz and Hamel, 1998), other researchers have found that many alliances fail within a relatively short period of time (Draulans, DeMan & Volberda, 2003).

Given the importance of new ventures' success, it is essential to understand how and why entrepreneurs from different types of background succeed, as well as how and why different new

ventures benefit from different types of alliances networks. Can entrepreneurial team size impact the financial performance of a new venture? Furthermore, is there a financial benefit to pursue network alliances at the earliest stages of new ventures creation (NVC)?

Based on a literature review related to the key determinants and theories of new venture success at the earliest stages of new venture creation, it is hypothesized that controllable factors in a model coined “The Net Effect”, lead to strategic business partnerships, alliances and networks, and that these linkages are critical in the success and growth rates of new ventures across different industries.

Using the largest ever longitudinal study of new businesses (The Kauffman Firm Survey “KFS”), this research project endeavors to identify the impact of entrepreneurial background, team size and alliance formation on new venture financial performance.

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CHAPTER 2 – REVIEW OF THE LITERATURE

2.1 The Importance of Understanding New Venture Growth

Successful new ventures are the single most important driver of new job creation and economic benefit in most developed countries (Ireland & Hitt, 1997). Over 600,000 new businesses are started each year in the United States alone and small companies account for the majority of non-farm GDP, employ the majority of the workforce and are responsible for over two-thirds of new job creation (Small Business Administration, 2012). New ventures strengthen the economy as a whole by enhancing competitiveness, locally and regionally. Even a single highly successful venture can result in the creation of an entirely new industry sector, the emergence and expansion of scores of other new businesses and can have a long-term positive economic impact on an entire region (McDougall & Robinson, 1990).

Yet, despite the indisputable economic value of new ventures consistently demonstrated across the literature, research on the factors driving such successful growth has not been as consistent, particularly at the earliest stages of NVC and launch. Rather, the vast majority of the literature on strategy and growth has been focused on the incumbent and relatively larger firms with established markets, structures and capital resources (Ostgaard & Birley, 1994).

2.2 The Myth of the Prototypical Entrepreneur

The majority of early new venture and entrepreneurship research focused primarily on “who” the entrepreneur was by examining personal characteristics and traits (Brockhaus, 1980). Many researchers have suggested that the personal background, education, age, and experience of the entrepreneur are important elements in new venture success while others have focused on

individual characteristics such as personality (Dvir, Sadeh & Malach-Pines, 2010; Lee & Lee, 2015; Smith, Baum & Locke, 2001).

While most researchers and practitioners place the entrepreneur at the heart of new venture success, the empirical evidence related to common elements successful entrepreneurs share has not been conclusive. There has been no causal link or correlation shown between psychological variables and new venture performance (McDougall, Robinson & DeNisi, 1992), nor has there been any conclusive link shown between biographical background such as age, education, managerial/entrepreneurial experience and success (Sandberg & Hofer, 1987). In short, there appears to be no stereotype for a successful entrepreneur and there are wide variations in their backgrounds, personalities, and experience.

Over time, academic research has evolved from the focus on the individual entrepreneur to the entrepreneurial team and more recently to a more integrative view of the entrepreneur as part of dynamic eco-system including the entrepreneur and his or her team, internal resources, external partners and market opportunities.

2.3 From Solo Entrepreneur to an Entrepreneurial Team Framework

Although much literature in the past looked at the characteristics of "the" entrepreneur in new venture success, the concept of a lone figure "battling the storms" alone for success is one of the "greatest myths" of entrepreneurship (Cooney, 2005, p. 226; Gerber, 1986). At the earliest stages of NVC, the entrepreneur builds the fundamental building block of the new venture: a team, which includes internal employees and external advisors (i.e. professionals, board members, informal advisors).

In a large-scale quantitative study of early-stage new ventures in Spain, it was concluded that early stage "resource ties" were strongly correlated with both speed and growth of new ventures (Capelleras & Greene, 2008). The authors state that "there is also a general recognition that ventures are, themselves, path dependent. In essence, those with particular resources at the start of the venture are more likely to receive better outcomes than those without appropriate resources." (Capelleras & Greene, 2008, p. 321) The research strongly confirmed that entrepreneurs who were able to use their "personal networks" to identify key advisors, employees and build formal and informal ties with important suppliers and customers and find financing sources had, in fact, created an important set of starting resources that provide significantly better conditions for a path to success.

Further, empirical research demonstrates that the entrepreneurial team size at launch is strongly correlated with new venture success (Colombo & Grilli, 2005; DeTienne, McKelvie & Chandler, 2015), suggesting that much of the key work of the entrepreneur, in fact, takes place *before* the actual start-up of a new venture. Although little empirical research has been conducted it has been clearly documented that building a virtual team of advisors is also important in the NVC process (Ozcan & Eisenhardt, 2009). Entrepreneurs call upon experts (e.g., accountants, lawyers, financial advisors, technical) as well as formal (e.g. Board of Directors) and informal business advisors (Smeltzer, Van Hook & Hutt, 1991).

2.4 Theories of New Venture Growth

Table 1 (adapted from Song, Podoynitsyna, Van Der Bij & Halman, 2008) summarizes the main theories that have been traditionally identified by researchers as potential drivers of new venture growth, categorized in four areas:

Table 1: Main Theories of New Venture Growth and Success

Theory	**Factors**
Entrepreneurial Characteristics	Personality, background, traits, vision
Entrepreneurial Team	Member experience, number of members in entrepreneurial team, characteristics, values, beliefs, behavior, leadership style
Entrepreneurial Resources	Financial, Intellectual Property, Institutional Characteristics, Partnerships, and Networks
Entrepreneurial Opportunity	Environmental factors, Market and opportunity characteristics, Competitive intensity, Market growth rate

These traditional theories that have examined new venture success and growth can be characterized into two main categories: resource-based and market-based. Theories based on the characteristics of the entrepreneur, the team and the company's tangible and intangible resources can be considered to be resource-based views of the new venture success (Silverman, 1999). What is referred to by Song et al. (2008) as the "entrepreneurial opportunity" is, in fact, a range of market-based theories and views of new venture growth.

Resource-Based Theories:

Unlike established firms, the only resource that exists at the inception of a new venture is the entrepreneur and his or her idea, hence early entrepreneurial research that attempted to identify factors that influence new venture success, focused primarily on characteristics of the individual. As discussed earlier, however, research focused solely on the traits of the founding entrepreneur alone appears to be inconclusive and, over time, the focus of this type of research has shifted to

look more at the founding and early stage entrepreneurial team as a whole. Given that "a number of decisions are made under conditions of uncertainty" researchers have theorized about the importance of the experience of the entrepreneurial team, particularly related to industry, marketing, research and development and previous start-up experience as well as the overall size of the management team at start-up (Marino & De Noble, 1997, p. 230).

Other resource-based views of entrepreneurial success have looked at the importance of other types of resources beyond the management team, but that are enabled by the management team (McDougall et al., 1992). Key areas that have been studied by researchers include financial, physical (location, facilities), technological (patents, proprietary technology) or intangible (firm reputation, brand equity) resources (Marino & De Noble 1997; Robinson & Philips McDougall, 2001). Notably, several researchers have identified outside alliances and cooperation with outside firms to also be a key resource for an entrepreneurial firm, including R&D alliances, supply chain partnerships and university partnerships (Zahra & Bogner, 2000).

Market-Based Theories:

Another major area of entrepreneurship research is focused on the entrepreneurial opportunity and theorizes that external market conditions are a key factor in the success of a new venture. Market-based research has examined market dynamics including size, growth, and scope (variety of customers and segments available) as well as competitive intensity (Monferrer Tirado & Estrada Guillén, 2015; Song et al., 2008).

Song et al. (2008) performed a meta-analysis of 24 distinct "meta-factors," a total based on analysis of 11,259 U.S. technology firms founded between 1991 and 2000. These meta-factors

included factors related to the entrepreneurial team, the firm restheces, and the market/opportunity. Based on this analysis, eight "universal success factors" were identified as being "homogeneous" and significantly "correlated to venture performance" (Song et al., 2008, p. 13). Three of these factors were related to the entrepreneurial team including founding team size, marketing experience, and industry experience. Four of these factors were related to firm resources including firm size, financial resources, patent protection and supply chain integration. Only one of the factors was related to market/opportunity, being the market scope.

2.5 Integrative New Venture Growth Theories and Effectuation

Current theories of new venture growth in the literature indicate that nurturing the creation and growth of a new venture is a delicate balancing act that requires the entrepreneur to successfully manage several key factors simultaneously. Many researchers point out that the success of a new venture is multi-dimensional. In other words, no single driver can be considered to be the sole determinant of success, but rather is a result of several elements working together in concert. Furthermore, current research theories focus on the importance of the dynamic nature of the entrepreneurial venture and importance of flexibility over time (Shane, 2003).

More recent theories (summarized in Table 2) look at entrepreneurial success in a more integrative or holistic and less linear way. Song et al. (2008, p. 17) state that "strategic and organizational fit" is at the center of three key elements: the entrepreneurial team, entrepreneurial resources and the entrepreneurial/market opportunity. Along the same lines, Shane (2003) contends that entrepreneurial success is not a result of any one of the traditional theories alone, but exists at the "individual-opportunity nexus" where the entrepreneurial abilities are aligned with the "acquisition of resources enabling the realization of a market opportunity".

Table 2: Integrative Theories of New Venture Growth and Success

Theory	**Factors**
"Individual-Opportunity Nexus" (Shane, 2003)	Alignment of entrepreneurial abilities, resources and market opportunities
"Effectuation" (Saravathy, 2001)	Emergent, non-linear and non-predictive strategies that develop over time for creative and transformative objectives

The theory of "effectuation" proposed by Sarasvathy (2001) is complementary to the concept of the "individual-opportunity nexus" but contends that successful entrepreneurs operate in a dynamic process that evolves and changes over time. Effectuation theory contends many highly successful entrepreneurs use emergent or non-linear means to achieve creative and transformative objectives. Causation and effectuation are shown to be two different approaches used by entrepreneurs. Causation is based on pre-analysis and planned strategies as would be reflected in a typical business plan. Effectuation is used by entrepreneurs who maintain flexibility and are able to put together creative and innovative strategies over time based on emerging resources, new information, and insight into opportunities. Sarasvathy (2001) makes the analogy between a chef who works with a written recipe versus one who can enter a kitchen, sees the available resources and creates a new and unique recipe. Whereas causation uses a linear and structured approach, effectuation maintains flexibility and where the entrepreneur is able to successfully leverage internal and external resources and "maintains flexibility, utilizes experimentation, and seeks to exert control over the future by making alliances with, and getting pre-commitments from, potential suppliers, competitors, and customers" (Chandler, DeTienne, McKelvie & Mumford, 2011, p. 376).

Effectuation theory implies that the successful entrepreneur, rather than displaying a single personality type or background, has acquired a unique ability for pattern recognition which, like that of a great chess player, gives them to the ability to envision opportunities (Chase & Simon, 1973). This ability to recognize patterns, in the right individuals, appears to be honed by years of "deliberate practice" (Baron, 2006; Ensley, Pearse & Hmieleski, 2006).

The "effectual entrepreneur" is able to see opportunities as they emerge over time and adapt the strategy appropriately, and to identify what resources are required to execute that strategy (Sarasvathy, 2001). Given that new ventures are by definition lacking in some or many resources, entrepreneurs use their social network to "provides them with an advantage in positioning for an existing opportunity" (Read, Song & Smit, 2009, p. 575). The social network is a key resource that provides the entrepreneur with access to potential new partners.

In a meta-analytic review of effectuation and venture performance by Read et al. (2009), the authors analyzed 91 empirical research studies from the years 1996-2007 that investigated the correlation between a range of effectual principles and new venture performance measures. Based on these studies, a total sample of 3196 firms specifically measured the effect of "partnership" which was found overall to be significantly and positively correlated with new venture performance. The authors conclude that "effectuation departs somewhat from the mainstream literature on normative corporate strategy in its recommendations that entrepreneurs minimize competitive orientation and instead build firm and market in partnership with committed external and internal stakeholders" (Read et al., 2009, p. 583). The authors further conclude that an "effectual entrepreneur" is capable of aligning resources with market

opportunities and build the appropriate partnerships in large part by using the quality and quantity of their network of contacts, in other words, as a result of their "social capital".

2.6 Social Capital and Networks

Social network theory is a well-established area of sociological research that views (and maps) relationships between people as a series of connected nodes. From an entrepreneurial perspective, social networks are the starting point to building business relationships and social capital is the essential resources. Social networks have been shown to be important to management in general (Aldrich & Zimmer, 1986) and particularly important for entrepreneurial ventures (Birley, 1985). "Just as physical capital and human capital facilitate productive activity, social capital does as well" (Coleman, 1988, p. S101).

Popularized by Ronald Burt (1997), the term "social capital", as a form of individual or company asset, is an evolution of the earlier concept of social networks. Burt theorized that social capital is a key resource that it should be viewed as an inherent and distinct value from human capital (skills, experience, education, knowledge). In the entrepreneurship literature, social capital is viewed as an important resource, just as are human, financial and physical resources, particularly at the earliest stages of new venture creation. From an entrepreneurship perspective, social capital represents *the number and type of relationships held by the entrepreneur* (their "network") as well as the extended team, including the management, board members and external advisors and their ability to leverage these for the benefit of the business (Dubini & Aldrich, 1991).

Entrepreneurship literature, and the articles being reviewed support the concept of the "strength of weak ties", a term coined by Mark Granovetter (1973) in his landmark article. Granovetter

states that the number and range of an individual's network ("weak ties") are paradoxically more important than a small, deeper network ("strong ties"), calling weak ties "indispensable to individuals' opportunities" (Granovetter, 1973, p. 1378). Strong ties can be thought of to be friends and close acquaintances while weak ties are networks comprised of more distant acquaintances that one might see less frequently or rarely.

Social capital provides the capacity for people in organizations to work together and share information and has also been linked to both incremental and radical innovation in larger firms (Subramanian & Youndt, 2005). The concept has been applied to the study of entrepreneurship where several researchers have highlighted the importance of weak ties (size and breadth of the network) over strong ties (close relationships) in the formation of business relationships, alliances as well as new venture performance. In a study by Julien, Andriambeloson, and Ramangalahy, (2004, p. 266), the authors found that more innovative and dynamic small firms "make more use of weak ties that generally emit weak signals." Rather than relying on the close ties that emit "strong signals," such as personal friends, customers, suppliers and regular advisors, innovative firms also make use of more distant contacts that provide "weak signals." These weak ties, with more distant personal or business contacts, such as university research centers, for example, can be of important value to entrepreneurs in that these can be valuable source of new ideas and information that lead to the identification of new opportunities and technological innovation (Hills, Shrader & Lumpkin, 1999).

In a large-scale empirical research study by Davidsson and Honig (2003, p. 323), comparing nascent Swedish entrepreneurs against the general population, they found that there was a "particularly robust and noteworthy" linkage between social capital and the likelihood of

becoming involved in entrepreneurial activity, stating that "individuals in the population with higher levels of bonding social capital are more disposed toward attempting to start a business enterprise." Amongst the entrepreneurs studied, social capital was also a strong predictor of successful "entrepreneurial exploitation." Higher levels of social capital amongst entrepreneurs, particularly those with a larger network of "weaker ties," were also shown to be a significant predictor of the "first sale or in being profitable" for new ventures.

Several researchers have argued that entrepreneurial opportunities increase with the network size of the entrepreneur and the entrepreneurial team, but only if the "someone is actually inclined towards entrepreneurial behavior" (De Carolis, Litzky & Eddleston, 2009, p. 528). Baron and Markham (2003), show that social capital for entrepreneurs is a combination of an "extensive social network" and the "favorable reputation" of the entrepreneur amongst the network, however, that social capital alone was not necessarily a predictor of financial success. Yet, St-Jean et al. (2016) have found that the number of mentors in business is positively related to the number of opportunities identified and invested. By studying firms in two distinct industries (cosmetics and high technology), it was shown that "social competence influences the outcomes they experience" as entrepreneurs (Baron & Markman, 2003, p. 41). Social competence includes measures such as social perception (e.g., "I can usually read others well"), social adaptability (e.g., "I can adjust to any social situation") and expressiveness (e.g., "What I feel inside shows outside") (Baron & Markman, 2003, p. 49). In other words, like other capital, the size and quality of the network are of some importance, but the ability to leverage this resource is essential, based on both entrepreneurial bias and social competence skills. The theory of effectuation (Sarasvathy, 2001) further argues that the effective entrepreneurs are also able to leverage the appropriate elements of the network over time, based on the opportunity. One can conclude that, from an

entrepreneurial perspective, that social capital is a dormant resource, but that its value becomes realized based on the ability and bias of the entrepreneur to effectively leverage this resource at the right moment and with the right partner.

While the level of social capital that an entrepreneur possesses can be difficult to measure, several researchers have also looked at other measures of human capital as a possible determinant of entrepreneurial social capital. In a large-scale study of social capital of nascent entrepreneurs by Davidsson and Honig (2003, p. 306), the researchers also measured two key elements of human capital, namely education level (from primary to doctorate) and experience (years of work experience, work as a manager, previous start-up experience), which in "previous research tends to support the existence of a positive relationship" with "entrepreneurial activity." Education, as hypothesized, should increase social ties and "may assist in the accumulation of explicit knowledge that may provide skills useful to entrepreneurs" (Davidsson & Honig, 2003, p. 306). Experience, similarly, increases the social network of the entrepreneur and is an important source of "practical learning" for entrepreneurs. In this study, education and experience paralleled social capital in many, but not all cases. Human capital factors that were significantly correlated with entrepreneurial success in this study were notably formal business education and previous start-up experience, while other measures of education and experience were not. In other research, the experience of the management team in related industries as well as marketing, research and development and prior start-up experience have been shown to be related to entrepreneurial success (Marino & De Noble, 1997), while other studies have not been conclusive (Song et al., 2008).

While, in the research literature, social capital is a term generally attributed to an individual, from

an entrepreneurial perspective the network is actually a web of networks that includes all the contacts of the entrepreneur, the founding team and the advisory group (Lorenzoni & Ornati, 1988). Larger, experienced teams have larger and better networks that appear to enhance firm performance (Colombo & Grilli, 2005; Song et al., 2008). In other words, the combined social capital of the key players in the firm becomes a firm asset that can be leveraged for competitive advantage and to build alliances through the act of boundary spanning.

2.7 Boundary Spanning and Alliances

The model proposed here is that social capital is a key asset for entrepreneurs and an essential building block for building key business partnerships or relationships, commonly known as "alliances". This theory suggests that one of the most important activities for an entrepreneur (and their team) at the earliest stages of new venture creation is to translate a vision into action by assembling essential organizational resources and that the way the entrepreneur does this is through boundary-spanning activity and related team and partnership building. In other words, the *social capital* of the entrepreneur (and the management team) becomes transformed into *strategic capital* for the firm as the team's network of contacts is important in identifying and developing informal and formal business relationships and alliances.

Alliances can be formal or informal, but in all cases are a form of agreement (written or tacit) between parties working towards shared goals that "help to bridge the gap between the firm's present resources and its expected future requirements" (Hoffmann & Schlosser, 2001, p. 357). Smaller, entrepreneurial firms are "characterized by tight resources" hence making alliances of potentially much greater value and importance than in larger firms (Hoffmann & Schlosser, 2001, p. 358). A company may form alliances with individuals (e.g. key advisor, financial backer) or

with other companies or organizations (e.g., supplier, research lab, distributor). By forming networks and alliances, entrepreneurs can gain a competitive advantage due to access to resources not under their control and, as result can be a key success factor for new venture performance (Watson, 2007).

So, how are alliances identified, created and developed? Alliances, for a firm, are generated by *boundary-spanning* activity or a "web" of relationships, strategies, and resources that pre-date the firm's boundaries; that is to say that interaction and networking with external individuals and firms have been shown to be a key success factor in new ventures. The pioneering study of boundary spanning and new ventures (less than one-year-old) by Dollinger (1984) found a high correlation between boundary-spanning activity on the part of the entrepreneurial firm and financial performance. Since entrepreneurial firms, particularly startups are often resource-poor and less socially embedded than larger firms, boundary spanning is a particularly important activity necessary to build strategic business relationships and alliances (Katila, Rosenberger & Eisenhardt, 2008; Ryan and O'Malley, 2016; Zhang, Wu & Henke, 2015).

Early stage firms are often very dependent on relationships with a variety of other firms including suppliers, buyers and financial institutions (Park & Luo, 2001). This process of forming relationships, known as boundary spanning (or network building), is essentially the process of "building external relationships" involving the interaction between individuals (boundary spanners) in an organization and the external environment (Alam, 2003; Keller & Holland, 1975). Tushman (1977) argued that communication across boundaries is "critical" for successful innovation. Wind and Mahajan (1997, p. 8) state that external linkages are at "the forefront of the changing dynamics of competition and cooperation."

Strategic alliances are linked to high performance in new ventures, particularly at the early stages of business formation and where multiple alliances are formed with a "holistic industry understanding" (Ozcan & Eisenhardt, 2009, p. 269). As the entrepreneur assembles management and advisory teams, these individuals multiply the boundary spanning capacity of the new venture and provide the foundation for formal and informal strategic partnerships and alliances.

Boundary-spanning or networking capability is seen as both a result of personal networks and "extended networks" which include the networks of employees, advisors, partners (Dubini & Aldrich, 1991) and are a key way to "access relationships" (Stuart, 2000). As networks become established, companies enter into a "network of networks" which has been described as a "constellation" (Lorenzoni & Ornati, 1988) of business partnerships and alliances. Deeds and Hill (1996) hypothesize (and demonstrate in their study of US biotech firms) that the number of strategic alliances of a firm is positively correlated with the rate of new product development and firm performance, however that there are "diminishing returns" related to having too many networks and propose an inverse "U" theory of new venture networking.

One of the most extensive studies examining the relationship between networking and firm performance (Watson, 2007), used longitudinal data based on a survey of 5027 Australian firms conducted across a representative sample of industries. This study conducted over four survey periods (1994-95 to 1997-98) found a positive relationship between networking and firm survival and growth. This research also supported previous theoretical and empirical research regarding the inverse U-shaped relationship between networking and performance, stating that there is an "optimal level" and that networking intensity is more important than network range.

Networks are created by the activity of boundary spanning or "networking" and the intensity of this process is at the heart of building partnerships and alliances (Bahadir, Bharadwaj & Parzen, 2009; Chen, Zou & Wang, 2009; Jensen & Schott, 2015; Watson, 2007). While networks are often established by the originating entrepreneur, several researchers point to the importance of a "network of networks" and that "social resources" (Khaire, 2010; Pollack, Rutherford, Seers, Coy & Hanson, 2016) are essential in building a team of employees and advisors at the early stages of a new venture in order to "tap into" other networks and that initial networks are an "imprint" leading to further alliances (Milanov & Fernhaber, 2009). The quality, reputation, credibility and the "extended network" that early partners can bring to a firm make their selection a critical strategic decision and executional imperative (Stuart, 2000).

Formal alliances can be broadly classified as technical, joint R&D, supply or marketing agreements (Chen et al., 2009) or simply "exploration" and "exploitation" alliances (Lee, 2007, p. 733). Networks in reality, however, comprise a much wider group of actors many of which are loose and non-formalized, but nonetheless important, including relationships with suppliers, key customers, financial backers, business advisors, industry groups and even competitors (Colombo & Grilli, 2005; Read et al., 2009; Ter Wal, Alexy, Block & Sander, 2016). Across the range of research in the area, networking capability, partnerships and alliances have been linked to the speed of new venture creation, innovation, product development, lowered cost, speed to market and ultimately sales growth, profitability, and rate of success.

Although "a comprehensive theory of interfirm co-operation has not emerged", the main theories for why firms form formal or informal alliances include transaction-cost, resource-based and

knowledge-based theories (Hoffmann & Schlosser, 2001, p. 358; Li, 2013). Strategic alliances and partnerships with other firms, it is theorized, are formed when each of the participating firms benefit from one or more of these three bases.

Transaction-cost theory states that firms structure themselves in order to minimize "the sum of fixed and continual transactional costs" (Hoffmann & Schlosser, 2001, p. 358). For new ventures, which often have limited resources, building alliances and partnerships can be a lower cost means of developing or getting a product or service to market. Lowered transaction costs can occur throughout the supply chain and are of particular relevance to smaller firms where it might be less expensive to outsthece than to create the internal structures.

Resthece-based theory states that firms have a limited amount of resources and if certain key resources "cannot be purchased" or "cannot be built internally with acceptable cost (risk)" (Hoffmann & Schlosser, 2001, p. 359), these should be sought out in the form of external partnerships. Resources acquired through alliances could include tangible resources such as production or distribution facilities but may also include intangible resources such as the reputational benefit of being associated with another company or access to relationships for example with suppliers, distributors or customers.

Knowledge-based theory states that firms cooperate within a context that value is created for all partners by the sharing of information and knowledge. Firms that are in industries which are highly dependent on specialized technical knowledge or that "face high environmental uncertainty" can use alliances to "speed organizational learning" (Hoffmann & Schlosser, 2001, p. 359).

Unlike for established firms, a broad range of researchers have identified the development of networks and the resulting creation of alliances to be of paramount importance for small and emerging firms. Both formal and informal alliances allow an entrepreneurial firm to gain access to external resources including people and capital but when privileged relationships or alliances are formed with other firms, they also have a number of other indirect benefits:

- Indirect access to other partner resources (Watson, 2007)
- Access to information that can reduce transaction costs (Gulati, Nohria & Zaheer, 2000; Ma, Ding & Yuan, 2016)
- Protection of customer base and barriers to entry (Gulati et al., 2000)
- Status and credibility (Khaire, 2010)
- Ability to "tap into" other networks (Milanov & Fernhaber, 2009; Vasilchenko & Morrish, 2011)
- "A way to speed up the entrepreneurial process by allowing the entrepreneur to tap into a source of already existing assets (Khalid & Larimo, 2012; Shane, 2003)

Table 3 endeavors to identify a few common types of alliances that new ventures might commonly become involved in. Each of these examples is associated with the potential benefit(s) for the entrepreneurial firm, and the associated theory of either transactional cost reduction (T), access to resources (R) or access to knowledge (K).

Table 3: Examples of Alliances for New Ventures (NV)

Alliance Type	**Example Business**	**Possible Benefit to NV**	**Theory**
Advisory Board or Board of Directors with industry experience	Any new venture	Access to network of contacts; market insight and knowledge	R, K
Incubator	High-tech start-up	Lowered administrative costs; access to quality facilities; shared knowledge with other companies at incubator	T, R, K
Exclusive supplier or contract manufacturing agreement	Consumer or industrial products company	Reduce competitive access to supply; no up-front investment and risk	T, R
R&D agreement with university	Technology or manufacturing	Access to latest technology; lower R&D costs; insight into technology trends	T, R, K
Co-operative purchasing agreement	Retail or distribution	Buying power reduces cost of managing purchasing process and reduces unit cost	T
Exclusive sales agency or distributor agreement	Consumer or industrial products company	Variable sales cost; access to customer network	T, R, K
Technology license	Biotech company	No marketing/sales costs; access to customers for feed	T, K
Lead customer with preferred terms and conditions	Advertising agency or other professional services organization	Indirect benefit from reputation of the lead customer to be able to attract other key customers	R
Leadership position with trade organization	Any new venture	Insight into industry trends, regulations, and competitive landscape	K
Lead venture capital investment	High-tech start-up	Access to capital and financial/industry contact networks	T, K

2.8 Networks for New Ventures: Research Literature Summary

Table 4 summarizes selected research literature that addresses the relationship between networking capability, networks, alliances and new venture performance.

Table 4: Summary of Research of Networks and New Venture Success

Author(s) (year)	**Sample Size and Industry**	**Data Sthece and Methodology**	**Network/Alliance Variable Studied**	**Significantly Correlated Factors (hypothesized cause/theory)**
Antoncic & Prodan (2008)	Slovenia: 226 manufacturing firms (30+ employees)	Mail survey	Number of technical alliances	Growth; profitability (lowered R&D costs)
Bahadir et al. (2009)	International: Meta-Analysis of research papers from selected journals	Studies published from 1960-2008 with independent variables measured against growth	Degree of networking activity; Number of inter organizational networks	Growth; Most highly correlated for firms with limited marketing capabilities (network theory)
Barringer, Jones & Neubaum (2005)	US: 50 rapid-growth and 50 slow-growth firms	Analysis of narrative case studies (including financial data) from Ewing Marion Kauffman Foundation	Participation in inter organizational relationships	Rapid Growth ("co-opt resources" from partner firms to "speed up growth trajectory")
Capelleras & Greene (2008)	Spain: 381 new ventures	Chamber of commerce data; telephone interviews	Use of external support prior to launch of new venture	Speed of new venture creation (when related to use of supplier and customer support)
Chang (2004)	US: 1106 Internet startups founded from 1994-2000 (90 IPOs by 6/2000)	Securities Data Corporation (SDC) – Venture Economics and Joint Venture/Strategic Alliance Databases	Number of strategic alliances; Prominence of strategic alliance partners	IPO Likelihood; Growth Rate; Survival ("endorsements by prominent exchange partners improve startup performance" and access to capital)
Chen et al. (2009)	China: 238 new high-tech ventures in Shanghai	In-person questionnaire interviews	"Networking Ability" (recognize, communicate, coordinate and strengthen relationships")	Organic Growth; Partnership Growth; Technological Capability; Product Diversity (networking provides access to technology, products)
Colombo & Grilli (2005)	Italy: 506 services and products high-tech firms founded in 1980 or later and still operating 2004	Politecnico di Milano RITA database (Research on Entrepreneurship in Advanced Technologies) plus mail questionnaires	Number of founders; Early private equity partners	Growth (access to external resources and networks)
Author(s) (year)	**Sample Size and Industry**	**Data Sthece and Methodology**	**Network/Alliance Variable Studied**	**Significantly Correlated Factors (hypothesized cause/theory)**
Deeds & Hill (1996)	US: 132 biotech firms	Bioscan database	Number of development alliances	Products on market; total products (access to "complementary assets" though "diminishing return" of alliances observed)
George, Zahra & Wood	US: 147 publicly-traded biotech	*Recombinant Capital* database on biotech alliances	Number of formal alliances with universities	Innovativeness, patents and new product output (lowered R&D cost,

(2002)				speed); Number of other business alliances (credibility)
Khaire (2010)	US: 137 New York and Chicago advertising agencies founded from 1977-1985	*Standard Directory of Agencies* and *Ad $ Summary* publications; Cannes Creativity Awards submissions	"Social Resources": High-status early customers; Conformity to industry standards	Growth; Total Size/Billings ("legitimacy" is particularly key for "resource-poor" companies in competitive, low-barrier industries)
Lee (2007)	Taiwan: 189 biotech firms	Mail surveys to companies listed in "2002 Taiwan Bio Industry" directory	"Exploration alliances"; "Exploitation alliances"	Number of products in development (exploration) or on the market (exploitation); New venture success (improved "absorptive capacity")
McGee & Dowling (1994)	US: 210 high-tech ventures who filed IPO	SEC filings	Research and Development Alliances	Sales growth (transaction cost and strategic behavior theory)
Milanov & Fernhaber (2009)	US: New biotech new ventures formed from 1991-2000	*Recombinant Capital* database on biotech alliances	Initial partner network size and centrality	New venture network size ("imprinting" of first alliance on future ones)
Read et al. (2009)	International: Meta-analysis of 14 studies representing 3196 firms	*Journal of Business Venturing* articles from 1996-2007	Partnerships; Exogenous (firms, standards bodies, customers) and Endogenous (employees)	New venture performance (concept of "effectuation" with the entrepreneur focused not on competition but partnership)
Song et al. (2008)	International: Meta-analysis of 31 studies	*ABI-Inform* search of studies measuring "success factors for new technology ventures"	Supply Chain Integration (suppliers, distribution channel agents, or customers)	Overall New-Technology Venture Performance
Author(s) (year)	**Sample Size and Industry**	**Data Sthece and Methodology**	**Network/Alliance Variable Studied**	**Significantly Correlated Factors (hypothesized cause/theory)**
Stuart (2000)	International: 150 semiconductor firms representing 90% of world production from 1985-1991	*Dataquest* company information; Trade and business press; corporate filings (total of 1600 dyadic alliances identified)	Number and characteristics of alliances	Patent rate; Sales growth rate (unrelated to number of alliances but highly correlated with size and innovativeness of partner)
Watson (2007)	Australia: 5014 firms from 1995-1998	Australian Bureau Statistics gov funded longitudinal study via self-administered questionnaires	Degree of Networking; Network intensity	Firm survival; Growth (network theory)

2.9 Empirical Research on New Ventures and Networks

The empirical studies in the above table appear to support, in general, the theory that the formation of networks and alliances by entrepreneurial firms with other organizations is a means of accessing resources that the entrepreneurial firm does not possess and that the deployment or leveraging of these indirect resources can have a favorable impact on firm performance. Each of the primary data contributes to the understanding of the way in which external networks impact firm performance, although the types of networks can vary greatly. While the majority of the studies focus on high-technology companies, it is very important to note that studies on low-tech companies such as, for example, services and manufacturing, suggest that networking has a positive impact across a range of industries and company types.

Khaire (2010, p. 168) states that most new firms fail to grow because "their limited resources and adaptability" and this research study addresses the question of why some firms with limited financial resources grow very quickly and others do not. In order to address this question, this study uses a unique dataset of 137 advertising agencies in New York City and Chicago that were founded between 1977 and 1985. What makes this research study of value is that it looks at companies at their early stage of formation and also looks at a service industry with low barriers to entry and one that is fragmented (over 10,000 agencies exist in the United States) and in which most new players have very limited resources. Khaire (2010) hypothesizes that new firms achieve credibility by associating themselves with "high-status entities". In other words, since new firms are not known to the market, the association with key lead customers gives a new venture an important resource that would otherwise take years to develop: credibility. The study, though limited to one industry, does confirm that growth of new advertising agencies is strongly

correlated with the number of "high-status" customers it obtains early on. Exclusive relationships (e.g. named the "agency of record") with lead customers who have a high degree of status and credibility appear to have an aura effect on new ventures, gracing them with a mirrored market perception of status and credibility that allows them to attract other high-status customers and to grow rapidly.

Barringer, Jones & Neubaum (2005) examined the differences between 50 high-growth compared to 50 low-growth firms by analyzing narratives from case studies along with financial data from the Ewing Kaufmann Foundation. By comparing both sets of companies from a range of industries, this research method was able to identify key factors that distinguish high versus low-growth firms. With regards to networking, this study concluded that "founder characteristics", notable college education and relevant industry experience as well as "firm attributes" particularly inter-organizational relationships are significantly correlated with high-growth (Earlier research by Bruderl & Preisnedorfer [1998] of a large scale sample of start-up firms in Germany confirm the relationship between entrepreneurial industry experience and network support and firm survival and growth). It is further suggested by the authors of this study that experienced entrepreneurs are more able to reach across organizational lines to other firms based on their contact network in the industry and that by a higher level of inter-organizational relationships, entrepreneurial firms were able to co-opt a portion of their resources needs from their partners and that this is a common way to speed up their growth trajectories.

A study of new ventures in Catalonia, Spain by Capelleras and Greene (2008) is of interest in that, unlike most other studies of firm growth, it looks at a range of factors present *prior* to start-up and their impact on the speed of new venture formation and subsequent growth rates. Based

on a random sample of new firms collected from 2003 and 2005, this research study analyzed completed questionnaires from a total of 381 entrepreneurs. The results confirm that prior entrepreneurial experience was significantly correlated with speed of new venture creation as well as firm growth. Also, interestingly, the interaction with potential suppliers and customers prior to start-up was also strongly correlated with these two dependent variables of speed and growth, suggesting the importance of networking even prior to the start-up of a new business.

In one of only a handful of studies looking at the impact of alliances on manufacturing firms, Antonic and Prodan (2008) provide additional insight into a specific type of networking, formal technical alliances. While other studies of high-technology firms have shown the value of technical alliances this study, based on a sample of 226 manufacturing firms located in Slovenia, concludes that growth rate is significantly correlated with the existence of formal technical alliances with other firms and organizations. The authors' provide an additional insight noting that there appears to be an "inverted U-shaped" relationship between the number of alliances and performance, suggesting that there is an optimal number of alliances and that companies with a limited number of alliances underperform and that too many alliances may be hard to manage and that companies should focus on a limited number of high-quality alliances. Since this study is limited to established firms, it is not clear whether the same relationships exist for new businesses.

The majority of empirical research related to alliances and firm performance has been focused exclusively on high-technology firms. Due to the availability of industry and securities related databases, a number of studies have been conducted in the fields of biotechnology, Internet-related, semiconductor and high-tech firms in general. While the applicability across other

industries and non-technology firms is not clear, the results of the research described below do provide insight that can be valuable in further research.

Chang (2004) studied Internet start-ups founded over a six-year period (1994-2000) and measured, amongst other factors, the nature of strategic alliances against dependent variables of firm performance including survival rate, growth rate and the likelihood of an Initial Public Offering (IPO). Based on 1106 US-based Internet start-ups of which 90 had an IPO by June 2000, a strong correlation between alliances and performance was found. The total number of alliances and more notably, the reputation of alliance partners were significantly correlated with survival, growth and likelihood and time to IPO. These findings support finding from other researchers in completely different industries as underlined earlier (Antonic & Prodan, 2008; Galloway, Miller, Sahaym & Arthurs, 2016; Hoehn-Weiss & Karim, 2014; Khaire, 2010) highlighting not only the importance of number of alliances but also the importance of the quality of reputation of the alliance partners.

Based on SEC filings and public disclosure documents, McGee and Dowling (1994) looked at 210 US technology firms that had filed IPOs from 1980 to 1989 to measure the impact that research and development alliances and management experience had on sales growth. Interestingly, the number of R&D alliances alone were *not* found to be correlated with sales growth, however, companies with a high number of R&D alliances *and* an experienced management team were strongly related to the rate of growth. This study, importantly, suggests that relevant management experience may be a critically important factor in obtaining and maximizing the value of alliances. Similarly, research by Stuart (2000) also examined R&D alliances, but in the global semiconductor industry, concluding that sales growth was related not

to the number of alliances but to the quality of the partner, including the size (credibility) and innovativeness of the partner.

There have been numerous studies looking at the impact of alliances and firm performance in the biotechnology industry. While these studies focus on an industry with unique characteristics and the results may not be generalizable to other industries, the results remain compelling. Deeds and Hill (1996) conducted one of the earliest studies in this area, looking at R&D alliances and concluded that alliances had a positive impact on performance, notably the number of products on the market. Results from this study also noted the "diminishing returns" of too many alliances, again confirming other research that highlights the importance of alliance quality over quantity and the inverted U-relationship. Other researchers looking at the biotech industry include George, Zahra & Wood (2002) who showed a strong relationship between university linkages and new product success, as well as Lee (2007) and Milanov and Fernhaber (2009), all of which show a relationship between alliances and performance including number of patents and the total number of products on the market.

Despite the number of studies that look at networks, alliances, and firm performance, there have been only a handful of longitudinal studies that start with a cohort of new venture start-ups and look at firm performance over time. Colombo and Grilli (2005) examined the human factors present at start-up and the relationship of these factors to long-term performance. By looking at a cohort of Italian technology companies (both products and services) founded in 1980 or later and still operational as of 2004, the study concluded that the experience of the founding management in similar industries is highly correlated with firm growth, while experience in unrelated industries had no impact. The authors concluded that the experience and network of the

founder(s) enable to access to external resources including early-stage financing and key external partnerships.

Another long-term analysis of the relationship between firm networking and performance was that of Watson (2007). This study was based on a government-sponsorship data gathered from Australian business by the Australian Bureau of Statistics in which 5014 firms were studied over a three-year period from 1995-96 through 1997-98. Although this research was not conducted for new business start-ups, the sample size and the degree of information on company networking provides compelling evidence of the relationship between networking and firm performance. This study highlights the importance of social capital of firm owners in accessing information and resources. The study shows a positive correlation with degree of networking of the firm and firm survival. The use of formal networks (banks, consultants, industry associations) was shown to be more positively correlated with growth than were informal networks (friends, family, local businesses). This study also does confirm the inverted U-shaped relationship between networking and performance that has been shown in other research, again suggesting that networking is important but can have diminishing returns and that "quality over quantity" is relevant.

In addition to studies that have focused on networks and firm performance, there have been several important meta-analyses that have looked at a broader scope of factors related to success factors for high-tech new ventures (Song et al., 2008), growth of new firms (Bahadir et al, 2009) and new venture performance (Read et al., 2009). Each of these meta-analyses has confirmed the key conclusions from the focused studies outlined above. Song et al. (2008) highlight the particular importance of supply chain integration for technology firms and Read et al. highlight

the importance of networking in a cooperative way with competitive firms, industry associations and external standards bodies.

2.10 Research Gaps in the Literature

The existing body of research strongly suggests that networks and partnerships, both formal and informal, are a key resource and driver of firm performance. Empirical studies have linked the formation of networks to a number of performance measures including survival rate, new product development, innovation, growth, and profitability. The issue with almost all the research conducted to date in this area, however, is that there is no real measurement of primary, longitudinal data that follows the firm performance from start-up and over a number of years. Often, data in the field have been collected many years after a firm has been founded and while these data are easier to collect, it is by definition limited to organizational factors that exist "after the fact" and not the underlying causes of these factors. These methods of post-analysis are therefore not able to measure important measures of performance, notably firm survival.

Another gap in the research is that, with a few notable exceptions, most studies are industry specific and the vast majority of these examine only technology-based companies, often using secondary industry databases. There are relatively few studies looking at non-technology firms and most of these are based on primary data collection but with generally have small sample sizes. There is clearly a need to conduct research that looks at other types of firms, including low and medium technology companies across a range of industries to be able to make a more generalized conclusion on the link between networking and firm performance. In other words, are there generalized relationships that exist in all types of business or are there differences across different industry types and by the degree of technology inherent in the business?

Another area in the literature with little empirical research relates to the extended network of an entrepreneur at the inception of a business. The existing body of research suggests industry experience may be favorable to business external networks. Similarly, it has been suggested by a number of researchers, that the extended group of individuals that surround the entrepreneur or entrepreneurs, including key management as well as external advisors, work to enhance or multiply the networking effect of entrepreneurs and the overall networking competence of the firm. Although there is indirectly supportive research, there is very little empirical data that has looked at the degree of experience, particularly industry experience amongst the founding team regarding the impact of formal and informal advisory groups at the early stage of a new venture creation. Again, with a few notable exceptions, most studies of external advisors in new ventures look only at technology-based companies. There is clearly a need to conduct research involving "non-technology" companies to compare the drivers of growth and success with those amongst technology firms.

In summary, the empirical research conducted to date appears to support the general relationship between various measures of networking and new venture performance, indicating that this is a promising and important area for future research. As summarized in Table 5, however, there are numerous research gaps that need to be addressed in order to be able to fully understand the relationship between networks and firm performance in a more generalized way. The study outlined in the Research Methodology section will look at networking in a more generalized way with a large-scale sample that has been taken across a broad range of industries over a long-term period from start-up and that covers a range of network-related factors and different types of networks and alliances.

Table 5: Key Research Gaps

Research Gap	Comments
Small sample sizes	Only a few studies use large sample sizes, limiting the generalizability of the results despite findings that support the general link between networks and new venture performance
Limited longitudinal data	With the exception of Watson (2007), there are almost no large sample, longitudinal studies, whereas the performance of new ventures over time is an extremely important measure
Industry-specific, high-technology data	Many of the studies focus on readily available data from high-technology firms in biotechnology or semiconductor industries; Is the impact of networking on performance industry-specific or is it generalized?
Studies mainly of established firms, not start-ups	Almost all studies look at data from a sample of established firms rather than start-ups; Therefore, there is limited insight into key factors at new venture creation stage; Measures related to networking and new venture success or failure are not captured
Limited data comparing industries and business types	Virtually no large-scale research has been done that includes firms in a broad range of industries including high-technology and non-high-technology firms; Are there similarities and differences between the groups?
Factors related to the founding team are not captured	Since most of the research is conducted many years after start-up, there is limited data related to the founding team including size, experience, diversity and the relationship to new venture performance
Single-dimension measures of networking	Most studies look at degree of networking in general or at one type of networking (e.g. R&D alliances); There is a need to measure impact of different types of alliances across different industries

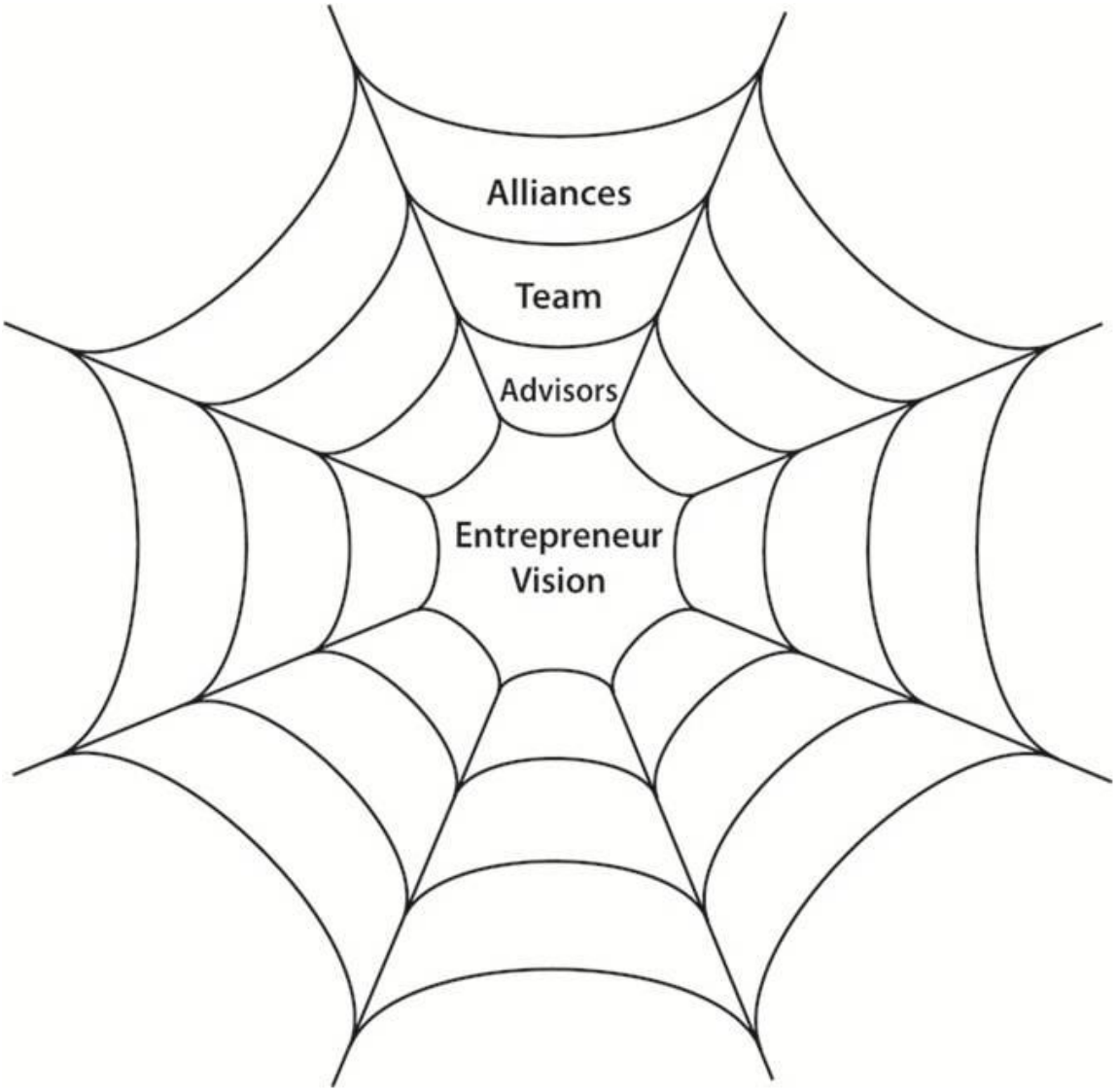
CHAPTER 3 – THEORETICAL FRAMEWORK AND METHODS

3.1 "The Net Effect": A Conceptual Model For New Venture Success

This research is based on a conceptual model, coined "The Net Effect" that hypothesizes that networks are of prime importance for the success of new ventures and that networks are built much like the construction of a spider web. As illustrated below, the entrepreneur (metaphorically the spider) is the mastermind behind the creation of the web and he or she starts from the center of the web, with a vision and a given set of skills and personal network, and quickly builds out from there. In the earliest phase of pre-startup, the entrepreneur needs to build and harness *a team* including internal employees and external advisors (professionals, board members, informal advisors). Both of these groups have a determining impact on not only the business strategy but also on the formation of external alliances and partnerships. It is proposed that the experience of the entrepreneur and the nature, quality, experience and breadth of key employees and external advisors will therefore also have a positive impact on the quality and degree of external networking and, in turn, firm performance.

The following conceptual model uses a spider web metaphor to illustrate the interrelatedness of the various resources in creating a strong network of relationships. This model is not meant to be a model for conducting research, in itself, but is solely meant to illustrate a general theory: that a well-constructed spider web, like a successful company, is built with many linkages to outside resources and that the core team is essential in creating a wide network of relationships. Although each linkage in a web may be weak on its own, it is the number of relationships that interconnect that provides the solidity and durability analogous to the theory of the "strength of weak ties" (Granovetter, 1973).

Figure 1: The Net Effect Conceptual Model



3.2 Research Focus

Based on the above conceptual model, this research is designed to look at financial firm performance over time based on at three main inter-related categories of independent variables:

- Founding Entrepreneurial Experience: The industry experience and education of the entrepreneur
- Founding Team Size: Number of founders
- Alliance Networks: The number and types of external alliance networks that are formed by the firm

The above factors are intended to be analyzed independently and together and measured against actual financial data for each firm including the following dependent variables:

- Growth
- Profitability

The following moderators are planned to be used to see whether these enhance impact the relationship between the independent and dependent variables:

- Business type
- Location

The proposed research model and individual hypotheses are detailed in sections 3.5 and 3.6 of this proposal.

3.3 Data Source: Kauffman Firm Survey (KFS)

The Kauffman Firm Survey (KFS) was used as the single source of data for this research project. The KFS is "the largest longitudinal study of new businesses ever embarked upon" (Press Oracle, 2016, para. 1) and provides a uniquely broad and extremely robust set of data with which to be able to test the proposed hypotheses. This ongoing study, sponsored by the Ewing Marion Kauffman Foundation, is made available to academic researchers with the goal of disseminating knowledge and understanding on the topic of entrepreneurship. An earlier version of the research proposal was presented to the Kauffman Foundation and a funded sponsorship was accepted and granted. This sponsorship provided no-charge remote access to the confidential data files ("NORC Data Enclave") along with access to a range of KFS resources. The grouped data is made available publicly but only those with access to the NORC Data Enclave can one have access to key continuous data including important measures of company performance including actual revenues and profits. A Data Usage Agreement ("DUA" shown in Appendix 1) was signed by both Athabasca University and the primary researcher. The DUA was to ensure that the data analyzed was treated in strictest confidence in compliance with the KFS guidelines and Athabasca University ethical guidelines.

The KFS is a primary piece of research commissioned by the Kauffman Foundation and contracted to Mathematica Policy Research of Princeton, New Jersey. The KFS is a longitudinal study of cohort firms from the United States, all of which were started in the calendar year 2004 (Kauffman Firm Survey, 2012).

The sample was created based on new businesses from the Dun & Bradstreet (D&B) Corporation database, sampled from a total of approximately 250,000 businesses with the goal of sampling

60% high technology businesses and 40% other classifications. With the consultation of a technical advisory committee, a pilot test of companies started in 2003 was used to refine the qualification criteria for a defining the date of the start-up of a business. Based on this pilot test, a set of government filings and registrations were used as the basis to define a business "start-up". A second pilot test was conducted to evaluate the questionnaire itself and the incentive for completion. Based on the results of the second pilot test the survey was shortened and finalized. After testing alternative incentive options, a $50 incentive fee was set for its completion.

After the above pre-testing phase, the "2004 baseline" survey data collection began. The goal was to complete a total of 5000 interviews based on a D&B sample set of 32,469 businesses. For the 2004 baseline survey, the total completed sample was 4928 businesses across a representative range of industries throughout the United States of America. All the participants in the survey were one of the business owners and a questionnaire was completed in writing (written or via the Internet) or by telephone. Each participant completing the questionnaire received the $50 fee.

Following the initial baseline survey, there has been seven more follow-up surveys conducted exclusively amongst all of the companies from the initial dataset. To date, results from the baseline survey and the four follow-up data collections have been made public. Phone, web and mail follow-up for each follow-up survey has yielded an unparalleled rich body of data in the study of early phase empirical entrepreneurship. All companies in the original data collection were contacted in the first follow-up survey and only businesses that were no longer in business were excluded. Each subsequent follow-up data collection contacted all businesses that remained in existence. In each follow-up study, participants were once again given $50, which has continued to yield strong response rates. The impressive investment in data collection, the large

number of participants from the same cohort of start-up year and that fact that it is a longitudinal study has yielded a set of data with the great potential to further research and understanding of entrepreneurship.

The following table summarizes the KFS dataset. The survey year refers to the financial data that were referenced for data collection:

Table 6: Kauffman Firm Survey Sampling by Year

Year/Survey	**Surveyed**	**Completed**	**Not Complete**	**Out of business**
2004 Baseline	6030	4928	1102	0
2005 FU 1	4928	3998	561	369
2006 FU 2	4521	3390	743	492
2007 FU 3	4293	2915	900	442
2008 FU 4	3867	2606	865	442
2009 FU 5	3511	2408	794	327
2010 FU 6	3214	2126	816	301
2011 FU 7	2966	2007	676	304

As shown in the above table, each annual follow-up survey attempted to contact all businesses that were still in operation. The questions from the first follow-up survey have been included in all subsequent surveys while a limited number of additional questions have been added in subsequent follow-up surveys based on requests from researchers working with the data set.

The sample includes businesses from every state including the District of Columbia and is representative of technology businesses, with groupings based on “high technology” and “low

technology". Not-for-profit organizations and subsidiaries of other business were excluded from the survey, hence the sample includes only new for-profit businesses all of which were started in the year 2004. The KFS is representative of the Dun and Bradstreet industry categorizations and is shown in Appendix 2. Results from the latest 2011 (7^{th} follow-up) results contain 3927 variables, both discrete and continuous. The full questionnaire (see Appendix 3 and Appendix 4) is available online (kfs.org) and the main questions and variables are grouped as follows:

A. Introduction
B. Eligibility Screening (2004 Baseline survey only)
C. Business Characteristics
D. Strategy and Innovation
E. Business Organization and HR Benefits
F. Business Finances
G. Work Behaviors and Demographics of Owner/Operator(s)

In summary, there were several important benefits of using the KFS data for this research that are expected to fill the key gaps in the existing body of research literature, including:

- A very large sample size and rich dataset
- A representative sample of firms in the United States that includes both high-technology and non high-technology firms
- Longitudinal data from start-up over a five-year period
- Data regarding the entrepreneurial team at start-up
- Data regarding different types of network activity and formation
- Actual financial data available on a firm-by-firm basis
- Exact location data by firm based on zip code data

3.4 Measurement Variables

All data are sourced from the KFS. The variables to be analyzed were downloaded directly from the KFS public online database. Appendix 5 shows the questions that were used from the Kauffman Firm Survey. Firm-specific data including financial data were accessed using via the NORC Data Enclave. All variables are quantitative and a combination of discrete and continuous variables as outlined below:

3.4.1 Independent Variables

Three sets of independent variables were used in this research project:

Founding Entrepreneurial Experience (Data from initial Baseline 2004 Survey; all variables are continuous):

- FE1: Number of years of industry experience for owner surveyed (industry experience; n)
- FE2: Number of years of education for owner surveyed (education; n)
- FE3: Number of previous new businesses started by owner surveyed (start-up experience; n)

Founding Team Size (Data from initial Baseline 2004 Survey; all variables are continuous):

- FT1: Number of owners at start-up (team size; n)

Alliance Networks (Using 2011 Fourth Follow-up Survey)

- A1: Alliances with colleges or universities – major importance or minor importance (discrete; 0-1)

- A2: Alliances with other companies – major importance or minor importance (discrete; 0-1)
- A3: Alliances with government labs or research centers – major importance or minor importance (discrete; 0-1)
- A4: Total alliances – total involvement in all alliances of A1 through A5 (discrete; 0-3)

3.4.2 Dependent Variables

The dependent variables are all continuous variables that are quantitative and related to the financial performance of the firm:

Performance Variables:

- P1: Revenue $ (2011)
- P2: Profits $ (2011)

3.4.3 Moderators

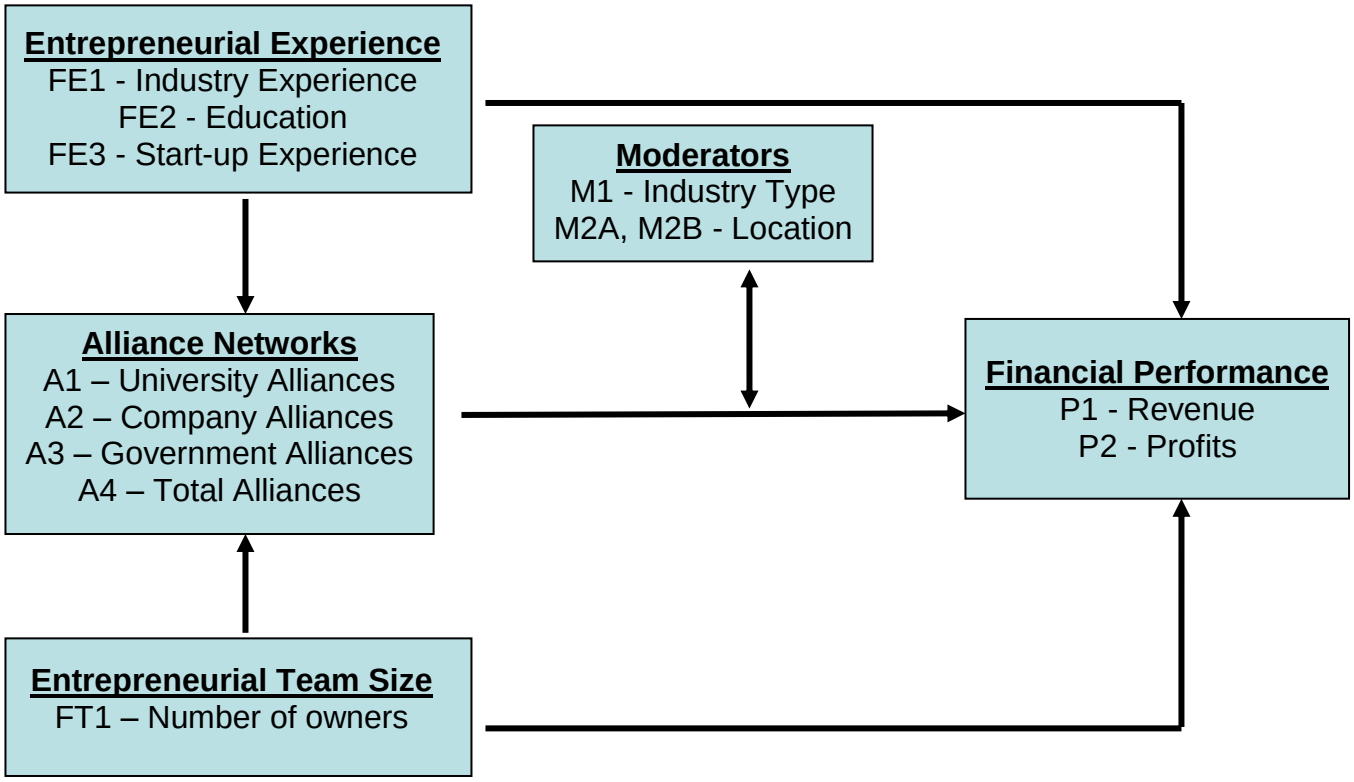
The following moderator variables are used to see if the primary relationships being measured are positively or negatively influenced by industry type and location:

- M1: Industry Type: low technology or high technology business (discrete; 2011; 0 or 1)
- Location (discrete; 2011)
    - M2A – By Region (discrete; 1-9)
    - M2B – By 4 US Divisions (discrete; 1-4).

3.5 Theoretical Model Tested

The data from the KFS study were used to test the hypotheses linking founding team characteristics and degree of networking to measurable financial results. These measures were tested with moderators for industry type and geographic location to see if there are factors related to these that impact networking and performance.

Figure 2: Proposed Theoretical Model



Both entrepreneurial experience and entrepreneurial team size were measured as independent variables of both alliance networks and financial performance. Alliance networks were also measured as a mediator between entrepreneurial experience, entrepreneurial team size, and firm financial performance.

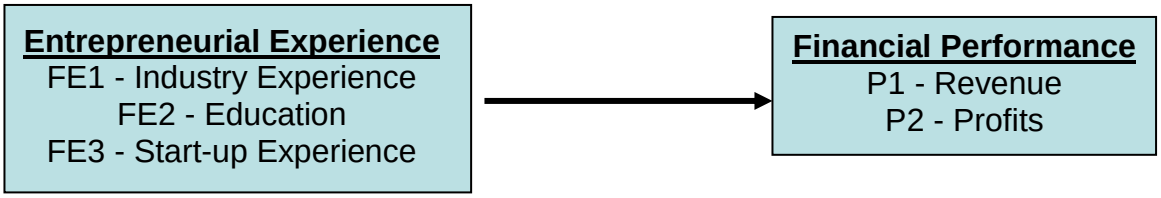
This model allowed the comparison of the relative impact of each of the independent variable categories to measure the correlation with firm performance. Industry type (high-tech versus non-high-tech), as well as firm location, were tested as moderators between the main independent variables and dependent firm financial performance variables.

3.6 Research Hypotheses

The following hypotheses were tested in this research study:

H1: Entrepreneurial Background Impacts Firm Financial Performance

It is hypothesized that the total number of years of education as well as experience that a founding entrepreneur has in a related industry, along with previous start-up experience, facilitates network formation and has a positive impact on firm financial performance.



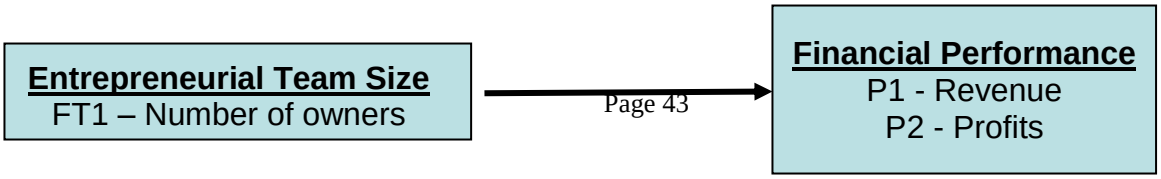
H1a: The Industry Experience of the Founding Entrepreneur has a Positive Impact on Firm Financial Performance

H1b: The Education Level of the Founding Entrepreneur has a Positive Impact on Firm Financial Performance

H1c: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on Firm Financial Performance

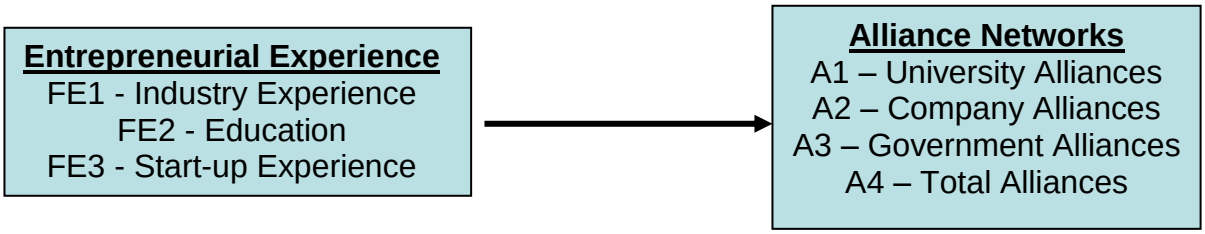
H2: Founding Entrepreneurial Team Size Impacts Firm Financial Performance

The number of founders of a firm has a positive impact on firm financial performance.



H3: Entrepreneurial Background Impacts the Degree of Alliance Networks Formed by a Firm

The total number of years of education as well as experience that a founding entrepreneur has in a related industry, as well as previous start-up experience, facilitates network formation and positively correlated with the number of alliance networks formed.



H3a: The Industry Experience of the Founding Entrepreneur has a Positive Impact on Alliance Formation

H3a1: The Industry Experience of the Founding Entrepreneur has a Positive Impact on University Alliances Formation

H3a2: The Industry Experience of the Founding Entrepreneur has a Positive Impact on Company Alliances Formation

H3a3: The Industry Experience of the Founding Entrepreneur has a Positive Impact on Government Alliances Formation

H3a4: The Industry Experience of the Founding Entrepreneur has a Positive Impact on Total Alliances Formation

H3b: The Education Level of the Founding Entrepreneur has a Positive Impact on Alliance Formation

H3b1: The Education Level of the Founding Entrepreneur has a Positive Impact on University Alliances Formation

H3b2: The Education Level of the Founding Entrepreneur has a Positive Impact on Company Alliances Formation

H3b3: The Education Level of the Founding Entrepreneur has a Positive Impact on Government Alliances Formation

H3b4: The Education Level of the Founding Entrepreneur has a Positive Impact on Total Alliances Formation

H3c: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on Alliance Formation

H3c1: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on University Alliances Formation

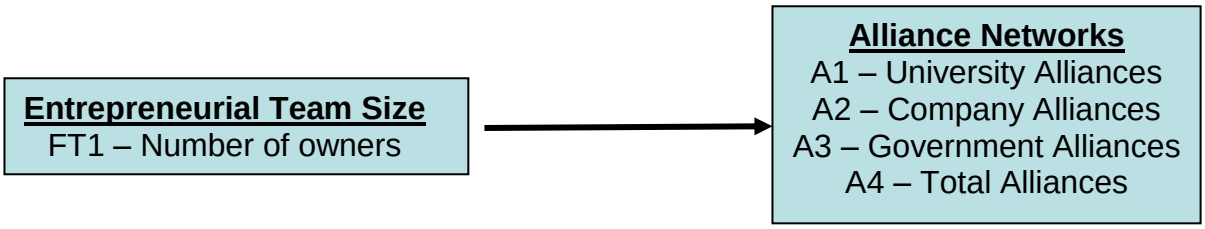
H3c2: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on Company Alliances Formation

H3c3: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on Government Alliances Formation

H3c4: The Start-up Experience of the Founding Entrepreneur has a Positive Impact on Total Alliances Formation

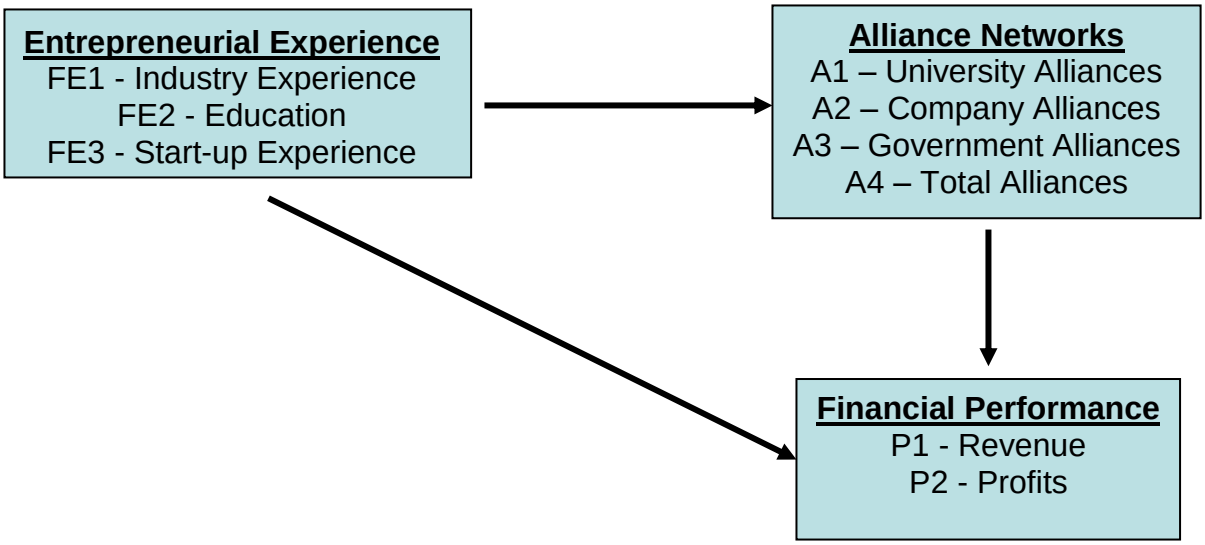
H4: Founding Entrepreneurial Team Size Impacts the Degree of Alliance Networks Formed by a Firm

The number of founders of a firm positively affects network formation.



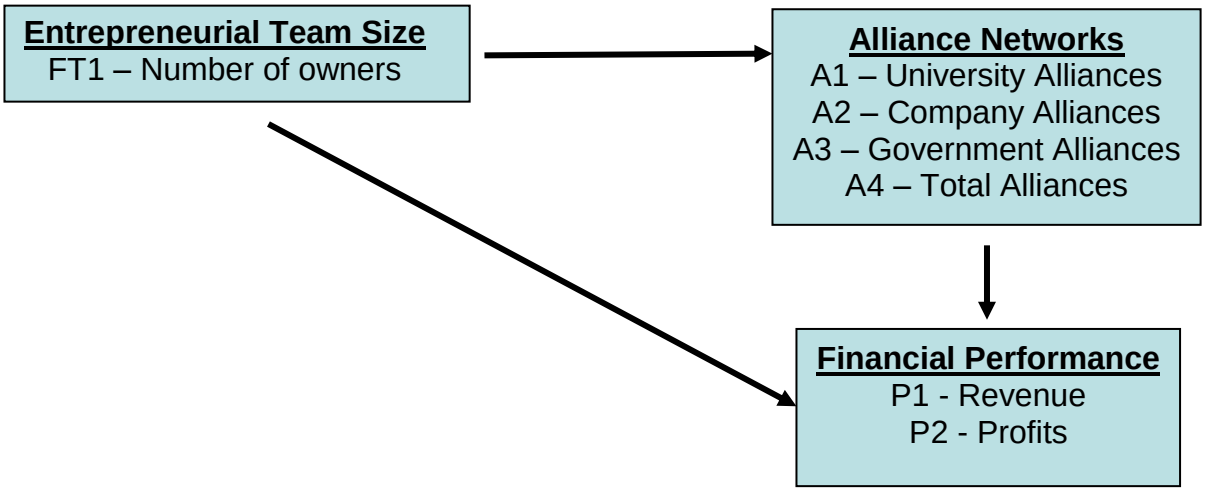
H5: Alliance Networks Formed by a Firm Positively Mediate the Relationship between Entrepreneurial Background and Firm Financial Performance

The total number of years of education as well as experience that a founding entrepreneur has in a related industry, as well as previous start-up experience, facilitates network formation and it is positively correlated with financial performance, but it is mediated positively by the degree of alliance networking.



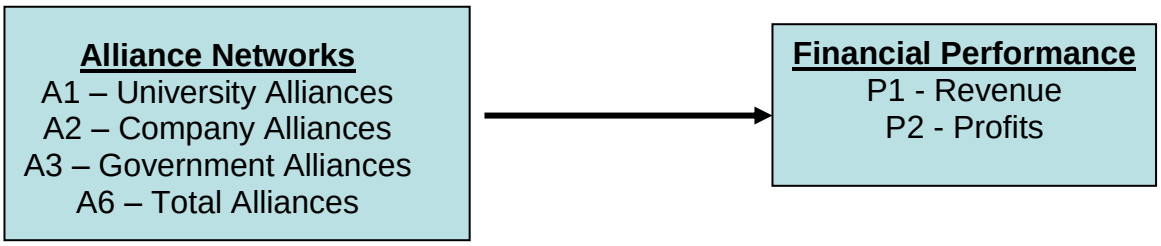
H6: Alliance Networks Formed by a Firm Positively Mediate the Relationship between The Number of Firm Founders and Firm Financial Performance

The number of founders of a firm facilitates network formation and has a positive impact on firm financial performance, but is mediated positively by the degree of alliance networking.



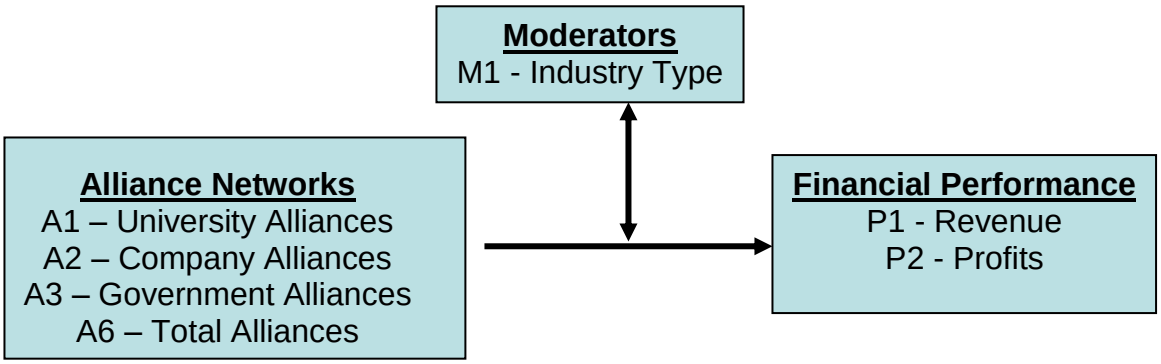
H7: The Formation of Alliance Networks Impacts Firm Financial Performance in an inverse U-Shaped Pattern

Each category of alliance type will be measured against financial performance, however overall the level of alliance networking activity is hypothesized to behave in an inverse U-shaped curve. That is to say that financial performance is optimized with a moderated degree of alliance activity, whereas the lack of an excess of alliance networks will have less impact on firm financial performance



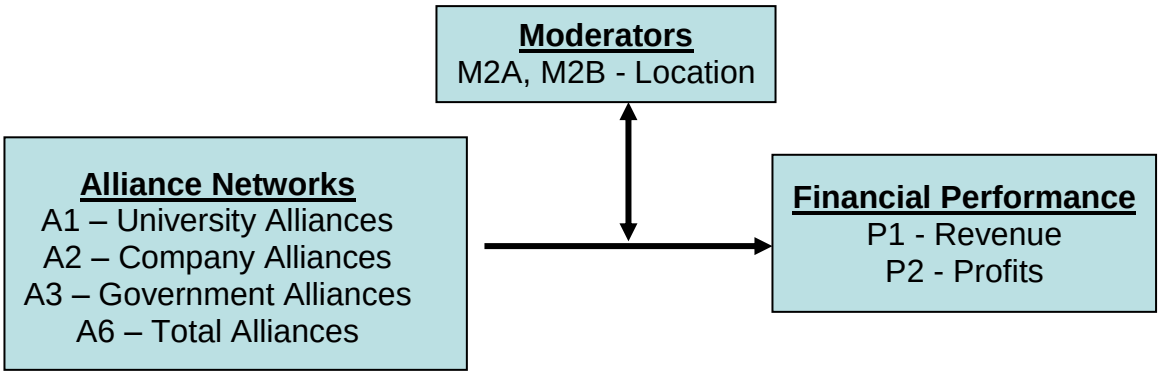
H8: Industry Type Moderates the Relationship Between Alliance Networks and Firm Financial Performance

Firm type is hypothesized to enhance the positive effect of certain types of alliance networks and firm financial performance. High-technology firms are hypothesized to benefit from university and government alliances while low-technology firms are hypothesized to benefit mostly from alliances with other companies.



H9: Firm Location Moderates the Relationship Between Alliance Networks and Firm Financial Performance

Firm location by geographical region and by geographical division is hypothesized to moderate the effect of alliance networks and firm financial performance. "More recently, researchers have extended theories of geography and innovation by showing that firms differ in their ability to reap the benefits of their locations" (Funk, 2014, p. 193). As stated by Narula and Santangelo (2009), location is a primary determinant of the competencies that firms possess and will play a role in determining the propensity of the firms to engage in research and development alliances. Gulati (1999) found that firms' location is a significant predictor of the frequency with which firms entered new alliances.



3.7 Data Analysis

The KFS data were analyzed directly in the NORC Data Enclave database using SPSS. Multiple regression analysis was used to measure the co-relation between all independent and dependent measures. Real values were used for continuous variables and 0 or 1 were used for discrete variables. The objective of the multiple regression analysis was to identify the nature of the relationships between individual and combinations of the independent variables and the dependent financial performance measures.

In order to work with "clean" data, the analysis used only completed surveys where the data for the questions being analyzed had been completed for all the relevant variables. Refusals, no answers and "don't know" answers were eliminated in order to work with a set of comparable data. Also, any data regarding financial information that represented a range rather than an actual value were eliminated. The goal was to be able to obtain a complete set of data with precise continuous variables in order to obtain valid regression results.

CHAPTER 4 RESULTS

4.1 Participants and their Demographic Characteristics

In total, 4,928 businesses participated in the KFS longitudinal study. I first conducted an analysis on 1,540 businesses based on the following criteria:

- Participating businesses had to have completed the baseline survey including all 7 follow-up surveys;
- Participating businesses had not changed owners in one of the follow-up surveys;
- Owners of the participating businesses had to be actively involved in the day-to-day operations;
- Actual financial data had to be provided; and
- Removal of outliers and leverage points.

After having analyzed the hypotheses with these data, however, I realized that there was a large amount of variance that was affecting its normalization, which would have impacted the reliability of the models. This data fluctuation was due to the wide range of the financial performance of the highest performing organizations and the very low performing business entities.

With a view to work with the requirements of the multiple regression models, the 1,540 businesses that constituted the sample had to be reduced to 1,430 to then 1,000 to try to normalize the data. Following this sample reduction, it became evident that I was omitting important information that might bring a more profound understanding to the dynamics of the model.

Given the large sample size of the KFS, it became clear that this research would contribute more to the entrepreneurship literature if the model could be tested under a three-tier approach: low performing, medium performing, and high performing new ventures. By doing so, a total of 2,007 businesses were retained as part of this research study, as I recuperated the data that were mainly omitted by the outliers and leverage points. It is important to note, however, that only 1,757 participants completed all of the 7 follow-up surveys, hence this is the sample size that was used for the analysis.

The profile of the participating businesses was derived by analyzing their general business demographic information provided in the baseline survey, which also coincides with the starting year of these firms (i.e. 2004). The financial results of the 7th follow-up survey (2011) were used to classify the respondents into one of the three groups: low performers (1,431 companies), medium performers (183 companies) and high performers (143 companies). The categories were established by observing the natural cut within the variation in the levels of revenue. Low performers had revenues in the last year of the survey (2011) of up to $850,000; medium performers are companies that had revenues between $850,001 and $2,500,000 and high performers had revenues ranging from $2,500,001 to $700,000,000. The business demographic information was captured primarily through continuous data. Consequently, depending on the weight of the frequency distribution the top 5 or 10 most recurrent frequencies, per continuous variable, are presented in Table 7. The remaining part of the demographic profile was captured by using nominal and ordinal scales; full results are shown in Table 7.

Table 7: Main Business Demographic Characteristics at Starting Year

(n =1540)

Business Demographic Variable	Segment Characteristic	Low Performers		Medium Performers		High Performers	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
NAICS Sector of Activity	Professional, Scientific, and Technical Services	**428**	**30%**	41	22%	28	20%
	Manufacturing	173	12%	**54**	**30%**	**40**	**28%**
	Retail Trade	115	8%	22	12%	12	8%
	Other Services (except Public Administration)	149	10%	-	-	-	-
	Construction	95	7%	-	-	15	11%
	Administration and Support Waste Management and Remediation Services	106	7%	12	7%	-	-
	Wholesale Trade	-	-	15	8%	19	13%
	Real Estate and Rental and Leasing	70	5%	-	-	-	-
High Technology Industry Indicator	Non-high tech	1234	86%	142	78%	116	81%
	High tech	197	14%	41	22%	27	19%
Number of People or Entities who Owned the Business	One	954	67%	65	36%	48	34%
	Two	362	25%	64	36%	51	36%
	Three	54	4%	28	15%	20	14%
	Four	32	2%	15	8%	8	6%
	Five	7	1%	3	2%	6	4%
Number of Active Owners Helping to Run the Business	One	1066	75%	76	42%	60	42%
	Two	292	20%	69	38%	60	42%
	Three	40	3%	22	12%	15	11%
	Four	20	1%	9	5%	3	2%

Business Demographic Variable	Segment Characteristic	Low Performers		Medium Performers		High Performers	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Number of Employees (Full-Time and Part-Time) Excluding Owners and Contract Workers	Zero	866	61%	65	36%	44	31%
	One	227	16%	19	10%	10	7%
	Two	135	9%	13	7%	9	6%
	Three	55	4%	12	7%	11	8%
	Four	33	2%	17	9%	-	-
	Five					11	8%
Primary Location where the Business Operates	Residences such as a home or garage	810	57%	44	24%	30	21%
	Rented or leased space	470	33%	121	66%	98	69%
	Space the business purchased	58	4%	16	9%	8	6%
	Site where a client is located	76	5%	2	1%	5	4%
	Some other location	13	1%	-	-	2	1%
Business Provides a Service	No	167	12%	36	20%	28	20%
	Yes	1260	88%	147	80%	115	80%
Business Provides a Product	No	730	51%	61	33%	53	37%
	Yes	695	49%	122	67%	90	63%
Percentage of the Business Sales Done to For-Profit and Not-For-Profit Businesses	0%	379	27%	24	13%	14	10%
	5%	-	-	6	3%	7	5%
	10%	49	3%	5	3%	7	5%
	20%	57	4%	4	2%	-	-
	80%	-	-	8	4%	-	-
	90%	55	4%	-	-	5	4%
	100%	280	20%	58	32%	45	32%
Percentage of the Business Sales Done to Government Agencies	0%	1012	71%	104	57%	81	57%
	1%	-	-	5	3%		
	5%	30	2%	7	4%	5	4%
	10%	37	3%	7	4%	3	2%
	50%	13	1%	-	-	0	0%
	100%	22	2%	4	2%	2	1%

Business Demographic Variable	Segment Characteristic	Low Performers		Medium Performers		High Performers	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Percentage of the Business Sales Done to Private Individuals	0%	370	26%	80	44%	57	40%
	5%	-	-	6	3%	7	5%
	10%	57	4%	5	3%	4	3%
	80%	49	3%	4	2%	-	-
	90%	48	3%	-	-	6	4%
	100%	332	23%	18	10%	12	8%
US Census Divisions	New England (Division 1)	67	5%	12	7%	8	6%
	Mid-Atlantic (Division 2)	178	12%	25	14%	13	9%
	East North Central (Division 3)	280	20%	27	15%	22	15%
	West North Central (Division 4)	109	8%	24	13%	10	7%
	South Atlantic (Division 5)	264	18%	32	18%	28	20%
	East South Central (Division 6)	53	4%	4	2%	5	4%
	West South Central (Division 7)	134	9%	19	10%	11	8%
	Mountain (Division 8)	129	9%	16	9%	14	10%
	Pacific (Division 9)	217	15%	24	13%	32	22%

The most notable observation when comparing the three groups of businesses is that the vast majority (81%) of them remain very small in terms of revenues even after 7 years of operation. Clearly, most new businesses are destined to remain small businesses. Is this fact due to an inability for these businesses to successfully grow or is it a result of the owner's desire to remain small? The demographics lead us to observe that there are indeed some notable differences between the small, low performing businesses and those that have been able to attain higher growth and scale.

The region where the business was founded does not appear to differ significantly amongst the three groupings of business. Similarly, there is no major difference between the proportions of high-tech versus non-high-tech businesses across the range of businesses.

Looking at industry and business type, however, there are some notable differences between low performing businesses and the medium and high performing groups. Only 49% of the low performing group stated that their business provides a product, compared to 67% and 63% respectively for the medium and high performing groups. This difference is reflected in the fact that medium and high performing businesses have a significantly higher percentage that is in manufacturing or wholesale trade compared to low performers. On the other hand, the overwhelming majority of low-performing businesses provide a service (88%) and in fact, this group is overrepresented by businesses that categorize themselves as service providers including Professional/Scientific/Technical, Administrative or "Other" Services. Furthermore, low performing companies that sell all or the vast majority (80% or greater) directly to individuals represents 29% of that group compared to only 12% for each of the medium and high performing groups.

Clearly, many of the low-performing companies remain small by the nature of their business, often where the founder is provided services often directly to individuals, fitting the classic view of the self-employed skilled professional, tradesperson or consultant operating a very small business alone or with very few other employees. On the other hand, the medium and high performing companies tend to be in industries that are less reliant on the skills of one individual providing services and that are more scalable by nature.

While differences between the industry and business type do show some of the differences between the three groups, it is the "formative conditions" that provide a more striking contrast. Low performing companies appear to start their businesses with a vision towards low risk and low growth whereas the higher performing groups appear to start their businesses with the expectation and readiness for growth. This contrast can be seen along three dimensions: Number of owners, the number of employees and business location.

Low performing businesses are overwhelmingly started by a single individual (75%) operating out of a residence or home garage (57%) and with zero employees (61%). These data paint a very clear portrait of the formative conditions of the low performing group of companies: an owner/operator running a home-based business perhaps as a means of self-employment or as a part-time source of additional revenue, commencing with very little risk and perhaps with limited ambitions for growth.

Medium and high-performing businesses have formative conditions that stand in sharp contrast to the low-performing group. Whereas the majority of low performers are started as a home-based solo venture with no employees, the opposite is true of the medium and high performers. 64% of medium performers are started by more than one owner, that is to say, "a team", and similarly, this is the case of 66% of the high performers. In both cases, approximately half of these businesses are founded by two or three individuals. Furthermore, 75% of each of the medium and high performers also started their business in leased or owned locations, in contrast to the majority home-based low performers. Finally, the medium (64%) and high performers (69%) were more likely to start their business with at least one employee, once again in contrast to the low performers where only 39% started with any employees.

Clearly, some companies start out with low growth ambitions, while others start with formative conditions (industry, location, team size) that set them up for growth and scalability. Most notably, the fact that companies that start with a team of founding partners appear to be more likely to grow and achieve scale is an important finding.

By separately testing the proposed hypotheses with each of these three groups of businesses categorized by performance, further insight into how the formative conditions impact alliance formation as well as business growth and success is provided.

4.2 Hypotheses Testing

Nine main hypotheses were proposed in this research. Each hypothesis was tested separately on the low performing (n= 1431), medium performing (n= 183) and high performing (n= 143) groups of organizations separately and the results are also presented separately.

The following sections summarize the statistical results for each hypothesis.

4.3 Hypothesis 1

H1: Entrepreneurial background impacts firm financial performance.

A multiple linear regression analysis was used to test the impact of industry experience, the level of education and previous start-up experience pertaining to a founding entrepreneur on the firm's financial performance.

The following 2 models were analyzed to test Hypothesis 1:

$$Y'_{\text{revenue}} = \beta_0 + \beta_1 X_{industry\ experience} + \beta_2 X_{education} + \beta_3 X_{start-up\ experience}$$

$$Y'_{\text{profits}} = \beta_0 + \beta_1 X_{industry\ experience} + \beta_2 X_{education} + \beta_3 X_{start-up\ experience}$$

Embedded in these models are the overall concept of entrepreneurial background and firm financial performance. As such, these models are further defined into 24 sub-hypotheses (Table 8). These show all possible matching levels, between each dimension of entrepreneurial background with its specific firm financial performance, intertwined with all types of performers.

Table 8: Hypothesis 1 per Type of Performer: Entrepreneurial Background Impacts Firm Financial Performance

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H1a	H1c	H1e	Entrepreneurial background impacts positively firm revenue
H1a1	*H1c1*	*H1e1*	- *Entrepreneur's industry experience impacts positively firm revenue*
H1a2	*H1c2*	*H1e2*	- *Entrepreneur's education impacts positively firm revenue*
H1a3	*H1c3*	*H1e3*	- *Entrepreneur's startup experience impacts positively firm revenue*
H1b	H1d	H1f	Entrepreneurial background impacts positively firm profits
H1b1	*H1d1*	*H1f1*	- *Entrepreneur's industry experience impacts positively firm profits*
H1b2	*H1d2*	*H1f2*	- *Entrepreneur's education impacts positively firm profits*
H1b3	*H1d3*	*H1f3*	- *Entrepreneur's startup experience impacts positively firm profits*

After performing the multiple linear regressions, it was discovered that the data had a wide variance and did not follow a normal distribution. Accordingly, Templeton's (2011) two-step approach was used to transform the non-normal data distribution of the dependent variables (i.e. revenue and profits) into a normal distribution. As per Templeton (2011), the first step consisted in transforming the dependent variables into a percentile rank. This is needed to obtain uniformly distributed probabilities. Secondly, I applied an inverse-normal transformation to these percentile rank results to form a variable consisting of normally distributed z-scores. By doing so, this second step concludes with the transformation of the data into a bell shape curve (Appendix 6).

Having achieved the normalization of the dependent variables, I proceeded to verify if the data violated any of the multiple linear regression assumptions. More specifically, I tested if the model has a linear relationship, if the residuals have the same variance, if the residuals are normally distributed, and if the dependent variables are not highly correlated. The multiple regression assumptions results supported all of these assumptions and allowed me to pursue with the interpretations of the analyses (Appendix 7).

The structure of the results presentation is as follows: Prior to analyzing the multiple regression results specific for each type of performer, I first present a general overview of the most relevant findings highlighting the main differences among low, medium and high performers. Then, I present a summary of the statistical analysis and findings.

Table 9: Summary of Profiles, Hypothesis 1

FINANCIAL PERFORMANCE (2011) AND ENTREPRENEURIAL BACKGROUND OF FOUNDER			
	Low Performers	Medium Performers	High Performers
Revenue Range	<$850,000 (mean=$166K)	$850.001-$2,500,000 (mean=$1.52M)	$2,500,000-$700,000,000 (mean=$21.9M)
Profits Range	$0-$50,000 (mean=$30K)	$0-$3,000,000 (mean=$202K)	$0-$25,926,789 (mean=$1.27M)
Industry Experience (years)	14	15	16
Education (% with Bachelor's degree)	26%	33%	29%
Previous Start-up Experience (%)	42%	52%	51%

The above table (Table 9) summarizes the financial performance of the businesses by the three groups along with the background of the primary founder (the individual who completed the KFS questionnaire). It is important to note the wide-ranging differences in financial performance that exist between the three groupings of businesses. The mean revenue for the medium performing group was 9 times greater than the group of low performers, while the mean revenue of the high performing group was 132 times greater than the low performers! These results highlight the important differences and the clear economic impact that a relatively few number of businesses can represent. The 143 companies categorized as high performers represent only 8% of the total sample yet account for 86% of total revenue. Clearly, there is value in understanding what separates high performers from the other groups of companies and furthermore what are the factors that impact financial performance within that group.

Despite the dramatic differences in financial performance between the three groupings of businesses, however, there appear to be relatively small differences in entrepreneurial background

of the founders. The average number years of industry experience is similar across all groups, while education and previous start-up experience are somewhat greater amongst the medium and high performers.

Table 10: Summary of Results, Hypothesis 1

H1 - ENTREPRENEURIAL BACKGROUND IMPACT ON FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
Background	S (R) (p = 0.008) NS (P)	NS (R) S (P) (p = 0.048)	NS (R) NS (P)
Industry Experience	NS (R) ++ (P)	++ (R) S* (P) (p = 0.074)	++ (R) ++ (P)
Education Experience	NS (R) ++ (P)	++ (R) S* (P) (p = 0.054)	++ (R) ++ (P)
Start-Up Experience	S (R) (p = 0.003) ++ (P)	++ (R) NS (P)	++ (R) ++ (P)

S = supported PS = partially supported NS = not supported R = revenue P = profits
* Significant result at a 90% confidence level
++ Main hypothesis was non-significant thus not tested

The analysis shows that entrepreneurial background does not appear to have a strong and generalizable impact on new venture performance (Table 10). For low performers, the background of the entrepreneur, particularly start-up experience does have an impact on revenue. For the medium performing group, the background impacted profits with industry experience and education being significant. For high performers, however, there was no demonstrable relationship between entrepreneurial background and financial performance.

Detailed Results

Low Performers

H1a: Entrepreneurial background impacts positively firm revenue (supported)

The analysis of variance obtained by the multiple regression confirms that entrepreneurial background influences revenue (p-val = 0.008; Appendix 8, Table A8-1); bringing support to H1a1. This relationship between the founding entrepreneur's industry experience, education and previous start-up experience with revenue, was found to be a positive but rather weak relationship (adjusted $R^2 = 0.006$). In fact, the entrepreneurial background actually explains 0.6% of the variation in revenues.

Moreover, I used the coefficients results of the multiple regression to understand the relative importance that each of the independent variables had on the dependent variable (revenue). This was captured through the analysis of the standardized beta coefficients β. The p-values determine if all independent variables (industry experience, education, and start-up experience) have a significant impact on the dependent variable (revenue).

H1a1: The entrepreneur's industry experience impacts positively firm revenues of a low-performing organization (not supported)

Results show that previous industry experience is not a significant contributor to the revenues (p-val 0.343 > α; Appendix 8, Table A8-1) of low-performing organizations. H1a1 is therefore not supported.

H1a2: The entrepreneur's education impacts positively firm revenues of a low-performing organization (not supported).

The number of years of education has no significant impact on the firm's revenue of low performing organizations (p-val 0.343 > α, Appendix 8, Table A8-1). Hypothesis H1a2 is not supported.

H1a3: The entrepreneur's start-up experience impacts positively firm revenues of a low-performing organization (supported).

Previous experience in starting-up up a venture significantly impacts the firm's capability to generate future revenue (p-val 0.003 < α; Appendix 8, Table A8-1). In addition, that impact is observed to be a positive one ($\beta = 0.080$). In other words, the more experienced an entrepreneur is in starting-up a new business, the more he can expect to see a positive impact on its revenue. In fact, keeping all other independent variables constant, an increase of one standard deviation in previous start-up experience will yield an increase of 0.080 standard deviation units in revenue. Despite its small influence on revenue, the results show that it is the variable that exerts the strongest influence on revenue when compared to the other two dimensions of entrepreneurial background ($\beta_{\text{industry experience}} = 0.025$, $\beta_{\text{education}} = 0.025$, $\beta_{\text{start-up experience}} = 0.080$).

H1b: Entrepreneurial background impacts positively firm profits (not supported)

The relationship between entrepreneurial background and profits of low performing organizations did not produce significant results (p-val = 0.066; Appendix 8, Table A8-2). However, the significance level is not that far away from the alpha level of .05. This may suggest that some of the independent variables could be less correlated with the profit variable. Nevertheless, the direction of H1b remains not supported.

Medium Performers

H1c: Entrepreneurial background impacts positively firm revenue (not supported)

Unlike what was seen with low performing organizations, the background of the founding entrepreneurs has no significant influence over the revenues (p-val = 0.372; Appendix 8, Table A8-3) of medium performing organizations. H1c is not supported.

H1d: Entrepreneurial background of medium performers impacts positively firm profits (supported)

Profit levels, on the other hand, are significantly impacted by the entrepreneurial background thereby supporting the direction of H1 (p-val = 0.048; Appendix 8, Table A8-4). As shown, 3.7% (adjusted R^2 = .037) of the total variation in profits is solely explained by the level of industry, education and start-up experiences an entrepreneur has at the time of forming the venture. H1d is confirmed.

H1d1: The entrepreneur's industry experience impacts positively firm profits of a medium performing organization (supported)

The medium performers' sample is composed of 183 participants, however, this set of results was computed on an even smaller sample size (n=133) due to a number of missing values in the data. For this reason, along with the fact that the data do not violate the multiple regression assumptions, which includes the normality curve, I feel comfortable in using the 90% confidence level to test the hypothesis.

The results show that the level of industry experience does create a difference in the amounts of profits attained (p-val 0.074 < α; Appendix 8, Table A8-4) amongst the medium performing organizations. The nature of the impact is a positive one ($\beta = 0.155$) and it means that the more experienced a founding entrepreneur is on its industry, the more he or she can expect to see a favorable impact on profits. Accordingly, keeping education and previous start-up experience constant, an increase of one standard deviation in the industry knowledge will generate an increase of 0.155 standard deviation units in profits. Moreover, industry knowledge is the second most important influential variable to impact profits ($\beta_{\text{industry experience}} = 0.155$, $\beta_{\text{education}} = 0.167$ and $\beta_{\text{start-up experience}} = -0.007$). H1d1 is therefore supported at a 90% confidence level.

H1d2: The entrepreneur's education impacts positively firm profits of a medium performing organization (supported).

Education significantly impacts a firm's profits at a level of significance of $\alpha = 0.10$ (p-val 0.054 < α; see Appendix 8, Table A8-4). Actually, the number of years of education brings a positive effect on profit levels ($\beta = 0.167$). An increase of one standard deviation in the number of years of education will propel an increase of 0.167 standard deviation units in profits. The level of education followed by industry knowledge are the key variables ($\beta_{\text{industry experience}} = 0.155 < \beta_{\text{education}} = 0.167 > \beta_{\text{start-up experience}} = -0.007$) in terms of the influential power (weight) over profits. Hypothesis H1d2 is supported.

H1d3: The entrepreneur's start-up experience impacts positively firm profits of a medium performing organization (not supported).

Previous start-up experience is not a significant predictor of profits (p-val 0.935 > α; Appendix 8, Table A8-4). Hypothesis H1d3 is not supported.

High Performers

H1e: Entrepreneurial background of high performers impacts positively firm revenue (not supported)

Results in Table A8-5 (Appendix 8) disconfirm the impact of entrepreneurial background on the revenue formation (p-val = 0.545) within high performing companies. There is no statistical evidence suggesting that the years of education, the industry working experience and the experience in forming new ventures influences revenue. H1e is not supported.

H1f: Entrepreneurial background of high performers impacts positively firm profits (not supported)

Findings reveal no statistically significant evidence to validate entrepreneurial background impacts profits (p-val = 0.331; Appendix 8, Table A8-6). H1f is not supported.

4.4 Hypothesis 2

H2: Founding entrepreneurial team size impacts positively firm financial performance.

A simple regression model is used to validate this hypothesis. The following 2 models were thus analyzed:

$$Y'_{\text{revenue}} = \beta_0 + \beta_1 X_{entrepreneurial\ team\ size}$$

$$Y'_{\text{profits}} = \beta_0 + \beta_1 X_{entrepreneurial\ team\ size}$$

These models are further defined into 6 sub-hypotheses (Table 11) to take into account the three types of performers.

Table 11: Hypothesis 2 – Founding Entrepreneurial Team Size Impacts Positively Firm Financial Performance per Type of Performer

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H2a	H2c	H2e	Entrepreneurial team size impacts positively firm revenue
H2b	H2d	H2f	Entrepreneurial team size impacts positively firm profits

As with hypothesis 1, Templeton's (2011) two-step approach was used to normalize the distribution of the dependent variables. The results of the simple linear regression assumptions can be seen in Appendix 9.

Table 12: Summary of Profiles, Hypothesis 2

TEAM SIZE - # ACTIVE FOUNDING OWNERS			
	Low Performers	Medium Performers	High Performers
One	75%	42%	42%
Two	20%	38%	42%
Three	3%	12%	11%
Four	1%	5%	2%
Average #	1.30	1.80	1.72

Team size appears to be a strong determinant of new venture success and growth. The majority of low-performing businesses started as (and remain) solo ventures, while the majority of medium and higher performing businesses are started with a team of two or more owners who are actively

involved in the business (Table 12). The average team size for medium and high performing companies is significantly greater than for low performers.

Table 13: Summary of Results, Hypothesis 2

H2 - TEAM SIZE (# of founding owners) IMPACT ON FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
Revenue	S (p = 0.000)	NS	NS
Profits	S (p = 0.042)	S (p = 0.002)	S (p = 0.041)

S = supported NS = not supported

The size of the team of founding owners is one of the most important factors that impact new venture performance that is confirmed in this study. While the results were not conclusive for revenue, the results confirm the positive impact that team size has on profitability across all groupings of businesses (Table 13). The results also demonstrate that team size has a greater impact on medium and high performers than on low performers. The most important difference is the monetary amount that will be resulting in the year-end profits caused by a one-unit increase in the number of owners forming part of the entrepreneurial team. A one-unit increase in team size will yield had the greatest impact on additional profits for medium performers ($59,958) with similar results for high performers ($55,944) and to a lesser degree on low performers ($4,052.).

Detailed Results

Low Performers

H2a: Entrepreneurial team size impacts positively firm revenue of low performers (supported).

H2b: Entrepreneurial team size impacts positively firm profits of low performers (supported).

The size of the entrepreneurial team significantly influences both revenue (p-val = 0.000; Appendix 10, Table A10-1) and profits (p-val = 0.042; Appendix 10, Table A10-2). These results suggest that low performing organizations that have a larger founding team will finish the year with higher revenues and profits than other low performers entrepreneurs who are operating in a sole proprietorship or with one other individual. Both sub-hypotheses H2a and H2b are thus supported.

In addition, findings show that the nature of the relationship between the number of founders and revenue is characterized by a weak but positive linear relationship. Under this framework, 3.2% of the variation in revenues is solely explained by the size of the entrepreneurial team (R-Square = 0.032; Appendix 10, Table A10-1). This is a sole variable that is being tested on revenue. If its adjusted R^2 is examined, for means of comparison with the H1a findings, 3.1% of the total variation in revenue is explained, as compared to 0.6% found under H1a (adjusted $R^2 = 0.006$; Appendix 8, Table A8-1) through the three dimensions of entrepreneurial background. This observation may lead one to suggest that the size of the management team is even more important when starting a venture than the entrepreneurial background. Moreover, the impact of team size on revenue is a positive one (t = |6.858|). A one-unit increase in the number of owners can lead to a $37,072 unit increase in the firm's revenue, other variables being constant.

From a profits perspective, the results (Appendix 10, Table A10-2) show as well a weak but positive linear relationship between team size and profits. However, as compared to the revenue outcome, the total variation explained in profits by the size of the team is relatively lower. In fact, entrepreneurial team size only explains 0.4% of the variation in profits. Other variables being constant, a one-unit increase in the number of owners would lead to a $4,052 unit increase in

profits (Appendix 10, Table A10-2). As anticipated in H2b, the size of the entrepreneurial team has a positive significant impact (p-val = .042 < α; t = |2.036|) on the profits of low-performing organizations.

Medium Performers

H2c: Entrepreneurial team size impacts positively firm revenue of medium performers (not supported).

H2d: Entrepreneurial team size impacts positively firm profits of medium performers (supported).

Team size has no significant effect over revenues (p-val = 0.873; Appendix 10, Table A10-3). Nonetheless, it does positively influence profits levels (p-val = 0.002; t = |3.132|; Appendix 10, Table A10-4) for medium performers. These findings give partial support to hypothesis 2; H2c is not supported whereas H2d is supported.

When looking more in-depth into the profit model, a weak but positive linear relationship characterizing the relation with the number of founders is found. In this case, the number of founders solely explains 6.8% of the total variation in profits (Appendix 10, Table A10-4) which is much higher than the result seen with low performers (0.4%; Appendix 10, Table A10-2) thereby suggesting management team size is an even more important factor of success for medium performers than for low performers. An additional one-unit increase in the number of owners would lead to a $59,958 unit increase in profits other variables being constant (versus $4,052 unit increase for low performers).

High Performers

H2e: Entrepreneurial team size impacts positively firm revenue of high performers (not supported).

H2f: Entrepreneurial team size impacts positively firm profits of high performers (supported).

Team size significantly impacts profits (p-val = 0.041; Appendix 10, Table A10-5) of high performers but not their revenues (p-val = 0.164; Appendix 10, Table A10-6) levels. Additionally, results reveal a positive but weak relationship between the number of founders and profits (t = |2.069|; Appendix 10, Table A10-5). This brings support to hypothesis H2f and disconfirms H2e.

4.5 Hypothesis 3

H3: Entrepreneurial background impacts the degree of alliance networks formed by a firm.

Logistic regression models are used to test all models that include binary dependent variables (0/1 coding). These include all models with university alliances, company alliances, and government alliances. To better illustrate this, H3 is therefore defined into 36 sub-hypotheses (Table 14).

Table 14: Hypothesis 3 – Entrepreneurial Background Impacts the Degree of Alliance Networks Formed by a Firm per Type Performer

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H3a	H3e	H3i	Entrepreneurial background impacts positively university alliances
H3a1	*H3e1*	*H3i1*	- *Entrepreneur's industry experience impacts positively university alliances*
H3a2	*H3e2*	*H3i2*	- *Entrepreneur's education impacts positively university alliances*
H3a3	*H3e3*	*H3i3*	- *Entrepreneur's startup experience impacts positively university alliances*
H3b	H3f	H3j	Entrepreneurial background impacts positively company alliances
H3b1	*H3f1*	*H3j1*	- *Entrepreneur's industry experience impacts positively company alliances*
H3b2	*H3f2*	*H3j2*	- *Entrepreneur's education impacts positively company alliances*
H3b3	*H3f3*	*H3j3*	- *Entrepreneur's startup experience impacts positively company alliances*
H3c	H3g	H3k	Entrepreneurial background impacts positively government alliances
H3c1	*H3g1*	*H3k1*	- *Entrepreneur's industry experience impacts positively government alliances*
H3c2	*H3g2*	*H3k2*	- *Entrepreneur's education impacts positively government alliances*
H3c3	*H3g3*	*H3k3*	- *Entrepreneur's startup experience impacts positively government alliances*

Additionally, linear regression models were used to test the impact of entrepreneurial background on all models that include total alliances. In total, 12 sub-hypotheses were tested (Table 15).

Table 15: Hypothesis 3 – Entrepreneurial Background Impacts the Degree of Total Alliance Networks Formed by a Firm per Type of Performer

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H3d	H3h	H3l	Entrepreneurial background impacts positively total alliances
H3d1	*H3h1*	*H3l1*	- *Entrepreneur's industry experience impacts positively total alliances*
H3d2	*H3h2*	*H3l2*	- *Entrepreneur's education impacts positively total alliances*
H3d3	*H3h3*	*H3l3*	- *Entrepreneur's startup experience impacts positively total alliances*

Table 16: Summary of Profiles, Hypothesis 3

ALLIANCE FORMATION FREQUENCY			
	Low Performers	Medium Performers	High Performers
University Alliances	7%	12%	10%
Company Alliances	28%	29%	40%
Government Alliances	2%	6%	10%

The above table summarizes the percentage of businesses that reported having formed an alliance in the three categories as measured by the KFS at any point during the survey period. While many companies do not report having formed any alliances, high performers had the highest rate of alliance formation, most notably with other companies.

Table 17: Summary of Results, Hypothesis 3

H3 – ENTREPRENEURIAL BACKGROUND IMPACT ON ALLIANCE FORMATION			
	Low Performers	Medium Performers	High Performers
Background	S (U) (*p* = 0.000) S (C) (*p* = 0.006) NS (G) S (T) (*p* = 0.000)	S (U) (*p* = 0.014) NS (C) S* (G) (*p* = 0.100) NS (T)	NS (U) NS (C) NS (G) NS (T)
Industry Experience	NS (U) NS (C) ++ (G) NS (T)	NS (U) ++ (C) NS (G) ++ (T)	++ (U) ++ (C) ++ (G) ++ (T)
Education Experience	S (U) (*p* = 0.000) S (C) (*p* = 0.003) ++ (G) S (T) (*p* = 0.000)	NS (U) ++ (C) S (G) (*p* = 0.035) ++ (T)	++ (U) ++ (C) ++ (G) ++ (T)
Start-Up Experience	NS (U) NS (C) ++ (G) NS (T)	PS* (U) (*p* = 0.071) ++ (C) NS (G) ++ (T)	++ (U) ++ (C) ++ (G) ++ (T)

S = supported PS = partially supported NS = not supported R = revenue P = profits
U = university alliances C = company alliances G = government alliances T = total alliances
* Significant result at a 90% confidence level
++ Main hypothesis was non-significant thus not tested

The impact of entrepreneurial background on the formation of network alliances was shown to differ between low, medium or high performing organizations (Table 17). For high performers, the findings show no statistically significant relationship between entrepreneurial background and the formation of alliance networks. For the low and medium performer groups, entrepreneurial background did have an impact on the likelihood of alliance formation with the educational background being the most important element.

Detailed Results

Low Performers

H3a: Entrepreneurial background impacts positively university alliances of low performing organizations (supported)

It is predicted that the number of years of education, the experience that a founding entrepreneur has in a related industry, as well as the experience in starting-up new businesses influence the formation of networks with universities. Results show that the model is statistically significant (Chi-square$_{\text{model step}}$: p-val = 0.000 Omnibus Tests of Model Coefficients, Appendix 11, Table A11-1). It can be implied through that 11.8% (Nagelkerke R Square = 0.118) of the variation in university alliances comes from previous experiences related to industry, education and in starting-up of new businesses.

H3a1: Entrepreneur's industry experience impacts positively university alliances of low performing organizations (not supported)

Previous industry experience is not a significant coefficient in the formation of university alliances (p-val = 0.735 $> \alpha$; in the Variables in the Equation; Appendix 11, Table A11-1). This sub-hypothesis is not supported.

H3a2: Entrepreneur's education impacts positively university alliances of low performing organizations (supported)

Total number of years of education influences positively the formation of university alliances (p-val = 0.000 $< \alpha$; B= 0.372; Appendix 11, Table A11-1, Variables in the Equation). More specifically, the odds ratio is 1.450 (Exp(B) = 1.450, Appendix 11, Table A11-1) for an additional year of education. As this odds ratio is greater than 1, it means that for an additional year in

education the odds of creating a university alliance increases by 45% (=1.450*100 – 100) that is controlling for individual differences in industry experience and previous start-up experience. All this brings support to the direction of H3a2.

H3a3: Entrepreneur's start-up experience impacts positively university alliances of low performing organizations (not supported)

Previous startup experience is not a significant coefficient in the creation of university alliances (p-val = 0.840; Appendix 11, Table A11-1 in Variables in the Equation). H3a3 is not supported.

Hypothesis H3a is partially supported as it was found that education is the only significant coefficient in the model.

H3b: Entrepreneurial background impacts positively company alliances of low performing organizations

Results in Table 31 show that the model is statistically significant (Chi-square p-val = 0.006 in the model step of the Omnibus Tests of Model Coefficient, Appendix 11, Table A11-2). Also, 2.9% of the variation in the creation of company alliances can be attributed to previous industry experience, education and previous start-up experience (Nagelkerke R Square = 0.029; Appendix 11, Table A11-2).

H3b1: Entrepreneur's industry experience impacts positively company alliances of low performing organizations (not supported)

As with the findings related to university alliances, the industry experience of the founding entrepreneur is not a significant coefficient (p-val = 0.286 > α, in Variables in the Equation, Appendix 11, Table A11-2) in the model. Therefore, H3b1 is not supported.

H3b2: Entrepreneur's education impacts positively company alliances of low performing organizations (supported)

As expected, education is a significant and positive influencer (p-val = 0.003 < α; B = 0.114; Appendix 11, Table A11-2 in Variables in the Equation) in the network formation of company alliances. An additional year of education has an odd ratio of 1.121. Since this odd ratio is greater than 1, it means that increasing the number of years of education by one unit will produce an increase of 12.1% (=1.121*100 – 100) in the odds of an entrepreneur to form company alliances. This result holds while controlling for differences in previous industry experience and start-up experience. H3b2 is supported.

H3b3: Entrepreneur's start-up experience impacts positively company alliances of low performing organizations (not supported)

Previous start-up experience did not generate significant results on network formation of company alliances (B = 0.056; p-val = 0.154 > α; Appendix 11, Table A11-2 in Variables in the Equation). This disconfirms the sub-hypothesis H3b3.

In sum, hypothesis H3b is partially supported. Only the number of years of education produced a significant positive influence on the formation of company alliances.

H3c: Entrepreneurial background impacts positively government alliances of low performing organizations (not supported)

Results show that the model is not statistically significant (Chi-square p-val = 0.199 > α; a model step of the Omnibus Tests, Appendix 11, Table A11-3). This result indicates that the independent variables have no significant effects. H3c is therefore not supported.

H3d: Entrepreneurial background impacts positively total alliances of low performing organizations (supported)

Results demonstrate that the number of years of education including the experience in a related industry and in starting-up a new business impacts total alliances created by low performing organizations (p-val = 0.000; Appendix 11, Table A11-4). This model is defined by a positive linear relationship that is weak. Be that as it may, the relationship still proved to be statistically significant at a 95% confidence level. This modeling stipulates that 4% (adjusted R^2 = 0.040) of the variation in total alliances comes entirely from the industry experience, education and start-up experience of the founding entrepreneur. H3d is thus supported.

H3d1: Entrepreneur's industry experience impacts positively total alliances of low performing organizations (not supported)

As per results, previous industry experience is not a significant predictor in the creation of total alliances (p-val 0.301 > α; Appendix 11, Table A11-4). H3d1 is not supported.

H3d2: Entrepreneur's education impacts positively total alliances of low performing organizations (supported)

The number of years of education held by founding entrepreneurs is a significant contributor to the establishment of total network alliances (p-val = 0.000 < α; Appendix 11, Table A11-4) within low performing organizations. In line with this sub-hypothesis, it is further demonstrated that education has a positive effect on total alliances (Standardized β = 0.201; Appendix 11, Table A11-4). H3d2 is therefore supported.

H3d3: Entrepreneur's start-up experience impacts positively total alliances of low performing organizations (not supported)

As for the previous experience in starting up a new business, the results do not reveal significant findings. Accordingly, previous start-up experience is not a significant contributor of total network alliances (p-val 0.200 > α; Appendix 11, Table A11-4). As such, no support is given to H3d3.

Hypothesis H3d is partially supported by only the number of years of education has a significant effect on the creation of total alliances within low performing organizations.

Overall, hypothesis 3 is partially supported. Education is the only variable to that produced significant results on university, company and total alliances.

Medium Performers

This group has an average of 15 years of industry working experience. In general, they have a bachelor degree (33%) or a master's degree (19%). 27% of medium performers had previously

formed 1 business and 12% were involved in forming 2 businesses. Yet, 48% have no prior experience in starting up a venture. In terms of alliances, 12% of medium performers established network alliances with universities, 29% of other companies and only 6% with the government. As for the total number of alliances formed per category, 31% have signed an alliance with 1 out of the 3 categories (i.e., university, company, and government) and 6% with 2 of these categories. Nonetheless, 61% have not taken part of such strategy.

H3e: Entrepreneurial background impacts positively university alliances of medium performing organizations

The findings demonstrate that the model is statistically significant (Omnibus Tests chi-square p-val = 0.014; Appendix 11, Table A11-5). It is also suggested that 19.7% of the variation in university alliances is solely explained by previous industry experience, education and previous start-up experience (Nagelkerke R Square (pseudo R) = 0.197; Appendix 11, Table A11-5). This result is 7.9% higher than what was seen with low performing organizations. This leads to suggest entrepreneurial background has a stronger influence on university alliances established by medium performing organizations than on low performing organizations.

H3e1: Entrepreneur's industry experience impacts positively university alliances of medium performing organizations (not supported)

Here, results indicate that previous industry experience is not a significant coefficient in the formation of university alliances (p-val = 0.545 > α; Appendix 11, Table A11-5 in Variables in the Equation). Hence, H3e1 is not supported.

H3e2: Entrepreneur's education impacts positively university alliances of medium performing organizations (not supported)

When I look at the number of years of education held by an entrepreneur, I observe that it is not a significant coefficient in the creation of university alliances in respect to medium performing organizations (p-val = 0.130 > α; Appendix 11, Table A11-5 in Variables in the Equation). H3e2 cannot be supported.

H3e3: Entrepreneur's start-up experience impacts positively university alliances of medium performing organizations (partially supported)

Previous start-up experience produced a significant result in the model (p-val = 0.071 < α; B = -1.172; Appendix 11, Table A11-5 in Variables in the Equation) under the 90% confidence level, however it carries a negative impact over university alliances. I feel confident in presenting the results under the alpha level of 0.10 being that the sample size of medium performers is rather small and because the data met the assumptions of the logistic regression. That being said, the level of previous start-up experience has an influential power over the signing of university alliances. Contrariwise, the more versed an entrepreneur is in starting up ventures the less likely he will create alliances with universities or learning institutions. One of the potential reasons may be that this group of entrepreneurs might be skeptical of this type of alliances being that universities are a large institution. Moreover, the odds ratio is less than 1 (Exp(B) = 0.310), which indicates that the probability of forming university alliances will decrease with the more experienced an entrepreneur is in starting up new ventures by 69% (=0.310*100 – 100). These entrepreneurs might be under the impression that it could be hard to cooperate with such institutions. H3e3 is partially supported due to its negative impact.

Overall, H3e is partially supported. Significant results were obtained for the impact of the overall entrepreneurial background on the network formation of university alliances. Still and all, in a medium performing organization, previous start-up experience influences the development of university networks but its impact is a negative one.

H3f: Entrepreneurial background impacts positively company alliances of medium performing organizations (not supported)

H3f further predicts previous industry and start-up experiences, as well as education, will impact positively the creation of alliances with other companies. Though, results show that the model is not statistically significant (p-val = 0.527 > α, in Omnibus Tests of Model Coefficient model step Table A11-6, Appendix 11) thereby disconfirming H3f.

H3g: Entrepreneurial background impacts positively government alliances of medium performing organizations

As per results, the model between entrepreneurial background-government alliances is statistically significant (Chi-square$_{\text{model step}}$: p-val = 0.100 = α; in Omnibus Tests of Model Coefficients in Table A11-7, Appendix 11) under a 90% confidence level. 19.9% of the total variation in government alliances is coming from previous experiences related to industry, education, and starting-up of new businesses, held by the founding entrepreneur (Nagelkerke R Square = 0.199).

H3g1: Entrepreneur's industry experience impacts positively government alliances of medium performing organizations (not supported)

The level of industry knowledge that was acquired by a founding entrepreneur has no impact on the creation of government alliances (p-val = 0.804 > α; Variables in the Equation in Table A11-7, Appendix 11). H3g1 is not supported.

H3g2: Entrepreneur's education impacts positively government alliances of medium performing organizations (supported)

Education carries a positive impact on the institution of government alliances (p-val = 0.035 < α; B= 0.486; Appendix 11, Table A11-7, Variables in the Equation). Its odds ratio is 1.625 for one additional year of education. Since this odds ratio is greater than 1 (Exp(B) = 1.625), it indicates that for an additional year of education the odds of forming government alliances increase by 62.5% (=1.625*100 – 100). All this supports H3g2.

H3g3: Entrepreneur's start-up experience impacts positively government alliances of medium performing organizations (not supported)

Previous start-up experience bears no impact on the creation of government alliances (p-val = 0.798 > α; Appendix 11, Table A11-7, Variables in the Equation). H3g3 is disconfirmed.

H3h: Entrepreneurial background impacts positively total alliances of medium performing organizations (not supported)

No significant support was found in assessing the impact of entrepreneurial background on total alliances (p-val 0.222 > α; Appendix 11, Table A11-8) among medium performers. That is, there is no statistical evidence to support that prior experience an entrepreneur has in terms of industry knowledge, in starting-up a new business and in terms of education impacts positively the number of total alliances that medium performing organizations form. H3h is not supported.

All in all, these medium performers results partially support Hypothesis 3. The entrepreneurial background has a generally positive influence over university and government alliances. On one hand, previous start-up experience significantly affects the creation of universities alliances. This impact was hypothesized to be a positive one. However, the greater the experience in starting up a venture the less inclined an entrepreneur is in forming universities alliances. On the other hand, education positively influences the creation of government alliances. Out of these two variables, previous start-up experience is the one that has the strongest probability in impacting the odds of forming a network alliance (education probability level = 62.5% and start-up experience probability level = - 69%). Company alliances and total alliances are not influenced by entrepreneurial background.

High Performers

H3i: Entrepreneurial background impacts positively university alliances of high performing organizations (not supported)

It is expected that the total number of years of education, total industry experience, and previous start-up experience will have an impact on the formation of university alliances of high performing organizations. However, the results do not show that this model is statistically significant (p-val = 0.378 > α; Appendix 11, Table A11-9).

H3j: Entrepreneurial background impacts positively company alliances of high performing organizations (not supported)

As seen in Table A11-10 (Appendix 11), the findings suggest that the model is not statistically significant (p-val = 0.195 > α). Therefore, H3j is cannot be supported.

H3k: Entrepreneurial background impacts positively government alliances of high performing organizations (not supported)

The findings reveal that the model between previous industry experience, the number of years of education and previous start-up experience and the network formation of government alliances is not statistically significant (p-val = 0.283 > α; Appendix 11, Table A11-11). Consequently, H3k cannot be supported.

H3l: Entrepreneurial background impacts positively total alliances of high performing organizations (not supported)

Results in Table A11-12 (Appendix 11) demonstrate that entrepreneurial experience has no effect on the number of total alliances of high performing organizations (p-val = 0.167 > α). This leads us to reject sub-hypothesis H3l.

4.6 Hypothesis 4

H4: Founding entrepreneurial team size impacts the degree of alliance networks formed by a firm.

It is hypothesized that the number of founders of firm influences the network formation. Hypothesis 4 is further defined into 12 sub-hypotheses (Table 18). Similar to hypothesis 3, logistic regression models are used to test all binary dependent variables using a 0/1 coding. This refers to all models testing the impact on university alliances, company alliances, and government alliances. Though, a simple linear regression is used for models that have total alliances as the dependent variable.

Table 18: Hypothesis 4 – Entrepreneurial Team Size Impacts the Degree of Alliance Networks Formed by a Firm per Performer Type

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H4a	H4e	H4i	Entrepreneurial team size impacts positively university alliances
H4b	H4f	H4j	Entrepreneurial team size impacts positively company alliances
H4c	H4g	H4k	Entrepreneurial team size impacts positively government alliances
H4d	H4h	H4l	Entrepreneurial team size impacts positively total alliances

Table 19: Summary of Results, Hypothesis 4

H4 – TEAM SIZE (# of founding owners) IMPACT ON ALLIANCE FORMATION			
	Low Performers	Medium Performers	High Performers
University	NS	NS	NS
Company	NS	NS	NS
Government	NS	NS	NS
Total Alliances	NS	NS	NS

NS = not supported

The results showed that team size had no significant impact on alliance formation across all categories of businesses (Table 19). This result could be due, in part, to the large proportion of businesses whose initial team size was only one and to the relatively small number of overall alliances that were formed.

Detailed Results

Low Performers

H4a: Entrepreneurial team size impacts positively university alliances of low performing organizations (not supported)

Findings show that the model between entrepreneurial team size and network alliances with universities is not statistically significant (Chi-square p-val = 0.280 > α; Model step, Table A12-1, Appendix 12). H4a is not supported.

H4b: Entrepreneurial team size impacts positively company alliances of low performing organizations (not supported)

It was hypothesized that entrepreneurial team size would influence the likelihood of forming network alliances with other companies. Results reveal that the model is not statistically significant (Chi-square p-val = 0.338 > α, Model step; Appendix 12, Table A12-2). H4b is not supported.

H4c: Entrepreneurial team size impacts positively government alliances of low performing organizations (not supported)

Findings do not support that the model between entrepreneurial team size and government alliance networks as statistically significant (p-val = 0.510 > α, Model step; Appendix 12, Table A12-3). H4c is not supported.

H4d: Entrepreneurial team size impacts positively total alliances of low performing organizations (not supported)

It is anticipated that the size of the entrepreneurial team will have a positive effect on the total number of alliances formed by low performing organizations. However, results in Table A12-4 (Appendix 12) do not demonstrate that founding entrepreneurial team size (p-val = 0.335 > α) impacts the total alliance networks creation by low performing organizations. H4d cannot be supported.

Medium Performers

H4e: Entrepreneurial team size impacts positively university alliances of medium performing organizations (not supported)

It is foreseen that entrepreneurial team size will impact positively the odds of having network alliances with universities. However, the results do not support that the model is statistically significant (p-val = 0.143 > α, Model step, Table A12-5, Appendix 12). H4e is not supported.

H4f: Entrepreneurial team size impacts positively company alliances of medium performing organizations (not supported)

The results show no statistical significance for the entrepreneurial team size and company alliances model (p-val = 0.592 > α, Model step; Appendix 12, Table A12-6). Thus, sub-hypothesis H4f was rejected.

H4g: Entrepreneurial team size impacts positively government alliances of medium performing organizations (not supported)

It was expected to see team size influence the odds of forming alliances networks with governmental institutions. Nonetheless, the results show that the model is not statistically significant (p-val = 0.721 > α, Model step; Appendix 12, Table A12-7). H4g is not supported.

H4h: Entrepreneurial team size impacts positively total alliances of medium performing organizations (not supported)

The number of total alliances created by medium performing organizations is not significantly impacted by the size of the entrepreneurial team (p-val = 0.143 > α; Appendix 12, Table A12-8). H4h is not supported.

High Performers

H4i: Entrepreneurial team size impacts positively university alliances of high performing organizations (not supported)

It was expected that the entrepreneurial team size will positively impact the odds of creating university alliances networks. Results show that the model is statistically significant (Chi-square$_{\text{model step}}$: 0.075 < α, Omnibus Tests of Model Coefficients, Appendix 12, Table A12-9) under a 90% confidence level. It can be reported that 8.1% (Nagelkerke R Square = 0.081) of the total variation in university network alliances is coming from one single variable: entrepreneurial team size.

Contrary to what could be expected after examining such results, the outcome of the variables in the Equation table does not demonstrate a significant effect on the team size coefficient (p-val = 0.166 > α; Appendix 12, Table A12-9). Therefore, H4i was not supported.

H4j: Entrepreneurial team size impacts positively company alliances of high performing organizations (not supported)

It was anticipated that entrepreneurial team size would impact the creation of alliances with other companies, however, the results are shown in Table A12-10 (Appendix 12) reveal that the model is not statistically significant (p-val = 0.648 > α, Model step). H4j is not supported.

H4k: Entrepreneurial team size impacts positively government alliances of high performing organizations (not supported)

It was hypothesized that entrepreneurial team size would impact government alliances. While this model is statistically significant (p-val = 0.076 < α; Appendix 12, Table A12-11) at a 90% confidence level, however, it is also reported that 8.1% of the total variation in government alliances comes from the size of the entrepreneurial team (Nagelkerke R Square = 0.081). As a result, similar to what was found in the testing on university alliances, the coefficient result in the Variables in the Equation table showed no significant effect for team size (p-val = 0.167 > α). H4k is not supported.

H4l: Entrepreneurial team size impacts positively total alliances of high performing organizations (not supported)

Founding entrepreneurial team size does not impact the degree of total alliances created by high performing organizations ($F_{(1, 79)}$ = 0.260, p-val = 0.612 > α; Appendix 12, Table A12-12). H4d is not supported.

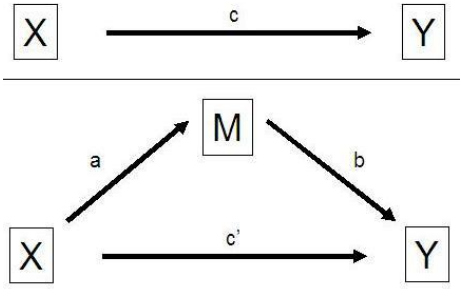
4.7 Hypothesis 5

H5: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm financial performance.

This hypothesis tests whether total alliance networks positively mediate the relationship between entrepreneurial background and financial performance of a firm. These mediating effects will give a better understanding of the role of each variable on the dependent variables. The total alliances mediating effects are tested according to the Baron and Kenny (1986) approach, which implies using three regressions that aim to show that:

- Step 1: X is a significant predictor of the mediating variable (Y= cX + E1);
- Step 2: The mediating variable is a significant predictor of Y (M = aX + E2);
- Step 3: X and the mediating variable are a significant predictor of Y (Y = bM + cX + E3).

Figure 3: Mediation as per Baron and Kenny (1986)



In total, 24 sub-hypotheses were tested to validate H5 (Table 56).

Table 20: Hypothesis 5 – Total Alliances Networks Formed by a Firm Positively Mediate the Relationship Between Entrepreneurial Background and Firm Financial Performance by a Firm per Performer Type

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H5a	H5c	H5e	Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm revenue
H5a1	*H5c1*	*H5e1*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm revenue*
H5a2	*H5c2*	*H5e2*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm revenue*
H5a3	*H5c3*	*H5e3*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm revenue*
H5b	H5d	H5f	Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm profits
H5b1	*H5d1*	*H5f1*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm* profits
H5b2	*H5d2*	*H5f2*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm* profits
H5b3	*H5d3*	*H5f3*	- *Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm* profits

Table 21: Summary of Results, Hypothesis 5

H5 – TOTAL ALLIANCES MEDIATION BETWEEN ENTREPRENEURIAL BACKGROUND AND FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
Industry Experience	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Education Experience	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Start-Up Experience	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)

NS = not supported R = revenue P = profits

Hypothesis 5 was developed to address whether total alliances networks formed by a firm positively mediate the relationship between the entrepreneurial background and the firm financial performance in terms of revenue and profits. The findings did not support this hypothesis with any of the business groupings (Table 21). These results could be, in part, due to the fact that not all dimensions of entrepreneurial background were found to have some impact on revenue and on profits (Hypothesis 1). Secondly, this could also be due to the limited number of the sampled entrepreneurs who have more than one type of alliance.

Detailed Results

Low Performers

H5a: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm revenue of low performers (not supported)

H5a1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm revenue of low performers (not supported)

Results presented in Table A13-1 (Appendix 13) demonstrate that previous industry experience is not a significant predictor of total alliances (p-val = 0.508). Hence, this result voids the potential mediation effect in the industry experience/revenue relationship of low-performing organizations. As such, sub-hypothesis H5a1 is not supported.

H5a2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm revenue of low performers (not supported)

The initial findings reveal that the number of years of education significantly impacts the formation of total alliances (p-val = 0.000; step 1, Table A13-2, Appendix 13). However, the mediating results of step 2 fail to support that total alliances significantly impacts revenue (p-val = 0.321, step 2, Table A13-2, Appendix 13). Therefore, H5a2 is not supported.

H5a3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm revenue of low performers (not supported)

As seen in Table A13-3 (Appendix 13), total alliances do not act as a mediator between start-up experience and firm revenue for low-performing organizations. In fact, no significant effect was found between start-up experience and total alliances (p-val = 0.171). H5a3 is not supported.

H5a is not supported. Total alliances established by low performing organizations do not moderate the relationship between entrepreneurial background and revenue.

H5b: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm profits of low performers (not supported)

H5b1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm profits of low performers (not supported)

Previous industry experience is not a significant predictor of total alliances (p-val = 0.508; Appendix 13, Table A13-4). This finding rejects the potential mediation effect in the industry experience and profits relationship within low performing organizations. Therefore, H5b1 is not supported.

H5b2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm profits of low performers (not supported)

On the first hand, results show that education significantly influences the formation of total alliances (p-val = 0.000, Step 1, Table A13-5, Appendix 13). However, in the second step of the mediation analysis, the total alliances bear no impact on profits (p-val = 0.227, Step 2, Table A13-5, Appendix 13). Therefore, the mediation role of total alliances within education and firm profits relationship, or H5b2 is not supported.

H5b3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm profits of low performers (not supported)

Similar to the relationships between industry experience/profits and education/profits, total alliances do not mediate the relationship between startup experience and firm profits. In fact, no mediation could be proven as previous start-up experience shows no significant effect over total alliances (p-val = 0.171, Table A13-6, Appendix 13). H5b3 cannot be supported.

Medium Performers

H5c: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm revenue of medium performers (not supported)

H5c1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm revenue of medium performers (not supported)

As seen in Table A13-7 (Appendix 13), previous industry experience is not a significant predictor of total alliances (p-val = 0.452). Proving the significance between industry experience and total alliances was the first step to validate the mediating effect. As this result was not achieved, sub-hypothesis H5c1 is not supported.

H5c2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm revenue of medium performers (not supported)

Results show that the number of years of education significantly impacts the formation of total alliances (p-val = 0.092, Step 1, Table A13-8, Appendix 13) within medium performing organizations at a 90% confidence level. I present these results as the sample size is relatively small and the normality of the data was validated. Yet, as seen in step 2 total alliances do not significantly impact revenues (p-val = 0.385, Table A13-8, Appendix 13). Hence, this leads us to reject the potential mediation effect of total alliances on the entrepreneur's education/revenue relationship. H5c2 is not supported.

H5c3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm revenue of medium performers (not supported)

The total alliances created by medium performing organizations do not mediate the relationship between start-up experience and firm revenue. This is evidenced by the non-significant finding

obtained in step 1: previous start-up experience does not carry a significant effect on total alliances (p-val = 0.320; Appendix 13, Table A13-9). H5c3 is not supported.

H5c is not supported. There is no mediation effect that was observed in the sampled medium performers when it comes to the entrepreneurial background and revenue relationship.

H5d: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm profits of medium performers (not supported)

H5d1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm profits of medium performers (not supported)

The entrepreneur's previous industry experience does not have a significant effect on total alliances (p-val = 0.452; Appendix 13, Table A13-10). Due to this fact, it can be concluded that total alliances do not mediate the relationship between previous industry experience and firm profits of the medium performing organization. H5d1 is not supported.

H5d2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm profits of medium performers (not supported)

Results demonstrate education significantly impacts total alliances under a 90% confidence level (p-val = 0.092, Step 1, Table A13-11, Appendix 13). However, they also bring forth that total alliances do not significantly impact the profits of medium performing organizations (p-val = 0.710). As such, I cannot attest to the total alliances mediation effect within the education and profits relationship. H5d2 is not supported.

H5d3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm profits of medium performers (not supported)

Unfortunately, Table A13-12 (Appendix 13) shows as well that previous start-up experience withholds no significant effect on total alliances (p-val = 0.320). This outcome leads me to disconfirm the mediation effect of total alliances on the relationship between start-up experience and firm profits of medium performing organizations. H5d3 is not supported.

High Performers

H5e: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm revenue of high performers.

H5e1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm revenue of high performers (not supported)

As per results in Table A13-13 (Appendix 13), total alliances do not mediate the relation between industry experience and revenue of high performing organizations. This is due to the fact that industry experience was not found to be a significant predictor to the formation of total alliances (p-val = 0.589). Therefore, H5e1 cannot be supported.

H5e2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm revenue of high performers (not supported)

Findings in Table A13-14 (Appendix 13) show that education significantly influences the formation of total alliances within high performing organizations (p-val = 0.036). Nonetheless, total alliances is not a predictor of revenue (p-val = 0.211) which voids its potential mediation effect on the education-revenue relationship. H5e2 is not supported.

H5e3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm revenue of high performers (not supported)

It is also seen in Table A13-15 (Appendix 13) that the number of total alliances formed by high performing organizations does not mediate the relationship amongst startup experience and revenue (p-val = 0.579). H5e3 is not supported.

H5e cannot be supported.

H5f: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm profits of high performers (not supported)

H5f1: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's industry experience and firm profits of high performers (not supported)

Like results obtained for revenue, total alliances are not a mediator of previous industry experience and firm profits of high performing organizations. This is alleged through the fact that industry experience is not a predictor of total alliances formation (p-val = 0.589; Appendix 13, Table A13-16). H5f1 is not supported.

H5f2: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's education and firm profits of high performers (not supported)

Education significantly impacts the creation of total alliances (p-val = 0.036), however, total alliances are not a predictor of profits (p-val = 0.399). This shows that total alliances do not mediate the relationship between education and profits of high performing organizations (see Appendix 13, Table A13-17). H5f2 cannot be supported.

H5f3: Total alliances networks formed by a firm positively mediate the relationship between entrepreneur's startup experience and firm profits of high performers (not supported)

Once more, results in Table A13-18 (Appendix 13) reveal that no mediation effect occurs between start-up experience and the firm profits of high performing organizations. Unfortunately, start-up experience has no significant influence on the creation of total alliances (p-val = 0.579, Table A13-18). H5f3 is also not supported.

All these results disconfirm H5f.

4.8 Hypothesis 6

H6: Total alliance networks formed by a firm positively mediate the relationship between the number of firm founders and firm financial performance.

The total alliances mediation effect will be verified by conducting the three regressions approach suggested by Baron and Kenny (1986). To validate H6, 6 sub-hypotheses are tested (Table 22).

Table 22: Hypothesis 6 – Alliance Networks Formed by a Firm Positively Mediate the Relationship Between Number of Firm Founder and Firm Financial Performance by a Firm per Performer Type

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H6a	H6c	H6e	Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm revenue
H6b	H6d	H6f	Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm profits

Table 23: Summary of Results, Hypothesis 5

H6 - TOTAL ALLIANCES MEDIATION BETWEEN TEAM SIZE AND FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
Team Size	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)

NS = not supported R = revenue P = profits

The results reveal that there is no mediation effect that occurs from total alliances as proposed in the main hypothesis H6 (Table 23). Unfortunately, none of the testings passed beyond the first regression step as required by Baron and Kenny (1986). As requisite, the data would have needed to show a significant effect between founding team size and total alliances, although two elements lead us to believe that a larger sample size of medium performers might have helped in reaching a significant effect between team size and total alliances, including the fact that the testing on medium performers was conducted on a relatively small sample size (n=97) and that the p-value (p-val = 0.143) was close to the 90% confidence level.

Detailed Results

Low Performers

H6a: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm revenue of low performers (not supported)

It is anticipated that the relationship between team size and revenue will be mediated by total alliances. Results show that team size has no significant impact on the creation of total alliances (p-val = 0.335, Appendix 14, Table A14-1). As this is the first requirement that needs to be met to prove the mediation effect, we conclude that total alliances do not mediate the relationship between the number of founders and firm revenue of low-performing organizations. H6a is not supported.

H6b: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm profits of low performers (not supported)

The first step in testing for the total alliances mediation effect between team size and profits involves the same variables as in H6a. As seen, founding team size is not a significant predictor of total alliances (p-val = 0.335; Appendix 14, Table A14-2). Hence, the first step of the total alliances mediating test between the number of founders and firm profits does not bring support to this sub-hypothesis. H6b is not supported.

The relationships between team size and revenue as well as team size and profits are not affected by changes in total alliances networks of low performing organizations, the reason being that the entrepreneurial team size does not significantly influence total alliances. These two variables

might not be correlated or it could also be a result of not having a greater number of entrepreneurs in teams of more than 2 and who have their alliances in more than one category.

Medium Performers

H6c: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm revenue of medium performers (not supported)

Results presented in Table A14-3 (Appendix 14), reveal team size had no significant impact on total alliances (p-val = 0.143). H6c is not supported.

H6d: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm profits of medium performers (not supported)

Total alliances do not act as a mediator between number founders and profits with medium performing organizations. The reason for this is that team size is not a predictor to total alliances (p-val = 0.143; Appendix 14, Table A14-4). H6d is not supported.

To conclude, the testing of both of these hypotheses, H6c and H6d, was limited to the first step of the Baron and Kenny (1986) approach. Considering that the sample size is relatively small (n=97), we believe necessary to highlight that the results were not that far from the 90% confidence level (p-val = 0.143 > α). Moreover, a significant outcome might have occurred, should the sample size been larger. Especially, when we look back at the reported results on low performers (p-val = 0.335 > α), which includes a larger sample size (n=605) and have the exact

same variables. Overall, total alliances produced no mediation effect on the relation between founding team size-revenue as well as founding team size-profits.

High Performers

H6e: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm revenue of high performers (not supported)

When I examined the potential mediation effect of total alliances on the relationship between founding team size and revenue, it was observed that no mediation is occurring. In fact, team size does not significantly influence total alliances (p-val = 0.612, Appendix 14, Table A14-5). Thus, H6e is not supported.

H6f: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm profits of high performers (not supported)

Results also show that there is no mediation between the number of total alliances and the relationship number of founders/profits (p-val = 0.612; Appendix 14, Table A14-6). H6f is not supported.

4.9 Hypothesis 7

H7: The formation of total alliances networks impacts firm financial performance in an inverse U-Shaped pattern.

To verify hypothesis 7, six sub-hypotheses were tested (Table 24).

Table 24: Hypothesis 7 – Total Alliances Networks Impacts Firm Financial Performance in an Inverse U-Shaped Pattern per Performer Type

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H7a	H7c	H7e	The formation of total alliances networks impacts firm revenue in an inverse U-Shaped pattern
H7b	H7d	H7f	The formation of total alliances networks impacts firm profits in an inverse U-Shaped pattern

To validate these relationships, I used a hierarchical regression to test for one bend in the regression line. I also used a curvilinear regression analysis to obtain the scatter plot illustrating the potential inverted U-shaped pattern.

The first step in these analyses involved capturing the non-linear effect and testing for the bend on the regression line. To do so, I created a variable that represents the quadratic function. More specifically, to test for that bend on the regression line, each independent variable is squared and added to the regression equation. The squared independent variable represents the bend on the regression line. These tests were done for total alliances as predictors while revenues and profits as dependent variables.

Table 25: Summary of Results, Hypothesis 7

H7 – INVERSE U-SHAPED IMPACT OF ALLIANCES AND FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
Revenue	S ($\beta_{squared\_total\_alliances}$ = -0.213)	NS	S ($\beta_{squared\_total\_alliances}$ = -0.532)
Profits	NS	NS	NS

S = supported NS = not supported

The results demonstrate the relationship between total alliances on revenue is characterized by an inverted U-shaped pattern for both low performers and high performers (Table 25). The results, however, did not show the same inverted U-shaped relationship for profits. The inverted U-shaped pattern was not observed for revenues or profits for medium performers.

Detailed Results

Low Performers

H7a: The formation of total alliances networks within low performing organizations impacts firm revenue in an inverse U-Shaped pattern (supported)

Two sets of results are seen in Table A15-1. The first set, model 1, defines the relation between the non-quadratic line, which only includes the original total alliances variable. The second set, model 2, captures the regression line testing for the bend on the squared total alliances. I observed that the beta weight for plain total alliances variable is positive while the beta weights for the squared total alliances is negative (β = -0.213, Appendix 15, Table A15-1), which suggested there is an inverted U-shaped relationship. The quadratic line in the scatterplot (Figure A15-1,

Appendix 15) confirms that the relationship between total alliances and firm revenue is defined by an inverse U-shaped pattern.

These findings lead to suggest there are an optimal number of alliances for a firm that will maximize revenue. H7a is supported.

H7b: The formation of total alliances networks within low performing organizations impacts firm profits in an inverse U-Shaped pattern (not supported)

When looking at the results in Table A15-2 and Figure A15-2 (Appendix 15), the relationship between total alliances and firm profit is characterized by a U-shaped pattern. In fact, it is observed in Table A15-2 that the plain total alliances variable is negative and its squared variable is positive ($\beta = 0.081$, Table A15-2), which translates into a U-shaped line. As demonstrated by the scatterplot in Figure A15-2, ventures that limited their total alliances to one category obtain a far lesser amount of profits compared to ventures that diversified their total alliances in more than one category of alliances. This shows a positive relationship between the number of alliances and profits, but does not support the inverse U-shaped pattern and does not support H7b.

Medium Performers

H7c: The formation of total alliances networks within medium performing organizations impacts firm revenue in an inverse U-Shaped pattern (not supported)

It is anticipated that there are an optimal number of total alliances categories that medium performers should have to yield higher levels of revenues. Contrary to what is being hypothesized, the findings demonstrate a positive value is associated to the plain total alliances variable and a negative value is generated by the squared total alliances (Table A15-3, Appendix

15). This shows that the formation of total alliances follows a regular U-shaped pattern related to revenues (Figure A15-3, Appendix 15) H7c is not supported.

H7d: The formation of total alliances networks within medium performing organizations impacts firm profits in an inverse U-Shaped pattern (not supported)

Results in Table A15-4 and Figure A15-4 (Appendix 15) show that there is an absence of a non-linear curve on the regression line. Both the plain total alliances variable and its squared product are disproving all curvilinear effect through their negative values. Therefore, H7d is not supported.

High Performers

H7e: The formation of total alliances networks within high performing organizations impacts firm revenue in an inverse U-Shaped pattern (supported)

The high performers' results confirm total alliances networks impact on revenue follows an inverted U-shape pattern. This is evidenced in Table A15-5 (Appendix 15), Model 2, whereby the beta weight for plain total alliances variable is positive and the beta weight for the squared variable is negative ($\beta = -0.532$), which suggest an inverted U-shaped relationship. Moreover, as seen in Figure A15-5 high-performing companies that have no alliances obtain fewer revenue levels when compared to the companies whose total alliances are placed in 1 or 2 network categories. This is followed by a downward trend for companies who have total alliances in a greater number of categories. It suggests that forming alliances in too many different categories is not optimal for the revenues of high performing organizations, as profits tend to start declining. H7e is supported.

H7f: The formation of total alliances networks within high performing organizations impacts firm profits in an inverse U-Shaped pattern (not supported)

The impact of total alliances on profits is expected to follow an inverse U-shaped pattern. Findings in Table A15-6 and Figure A15-6 (Appendix 15) show that both plain total alliances and its squared variable are positive. Thus, no curvilinear effect was found. H7f is not supported.

4.10 Hypothesis 8

H8: Industry type moderates the relationship between alliance networks and firm financial performance.

It is hypothesized that industry type will positively enhance the effect of certain types of alliances networks on the firm financial performance. More specifically, I was interested in seeing how high technology and low technology activity sectors (industry type) influence the relationship between alliances networks and firm financial performance. Will low technology firms mostly benefit from alliances formed with the university? Do high technology firms benefit more from networks they created with other companies and the government? These are the types of relations that will be looked at through the 30 sub-hypotheses in H8 (Table 26).

Table 26: Hypothesis 8 – Industry Type as a Moderator Between Alliance Networks and Firm Financial Performance by a Firm per Performer Type

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H8a	H8c	H8e	Industry type moderates the relationship between alliance networks and firm revenue
H8a1	*H8c1*	*H8e1*	- *Industry type moderates the relationship between university alliances networks and firm revenue*
H8a2	*H8c2*	*H8e2*	- *Industry type moderates the relationship between company alliances networks and firm revenue*
H8a3	*H8c3*	*H8e3*	- *Industry type moderates the relationship between government alliances networks and firm revenue*
H8a4	*H8c4*	*H8e4*	- *Industry type moderates the relationship between total alliances networks and firm revenue*
H8b	H8d	H8f	Industry type moderates the relationship between alliance networks and firm profits
H8b1	*H8d1*	*H8f1*	- *Industry type moderates the relationship between university alliances networks and firm profits*
H8b2	*H8d2*	*H8f2*	- *Industry type moderates the relationship between company alliances networks and firm profits*
H8b3	*H8d3*	*H8f3*	- *Industry type moderates the relationship between government alliances networks and firm profit*
H8b4	*H8d4*	*H8f4*	- *Industry type moderates the relationship between total alliances networks and firm profits*

Two methods were used to test this hypothesis: the analysis of variance (ANOVA) and the moderated multiple regression. As per Baron and Kenny (1986), I used an ANOVA to test the moderation effect between one categorical independent variable (e.g., university alliances, company alliances, and government alliances), one categorical moderator (e.g., industry type) and one continuous dependent variable (e.g., revenue or profits).

I used the moderated multiple regression approaches which captures if the effect of an independent variable on a dependent variable is depending upon a third variable (moderator) to test total alliances. The first step implies conducting a multiple regression including both independent and moderating variable ($Y' = \beta_0 + \beta_1 X + \beta_2 M + e$). The second step entails verifying for the multicollinearity effect with a correlation analysis. The third step consists in performing a multiple regression that includes the interaction of the predictors ($Y' = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 X * M + e$). To accomplish this, I created a moderator factor by centralizing both independent and moderating variables around their respective means by using their standardized values to then multiply them together to obtain the moderator factor ($\beta_3 X * M$). I then regressed the moderating variable with the moderator factor to validate the nature of the moderating effect ($Y' = \beta_0 + \beta_2 M + \beta_3 X * M + e$). There are two ways to evaluate if the interaction is present. The first one implies testing whether the coefficient β_3 differs significantly from zero. The second way entails testing to see if the increment in the adjusted R^2 in the model $Y' = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 X * M + e$ that is given by the interaction is significantly greater than zero.

Table 27: Summary of Results, Hypothesis 8

H8 – INDUSTRY MODERATION BETWEEN ALLIANCES AND FINANCIAL PERFORMANCE			
	Low Performers	Medium Performers	High Performers
University	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Company	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Government	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Total Alliances	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)

NS = not supported R = revenue P = profits

The analysis did not demonstrate the relationship between alliance networks and firm financial performance for low, medium and high performing organizations. This lack of support for this hypothesis is not that surprising considering that relatively small sample sizes of high technology companies as well as for university and government alliances. However, the testing done on high performers helped uncover that industry type carries the main effect within the university-revenue, company-revenue and government-revenue relationships. This suggests that a proportion of the changes in the revenue means of high performing organizations are due to the main effect of industry type.

Low Performers

H8a: Industry type moderates the relationship between alliance networks and firm revenue of low performers

H8a1: Industry type moderates the relationship between university alliances networks and firm revenue of low performers (not supported)

It is expected that industry type will be moderating the relationship between university alliances and revenue. As it can be seen in Figure A16-1 (Appendix 16), it first appears that low performers, who have university alliances and whose business is in the non-technology activity sector, perform better from a revenue perspective than high technology firms with university alliances. Conversely, it also appears that low performers who have not formed university alliances and whose business is in the high technology domain produce greater revenue means than non-high technological companies that have no university alliances. Moreover, the magnitude of the difference, between low performers who have university alliances and those that do not, specific to the high technology sector seems greater than low performing companies

operating in the non-technology activity sector. However, the results of the Tests of Between-Subjects Effects reveal there is no significant interaction effect (p-val = 0.269 > α; Appendix 16, Table A16-1). This means that industry type does not carry a moderation effect within the university alliances-revenue relationship. H8a1 is not supported.

H8a2: Industry type moderates the relationship between company alliances networks and firm revenue of low performers (not supported)

As seen in Figure A16-2 (Appendix 16), low performing organizations with company alliances networks have greater revenue means across regardless of their industry type (e.g., high technology firms and low technology firms) than low performing organizations without company alliances. However, these results combined with the Tests of Between-Subjects Effects show no significant interaction effect (p-val = 0.901 > α; Appendix 16, Table A16-2). No moderation is supported in terms of industry type in the company alliances-revenue relationship, which disconfirms sub-hypothesis H8a2.

H8a3: Industry type moderates the relationship between government alliances networks and firm revenue of low performers (not supported)

It is anticipated the industry type, whether a company is in a high-technology activity sector or in a low-technology activity sector, will moderate the relationship between government alliances and revenue. Findings in Figure A16-3 (Appendix 16) show that low-performing organizations that have government alliances have fewer revenue means than low performing companies that do not have government networks. Nevertheless, no significant interaction effect was found to support the moderation of industry type on the government alliances-revenue relationship (p-val = 0.948 > α; Appendix 16, Table A16-3). H8a3 is not supported.

H8a4: Industry type moderates the relationship between total alliances networks and firm revenue of low performers (not supported)

As seen in Table A16-4 (Appendix 16) the findings suggest industry type and total alliances are not a predictor of revenue (p-val = 0.610 > α). Consequently, no moderation effect could be further tested and H8a4 is rejected.

H8b: Industry type moderates the relationship between alliances networks and firm profits of low performers.

H8b1: Industry type moderates the relationship between university alliances networks and firm profits of low performers (not supported)

Industry type does not moderate the relationship between university alliances-profits. In fact, the Tests of Between-Subjects Effects show there is no significant interaction effect within this model (p-val = 0.328 > α; Appendix 16, Table A16-5). H8b1 is not supported.

H8b2: Industry type moderates the relationship between company alliances networks and firm profits of low performers (not supported)

Results also lack to demonstrate the presence of a significant interaction occurring between industry type and company alliances networks (p-val = 0.554 > α; Appendix 16, Table A16-6). This grants no support to H8b2.

H8b3: Industry type moderates the relationship between government alliances networks and firm profits of low performers (not supported)

No significant interaction effect was found to confirm the moderation of industry type on the relation between government alliances-profits (p-val = 0.159 > α; Appendix 16, Table A16-7). H8b3 is not supported.

H8b4: Industry type moderates the relationship between total alliances networks and firm profits of low performers (not supported)

I anticipate that the industry type of a low-performing organization will moderate the relation between total alliances and profits. However, as seen in Table A16-8 (Appendix 16) total alliances and industry type have no significant impact on profits (p-val = 0.481 > α). Therefore, the moderation analysis cannot be pursued. H8b4 is not supported.

As per the findings, industry type does not moderate any of the relationships between corporate alliances, with universities, other companies or the government, and firm revenues including profits. Moreover, the findings lack to demonstrate total alliances and industry type have a significant effect on profits as well as revenues. This inhibited me from testing further for the industry type moderating effect. One probable reason could be because the sample has a very limited number of companies that operate in the high-technology sector (12%).

Medium Performers

H8c: Industry type moderates the relationship between alliance networks and firm revenue of medium performers

H8c1: Industry type moderates the relationship between university alliances networks and firm revenue of medium performers (not supported)

Results pertaining to medium performers in Table A16-9 (Appendix 16) show industry type carries no moderating effect over the relationship between university alliances-revenue (p-val = 0.895 > α). H8c1 cannot be supported.

H8c2: Industry type moderates the relationship between company alliances networks and firm revenue of medium performers (not supported)

The results of the Tests of Between-Subjects Effect failed to generate significant results for the interaction effect between industry type, company alliances and revenues (p-val = 0.274 > α; Appendix 16, Table A16-10). H8c2 is not supported.

H8c3: Industry type moderates the relationship between government alliances networks and firm revenue of medium performers (not supported)

As seen in Table A16-11 (Appendix 16), the industry type does not have a moderating role in the relationship between government alliances and revenues (p-val = 0.458 > α). This is not surprising, as only 6% of medium performing organizations had signed alliances with the government. Sub-hypothesis H8c3 is disconfirmed.

H8c4: Industry type moderates the relationship between total alliances networks and firm revenue of medium performers (not supported)

Total alliances and industry type were not found to be significant predictors of revenue (p-val = 0.672 > α; Appendix 16, Table A16-12). This voids all remaining steps needed to validate for the moderation effect. H8c4 is not supported.

H8d: Industry type moderates the relationship between alliances networks and firm profits of medium performers

H8d1: Industry type moderates the relationship between university alliances networks and firm profits of medium performers (not supported)

The results of the Test of Between-Subjects Effects did not produce an interaction effect. Consequently, industry type has no moderating influence on the university alliances-profits relation (p-val = 0.528 > α; Appendix 16, Table A16-13). H8d1 is not supported.

H8d2: Industry type moderates the relationship between company alliances networks and firm profits of medium performers (not supported)

The results disconfirm the presence of a significant interaction from industry type on the company alliances-profits relationship (p-val = 0.510 > α; Appendix 16, Table A16-14). H8d2 is not supported.

H8d3: Industry type moderates the relationship between government alliances networks and firm profits of medium performers (not supported)

The relationship between government alliances and profits is not moderated by industry type (p-val = 0.481 > α; Appendix 16, Table A16-15). This outcome was to be expected after having looked at the sampled medium performers. A limited number of entrepreneurs (6%) have this type alliance within their business model. Therefore, H8d3 is not confirmed.

H8d4: Industry type moderates the relationship between total alliances networks and firm profits of medium performers (not supported)

As seen in Table 98, total alliances and industry type do not have a significant impact on profits of medium performing organizations (p-val = 0.163 > α; Appendix 16, Table A16-16). This was the first step required in the moderated multiple regression approach. As such, no further moderation analysis could be tested and H8d4 is not supported. Nonetheless, the significance level is starting to get closer to the 90% confidence level with a relatively small sample size of 70.

Considering all medium performers results, it is becoming clearer that the rather small sample size combined with the small and unbalanced number of entrepreneurs who have government and company alliances and who operate in the high-technology industry is impacting the results.

The research findings have demonstrated industry type does not interact as a moderator in the network alliances and firm financial performance. However, it was seen that the relationship between total alliances and industry on profits produced a p-value that was starting to get closer to the 90% confidence, all with a very small sample size of 70. Still, all these results lead to rejecting H8b and H8c. The next section will examine if industry type moderates the relation between alliances and firm financial performance of high performing organizations.

High Performers

H8e: Industry type moderates the relationship between alliance networks and firm revenue of high performers

H8e1: Industry type moderates the relationship between university alliances networks and firm revenue of high performers (not supported)

No significant interaction effect was found to support the moderation of industry type on the university alliances-revenue relationship (p-val = 0.387 > α; Appendix 16, Table A16-17) of high performing organizations. H8e1 is not supported.

Although no direct support to the sub-hypothesis was found, there is one element in the Tests of Between-Subjects Effects that is interesting to consider. The results show there is a significant main effect for industry type (p-val = 0.059 < α; Appendix 16, Table A16-17) at a 90% confidence level. Once more, due to the relatively small sample size and due to the fact that homogeneity of variance is not violated (p-val = 0.241 > α, Levene's Test) I feel confident in presenting these results. That being said, this suggests that 4.6% of the variability in revenues is due to industry type (Partial Eta Squared = 0.046). Figure A16-4 (Appendix 16) leads to suggest greater revenue means are occurring amongst low technology firms than with high technology firms. Yet, H8e1 is not supported but it is implied that industry type has an impact, other than a moderating one, on the revenues of high performing organizations.

H8e2: Industry type moderates the relationship between company alliances networks and firm revenue of high performers (not supported)

The Tests of Between-Subjects Effects show that the main effect of industry type on revenue is significant (p-val = 0.041 < α; Appendix 16, Table A16-18) at a 95% confidence level. This indicates that 5.3% of the variation in revenues is resulting from industry type (Partial Eta Squared = 0.053). Moreover, it appears that non-technology firms have obtained larger revenues means than those in high-technology industries (Figure A16-5, Appendix 16). However, results reveal that the effect of company alliances on revenue is not moderated by industry type. No interaction effect was found (p-val = 0.293 > α; Appendix 16, Table A16-18).

H8e2 is not supported.

H8e3: Industry type moderates the relationship between government alliances networks and firm revenue of high performers (not supported)

It is further observed in Table A16-19 (Appendix 16) that industry type carries no moderation effect in the government alliances-revenue relation (p-val = 0.443 > α). Once more, industry type has a significant main effect (p-val = 0.053 < α; Appendix 16, Table A16-19) at a 90% confidence level. Implied by this finding is that 4.9% of the variability in revenue is due to the type of industry (Partial Eta Squared = 0.049). Figure A16-6 (Appendix 16) shows as well that greater revenue means are occurring in the low-technology industry within the government alliances-revenue relationship. Yet, H8e3 cannot be supported as no interaction was found between industry type and government alliances networks.

H8e4: Industry type moderates the relationship between total alliances networks and firm revenue of high performers (not supported)

As seen in Table A16-20 (Appendix 16), the findings bring to evidence that industry type does not produce a moderating effect on the total alliances-revenue relationship. In fact, no significant effect is seen when moderating factor, Moderator3, is added into the model (Moderator3 p-val = 0.230 > α; Table A16-20). Thus, industry type does not strengthen or weaken the influence of total alliances networks on high performers' revenue. H8e cannot be supported.

H8f: Industry type moderates the relationship between alliances networks and firm profits of high performers.

H8f1: Industry type moderates the relationship between university alliances networks and firm profits of high performers (not supported)

No significant interaction is seen to occur when examining the impact of industry type as a potential moderator in the university alliances-profits relationship (p-val = 0.429 > α; Appendix 16, Table A16-21). This thereby disconfirms the moderation effect assumption that was anticipated in H8f1.

H8f2: Industry type moderates the relationship between company alliances networks and firm profits of high performers (not supported)

The industry type of high performing organizations does not moderate the relationship between company alliances-profits relationship (p-val = 0.418 > α; Appendix 16, Table A16-22). H8f2 is disconfirmed.

H8f3: Industry type moderates the relationship between government alliances networks and firm profits of high performers (not supported)

The Tests of Between-Subjects Effects fail to show a significant interact effect between industry type and government alliances in the government alliances-profits relation (p-val = 0.766 > α; Appendix 16, Table A16-23). This leads to rejecting H8f3 as no industry type moderating effect was obtained in the findings.

H8f4: Industry type moderates the relationship between total alliances networks and firm profits of high performers (not supported)

Results reveal that total alliances networks and industry type are not significant predictors of profits (p-val = 0.641 > α; Appendix 16, Table A16-24). Consequently, the testing for the industry type moderation effect cannot be pursued. H8f4 is not supported.

4.11 Hypothesis 9

H9: Firm location moderates the relationship between alliance networks and firm financial performance.

It is hypothesized that the location of the firm, based on the US census regions and divisions, moderates the effect of alliance networks on firm financial performance. All models containing the categorical moderator "US census regions type" with a categorical predictor (e.g., university alliances, company alliances and government alliances) are tested with a series of ANOVA tests as per Baron and Kenny (1986). All models with total alliances are tested through the moderated multiple regression approach.

The tests were initially conducted on US census regions and divisions. However, the testing on US divisions produced same outcomes as the US census regions. Therefore, the following detailed results will focus on US census regions. The results on US census divisions are available in Appendix 17. Four US census regions are part of this research: Northeast, Midwest, South and West.

More specifically 30 sub-hypotheses, in Tables 28 and 29, are tested to validate H9.

Table 28: US Census Regions Moderating Effect on the Alliance Network/Revenue Relationship

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H9a	H9c	H9e	Firm US census regions moderate the relationship between alliance networks and firm revenue
H9a1	H9c1	H9e1	- Firm US census regions moderate the relationship between university alliances networks and firm revenue
H9a2	H9c2	H9e2	- Firm US census regions moderate the relationship between company alliances networks and firm revenue
H9a3	H9c3	H9e3	- Firm US census regions moderate the relationship between government alliances networks and firm revenue
H9a4	H9c4	H9e4	- Firm US census regions moderate the relationship between total alliances networks and firm revenue

Table 29: US Census Regions Moderating Effect on the Alliance Network/Profits Relationship

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H9b	H9d	H9f	Firm US census regions moderate the relationship between alliance networks and firm profits
H9b1	H9d1	H9f1	- Firm US census regions moderate the relationship between university alliances networks and firm profits
H9b2	H9d2	H9f2	- Firm US census regions moderate the relationship between company alliances networks and firm profits
H9b3	H9d3	H9f3	- Firm US census regions moderate the relationship between government alliances networks and firm profits
H9b4	H9d4	H9f4	- Firm US census regions moderate the relationship between total alliances networks and firm profits

Table 30: Summary of Results, Hypothesis 9

H9 – FIRM LOCATION MODERATION			
	Low Performers	Medium Performers	High Performers
University	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Company	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Government	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)
Total Alliances	NS (R) NS (P)	NS (R) NS (P)	NS (R) NS (P)

S = supported PS = partially supported NS = not supported R = revenue P = profits

Firm locations did not show any moderating effect

As it will be seen, firm regions do not moderate the relationships between the various network alliances and firm revenues and profits (Table 30). However, through the testing it is revealed that firm regions have a different impact on the revenues of medium performing organizations. These organizations are mainly located in the South (30%) and the Midwest (28%).

Detailed Results

Low Performers

H9a1 Firm US census regions moderate the relationship between university alliance networks and firm revenue of low performers (not supported)

H9a2 Firm US census regions moderate the relationship between company alliance networks and firm revenue of low performers (not supported)

H9a3 Firm US census regions moderate the relationship between government alliance networks and firm revenue of low performers (not supported)

H9a4 Firm US census regions moderate the relationship between total alliances networks and firm revenue of low performers (not supported)

The first set of sub-hypotheses validates whether firm region moderates the alliances (i.e., university, company, government and total alliances) and revenue relationships. No significant interaction effect was found to support the moderation of US census regions on the university alliances-revenue (p-val = 0.377 > α; Appendix 18, Table A18-1), company alliances-revenue (p-val = 0.767 > α; Appendix 18, Table A18-2) and government alliances-revenue relationships (p-val = 0.561 > α; Appendix 18, Table A18-3). Consequently, these results disconfirm the sub-hypotheses H9a1, H9a2, and H9a3.

Moreover, the findings reveal that US census regions and total alliances are not significant predictors of revenue (p-val = 0.607 > α, Appendix 18, Table A18-4). As a result, no moderation effect can further be tested, as this was the first step needed to validate for the moderation effect.

H9a is not confirmed as no significant evidence was found in H9a1, H9a2, H9a3 and H9a4.

H9b1 Firm US census regions moderate the relationship between university alliance networks and firm profits of low performers (not supported)

H9b2 Firm US census regions moderate the relationship between company alliance networks and firm profits of low performers (not supported)

H9b3 Firm US census regions moderate the relationship between government alliance networks and firm profits of low performers (not supported)

H9b4 Firm US census regions moderate the relationship between total alliances networks and firm profits of low performers (not supported)

Similarly, to the revenue models findings, the results do not show an interaction effect between US census regions and the university alliances-profits relationship (p-val = 0.313 > α; Appendix 18, Table A18-5). The same outcome was obtained with the company alliances-profits (p-val = 0.745 > α; Appendix 18, Table A18-6) and government alliances- profits (p-val = 0.245 > α; Appendix 18, Table A18-7) relations. Clearly, firm regions have no moderating effect over these relationships as no significant interaction effects were obtained.

In addition, the findings on Table A18-8 (Appendix 18) demonstrate that US census regions and total alliances do not significantly impact firm profits (p-val = 0.356 > α) of low-performing organizations. Consequently, the moderation effect of US census regions could not be tested as no significant impact was captured in the first step of the moderated multiple regression approach. H9b is not confirmed as no significant evidence was found in H9b1, H9b2, H9b3 and H9b4.

To sum up, these findings demonstrate firm regions do not moderate any of the relationships between network alliances, with learning institutions, other companies, government institutions or total alliances, and firm profits as well as revenues. As a reminder, there are only 7% of low performers that have created alliances with universities, 2% with government institutions while 67% of these entrepreneurs are operating their businesses without any alliances networks. These might have had an incident in the findings. More specifically, a more balanced representation of university, company and government alliances might have produced different results. Moreover, the findings showed that total alliances and firm regions have no impact over profits and revenues of low-performing organizations.

Medium Performers

H9c1 Firm US census regions moderate the relationship between university alliance networks and firm revenue of medium performers (not supported)

H9c2 Firm US census regions moderate the relationship between company alliance networks and firm revenue of medium performers (not supported)

H9c3 Firm US census regions moderate the relationship between government alliance networks and firm revenue of medium performers (not supported)

H9c4 Firm US census regions moderate the relationship between total alliances networks and firm revenue of medium performers (not supported)

It is anticipated the relationships between network alliances, with universities, government institutions, with other companies and total alliances, and firm revenues are all moderated by firm regions. To confirm the moderating effect of firm regions, a significant interaction effect must be found in the models that include university alliances, company alliances, and government alliances.

Results lack to demonstrate a significant interaction occurring between US census regions and university alliances-revenue (p-val = 0.631 > α; Appendix 18, Table A18-9), company alliances-revenue (p-val = 0.379 > α; Appendix 18, Table A18-10) and government alliances-revenue (p-val = 0.995 > α; Appendix 18, Table A18-11) relationships.

Furthermore, the last set of results shows that total alliances and US census regions significantly impact firm revenue (p-val = 0.021 < α; Appendix 18, Table A18-12) of medium performing organizations. This is the requirement that must be fulfilled in order to test for the actual moderating effect of firm regions. Nonetheless, the findings indicate that firm regions do not have

a moderating role in the total alliances-revenue relationship ($p\text{-val}_{H9rModerator2} = 0.660 > \alpha$; Step 3, Table A18-12, Appendix 18).

These findings do not give support to H9c as H9c1, H9c2, H9c3 and H9c4 are not supported.

H9d1 Firm US census regions moderate the relationship between university alliance networks and firm profits of medium performers (not supported)

H9d2 Firm US census regions moderate the relationship between company alliance networks and firm profits of medium performers (not supported)

H9d3 Firm US census regions moderate the relationship between government alliance networks and firm profits of medium performers (not supported)

H9d4 Firm US census regions moderate the relationship between total alliances networks and firm profits of medium performers (not supported)

The results in the Tests of Between-Subjects Effects show no significant interaction effect. Thus, US census regions does not have a moderating power in the university alliances-profits (p-val = 0.378 > α; Appendix 18, Table A18-13), company alliances-profits (p-val = 0.228 > α; Appendix 18, Table A18-14) and government-alliances-profits (p-val = 0.517 > α; Appendix 18, Table A18-15) relationships, which disconfirms H9d1, H9d2 and H9d3.

Furthermore, US census regions and total alliances do not act as significant predictors of profits (p-val = 0.736 > α; Appendix 18, Table A18-16). This was the first step that needed to be fulfilled in order to test for the moderation effect. Consequently, H9d is not supported.

To recapitulate, this research suggests firm regions hold no moderating power on the network alliances, which are specific to universities, other companies, government and total alliances, and firm financial performance both in terms of revenues and profits. There is a good distribution of new ventures across the four US census regions. However, this was not the case for the proportion of entrepreneurs that have established network alliances. Probably a more balanced representation of alliances networks and a larger sample size could have helped the results. Additionally, although no moderation effect was found with regions between the total alliances and revenue it was evidenced that total alliances and firm regions significantly impact firm revenues. Overall, these findings lead to the rejection of H9c and H9d.

High Performers

H9e1 Firm US census regions moderate the relationship between university alliance networks and firm revenue of high performers (not supported)

H9e2 Firm US census regions moderate the relationship between company alliance networks and firm revenue of high performers (not supported)

H9e3 Firm US census regions moderate the relationship between government alliance networks and firm revenue of high performers (not supported)

H9e4 Firm US census regions moderate the relationship between total alliances networks and firm revenue of high performers (not supported)

It is hypothesized that firm regions have a moderating role in the network alliances and firm revenue. To validate this assumption, the results on the Tests of Between-Subjects Effects must show a significant interaction between network alliances and firm regions. As per the findings, no significant interaction effects were found to support the moderation of firm regions over the university alliances-revenue (p-val = 0.943 > α; Appendix 18, Table A18-17), company alliances-

revenue (p-val = 0.937 > α; Appendix 18, Table A18-18) and in the government alliances-revenue (p-val = 0.727 > α; Appendix 18, Table A18-19) relationships.

Moreover, results on Table A18-20 (Appendix 18) are also demonstrating that total alliances and US census regions do not significantly impact the firm's revenue (p-val = 0.453 > α) of high performing organizations. A significant effect was required in order to validate the potential moderations by firm regions. Thus, no moderation effect could be tested.

All of these findings bring no support to H9e as H9e1, H9e2, H9e3 and H9e4 are disconfirmed.

H9f1 Firm US census regions moderate the relationship between university alliance networks and firm profits of high performers (not supported)

H9f2 Firm US census regions moderate the relationship between company alliance networks and firm profits of high performers (not supported)

H9f3 Firm US census regions moderate the relationship between government alliance networks and firm profits of high performers (not supported)

H9f4 Firm US census regions moderate the relationship between total alliances networks and firm profits of high performers (not supported)

The firm region is expected to act as a moderator in all network alliances and profits relationships pertaining to high performing organizations. It is observed that the relationships between university alliances and profits (p-val = 0.680 > α; Appendix 18, Table A18-21), company alliances and profits (p-val = 0.998 > α; Appendix 18, Table A18-22) as well as government alliances and profits (p-val = 0.362 > α; Appendix 18, Table A18-23) are all relationships that are

not being moderated by US Census regions. In fact, no significant interaction effects were obtained from these alliances and firm regions. Moreover, the results reveal that total alliances and US census regions (p-val = 0.702 > α; Appendix 18, Table A18-24) are not a significant predictor of profits. Subsequently, no moderation effect was further tested. All these findings do not support H9f.

These results disconfirm the potential role of firm regions as a moderator in the relationships between network alliances (university, company, government, total alliances) and firm revenues and profits. This could be due to the relatively small sample size (n=64 and n=65) as well as to the unbalanced proportion of high performers that have alliances in more than one network category (13%) or that have created alliances with the government (10%) and university institutions (10%).

Overall, the research findings have shown firm location is not a moderator of network alliances and firm financial performance thereby disconfirming H9. However, it was uncovered that total alliances and firm regions are significant predictors of revenues. This result was obtained on the sampled medium performers and hints that regions might be having a different role in the creation of revenues than what was hypothesized.

CHAPTER 5 – DISCUSSION

5.1 The Impact of Entrepreneurial Background on Firm Financial Performance

Table 31 – Summary of the Results of Hypothesis 1

H1: Entrepreneurial background impacts firm financial performance.   *Low Performers* - Entrepreneurial background impacts revenues (p-val = 0.008 < α = 0.05) (H1a). - Entrepreneurial background does not impact profits (p-val = 0.066 > α = 0.05) (H1b).   *Medium Performers* - Entrepreneurial background does not impact revenues (p-val = 0.372 > α = 0.05) (H1c). - Entrepreneurial background impacts profits (p-val = 0.048 < α = 0.05) (H1d).   *High Performers* - Entrepreneurial background does not impact revenues (p-val = 0.545 > α = 0.05) (H1e). - Entrepreneurial background does not impact profits (p-val = 0.331 > α = 0.05) (H1f).
The industry experience of the founding entrepreneur has a positive impact on the firm financial performance - Industry experience does not impact revenues of low performing organizations (p-val = 0.343 > α = 0.05) (H1a1). - Industry experience impacts profits of medium performing organizations (p-val = 0.074 < α = 0.10); its impact is positive (β = 0.155) (H1d1).
The education level of the founding entrepreneur has a positive impact on the firm financial performance. - Education does not impact revenues of low performing organizations (p-val = 0.343 > α = 0.05) (H1a2). - Education impacts profits of medium performing organizations (p-val = 0.054 < α = 0.10); its impact is positive (β = 0.167) (H1d2).
The start-up experience of the founding entrepreneur has a positive impact on the firm financial performance. - Start-up experience significantly impacts revenues of low performing organizations (p-val = 0.003 < α = 0.05); its impact is positive (β = 0.080) (H1a3). - Start-up experience does not impact profits of medium performing organizations (p-val = 0.935 > α = 0.05) (H1d3).

According to Sandberg and Hofer (1987), previous research has not demonstrated any conclusive link between the success of new ventures and biographical backgrounds such as education, age, and managerial/entrepreneurial experience. In this research, we were able to measure entrepreneurial background composed of three measurable components: industry experience, education and start-up experience. While there were some linkages found between entrepreneurial experience and financial performance, the results are also not conclusive across all businesses and are therefore difficult to generalize. There were some linkages between entrepreneurial experience background within the low and medium-performing groups, but notably nothing significant was found amongst the highest-impact high-performing group.

Amongst the low and medium performing groups, I found mixed and somewhat contradictory results. For the low performing group, overall entrepreneurial background was found to have a positive impact on firm revenue but not on profits. Specifically, industry experience and start-up experience (but not education) had a positive impact on revenue but again not on profits. For the medium performing group, the impact of entrepreneurial background impacted profits positively, but not revenues with education have the greatest impact ($\beta = 0.167$) affecting profits followed by industry experience ($\beta = 0.155$), while start-up experience was not significant.

What explains the similarities and contrasting differences between the low and medium performing group of companies? Overall, the results show that entrepreneurial background indeed does have some impact on financial performance for the vast majority of businesses; however, it is safe to say that this is only one contributing factor amongst many in the individual-opportunity nexus (Shane, 2003). For the low performing companies the financial impact of

entrepreneurial background impacts revenues while for the medium performing companies the impact was on profits. What can explain this difference? One potential reason that might explain this difference is that a majority of the smaller, low-performing businesses are services that owned and operated by one person and have limited sizes (revenues of less than $850,000 in year 7), therefore they have very few employees or may only be a type of self-employment for the owner. Given that, the "profits" for these small businesses may be a misleading measure, particularly in the case where the owner would likely take most of the profits in salary. On the other hand, the medium businesses are larger and most have more than one owner; hence the measure of profitability is probably a more accurate reflection of business success.

Industry experience had a positive impact on financial performance for both low and medium performers, suggesting that it is an important element in the background of an entrepreneur that impacts success. The notion that having industry experience and knowledge is a valuable precursor to starting a business in a similar area makes inherent sense and the results bear this out. Of these, it is important to keep in mind, once again, that this is only one building block in the creation of a successful new venture.

It was also interesting to note that education played a more important and determining role in the financial success of the medium-performing businesses but not for the low performers. This suggests that education may be a more important factor in entrepreneurial success than has been shown in previous research. Perhaps education becomes more important as business reach a larger size where they need to hire people, put in place systems, form alliances and generally run a more complicated operation than a business with one or very few employees. The impact that

education (and what type of education) has on entrepreneurial performance is an area that may merit further research exploration.

As for the companies that have the most economic impact, the high-performers, we were not able to find any significant relationship between entrepreneurial background and financial performance. What does this finding tell us? Why is this group different from the other two? Perhaps the sample size and wide variation in company performance makes this difficult to measure or, more likely, there is no clear background that determines what it takes for to create the next entrepreneurial success story. The fact that the group of high-performers did not differ greatly from the other two groups, with the exception of previous start-up experience suggests that there is no easy way to determine success based solely on background. The stories of success for companies that truly break out from the pack are relatively few and, as we know from the popular business press, there have been great success stories from individuals with vastly ranging levels of experience and education.

5.2 The Impact of Founding Entrepreneurial Team Size on Firm Financial Performance

Table 32 – Summary of the Results of Hypothesis 2

H2: Founding entrepreneurial team size impacts firm financial performance.

Low Performers

- Founding entrepreneurial team size impacts positively firm revenues (p-val 0.000 < α = 0.05); its impact is positive (t = |6.858|) (H2a).
- Founding entrepreneurial team size impacts positively firm profits (p-val 0.042 < α = 0.05); its impact is positive (t = |2.036|) (H2b).

Medium Performers

- Founding entrepreneurial team size does not impact firm revenues (p-val 0.873 > α = 0.05) (H2c).
- Founding entrepreneurial team size impacts positively firm profits (p-val 0.002 < α = 0.05); its impact is positive (t = |3.132|) (H2d).

High Performers

- Founding entrepreneurial team size does not impact firm revenues (p-val 0.164 > α = 0.05) (H2e).
- Founding entrepreneurial team size impacts positively firm profits (p-val 0.041 < α = 0.05); its impact is positive (t = |2.069|) – H2f.

The research of Colombo and Grilli (2005) concluded entrepreneurial team size is strongly correlated with new venture success. The present research confirms and reinforces this important finding. While the background of the founding entrepreneur as a determinant of new venture success may be of some value, perhaps the team size and composition are more important formative conditions for a successful new venture.

In looking at the formative conditions that separate the low-performing companies and the medium and high performers, we note several key elements. The majority of the low performers are service-based businesses started by sole owners in their home or garage. On the other hand, the medium and high performers are started by more than one owner in a leased or owned

location and have a higher percentage of scalable manufacturing or distribution companies that have inherent scalability. This stark contrast suggests that a founding entrepreneurial team is an important building block that helps the business grow and creates a "net effect" where more contacts are made and more opportunities can be seized.

The results in this study confirm that the number of founding owners has a significant impact on profits across and within all three groupings of companies. With respect to low performers, the size of their entrepreneurial ($t = |6.858|$) also impacted, to a greater degree, their revenue levels than profits. For the medium and high performers there was no significant impact found between team size and revenues. As it was demonstrated in the findings, an additional one-unit increase in the size of the founding team would lead to a $59,958 unit increase in the profits amongst medium performers, $55,944 unit increase for high performers and $4,052 unit increase for low performers.

These findings lead me to believe that the early stages of a new venture creation, especially the core team formation, are very critical in the building block of the new venture team, which as mentioned by Capelleras and Greene (2008) and Yang and Aldrich (2016) are part of the formative conditions to set the path of success.

Why do businesses that start with partners succeed more than solo ventures? This is an area that merits further research, particularly in terms of how teams are formed and what constitutes an ideal team size and composition. It is, however, evident that there are several numerous potential benefits to team formation including more initial capital, additional human resources, larger network of contacts, ability to brainstorm, challenge, validate and build a coherent strategy, and

access to more potential partners to name but a few. Clearly a new venture built with team form the beginning, while not without its pitfalls, is certainly a valuable building block for new ventures.

5.3 The Impact of Entrepreneurial Background on the Degree of Alliance Networks Formed by a Firm

Table 33 – Summary of the Results of Hypothesis 3

H3: Entrepreneurial background impacts positively alliance networks formed by a firm.
- Entrepreneurial background impacts positively university alliance networks (H3a: low performers supported, p-val 0.000 < α = 0.05; H3e: medium performers supported, p-val 0.014 < α = 0.05; H3i: high performers not supported, p-val 0.378 > α = 0.05). - Entrepreneurial background impacts positively company alliance networks (H3b: low performers supported, p-val 0.006 < α = 0.05; H3f: medium performers not supported, p-val 0.527 > α = 0.05; H3j: high performers not supported, p-val 0.195 > α = 0.05). - Entrepreneurial background impacts positively government alliance networks (H3c: low performers not supported, p-val 0.199 > α = 0.05; H3g: medium performers supported, p-val 0.100 = α = 0.10; H3k: high performers not supported, p-val 0.283 > α = 0.05). - Entrepreneurial background impacts positively total alliance networks (H3d: low performers supported p-val 0.000 < α = 0.05; H3h: medium performers not supported, p-val 0.222 > α = 0.05); H3l: high performers not supported, p-val 0.167 > α = 0.05).
The industry experience of the founding entrepreneur has a positive impact on alliance formation.
- Industry experience has a positive impact on university alliance formation (H3a1: low performers not supported, p-val 0.735 > α = 0.05; H3e1: medium performers not supported, p-val 0.545 > α = 0.05). - Industry experience has a positive impact on company alliance formation (H3b1: low performers not supported, p-val 0.286 > α = 0.05). - Industry experience has a positive impact on government alliance formation (H3g1: medium performers not supported, p-val 0.804 > α = 0.05). - Industry experience has a positive impact on total alliance formation (H3d1: low performers not supported, p-val 0.301 > α = 0.05).

The education level of the founding entrepreneur has a positive impact on alliance formation.
- Education has a positive impact on university alliance formation (H3a2: low performers supported p-val 0.000 < α = 0.05, B = 0.372; H3e2: medium performers not supported, p-val 0.130 > α = 0.05). - Education has a positive impact on company alliance formation (H3b2: low performers supported p-val 0.003 < α = 0.05, B = 0.114). - Education has a positive impact on government alliance formation (H3g2: medium performers supported p-val 0.035 < α = 0.05, B = 0.486). - Education has a positive impact on total alliance formation (H3d2: low performers supported p-val 0.000 < α = 0.05, standardized β = 0.201).
The start-up experience of the founding entrepreneur has a positive impact on alliance formation.
- Start-up experience has a positive impact on university alliance formation (H3a3: low performers not supported p-val 0.840 > α = 0.05; H3e3: medium performers partially supported, p-val 0.071 < α = 0.1, B = -1.172). - Start-up experience has a positive impact on company alliance formation (H3b3: low performers not supported p-val 0.154 > α = 0.05). - Start-up experience has a positive impact on government alliance formation (H3g3: medium performers not supported p-val 0.798 > α = 0.05). - Start-up experience has a positive impact on the total alliance formation (H3d3: low performers not supported p-val 0.200 > α = 0.05).

As stated by Birley (1985) and Moyes, Ferri, Henderson and Whittam (2015), social networks are of particular importance in the creation of new businesses. The literature has not yet addressed if the entrepreneurial background, such as industry experience, education, and start-up experience, can produce a positive impact on the degree of alliance networks formed by a new venture. Overall, this research shows the diversity of the background of medium performers will only influence the formation of alliances networks with institutions such as universities and the government. Entrepreneurial background also has an effect on the establishment of networks with universities, other companies, and total alliances. However, the research provided no statistical

evidence to suggest that the level of education, as well as previous industry and start-up experience, impact any formation of alliances networks within high performing organizations.

The contribution to the literature includes the specifications of the role of each entrepreneurial background dimension on the formation of alliances networks within high, medium and low performing organizations. We now know that not all entrepreneurial dimensions have the same role and impact on the formation alliances networks. In fact, no impact was seen among high performers and the impact on medium performers is limited to university and government alliances. Moreover, previous industry experience creates no significant impact on any type of alliances network across all types of entrepreneurs.

Education is the variable that produced the more concrete results. It holds the highest positive likelihood on the formation of university alliances ($Exp(B)_{low\_perf}$ = |1.450|) followed by industry experience ($Exp(B)_{low\_perf}$ = |1.005|) and start-up experience ($Exp(B)_{low\_perf}$ = |0.988|) but yet industry and start-up experience are both not statistically significant. In addition, the educational background has a major role in the formation of alliances networks with other companies but the degree of that likelihood ($Exp(B)_{low\_perf}$ = |1.121|) is less than the one obtained through university alliances. Very interestingly, the impact likelihood that the education level of medium performers has on the formation of government networks is even higher ($Exp(B)_{medium\_perf}$ = |1.625|) than what was seen with low performers and university and other companies alliances. Lastly, education is also the key dimension of entrepreneurial background to significantly impact total alliances networks formation (Standardized $\beta_{industry}$ = -0.042 < Standardized $\beta_{education}$ = 0.201 > Standardized $\beta_{startup}$ = 0.052). It is clear from hypothesis 3 that education is a key success factor.

From the results captured on medium performers, we now know that the previous managerial start-up experience of the founding entrepreneur is a significant predictor of the development of university alliance networks but its impact is a negative one. In other words, the more versed an entrepreneur is in starting up ventures the less are the odds associated with securing network alliances with universities. These entrepreneurs might have a limited perspective or be dubious of the business potential with universities.

5.4 The Impact of Entrepreneurial Team Size on the Degree of Alliance Networks Formed by a Firm

Table 34 – Summary of the Results of Hypothesis 4

H4: Founding entrepreneurial team size impacts the degree of alliance networks formed by a firm.

- Founding entrepreneurial team size impacts positively university alliance networks (H4a: low performers not supported p-val 0.280 > α = 0.05; H4e: medium performers not supported p-val 0.143 > α = 0.05; H4i: high performers not supported p-val 0.166 > α = 0.05).
- Founding entrepreneurial team size impacts positively company alliance networks (H4b: low performers not supported p-val 0.338 > α = 0.05; H4f: medium performers not supported p-val 0.592 > α = 0.05; H4j: high performers not supported p-val 0.648 > α = 0.05).
- Founding entrepreneurial team size impacts positively government alliance networks (H4c: low performers not supported p-val 0.510 > α = 0.05; H4g: medium performers not supported p-val 0.721 > α = 0.05; H4k: high performers not supported p-val 0.167 > α = 0.05).
- Founding entrepreneurial team size impacts positively total alliance networks (H4d: low performers not supported p-val 0.335 > α = 0.05; H4h: medium performers not supported p-val 0.143 > α = 0.05; H4l: high performers not supported p-val 0.612 > α = 0.05).

Based on the research work of Birley (1985) and Bjornali, Knockaert, and Erikson (2016), it was assumed the size of the entrepreneurial team would impact the formation of alliances networks, as social capital is an essential resource in building networks. We also know that scholars have argued that entrepreneurial opportunities increase in parallel with network size and team size of the entrepreneur (De Carolis et al., 2009, Omri & Boujelbene, 2015).

De Oliveira, Borini, Bernardes & De Oliveira (2016) found that the entrepreneurial management team is more prone to influence the formation of strategic alliances only for entrepreneurial firms with risk taking competence so we would have expected a link between team size and alliance networks for the medium and high performing businesses. The rate of overall alliance formation was greatest amongst the high performers and lowest amongst the low performers, as might have been intuitively predicted. Larger businesses tend to have more transactions and complexity and would be more likely to require linkages. Given the strong results linking team size with business profitability, it would have also been expected that team size would also have measurable impact on alliance formation, however that was not confirmed by the research.

The findings did not demonstrate a link between entrepreneurial team size and the degree of alliance networks formed by a firm in all three groupings of businesses. This result could be due, in part, to the fact that few companies had multiple alliances and the majority of the sample had either zero or one alliances. As team size would increase the size of the social network is also larger and it would be logical to conclude that that this larger network would make alliances easier. But perhaps team size does not influence the number of alliances but may play more of a role in the quality of alliances than in the quantity that are formed. A larger, more experienced

and balanced team may be able to better identify the strategic needs in forming an alliance and may be better able to secure the alliance with the best possible partner.

5.5 The Mediating Role of Total Alliances Networks Formed by a Firm on the Entrepreneurial Background and Firm Financial Performance Relationship

Table 35 – Summary of the Results of Hypothesis 5

H5: Total alliances networks formed by a firm positively mediate the relationship between entrepreneurial background and firm financial performance.

Total Alliances Mediation on Entrepreneurial Background-Revenues Results:

- Total alliance networks form by a firm positively mediates the relationship between industry experience and revenue (H5a1: low performers not supported p-val 0.508 > α = 0.05; H5c1: medium performers not supported p-val 0.452 > α = 0.05; H5e1: high performers not supported p-val 0.589 > α = 0.05).
- Total alliance networks form by a firm positively mediates the relationship between education and revenue (H5a2: low performers not supported p-val 0.321 > α = 0.05; H5c2: medium performers not supported p-val 0.385 > α = 0.10; H5e2: high performers not supported p-val 0.211 > α = 0.05).
- Total alliance networks form by a firm positively mediates the relationship between start-up experience and revenue (H5a3: low performers not supported p-val 0.171 > α = 0.05; H5c3: medium performers not supported p-val 0.320 > α = 0.05; H5e3: high performers not supported p-val 0.579 > α = 0.05).

Total Alliances Mediation on Entrepreneurial Background -Profits Results:

- Total alliance networks form by a firm positively mediates the relationship between industry experience and profits (H5b1: low performers not supported p-val 0.508 > α = 0.05; H5d1: medium performers not supported p-val 0.452 > α = 0.05; H5f1: high performers not supported p-val 0.589 > α = 0.05).
- Total alliance networks form by a firm positively mediates the relationship between education and profits (H5b2: low performers not supported p-val 0.227 > α = 0.05; H5d2: medium performers not supported p-val 0.710 > α = 0.10; H5f2: high performers not supported p-val 0.399 > α = 0.05).
- Total alliance networks form by a firm positively mediates the relationship between start-up experience and profits (H5b3: low performers not supported p-val 0.171 > α = 0.05; H5d3: medium performers not supported p-val 0.320 > α = 0.05; H5f3: high performers not supported p-val 0.579 > α = 0.05).

Early stage “resource ties” was shown to have a strong correlation with speed and growth of new businesses (Capelleras & Greene, 2008). Inspired by these findings, we hypothesized that total alliance network formation will have a mediating role in the entrepreneurial background and financial firm performance relationship. The results showed that alliance networks did not mediate the entrepreneurial background and revenue relationship or the entrepreneurial background and profit relationship amongst all three groups of businesses: low, medium and high performing new ventures. This disconfirmation of hypothesis 5 was to be expected after having observed the results of hypothesis 1. It was seen that not every trait of entrepreneurial background significantly impacts revenues and profits of a new venture and that the results were mixed. Moreover, we have a rather limited number of entrepreneurs who have established their more than a single alliance, creating an underrepresentation of total alliances in more than 1 category. Only 13% of high performers had their alliances in at least 2 out of the 3 categories, while this was true for only 8% for medium performers and 5% for low performers. The results might have been different with a sample size been larger.

5.6 The Mediating Role of Total Alliances Networks Formed by a Firm on the Number of Firm Founders and Firm Financial Performance Relationship

Table 36 – Summary of the Results of Hypothesis 6

H6: Total alliances networks formed by a firm positively mediate the relationship between the number of firm founders and firm financial performance.

Total Alliances Mediation on Number of Firm Founders-Revenue Results:

- Total alliances networks form by a firm positively mediates the relationship between the number of firm founders and revenue (H6a: low performers not supported p-val 0.335 > α = 0.05; H6c: medium performers not supported p-val 0.143 > α = 0.05; H6e: high performers not supported p-val 0.612 > α = 0.05).

Total Alliances Mediation on Number of Firm Founders-Profits Results:

- Total alliances networks form by a firm positively mediates the relationship between the number of firm founders and profits (H6b: low performers not supported p-val 0.335 > α = 0.05; H6d: medium performers not supported p-val 0.143 > α = 0.05; H6f: high performers not supported p-val 0.612 > α = 0.05).

I had expected to demonstrate total network alliances would mediate the relationship between the size of the entrepreneurial team and firm financial performance (revenue and profit). I especially anticipated seeing a more important mediation effect from total alliances as observed by Watson (2007). As a matter of fact, Watson (2007) suggested that networking intensity (e.g., total alliances) is more essential than networking range but at an optimal level. The data were composed of a limited number of entrepreneurs that had created alliances and an even smaller number that had diversified them into more than one category. That being said, different conclusions might have been reached, had these distributions been more evenly assigned, combined with a larger sample size for medium and high performers. Moreover, as explained by Jose (2013, p.135) "it is not uncommon for longitudinal mediation not to be found over certain of time periods, because variables may have effects on other variables over a different time cycle than the one measured (e.g., days as opposed to months)." Hence, as the data comes from a

longitudinal dataset (2004 to 2011) perhaps there is a mediation effect during the early years of the network alliances formations as opposed to year 8.

Yet, this hypothesis showed that entrepreneurial team size does not influence total alliances. Team size necessitated being a significant contributor of total alliances to pursue with the mediating testing as required by the Baron and Kenny approach (1986). In some cases, notably for medium (n=97) and high performers (n=80), the sample size was relatively small and might have produced a significant outcome should it had been larger. Still, it might be that team size and total alliances are not correlated in addition to having a better representation within team sizes greater than 2 entrepreneurs.

Given that there is no mediation effect of alliances, the research suggests and reinforces the finding that entrepreneurial team size in itself is a strong predictor of the new venture financial performance.

5.7 The Inverse U-Shape Pattern Impact of the Formation of Alliance Networks on Firm Financial Performance

Table 37 – Summary of the Results of Hypothesis 7

H7: The formation of total alliances networks impacts firm financial performance in an inverse U-Shaped pattern.
Revenue Results: - The formation of total alliances networks impacts revenue in an inverse U-Shaped pattern (H7a: low performers supported; H7c: medium performers not supported; H7e: high performers supported). *Profits Results:* - The formation of total alliances networks impacts profits in an inverse U-Shaped pattern (H7b: low performers not supported; H7d: medium performers not supported; H7f: high performers not supported).

The findings demonstrate that total alliances networks produced significant results only for revenue amongst the low and high performing groups. Indeed, I was able to show an inverted U-shape line between total alliances networks and revenue for these businesses, which is a very important finding and that supports previous theoretical and empirical research in this area. It was also uncovered that the relationship between total alliances networks, within low performing organizations, and profits follow a U-shaped pattern. These findings both support the direction of Deeds and Hill (1996) and Watson (2007) work and suggest that the number of alliances that a firm has will improve performance to certain point after which diminishing returns occur. This finding confirms Deeds and Hill (1996) research in the area of the inverse "U" theory for new venture networking. As it was also seen, there seems to be a point of difference between these two types of entrepreneurs. The inverted U-shaped line for high performers appears to be less steep than the one obtained for low performers, suggesting that alliances have a more pronounced impact on smaller firms.

The inverse U-shaped impact of number or alliances and revenues, particularly for the high-performing groups of companies provides potentially important insight into the nature of alliance formation for new ventures. The finding suggests that alliances are indeed an important factor in the growth of new companies, but that there is an optimal number. In other words, entrepreneurs and their teams should be focusing on the quality and not the quantity of alliances. Perhaps it takes only a small number of strategically important alliances to impact firm performance while too many alliances may not all be as critical for firm success. Furthermore, it may be more difficult to manage a greater number of alliance relationships and nurture these to the most benefit for the firm.

5.8 The Moderating Role of Industry Type on the Alliances Networks and Firm Financial Performance Relationship

Table 38 – Summary of the Results of Hypothesis 8

H8: Industry type moderates the relationship between alliance networks and firm financial performance.

Industry Type Moderation on Alliances-Revenue Results:

- Industry type moderates the relationship between university alliance networks and revenue (H8a1: low performers not supported p-val 0.269 > α = 0.05; H8c1: medium performers not supported p-val 0.895 > α = 0.05; H8e1: high performers not supported p-val 0.387 > α = 0.05).
- Industry type moderates the relationship between company alliance networks and revenue (H8a2: low performers not supported p-val 0.901 > α = 0.05; H8c2: medium performers not supported p-val 0.274 > α = 0.05; H8e2: high performers not supported p-val 0.293 > α = 0.05).
- Industry type moderates the relationship between government alliance networks and revenue (H8a3: low performers not supported p-val 0.948 > α = 0.05; H8c3: medium performers not supported p-val 0.458 > α = 0.05; H8e3: high performers not supported p-val 0.443 > α = 0.05).
- Industry type moderates the relationship between total alliance networks and revenue (H8a4: low performers not supported p-val 0.610 > α = 0.05; H8c4: medium performers not supported p-val 0.672 > α = 0.05; H8e4: high performers not supported p-val 0.230 > α = 0.05).

Industry Type Moderation on Alliances-Profits Results:

- Industry type moderates the relationship between university alliance networks and profits (H8b1: low performers not supported p-val 0.328 > α = 0.05; H8d1: medium performers not supported p-val 0.528 > α = 0.05; H8f1: high performers not supported p-val 0.429 > α = 0.05).
- Industry type moderates the relationship between company alliance networks and profits (H8b2: low performers not supported p-val 0.554 > α = 0.05; H8d2: medium performers not supported p-val 0.510 > α = 0.05; H8f2: high performers not supported p-val 0.418 > α = 0.05).
- Industry type moderates the relationship between government alliance networks and profits (H8b3: low performers not supported p-val 0.159 > α = 0.05; H8d3: medium performers not supported p-val 0.481 > α = 0.05; H8f3: high performers not supported p-val 0.766 > α = 0.05).
- Industry type moderates the relationship between total alliance networks and profits (H8b4: low performers not supported p-val 0.481 > α = 0.05; H8d4: medium performers not supported p-val 0.163 > α = 0.05; H8f4: high performers not supported p-val 0.641 > α = 0.05).

Contrary to what I thought, this research was unable to demonstrate that some types of alliance networks are moderated by the type of high or low technological industry. No moderating effects were produced by industry type on university, company, government as well as the total number of alliances networks. These results are not that surprising when we consider the underrepresentation of the university and government alliances including the high technology industry found within the sampled entrepreneurs.

The research did uncover, however, that for high-performing organizations, industry type produces the main effect over the government-revenue, university-revenue and company-revenue relationships. Moreover, larger revenues means are obtained by low-technology organizations than high-technology ones. No moderation effect was found but it is implied that industry type carries an impact on the revenues of high-performing organizations specific to the university-revenue, company-revenue, and government-revenue relationships. These findings, once again, point to the importance to the quality, fit and appropriateness of alliances.

5.9 The Moderating Role of Firm Location on the Alliances Networks and Firm Financial Performance Relationship

Table 39 – Summary of the Results of Hypothesis 9

H9: Firm location moderates the relationship between alliance networks and firm financial performance.

US Census Region Moderation on Alliances-Revenue Results:

- US census regions moderate the relationship between university alliances and revenue (H9a1: low performers not supported p-val 0.377 > α = 0.05; H9c1 medium performers not supported p-val 0.631 > α = 0.05; H9e1 high performers not supported p-val 0.943 > α = 0.05).
- US census regions moderate the relationship between company alliances and revenue (H9a2: low performers not supported p-val 0.767 > α = 0.05; H9c2 medium performers not supported p-val 0.379 > α = 0.05; H9e2 high performers not supported p-val 0.937 > α = 0.05).
- US census regions moderate the relationship between government alliances and revenue (H9a3: low performers not supported p-val 0.561 > α = 0.05; H9c3 medium performers not supported p-val 0.995 > α = 0.05; H9e3 high performers not supported p-val 0.727 > α = 0.05).
- US census regions moderate the relationship between total alliances and revenue (H9a4: low performers not supported p-val 0.607 > α = 0.05; H9c4 medium performers not supported p-val 0.660 > α = 0.05; H9e4 high performers not supported p-val 0.453 > α = 0.05).

US Census Region Moderation on Alliances-Profits Results:

- US census regions moderate the relationship between university alliances and profits (H9b1: low performers not supported p-val 0.313 > α = 0.05; H9d1 medium performers not supported p-val 0.378 > α = 0.05; H9f1 high performers not supported p-val 0.680 > α = 0.05).
- US census regions moderate the relationship between company alliances and profits (H9b2: low performers not supported p-val 0.745 > α = 0.05; H9d2 medium performers not supported p-val 0.228 > α = 0.05; H9f2 high performers not supported p-val 0.998 > α = 0.05).
- US census regions moderate the relationship between government alliances and profits (H9b3: low performers not supported p-val 0.245 > α = 0.05; H9d3 medium performers not supported p-val 0.517 > α = 0.05; H9f3 high performers not supported p-val 0.362 > α = 0.05).
- US census regions moderate the relationship between total alliances and profits (H9b4: low performers not supported p-val 0.356 > α = 0.05; H9d4 medium performers not supported p-val 0.736 > α = 0.05; H9f4 high performers not supported p-val 0.702 > α = 0.05).

As stated by Narula and Santangelo (2009), firms seek to locate themselves in particular locations to acquire complementary assets through alliances. Thus, we had anticipated that US census regions would act as moderators to the alliances network and firm financial performance relationships.

It was found that firm location does not act as a moderator in the alliances networks and firm financial performance relationships. Yet, this research unveiled that a relationship exists between total alliances networks and US census regions as predictors to revenue of medium performing organizations but no firm location moderation occurs within that relationship. Nonetheless, these findings go in hand with Chen and Chen (1998). In fact, part of the research done by these authors was to see if networks vary according to firm locations. They studied the network formation in China, Southeast Asia and in the United States. Their research found that businesses in United Stated would rather use their own capabilities to build strategic linkages than using external complementary capabilities bonded by alliances. The research showed US census regions do not moderate the total alliances and firm financial performance, which follows the same conclusion reached by Chen and Chen (1998).

CHAPTER 6 – CONCLUSION

6.1 GENERAL CONCLUSION

This study provides important insight into the interrelationships between the background of the founding entrepreneur, the entrepreneurial team, the nature and intensity of company alliance networks and financial performance of new ventures. By using the KFS data, this research was able to show clear relationships between these variables based on a large sample of companies (all established in the same year 2004), across a representative range of industries and regions and over a seven-year period. By being able to access actual financial information of the participating KFS companies, results were measured in terms of financial performance (revenue and profits) in the final year of the survey (7^{th}-year follow-up) and hence the independent variables could be measured against continuous measures of revenue and profitability.

The use and analysis of the KFS data provided an excellent and representative view of how businesses perform over an extended period of time, including the following:

Many New Ventures Fail

Of the 4928 companies in the KFS who completed the 2004 baseline survey, there were slightly more than half (2667) that were no longer in business at the end of the 7^{th} follow-up survey in 2011. The attrition rate of companies no longer in business from the previous year was fairly consistent and ranged between 7% and 11% each year. Although the KFS data does not provide insight into why companies were no longer in business, the data does show that an important proportion of the set of cohort companies will close each year and across a range of all industries.

That being said, however, the fact that almost half of all businesses remain in operation after seven years is still considerable.

The Vast Majority of New Businesses Remain Small

Of the 1757 participating businesses that completed all 8 KFS surveys (the baseline year of 2004 and all 7 follow-up surveys to 2011), 1431 of these or 81% remained "small" and were categorized as low performers (revenue of $850,000 or less in the 7th follow-up survey year). In other words, the vast majority of U.S. businesses, even after seven years, remain "small businesses". By contrast, only 183 companies (10%) achieved revenue that we considered as medium performers (revenue between $850,001 and $2,500,000) and only 143 companies (8%) were high performers with revenue in excess of $2,500,000.

High-Tech Businesses Perform Like Most Other Businesses

The vast majority of businesses (83%) that completed all the KFS surveys were self-reported as being non-high-technology. The financial performance and success of high-tech businesses do not appear to be significantly different from the overall sample of businesses.

The goal of this research study was to identify what factors play a measurable role in new venture performance over time. By dividing the participants into three different groups we were able to study results using normally distributed samples. The research revealed that many of the factors that were hypothesized to be important in new venture success were in fact not supported. In some cases, the results were different within each all three groups (low, medium and high performers) while in other cases the results varied.

Based on the results obtained in this research it becomes evident that the number of total alliances networks, the biographical background traits of the entrepreneur along with the team are important factors in the success of start-up businesses for low-performing organizations. These elements do not act the same way among high performing organizations or medium performing ones. Entrepreneurial background and team size are the important variables that should be taken into consideration by medium performers. Team size is one of the most important factors to be considered by high performers in addition to the total alliances formed. In fact, total alliances relationship with revenue follows an inverted U-shape line.

This research highlights and reinforces the importance of both entrepreneurial background and total alliances formation in new venture success and clearly shows that this is an important area for all to understand and appreciate, including entrepreneurial teams, policy makers, entrepreneurial stakeholders (advisors, investors, and partners) as well as researchers. Entrepreneurs that create an entrepreneurial team, in a low-performing organization, with the ideal blend of education (bachelor degree and higher) and with some previous start-up experience and who can reach the optimum number of categories for their total alliances networks will find themselves in a privileged position on their path to success. When creating a new venture, medium performers should focus more on the right size of its managerial team with a solid level of education and good previous industry experience. On the other hand, the success of high performers will come more from their team size and the total number of alliances in place.

Although the literature shows that there are many theories as well as many inter-related factors that determine entrepreneurial success, this research highlights the importance of using total alliances into the right number of networks categories as a key strategic underpinning of future

revenue performance for new ventures. This was shown to affect the revenues of high performing organizations as well as low performing organizations in an inverted u-shaped pattern. It supports the conclusions of the large-scale research by Watson (2007) that demonstrated the relationship between network intensity and firm survival and growth as well as the meta-analysis of research in start-up successes by Song et al. (2008) that highlighted the relationship between partnerships and new venture performance. However, the findings did not support the relationship between alliances and new venture performance that was found by a number of researchers who studied performance in a single industry sector.

One of the main theoretical contributions of this research comes from the research instrument and the use of the KFS database. In fact, this granted us the access to a very robust and complete dataset in the field of entrepreneurship while filling the gap in the existing literature where very minimal research has been done in the non-technology sector. This research also brought some evidence that the type of industry combined with certain alliances networks (i.e., university, company, and government) formed only by the high performers' new ventures have a direct impact on the levels of revenue generation. Industry type did not produce a moderating effect but did produce a main effect over these relationships.

This longitudinal study may be among the first attempts to identify the impact of the mediating role of early partnership or alliances transactions in the entrepreneurial background and financial performance relationship. In fact, the findings show significant differences in the results when total alliances networks are tested and we also saw that the factors defining the entrepreneurial background interact differently on the firm financial performance. Moreover, findings from this

study contribute towards the development of existing theories, particularly in the social network theory and boundary spanning and alliances.

6.2 MANAGERIAL CONTRIBUTION

Given the importance that new venture activity in the overall economy, it is important to deepen the understanding of what the key determining factors are for entrepreneurial success. This research study has reinforced other research in the area of entrepreneurial background and alliance formation and has also provided new insights, as described below, that can be valuable in guiding all those involved in new ventures including not only the entrepreneur but also those stakeholders who impact the work of the entrepreneur, including educators, policy makers, advisors, financiers and employees of the business.

This research study supports the literature and confirms that there is not a single factor or "winning formula" that determines entrepreneurial success, but rather a result of a complex set of controllable and uncontrollable factors (Shane, 2003). Also, it is important to note that the winning factors for a new venture will evolve over time as the company and the environment evolve and that the successful entrepreneur is one that is able to adapt and seize opportunities as they emerge (Sarasvathy, 2001). That being said, although there are many other factors at play in the evolution of business, there appear to be some common themes related to entrepreneurial background and alliance formation that appear to cut across industry and regional barriers and that impact the likelihood and degree of success that a new venture will enjoy. Based on the results of this research study, along with insights from other theoretical and empirical research, several concrete contributions for entrepreneurs and entrepreneurial stakeholders are proposed below:

Entrepreneurial Background

The results of the research revealed that although previous industry experience, the level of education and previous start-up experience of a founding entrepreneur might all seem as important, not all of these elements produce a significant impact on the venture financial performance. In fact, the results specific to low performers lead us to suggest that previous start-up experience is the most important factor affecting new ventures revenues. The more knowledge a low performer has in forming a business the higher levels of revenues are to be expected. As 42% of low performers were found to have some previous experience in forming a venture, it would be advantageous for these new entrepreneurs to pair with a mentor who has a solid experience in constituting new businesses in order to access more quickly the financial spin-offs. Education background and previous industry experience (though somewhat unintuitive) appears to have no significant impact on the firm revenue and profit performance.

As for medium performers, education and previous industry experience are the most important factors for this type of entrepreneurs due to the positive impact they create over firm profits. The sampled medium entrepreneurs had on average a bachelor degree with 15 years' experience in their industries. In order to obtain higher profit levels, entrepreneurs should consider the necessary alternative to solidify their level of education and their industry experience. As an example, industry knowledge and experience could be used as a selection criterion for choosing a mentor to quickly access hands-on experience.

Furthermore, only one of these three entrepreneurial factors was found to impact the formation of the alliance. Education is the key factor that appears to be the most important factor for medium and low performers. On the one hand, it affects the creation of government alliances for medium

performing organizations. On the other, it also carries an impact on the formation of university and company alliances including the total alliances hold by low performing organizations.

However, it is also suggested through this research that entrepreneur background in a high-performing venture does not act as a significant influencer on firm financial performance or in the formation of alliances networks.

Entrepreneurial Team Size

The size of the founding entrepreneurial team appears to be one of the most compelling findings from this study. Team size was shown a positive impact on firm financial performance including both future revenues (among low performers) and profits (among low, medium and high performers). While team size does not impact any particular type of alliance (government, university or company) including the total alliances formed.

Forming a founding entrepreneurial team is also a crucial element to consider by these entrepreneurs, as it will help both the revenues and profits generation. As a result, entrepreneurs, investors, and stakeholders may want to consider the formation or support of a new venture comprised of multiple partners rather than solo entrepreneurs.

Total Alliances

The main purpose of this research was to measure the impact of alliance on firm performance and see if the theory of the "net effect" held true. The research results support the theory that total alliance networks have an impact on future revenue strength of a new venture that is specific to high performing organizations as well as low performing organizations. Therefore, it should

become an important part of the entrepreneurial education and mentoring process as well as the entrepreneur's planning process to encourage the thinking of alliance formation as a natural part of the new venture creation and growth process. Organizations that support entrepreneurs should also consider activities and programs (e.g.: associations, chamber of commerce, a specific mentoring program on alliances formation, conferences, the creation of a "summit" on alliances networks formation) that provide support to the networking analysis and formation process.

Industry and Regional Variations

Importantly, while this study confirms the relationship between total alliances and firm revenue performance, it also demonstrates that the "net effect" is not affected by the mediation of industry type or region. In other words, alliances should be a factor to consider for all new businesses, including high and low technology, service and manufacturing, regardless of location. Although there were no moderation effects that emerged from the findings, I did see that industry type combined with alliances (i.e., university, company, and government) are strong predictors of the revenue generation of high performing organizations.

Optimal Number of Alliances

This study importantly supported the theory presented by other researchers that the impact of alliances has an optimal level and follows an inverse U-shaped curve. That is to say, little or no alliances may not allow a business to reach its full potential while too many alliances may become unmanageable or become too diffuse so as not to be effective in achieving competitive advantage. Therefore in high performing organizations as well as in low-performing ones, it is important that entrepreneurs, other key employees, and advisors approach alliance formation as a strategic element in the growth plan for the business. The number of total alliances categories

should, therefore, be carefully and systematically be considered in their strategic and competitive benefit for the company rather than just "alliances for alliances sake". In other words, it is "quality not quantity" when it comes to alliances and entrepreneurs who can identify, secure and support key alliances are more likely to enhance their chances of financial success.

Types of Alliances

While there appears to be an optimal number of alliances categories that a new high performing and low performing venture should form, the research showed that specific types of alliances do not impact the creation of revenue and profit growth of an organization. However, through the examination of the university-revenue, company-revenue as well as government-revenue relationships of high performing organizations, it was seen that low-tech companies generated higher revenues comparatively to high-tech companies. This could be attributed to the fact that they are more resource-poor compared to high-tech companies in that they are less likely to have proprietary pieces of intellectual property than high-tech companies. By approaching the formation of alliances as a strategic imperative based on a resthece gap analysis, entrepreneurs can forge relationships that can dramatically impact the growth of the business. Therefore, founders and their extended teams need to identify what are the key resources needed for success and which ones are lacking to actively work to fill these resource gaps through alliances, if possible. The range of alliance types can vary greatly (see Table 3) but can include access to the supply chain, distribution, technology, competitive exclusivity, technology to name a few. In any case, it is important for the entrepreneur to identify the needs of the business over time and, when appropriate, to be able to leverage the resources of alliance companies to meet its objectives.

6.3 RESEARCH LIMITATIONS

This research presents an integrative view on the interrelations between entrepreneurial background and firm financial performance, the possible mediating effects of alliances networks and possible moderating effects of industry type and location. The models available through the NORC Data Enclave environment did not include the Multivariate analysis model and this resulted into an important research limitation. In effect, due to this fact this model was tested under various types of regression analysis (simple linear regression, multiple linear regression, moderated multiple regression approach) and replicating this model under a more powerful type of analysis such as the MANCOVA (Multivariate Analysis of Covariance) might have produced stronger results as to the various interrelations of each variables and all measured at once. This might have provided a better sense of what really happens. On that same note, having had access to structural equation modeling would have given a better insight into all these inter-relationships. Assessing the KFS data was limited to the rules and regulations of the NORC and Kauffman Foundation (Appendix 1). The database was confined to the NORC Data Enclave environment. More specifically, it could not be exported, saved and printed. Academic researchers could only use the statistical tools available in the Data Enclave environment. Only statistical outputs and word documents could be exported upon the review and approval by NORC.

Another statistical limitation is the fact that I only measured the moderating effects of industry type and location and mediating effects of alliances networks and not their direct impact on financial performance. The role of alliances networks, location, and types of industry might be different than what we hypothesized.

Although the KFS data included companies from a representative set regions and industries, this survey was limited to businesses located in the United States. There are some limitations that need to be considered for using this data within a Canadian context. The Unites Stated economy went through a crisis in 2008, which might have influenced some of the findings we obtained specific to testing the various impacts on the financial performance. The business background of American entrepreneurs (i.e., the number of years of education, previous start-up experience, and previous industry experience) and even their predisposition to form network alliances during the early venture stages may be different between these two countries. Moreover, the KFS questionnaire only provided limited information on alliances in three main groupings, university alliances, company alliances and government including their use (i.e., disposing of such alliances). This provides only a general indication of the value of alliances but does not provide deeper insight into what exact type of alliances is the most effective for different types of businesses or the exact number of alliances to be implemented.

A possible limitation is that the sample size did not include a balanced number of non-technology firms and high-technology firms, which might have biased certain results. Likewise, we had an unbalanced number of low performers, medium performers and high performers in the sample. Moreover, another limitation of this study is that the sample used in this research only included firms with the same owners that completed the KFS survey from its inception and for the seven follow-up surveys, hence eliminating some firms that had changed hands and many more that had ceased operation. As a result, the analysis that was completed regarding entrepreneurial background, the number of firm founders, alliances networks, and industry type were only captured with a sub-set of companies that were compliant with the survey completion and that had achieved “success” as measured by survival over the seven-year period. Additional insight

could certainly be gained by comparing companies that failed against companies that survived. Moreover, this research was not able to take into account if the alliances formed were 'mature' enough to start seeing the returns on the investments.

6.4 FUTURE RESEARCH AVENUES

The impact of networks and alliances on new venture success is a fairly recent area of entrepreneurial research. Given the coherent results of this study and other empirical research that draws similar conclusions across a range of industries, it is clear that the study of the nature of the "The Net Effect" deserves further research.

This research study provided a general picture of the relationship between entrepreneurial background and firm financial performance and the role of alliances networks as mediators and the role of industry type and location as moderators. Future research should include the study of better-defined alliances networks and industry type in order to capture more specifically their impact and interrelations. It would also be worthwhile to see how all of these results differ over the years. For instance, how long does it take for alliances networks or founding entrepreneurial team size to disseminate significant results and benefits? A repeated-measure design is needed to check for this effect. A comparative study should be done in the future to measure if there are differences in the financial performance of the new ventures that engage in network alliances versus those that do not.

Future studies should measure if the impact of total alliances on financial performance is different for new ventures with consumer goods versus industrial goods, high-end products versus low-end products. It would also be interesting to see if the market structure (maturity level, competition

level, monopoly, oligopoly) moderates the relationship between alliances and financial performance. In addition, it would be relevant to see how some business skills (people skills, sales skills, negotiation skills and business acumen skills) mediate the relationship between entrepreneurial background and financial performance.

Moreover, it would also be relevant to see if the results obtained for low-performers, medium-performers, and high-performers are significantly different by using ANOVAs or even an Independent Sample t-Test between low-performers and high-performers. Cross-tabulations and Chi-Square analysis could also provide a better understanding whether the type of alliances depend on the number of years of education. Correlations analysis could be done in the future to see if types of alliances are correlated to the location of new ventures (rural versus urban). Moreover, future research could use a Hierarchical Cluster Analysis to create statistical significant entrepreneurs/business segments in order to test the hypothesis. More insightful findings could have been obtained by using these segments to test the model than the manual cut-off to derive the low-medium-high performers. Nevertheless, ideally, the proposed theoretical model would be tested under a structural equation test at once.

Some other possible avenues for further research in the area of new ventures and alliance networks could include the following:

Characterization of Company Best Practices

By looking at examples and cases studies of entrepreneurial companies that have successfully formed effective alliances, it would be useful to characterize best practices. How are alliance

partners identified? How are partnerships structured? What elements are important in managing the alliance relationship on an ongoing basis?

Characterization of Best Practices by Enablers

In addition to company best practices, it would be useful to also look at best practices for organizations support entrepreneurs including educational institutions, chambers of commerce, business clubs, and associations. What tools, methods, activities, events and techniques have been valuable in helping enable alliance formation for entrepreneurs?

Industry and Alliance Typology

This research study analyzed the importance of alliances from a macro point-of-view. It would be very pertinent to delve deeper into the nature and types of alliances that have been formed by entrepreneurial businesses in a range of industries. Are certain types of alliances most effective for certain types of industries? Will the results and benefits be different depending on the degree of involvement of the entrepreneur in the alliances management?

Understanding the Role of Social Media in Team and Alliance Formation

Given the increasing importance of the role of social media in individual lives and company communication, it would be pertinent to study the impact that the use of social media has on alliance formation. Do wide social networks with more "loose ties" make it easier for entrepreneurs to identify and form effective teams and alliances?

This study has provided insight into some key drivers of new venture success, notably by confirming the importance of entrepreneurial networks (team and alliances) can play in

entrepreneurial success. Clearly, increasing the understanding of how teams and alliances are formed and work and how they can be best be managed is an exciting area for future research. This area of research promises to be an important contribution to the entrepreneurial literature and that can provide useful and practical insight for aspiring and active entrepreneurs and all other stakeholders that are interested in enabling the success and growth of new ventures.

REFERENCES

Alam, I. (2003). Commercial Innovations from Consulting Engineering Firms: Empirical Exploration of a Novel Source of New Product Ideas. *Journal of Product Innovation Management*, 20(4): 300-313. doi: 10.1111/1540-5885.00027

Aldrich, H. E. & Zimmer, C. (1986). Entrepreneurship Through Social Networks. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.

Antoncic, B. & Prodan, I. (2008). Alliances, Corporate Technological Entrepreneurship, and Firm Performance: Testing A Model On Manufacturing Firms. *Technovation*, 28(5), 257-265. doi: 10.1016/j.technovation.2007.07.005

Bahadir, S. C., Bharadwaj, S. & Parzen, M. (2009). A Meta-Analysis of The Determinants of Organic Sales Growth. *International Journal of Research in Marketing*, 26(4) 263-275. doi: 10.1016/j.ijresmar.2009.06.003

Baron, R. A. (2006). Opportunity Recognition as Pattern Recognition: How Entrepreneurs "Connect the Dots" to Identify New Business Opportunities. *Academy of Management Perspectives*, 20(1), 104-119. doi: 10.5465/amp.2006.19873412

Baron, R. M. & Kenny D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. doi: 10.1037//0022-3514.51.6.1173

Baron, R. A. & Markman, G. D. (2003). Beyond Social Capital: The Role of Entrepreneurs' Social Competence in their Financial Success. *Journal of Business Venturing*, 18(1), 41-60. doi: 10.1016/s0883-9026(00)00069-0

Barringer, B. R., Jones, F. F. & Neubaum, D. O. (2005). A Quantitative Content Analysis of The Characteristics of Rapid-Growth Firms and Their Founders. *Journal of Business Venturing*, 20(5), 663-687. doi: 10.1016/j.jbusvent.2004.03.004

Belás, J. & Kljucnikov, A. (2016). The Most Important Attributes of Entrepreneurs. Case Study of the Environment of Czech SMEs. *Journal of Entrepreneurial Knowledge*, 1(4), 104-111. doi: 10.1515/ijek-2016-0008

Birley, S. (1985). The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1), 107-117. doi: 10.1016/0883-9026(85)90010-2

Bjornali, E. S., Knockaert, M. & Erikson, T. (2016). The Impact of Top Management Team Characteristics and Board Service Involvement on Team Effectiveness in High-Tech Start-Ups. *Long Range Planning*, 49(4) 447-463. doi: 10.1016/j.lrp.2015.12.014

Brockhaus, R. H. (1980). Risk Taking Propensity of Entrepreneurs. *Academy of Management Journal*, 23(3), 509-520. doi: 10.2307/255515

Bruderl, J. & Preisnedorfer, P. (1998). Network Support and the Success of Newly-Founded Businesses. *Small Business Economics*, 10(3), 213-225. Retrieved from http://0-eds.a.ebscohost.com.aupac.lib.athabascau.ca/eds/pdfviewer/pdfviewer?sid=314e6db2-6338-4f42-b052-07db10b3d783%40sessionmgr4010&vid=2&hid=4202

Burt, R. S. (1997). The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2), 339-365. doi: 10.2307/2393923

Capelleras, J.-L. & Greene, F. J. (2008). The Determinants and Growth Implications of Venture Creation Speed. *Entrepreneurship & Regional Development*, 20(4), 317-343. doi: 10.1080/08985620701855683

Chandler, G. N., DeTienne, D. R., McKelvie, A. & Mumford, T. V. (2011). Causation and Effectuation Processes: A Validation Study. *Journal of Business Venturing*, 26(3), 375-390. doi: 10.1016/j.jbusvent.2009.10.006

Chang, S. J. (2004). Venture Capital Financing, Strategic Alliances, and The Initial Public Offerings of Internet Startups. *Journal of Business Venturing*, 19(5), 721-741. doi: 10.1016/j.jbusvent.2003.03.002

Chase, W. G. & Simon, H. A. (1973). Perception in Chess. *Cognitive Psychology*, 4(1), 55-81. doi: 10.1016/0010-0285(73)90004-2

Chen, H. & Chen, T.-J. (1998). Network Linkages and Location Choice in Foreign Direct Investment. *Journal of International Business Studies*, 29(3), 445-467. doi: 10.1057/palgrave.jibs.8490002

Chen, X., Zou, H. & Wang, D. T. (2009). How Do New Ventures Grow? Firm Capabilities, Growth Strategies, and Performance. *International Journal of Research in Marketing*, 26(4), 294–303. doi: 10.1016/j.ijresmar.2009.08.004

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(s1), S95-S120. doi: 10.1086/228943

Colombo, M. G. & Grilli, L. (2005). Founders' Human Capital and The Growth of New Technology-Based Firms: A Competence-Based View. *Research Policy*, 34(8), 795–816. doi: 10.1016/j.respol.2005.03.010

Cooney, T. M. (2005). "What is an Entrepreneurial Team?". *International Small Business Journal*, 23(3), 226-235. doi: 10.1177/0266242605052131

Davidsson, P. & Honig, B. L. (2003). The Role of Social and Human Capital among Nascent Entrepreneurs. *Journal of Business Venturing*, 18(3), 301-331. doi: 10.1016/S0883-9026(02)00097-6

De Carolis, D. M., Litzky, B. E., & Eddleston, K. A. (2009). Why Networks Enhance the Progress of New Venture Creation: The Influence of Social Capital and Cognition. *Entrepreneurship: Theory & Practice*, 33(2), 527-545. doi: 10.1111/j.1540-6520.2009.00302.x

De Oliveira, A. B., Borini, F. M., Bernardes, R. C. & De Oliveira, M. J. (2016). Impact of Entrepreneurial Orientation on Strategic Alliances and the Role of Top Management. *Revista de Administração de Empresas*, 56(3), 315-329. doi: 10.1590/S0034-759020160305

Deeds, D. L. & Hill, C. W. L. (1996). Strategic Alliances and The Rate Of New Product Development: An Empirical Study Of Entrepreneurial Biotechnology Firms. *Journal of Business Venturing*, 11(1), 41-55. doi: 10.1016/0883-9026(95)00087-9

Deloitte Review. (2014). *Cracking the Genetic Code of High-Performing Manufacturers.* Retrieved from https://www2.deloitte.com/content/dam/Deloitte/ru/Documents/manufacturing/cracking_the_genetic_code.pdf

DeTienne, D. R., McKelvie, A. & Chandler, G. N. (2015). Making Sense of Entrepreneurial Exit Strategies: A Typology and Test. *Journal of Business Venturing,* 30(2), 255-272. doi: 10.1016/j.jbusvent.2014.07.007

Dollinger, M.J. (1984). Environmental Boundary Spanning and Information Processing Effects on Organizational Performance. *Academy of Management Journal*, 27(2), 351-368. doi : 10.2307/255929

Doz, Y. L. & Hamel, G. (1998). *Alliance Advantage – The Art of Creating Value Through Partnering*, Boston, Harvard Business School Press.

Draulans J., DeMan A.P., and Volberda, H. W. (2003). Building Alliance Capability: Management Techniques for Superior Alliance Performance. *Long Range Planning*, 36(2), 151-166. doi: 10.1016/s0024-6301(02)00173-5

Dubini, P. & Aldrich, H. (1991). Personal and Extended Networks are Central to the Entrepreneurial Process. *Journal of Business Venturing*, 6(5), 305-313. doi: 10.1016/0883-9026(91)90021-5

Dvir, D., Sadeh, A. & Malach-Pines, A. (2010). The Fit Between Entrepreneurs' Personalities and the Profile of the Ventures They Manage and Business Success: An exploratory Study. *The Journal of High Technology Management Research,* 21(1), 43-51. doi: 10.1016/j.hitech.2010.02.006

Ensley, M.D., Pearse, C. L. & Hmieleski, K. M. (2006). The Moderating Effect of Environmental Dynamism on the Relationship Between Entrepreneur Leadership Behavior and New Venture Performance. *Journal of Business Venturing*, 21(2), 243-263. doi: 10.1016/j.jbusvent.2005.04.006

Estay, C., Durrieu, F. & Akhter, M. (2013). Entrepreneurship: From Motivation to Start-Up. *Journal of International Entrepreneurship,* 11(3), 243-267. doi: 10.1007/s10843-013-0109-x

Funk, R. J. (2014). Making the Most of Where You Are: Geography, Networks, and Innovation in Organizations. *Academy of Management Journal*, 57(1), 193-222. doi: 10.5465/amj.2012.0585

Galloway, T. L., Miller, D. R., Sahaym, A. & Arthurs, J. D. (in Press - 2016). Exploring the Innovation Strategies of Young Firms: Corporate Venture Capital and Venture Capital Impact on Alliance

Innovation Strategy. *Journal of Business Research*. Advance online publication. doi: 10.1016/j.jbusres.2016.10.017

George, G., Zahra, S. A. & Wood, D. R. (2002). The Effects Of Business-University Alliances on Innovative Output and Financial Performance: A Study Of Publicly Traded Biotechnology Companies. *Journal of Business Venturing*, 17(6), 577-609. doi: 10.1016/s0883-9026(01)00069-6

Gerber, M. E. (1986). *The E-Myth: Why Most Businesses Don't Work and What To Do About It*. Cambridge, MA: Ballinger.

Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*. 78(6), 1360-1380. doi: 10.1086/225469

Gulati, R. (1999). Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation. *Strategic Management Journal*, 20(5), 397-420. doi: 10.1002/(sici)1097-0266(199905)20:5<397::aid-smj35>3.3.co;2-b

Gulati, R., Nohria, N. & Zaheer, A. (2000). Strategic Networks. *Strategic Management Journal*, 21(3), 203–215. doi: 10.1002/(sici)1097-0266(200003)21:3<203::aid-smj102>3.0.co;2-k

Hills, G. E., Shrader, R. C. & Lumpkin, G. T. (1999). Opportunity Recognition as a Creative Process. In *Frontiers of Entrepreneurship Research,* 216–227.

Hoehn-Weiss, M. N. & Karim, S. (2014). Unpacking Functional Alliance Portfolios: How Signals of Viability Affect Young Firms' Outcomes. *Strategic Management Journal*, 35(9), 1364-1385. doi: 10.1002/smj.2158

Hoffmann, W. H. & Schlosser, R. (2001). Success Factors of Strategic Alliances in Small and Medium-sized Enterprises—An Empirical Survey. *Long Range Planning*, 34(3), 357-381. doi: 10.1016/s0024-6301(01)00041-3

Ireland, R.D., & Hitt, M. A. (1997). Performance Strategies for High-Growth Entrepreneurial firms. In *Frontiers of Entrepreneurship Research,* 90-104.

Jensen, K. W. & Schott, T. (2015). Start-Up Firms' Networks for Innovation and Export: Facilitated and Constrained by Entrepreneurs' Networking in Private and Public Spheres. *Social Network Analysis and Mining*, 5(1), 1-17. doi: 10.1007/s13278-015-0287-8

Julien P., Andriambeloson E. & Ramangalahy C. (2004). Networks, Weak Signals, and Technological Innovations among SMEs in the Land-Based Transportation Equipment Sector. *Entrepreneurship & Regional Development*, 16(4), 251-269. doi: 10.1080/0898562042000263249

Jose, P. E. (2013). *Doing Statistical Mediation and Moderation*, New York, Guilford Press.

Katila, R., Rosenberger, J. D. & Eisenhardt, K. M. (2008). Swimming with Sharks: Technology Ventures, Defense Mechanisms, and Corporate Relationships. *Administrative Science Quarterly*, 53(2), 295-332. doi: 10.2189/asqu.53.2.295

Kauffman Firm Survey. (2012). Retrieved from http://www.kauffman.org/kfs/default.aspx

Keller, R. T. & Holland, W. (1975). Boundary Spanning Roles in an R&D Organization. *Academy of Management Journal*, 18(2), 388–393. doi: 10.2307/255542

Khaire, M. (2010). Young and No Money? Never Mind: The Material Impact of Social Resources on New Venture Growth. *Organization Science*, 21(1),168–185. doi: 10.1287/orsc.1090.0438

Khalid, S. & Larimo, J. (2012). Effects of Alliance Entrepreneurship on Common Vision, Alliance Capability and Alliance Performance. *International Business Review*, 21(5), 891-905. doi: 10.1016/j.ibusrev.2011.10.003

Laguir, I. & Den Besten, M. (2016). The Influence of Entrepreneur's Personal Characteristics on MSEs Growth Through Innovation. *Applied Economics*, 48(44), 4183-4200. doi: 10.1080/00036846.2016.1153792

Lamotte, O. & Colovic, A. (2015). Early Internationalization of New Ventures From Emerging Countries: The Case of Transition Economies. *M@n@gement*, 18(1), 8-30. doi: 10.3917/mana.181.0008

Lanyi, B. (2016). *The Influence of Personality Traits of Start-Up Entrepreneurs on the Innovative Market Presence in the Medical Biotechnology and Health Care Industry*. Paper presented at the 9th International Conference Marketing- from Information to Decision (21-33). Cluj-Napoca, Romania.

Lee, C.-W. (2007). Strategic Alliances Influence on Small and Medium Firm Performance. *Journal of Business Research*,60(7), 731–741. doi: 10.1016/j.jbusres.2007.02.018

Lee, S. M. & Lee, B. (2015). Entrepreneur Characteristics and the Success of Venture Exit: An Analysis of Single-Founder Start-Ups in the U.S. *International Entrepreneurship and Management Journal.* 11(4), 891-905. doi: 10.1007/s11365-014-0324-5

Li, D. (2013). Multilateral R&D Alliances by New Ventures. *Journal of Business Venturing*. 28(2), 241-260. doi: 10.1016/j.jbusvent.2012.02.004

Lorenzoni, G. & Ornati, O. A. (1988). Constellations of Firms and New Ventures. *Journal of Business Venturing*, 3(1), 41-57. doi: 10.1016/0883-9026(88)90029-8

Luca, M. R. & Robu, A. (2016). Personality Traits in Entrepreneurs and Self-Employed. *Bulletin of the Transilvania University of Brasov*, 9(58), 91-98. Retrieved from http://webbut.unitbv.ro/Bulletin/Series%20VII/FIS/10_Luca_Robu.pdf

Ma, X., Ding, Z. & Yuan, L. (2016). Subnational Institutions, Political Capital, and the Internationalization of Entrepreneurial Firms in Emerging Economies. *Journal of World Business*, 51(5), 843-854. doi: 10.1016/j.jwb.2016.07.004

Marino, K. E. & De Noble, A. F. (1997). Growth and Early Returns in Technology-Based Manufacturing Ventures. *Journal of High Technology Management*, 8(2), 225-242. doi: 10.1016/s1047-8310(97)90004-3

McDougall, P. & Robinson, R. B. (1990). New Venture Strategies: An Empirical Identification of Eight "Archetypes" of Competitive Strategies for Entry. *Strategic Management Journal*, 11(6), 447-467. doi: 10.1002/smj.4250110604

McDougall, P. P., Robinson, R. B. & DeNisi, A. S. (1992). Modeling New Venture Performance: An Analysis of New Venture Strategy, Industry Structure, and Venture Origin. *Journal of Business Venturing*, 7(4), 267-289. doi: 10.1016/0883-9026(92)90002-9

McGee, J. E. & Dowling, M. J. (1994). Using R&D Cooperative Arrangements to Leverage Managerial Experience: A Study of Technology-Intensive New Ventures. *Journal of Business Venturing*, 9(1), 33-48. doi: 10.1016/0883-9026(94)90025-6

Milanov, H. & Fernhaber, S. A. (2009). The Impact of Early Imprinting on The Evolution of New Venture Networks. *Journal of Business Venturing*, 24(1), 46-61. doi: 10.1016/j.jbusvent.2007.11.001

Monferrer Tirado, D. & Estrada Guillén, M. (2015). The New Ventures' International Result. A Relational View Associated to Network Market Orientation. *Cuadernos de Gestión*, 16(2), 93-118. doi : 10.5295/cdg.150521dm

Moyes, D., Ferri, P., Henderson, F. & Whittam, G. (2015). The Stairway to Heaven? The Effective Use of Social Capital in New Venture Creation for a Rural Business. *Journal of Rural Studies*, 39, 11-21. doi: 10.1016/j.jrurstud.2015.02.004

Narula, R. & Santangelo, G. D. (2009). Location, Collocation and R&D Alliances in the European ICT Industry. *Research Policy*, 38(2), 393-403. doi: 10.1016/j.respol.2008.11.005

Omri, A. & Boujelbene, Y. (2015). Entrepreneurial Team: How Human and Social Capital Influence Entrepreneurial Opportunity Identification and Mobilization of External Resources. *Journal of Entrepreneurship, Management, and Innovation*, 11(3), 25-42. doi: 10.7341/20151132

Ostgaard, T. A. & Birley, S. (1994). Competitive Strategies and New Venture Growth. In *Frontiers of Entrepreneurship Research*, 73-87.

Ozcan, P., & Eisenhardt, K. M. (2009). Origin of Alliance Portfolios: Entrepreneurs, Network Strategies, and Firm Performance. *Academy of Management Journal*, 52(2), 246-279. doi: 10.5465/amj.2009.37308021

Park, S. H. & Luo, Y. (2001). Guanxi and Organizational Dynamics: Organizational Networking in Chinese Firms. *Strategic Management Journal*, 22(5). 455-477. doi: 10.1002/smj.167

Pollack, J. M., Rutherford, M. W., Seers, A., Coy, A. E. & Hanson, S. (2016). Exploring Entrepreneurs' Social Network Ties: Quantity Versus Quality. *Journal of Business Venturing Insights*, (6), 28-35. doi: 10.1016/j.jbvi.2016.09.001

Press Oracle. (2016). *Kauffman Firm Survey (KFS) – Baseline/First/Second/Third/Fourth Follow-Ups: Study Metadata* Documentation. Retrieved from http://pressoracle.com/4229001-kauffman-firm-survey-kfs-baseline-first-second-third-ftheth/

Raunelli, J. C. Power, M. & Galarza, F. (2016). Why Do Entrepreneurs Leave the Market? An Explanation from Experimental Economics in Peru. *Economía*. 39(77), 187-228. doi: 10.18800/economia.201601.005

Read, S., Song, M. & Smit, W. (2009). A Meta-Analytic Review of Effectuation and Venture Performance. *Journal of Business Venturing*, 24(6), 573-587. doi: 10.1016/j.jbusvent.2008.02.005

Robinson, K. C. & Philips McDougall, P. (2001). Entry Barriers and New Venture Performance: A Comparison of Universal and Contingency Approaches. *Strategic Management Journal*, 22(6/7), 659-685. doi: 10.1002/smj.186

Ryan, A. & O'Malley, L. (2016). The Role of the Boundary Spanner in Bringing About Innovation in Cross-Sector Partnerships. *Scandinavian Journal of Management*, 32(1), 1-9. doi: 10.1016/j.scaman.2015.09.002

Sandberg, W. R. & Hofer, C. W. (1987). Improving New Venture Performance: The Role of Strategy, Industry Structure, and the Entrepreneur. *Journal of Business Venturing,* 2(1). 5-28. doi: 10.1016/0883-9026(87)90016-4

Sarasvathy, S. D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *Academy of Management Review*, 26(2), 243–263. doi: 10.5465/amr.2001.4378020

Shane, S. A. (2003). *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*, Cheltenham, Edward Elgar.

Silverman, B. S. (1999). Technological Resources and the Direction of Corporate Diversification: Toward an Integration of the Resource-Based View and Transaction Cost Economics. *Management Science*, 45(8), 1109-1124. doi: 10.1287/mnsc.45.8.1109

Small Business Administration website. (2012). Retrieved from www.sba.gov

Smeltzer, L. R., Van Hook, B. L. & Hutt, R. W. (1991). Analysis of the Use of Advisors as Information Sources in Venture Startup. *Journal of Small Business Management,* 29(3), 10-21. Retrieved from http://0-eds.b.ebscohost.com.aupac.lib.athabascau.ca/eds/pdfviewer/pdfviewer?sid=8266b911-4c26-4d4a-a04a-a2c389ef7fc6%40sessionmgr103&vid=3&hid=117

Smith, K. G., Baum, J. R. & Locke, E. A. (2001). A Multidimensional Model of Venture Growth. *Academy of Management Journal*, 44(2). 292-303. doi: 10.2307/3069456

Smith, A., Judge, W., Pezeshkan, A. & Nair, A. (2016). Institutionalizing Entrepreneurial Expertise in Subsistence Economies. *Journal of World Business*, 51(6), 910-922. doi: 10.1016/j.jwb.2016.02.003

Song, M., Podoynitsyna, K., Van Der Bij, H. & Halman, J. I. M. (2008). Success Factors in New Ventures: A Meta-Analysis. *Journal of Product Innovation Management*, 25, 7-27. doi: 10.1111/j.1540-5885.2007.00280.x

St-Jean, E., Tremblay, M., Janssen, F., Baronet, J., Loué, C. & Nafa, A. (2016). May Business Mentors Act as Opportunity Brokers and Enablers Among University Students? *International Entrepreneurship and Management Journal*, 13(1), 97-111. doi: 10.1007/s11365-016-0397-4

Stuart, T. E. (2000). Interorganizational Alliances and the Performance of Firms: A Study of Growth and Innovation Rates in a High-Technology Industry. *Strategic Management Journal*, 21(8), 791–811. doi: 10.1002/1097-0266(200008)21:8<791::aid-smj121>3.0.co;2-k

Subramaniam, M. & Youndt, M. A. (2005). The Influence of Intellectual Capital on the Types of Innovative Capabilities. *Academy of Management Journal*, 48(3), 450-463. doi: 10.5465/amj.2005.17407911

Templeton, G. F. (2011). A Two-Step Approach for Transforming Continuous Variables to Normal: Implications and Recommendations for IS Research. *Communications of the Association for Information Systems*. 28(1), 41-58. Retrieved from https://www.researchgate.net/publication/289265853_A_two-step_approach_for_transforming_continuous_variables_to_normal_Implications_and_recommendations_for_IS_research

Ter Wal, A. L. J., Alexy, O., Block, J. & Sander, P. G. (2016). The Best of Both Worlds: The Benefits of Open-Specialized and Closed-Diverse Syndication Networks for New Ventures' Success. *Administrative Science Quarterly*, 61(3), 393-432. doi: 10.1177/0001839216637849

Tushman, M. L. (1977). Special Boundary Roles in the Innovation Process. *Administrative Science Quarterly*, 22(4), 587-605. doi: 10.2307/2392402

Vasilchenko, E. & Morrish, S. (2011). The Role of Entrepreneurial Networks in the Exploration and Exploitation of Internationalization Opportunities by Information and Communication Technology Firms. *Journal of International Marketing*, 19(4), 88-105. doi: 10.1509/jimk.19.4.88

Watson, J. (2007). Modeling the Relationship Between Networking and Firm Performance. *Journal of Business Venturing*, 22(6), 852-874. doi: 10.1016/j.jbusvent.2006.08.001

Wind, J. & Mahajan, V. (1997). Issues and Opportunities in New Product Development: An Introduction to the Special Issue. *Journal of Marketing Research*, 34(1), 1-12. doi: 10.2307/3152060

Yang, T. & Aldrich, H. E. (in Press - 2016). "The Liability of Newness" Revisited: Theoretical Restatement and Empirical Testing in Emergent Organizations. *Social Science Research.* Advance online publication. doi: 10.1016/j.ssresearch.2016.09.006

Zahra, S. A. & Bogner, W. C. (2000). Technology Strategy and Software New Ventures' Performance: Exploring the Moderating Effect of the Competitive Environment. *Journal of Business Venturing*, 15(2), 135-173. doi: 10.1016/s0883-9026(98)00009-3

Zanakis, S. H., Renko, M. & Bullough, A. (2012). Nascent Entrepreneurs and the Transition to Entrepreneurship: Why Do People Start New Businesses? *Journal of Developmental Entrepreneurship*, 17(01), 1250001.1-1250001.25. doi: 10.1142/s108494671250001x

Zhang, C., Wu, F. & Henke, J. W. (2015). Leveraging Boundary Spanning Capabilities to Encourage Supplier Investment: A Comparative Study. *Industrial Marketing Management*, 49, 84-94. doi: 10.1016/j.indmarman.2015.04.012

Zimmerman, M. A. & Zeitz, G. J. (2002). Beyond Survival: Achieving New Venture Growth by Building Legitimacy. *The Academy of Management Review*. 27(3), 414-431. doi: 10.2307/4134387

APPENDICES

APPENDIX 1: KFS DATA USAGE AGREEMENT

National Opinion Research Center (NORC)
Kauffman Foundation
Data User Agreement:
Kauffman Foundation Data
Please mail to:
Timothy Mulcahy, Senior Research Scientist
National Opinion Research Center (NORC)
4350 East West Highway Suite 800
Bethesda MD 20814

1.0 Terms and Conditions

The terms and conditions set forth in this Data User Agreement (the "Agreement") for the National Opinion Research Center (NORC) and the Kauffman Foundation ("Kauffman Foundation") apply to any person or entity seeking access to microdata sets maintained in NORC's Data Enclave (the "Data Sets"). Undersigned Institution(s) (collectively referred to herein as the "Requestor") affirms that it understands and agrees with all conditions and responsibilities set forth herein. All conditions defined in this Agreement will remain in effect until the Requestor's research is complete as defined in this Agreement (see section 11.0: Duration of Agreement) or until a subsequent written agreement supersedes this Agreement.

Only a Requestor working under a proposal/application ("Proposal") approved by NORC and Kauffman Foundation and incorporated herein by reference may obtain access to and use select Data Sets. NORC's guidelines for reviewing and approving requests for access to Data Sets are determined by the data procuring entity (i.e., Kauffman Foundation); therefore, terms and conditions may vary accordingly.

2.0 Purpose

The purpose of this Agreement is to ensure the integrity and confidentiality of confidential information contained in Data Sets as used by the Requestor. The Agreement is customized to each Requestor's needs as identified in the Proposal and defines requirements and restrictions unique to each level of restrictiveness as defined below.

3.0 Governing Legislation

In conjunction with Kauffman Foundation, approved users will enter into a contract agreement (Data User Agreement) with NORC. In turn, Requestor will be required to provide feedback to the Data Enclave (see Benefits Criteria).

4.0 Benefits Criteria

Requestor will be required to provide feedback to the Data Enclave, which may take any of the following forms:
1. Dissertations: for junior scholars wishing to use the Kauffman Foundation dataset through the Enclave to write dissertations.
2. Database Improvements: for scholars willing to improve the quality of Kauffman

Foundation data by merging outside datasets and providing documentation for other researchers.
3. Methodological Advances: for scholars interested in advancing the state-of-the-art in terms of methodology. Examples will be made available to the user community and might include:
a. Developing code that creates different measures useful to other researchers.
b. Developing a set of frequently asked questions (FAQs) about different aspects of the data or a detailed literature review.
c. Developing new, or restructuring current, questions for the survey and providing documentation of the rationale for those questions.
d. Creating analytical extracts or subsets of the base file.
e. Developing new approaches to engage and promote an active user community within the Data Enclave.

5.0 Data Description

On the basis of the Proposal, Requestor can access the Data Sets and other materials identified in Requestor's Proposal, as approved by the NORC and Kauffman Foundation.

6.0 Conditions of Data Access

Access to the Data Sets is limited solely to the Requestor for the Requestor's research purposes stated in the Proposal. The Data Sets may not be provided, given, lent, or in any way made accessible to anyone other than the Requestor. Requestor agrees to the following:
1. Fulfill all pre-access Requirements
a. The Requestor must submit an Application (Proposal) for the Use of the NORC Data Enclave (http://www.norc.org/DataEnclave/Data+Users/New+User+Registration) clearly stating the purpose of the research and describing how the Data Sets will be used.
b. The Requestor must sign and submit a non-disclosure agreement specific to the Kauffman Foundation data set.
c. The Requestor must sign and submit a Data User Agreement (contract contained herein), signed by all researchers involved in the research and signed by a representative from the Requestor's research institution with institutional signature authority.
d. Requestor must provide NORC with a pre-defined static or limited range IP Address from which Requestor will access data remotely, as access will only be permitted from this IP Address.
e. At Kauffman Foundation**'s** discretion, researchers may be required to undergo a security check that meets federal government standards.
f. Requestor must complete all training requirements (to be determined in conjunction with Kauffman Foundation) before accessing Data Sets.
2. Requestor shall use Data Sets solely for the Requestor's statistical research purposes, as stated in the Proposal. Data Sets may not be used for any other purposes whatsoever, including administrative, regulatory, law enforcement, judicial, or other purposes.
3. Requestor will (1) participate in a one-day training program, (2) report on research progress, (3) share preliminary findings that may be of interest to the program, and (4) present a final paper at an NORC-sponsored conference to showcase Requestor findings. Papers will be published in the Kauffman Foundation working paper series with the Social Science Research Network, which does not preclude publication in journals.

4. Requestor agrees that he/she shall not attempt to compromise the security of the computing environment by capturing or sharing any images or information from the Enclave. This includes screen capture software or devices, screen sharing software or devices, and allowing unauthorized users to view the Enclave.
5. Requestor shall not attempt to re-identify respondents, including without limitation persons, families, households, schools, establishments, economic units or any other entities ("Respondents"); nor will any list of identities or raw data elements be published or otherwise distributed.
6. Within 24 hours of the time when a Requestor becomes aware that the identity of any Respondent or information may have been identified, Requestor shall advise NORC of the disclosure, inadvertent or otherwise. Requestor shall use his/her best efforts to destroy, retract or otherwise safeguard from further dissemination the materials containing the Respondent's identity or containing information from which the Respondent'sidentity may be determined.
7. All research output, such as statistical results and reports derived using Stata and SAS (or any other statistical analysis programs) must be reviewed by NORC and/or Kauffman Kauffman Foundation staff to ensure that the disclosure protection standards of the Data Producer are met.
8. Use of the Data Sets will be consistent with NORC/Kauffman Kauffman Foundation policies regarding scientific integrity and human subjects' research.
9. Requestor agrees to provide any work containing data derived from Data Sets for review by NORC/Kauffman Kauffman Foundation and the authors of such Data Sets thirty (30) days prior to the submission of such work for publication. Requestor shall not publish any work containing data derived from Data Sets without first deleting NORC/Kauffman Foundation confidential and/or proprietary information as identified by NORC/Kauffman Foundation and the authors of the Data Sets during their review.
10. Requestor agrees to provide NORC copies of any work containing data derived from Data Sets within ninety (90) days of the publication date of such work.
11. Requestor agrees to credit Kauffman Foundation and the NORC Data Enclave for any work containing data derived from Data Sets. However, this shall in no way be construed as an endorsement by NORC/Kauffman Foundation of Requestor's work. At Kauffman Foundation's discretion, for remote access to datasets, names of companies and addresses may be replaced with a new variable name that does not identify the company.

7.0 Violations of this Agreement

NORC shall notify Kauffman Foundation of any material violation of this Agreement within a reasonable time of such violation. NORC and Kauffman Foundation may treat violations of this Agreement as violations of their policies and procedures on scientific integrity and misconduct. If NORC and/or Kauffman Foundation deem any aspect of this Agreement to be violated, they reserve the right to:
a. Deny Requestor access to the Data Sets and the NORC Data Enclave.
b. Withhold undelivered data output from Requestor.
c. Report the violation to the appropriate authorities at the Requestor (and other authorities) and recommend sanctions be imposed.
d. Invoke other remedies that may be available to NORC and/or Kauffman Foundation under law or equity, including injunctive relief to stop Requestor's use of any data derived from the Data Sets.
e. Terminate this Agreement without any further cause and without notice.

8.0 Monitoring Usage

NORC reserves the right to take any reasonable steps to monitor Requestor's use of the Data Sets to ensure that the Requestor complies with all terms of this Agreement. These steps include, without limitation, the following:

a. NORC may enter Requestor's premises where Remote Access is being conducted without advanced notice at any reasonable time for auditing purposes.

b. A NORC Data Enclave Researcher Assistant may contact any employee of a Requestor to validate that the terms of this Agreement are being properly enforced.

c. NORC may maintain a full record of all computer-based interactions with the Data Sets at a keystroke level of detail.

d. NORC may video record employees of Requestor during on-site use of the Data Enclave.

e. NORC may review all Requestor's data output derived from Data Sets.

f. NORC may search Requestor's employees and their possessions upon entrance and exit of the onsite Data Enclave facility.

9.0 Training

Researchers are required to complete a mandatory training program prior to accessing Kauffman Foundation data.

10.0 Ownership of the Intellectual Property

Kauffman Foundation and NORC will actively and aggressively enforce their intellectual property rights to the fullest extent of the law.

"Intellectual Property Rights" means any rights existing now or in the future under patent law, copyright law, trademark law, database protection law, trade secret law, and any and all similar proprietary rights.

a. Requestor acknowledges and agrees that all rights, including Intellectual Property Rights, to the Data Enclave, including without limitation Data Sets and all other data, information, documents, programs, trade secrets, proprietary rights, confidential information and facilities that comprise or are contained in the Data Enclave, and any improvement made thereto during the term of this Agreement, belong to NORC/Kauffman Foundation.

b. Requestor acknowledges and agrees that all rights, including Intellectual Property Rights, to inventions, discoveries, improvements, concepts, work product and programs conceived or made by NORC/Kauffman Foundation, their officers, directors, agents, employees, licensees, contractors, their related companies, and all other persons or entities retained by NORC/Kauffman Foundation during the term of this Agreement in connection with this Agreement, including any extensions thereof, belong to NORC/Kauffman Foundation.

c. Except as provided in paragraph 10(a), NORC/Kauffman Foundation acknowledge and agree that all rights, including Intellectual Property Rights, to inventions, discoveries, improvements, concepts, works and manuscripts conceived or made by Requestor, its officers, directors, agents, employees, licensees, contractors, its related companies, and all other persons or entities retained by Requestor during the term of this Agreement, including any extensions thereof, in connection with Requestor's research identified in the Proposal, belong to Requestor.

11.0 Duration of this Agreement

This Agreement is effective upon the date that it is approved by NORC ("Effective Date"), and will remain in effect until the completion of the research project, as stated in the Proposal, or 12 months from the Effective Date, whichever comes first. If, at the end of 12 months, access to the Data Sets is still desired, the Requestor must contact NORC in writing to request such continued access. If continued access is denied by NORC or if the user neglects to contact NORC prior to the end of the 12-month period, access will be denied at the end of the 12-month period.

Parties signing this Agreement agree to amend this Agreement as necessary for NORC to comply with all applicable Federal and state requirements regarding privacy and confidentiality of restricted data.

Any ambiguity in this Agreement shall be resolved to permit NORC to comply with all applicable Federal and state requirements regarding privacy and confidentiality of restricted data.

The Requestor and NORC/Kauffman Foundation have the right to terminate this agreement without cause at any time.

12.0 Liability

Requestor agrees that NORC is not liable for any damage to computer systems or loss of data while accessing data or other materials through the Data Enclave.

Data contained in the Data Enclave may contain errors due to sampling equipment, sampling method, data storage media, or data transfer method. Requestor agrees to assume all responsibility for interpreting the data correctly.

Under no circumstances shall NORC be liable for any direct, indirect, incidental, punitive, special, or consequential damages resulting from: Requestor's use or inability to use the Data Enclave, training materials or the on-site facility.

13.0 Miscellaneous

13.1 Merger. This Agreement constitutes the entire Agreement between the parties with respect to the subject matter contained herein, and all prior agreements, understandings and negotiations are merged into this Agreement. This Agreement may not be modified except in writing signed by the parties.

13.2 Waiver. Waiver of any breach of this Agreement shall be ineffective unless in writing signed by the party waiving compliance, and shall not be considered a waiver of any other breach.

13.3 Related Entities Bound. This Agreement shall be binding on the parties and their successors, assigns, affiliates, subsidiaries, officers, servants, employees, agents and representatives and all parties in active concert or participation with any of them.

13.4 Authority. The parties represent and warrant that they have full authority to enter into this Agreement.

13.5 Severability. The determination that any provision of this Agreement is invalid or unenforceable shall not invalidate this Agreement or render other provisions unenforceable, and this Agreement shall be construed and performed in all respects as if the invalid or unenforceable provisions were omitted, insofar as the primary purposes of this Agreement are not impeded.

13.6 Governing Law. This Agreement shall be applicable worldwide.

13.7 Agreement Not Construed Against Drafter. The rule of construction that interprets contracts against the drafter shall not apply to this Agreement.

In signing this form, I affirm that I have read and agree to the above.

Print name: _____ Date: _____

Institution: _____ Phone No. _____

Signature: _____ E-mail: _____

Title of Institutional Signatory: _____
Name of Institutional Signatory: _____
Institutional Signature: _____ Phone No. _____
E-mail: _____

Other researchers working on this project:
Print name: _____ Signature: _____

Phone No. _____ E-mail: _____

Title of Institutional Signatory: _____
Name of Institutional Signatory: _____
Institutional Signature: _____ Phone No. _____
E-mail: _____

* The Institutional Signatory must have the authority to legally bind the Institution to this agreement.
*The Data Enclave is a partnership between NORC, Kauffman Foundation and approved data users. As such,
users will be asked to provide feedback on their experience (e.g., the quality of the data, metadata and
documentation). Feedback may take the form of responding to occasional customer feedback surveys and/or
customer interviews.

For Internal Use Only

Date Received _____ Receipt Control No._____

Time Received _____ NORC Staff Initials _____

APPENDIX 2: KFS INDUSTRY CATEGORIES FOR NEW BUSINESSES

	KFS %	Census
Professional, Management, and Educational Services	16.1%	14.1%
Retail Trade	15.9%	14.1%
Administrative and Support, and Waste Management	9.6%	14,1%
Construction	10.0%	15.7%
Other Services	8.5%	8.5%
Manufacturing	7.1%	3.2%
Wholesale Trade	5.4%	4.5%
Real Estate, Rental, and Leasing	3.7%	5.1%
Finance and Insurance	4.7%	2.2%
Health Care and Social Assistance	4.1%	7.7%
Information	2.7%	1.1%
Transportation and Warehousing	3.4%	3.3%
Arts, Entertainment, and Recreation	2.7%	2.1%
Accommodation and Food Services	4.3%	9.1%
Agriculture, Forestry, Fishing, and Hunting	1.1%	0.4%
Mining	0.1%	0.3%
Utilities	0.1%	0.1%
Management of Companies and Enterprises	0.0%	0.1%
Unclassified	0.0%	2,2%

APPENDIX 3: THE KAUFFMAN FIRM SURVEY – FULL BASELINE QUESTIONNAIRE

A. INTRODUCTION

INTRO: Hello, my name is _____. I'm calling from Mathematica Policy Research in Princeton, New Jersey on behalf of the Kauffman Foundation of Kansas City.

A1. May I speak with ([CEO/OWNER]/the owner or CEO of [NAME BUSINESS])?

OWNER/CEO—PROCEED WITH INTERVIEW	01	**GO TO A4**
OWNER/CEO—BAD TIME/CALL BACK	02	**GO TO A2a**
OWNER/CEO NOT AVAILABLE	03	**GO TO A3**
OWNER/CEO NO LONGER WITH BUSINESS	04	**GO TO A2**
OWNER/CEO NOT AVAILABLE, OTHER OWNER AVAILABLE	05	**GO TO A2**
BUSINESS NO LONGER IN OPERATION	06	**GO TO A10**
DON'T KNOW	d	**THANK AND TERMINATE**
REFUSED	r	

A2. Who is (currently the/another) owner of [NAME BUSINESS]?

INTERVIEWER: UPDATE OWNER INFORMATION IN BUSINESS PROFILE BLOCK.

A2a. I'm sorry. When would be a better time to reach (you/[OWNER])?

INTERVIEWER: ENTER CALLBACK DATE AND TIME.

READ: Is this the best number to reach you?

INTERVIEWER: UPDATE CONTACT INFORMATION AS NEEDED.

Thank you very much. Good-bye.

A3. Please tell me when (OWNER/CEO) will be available and I'll call back later.

INTERVIEWER: ENTER CALLBACK DATE AND TIME.

READ: Is this the best number to reach (him/her)?

INTERVIEWER: UPDATE CONTACT INFORMATION AS NEEDED.

Thank you very much. Good-bye.

A4. We are conducting a study for the Kauffman Foundation about new businesses. Your business has been selected to participate in the interview and represent new businesses across the country. If your business is eligible for the study, you will receive $50 for completing the interview. Your answers will be kept confidential.

A5. First, are you actively involved in running [NAME BUSINESS]? By actively involved in running the business, we mean providing regular assistance or advice with day-to-day operations of the business rather than providing only money or occasional operating assistance.

YES	01	
NO	00	**GO TO A7**
DON'T KNOW	d	
REFUSED	r	

A6. Were you actively involved in the creation of [NAME BUSINESS]?

YES	01	**GO TO A8**
NO	00	
DON'T KNOW	d	
REFUSED	r	

A7. Is there another owner of [NAME BUSINESS]?

YES	01	**GO BACK TO A2**
NO	00	**THANK AND TERMINATE**
DON'T KNOW	d	
REFUSED	r	

A8. First, I'd like to confirm your business' mailing address. Is [NAME BUSINESS]'s mailing address (ADDRESS, CITY, STATE, ZIP)?

YES ..... 01 **GO TO B1**
NO ..... 00 **GO TO A9**
DON'T KNOW ..... d
REFUSED ..... r
GO TO B1

A9. What is [NAME BUSINESS]'s correct mailing address?

INTERVIEWER: UPDATE MAILING ADDRESS INFORMATION.

ADDRESS:_____

CITY:_____

STATE:_____ ZIP:_____

DON'T KNOW ..... d
REFUSED ..... r

GO TO B1

A10. What is the **main** reason [NAME BUSINESS] is out of business?

SOLD TO ANOTHER BUSINESS 01
MERGED WITH ANOTHER BUSINESS 02
TEMPORARILY STOPPED OPERATIONS 03
PERMANENTLY OUT OF BUSINESS 04
OTHER (SPECIFY) 05

_____

_____

DON'T KNOW ..... d
REFUSED ..... r

THANK AND TERMINATE

B. ELIGIBILITY SCREENING

All of the following questions I'm going to ask are about [NAME BUSINESS].

B1. I'm going to read you some descriptions of how a business can get started. Please tell me which of the following best describes how [NAME BUSINESS] was started. Was it (READ ITEM FROM LIST) . . .?

a. A new business, branch or subsidiary owned by an existing business 01

b. A business inherited from someone else 02

c. A new, independent business created by a single person or a team of people 03

d. The purchase of an existing business 04

e. The purchase of a franchise 05

f. An organization designed for social and charitable objectives and legally established as a ‑not-for-profit‖ 06

g. Or, the business started some other way? (SPECIFY) 07

_____

DON'T KNOW ..... d

REFUSED ..... r

[B1_Bus_start_0]

INTERVIEWER NOTE: IF RESPONDENT ANSWERS "YES" TO ITEMS a, b, OR f, THANK AND TERMINATE.

B2a. I'm going to read you a list of some different forms of legal status a business can have. As of December 31, 2004, which form of legal status did [NAME BUSINESS] have? Was it a . . .

READ LIST AND READ DESCRIPTIONS AS NEEDED:

Sole Proprietorship: A type of business ownership in which a business is owned and managed by one individual and no subchapter S-corporation or C-corporation has been established.

Limited Liability Company: A cross between a corporation and a partnership, and offering some of the benefits of both. Similar to S corporations, income produced by a limited liability company flows through to owners (known as -members‖) who pay their own taxes as individuals. Unlike S-corporations, however, limited liability companies are not subject to as many government restrictions.

Subchapter S-Corporation: Corporations in which all profits and losses are passed through to shareholders, just as they are passed through to partners in a partnership.

C-Corporation: Legal entities separate from their owners that may engage in business, make contracts, own property, pay taxes, and sue and be sued by others.

General Partnership: An association of two or more people who co-own a business for the purpose of making a profit and no subchapter S-corporation or C-corporation has been established.

Limited Partnership: A partnership in which one or more partners are general partners who manage the business and others are limited partners who invest in the business but forego any right to manage the company.

Sole Proprietorship, ... 01

Limited Liability Company, ... 02

Subchapter S-Corporation, ... 03

C-Corporation, ... 04

General Partnership, ... 05

Limited Partnership, or 06

Something else? (SPECIFY) 07

_____

DON'T KNOW ..... d

REFUSED ..... r

[B2a_Legal_Status_0]

B2b. Thinking back two years, on December 31, 2003 or before, were the business operations of [NAME BUSINESS] being conducted under one of the **other** legal forms I just read?

IF NEEDED, INTERVIEWER PROBE: WOULD YOU LIKE ME TO READ THEM AGAIN?

YES	01	**THANK AND TERMINATE**
NO	00	
DON'T KNOW	d	
REFUSED	r	

[B2b_Prev_Legal_Status_0]

B3. Does [NAME OF BUSINESS] have an Employer's Identification Number, which is also known as an EIN?

YES	01	
NO	00	**GO TO B5**
DON'T KNOW	d	
REFUSED	r	

[B3_EIN_0]

B4. When did the business apply for the Employer Identification Number? Was it . . .?

During Calendar Year 2005,	01	
During Calendar Year 2004,	02	
Or, During Calendar Year 2003 or Before?	03	**THANK AND TERMINATE**
DON'T KNOW	d	
REFUSED	r	

[B4_EIN_Year_0]

IF SOLE PROPRIETORSHIP AT QUESTION B2a, ASK B5. OTHERWISE, GO TO B7.

B5. A Schedule C or Schedule C-EZ is used to report income or loss from a business. It is submitted with your personal income tax.

As part of your 2004 income tax return, did you submit a Schedule C or Schedule C-EZ to report income or loss from [NAME BUSINESS]?

YES, DID SUBMIT	01	
NO, DID NOT SUBMIT	00	**GO TO B7**
DON'T KNOW	d	
REFUSED	r	

[B5_Schedule_C_0]

B6. Was 2004 the first TAX year you submitted a Schedule C or a Schedule C-EZ to report income or loss from this business?

YES, WAS FIRST YEAR	01	
NO, WAS NOT FIRST YEAR	02	**THANK AND TERMINATE**
DON'T KNOW	d	
REFUSED	r	

[B6_Schedule_C_Year_0]

B7. Did [NAME BUSINESS] pay any state unemployment insurance taxes for calendar year 2004?

YES	01	
NO	00	**GO TO B10**
DON'T KNOW	d	
REFUSED	r	

[B7_UI_0]

B8. **IF YES:** Was this the first year the business paid state unemployment taxes?

YES	01	
NO	00	**THANK AND TERMINATE**
DON'T KNOW	d	**GO TO B10**
REFUSED	r	

[B8_UI_Year_0]

B9. **IF YES:** And for what month in 2004 were the first state unemployment taxes paid?

_____ MONTH] **GO TO B10**

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:
Would you say it was in . . .?

The 1st Quarter Of 2004
(JANUARY TO MARCH), ... 01

The 2nd Quarter Of 2004 (APRIL TO JUNE), ... 02

The 3rd Quarter Of 2004
(JULY TO SEPTEMBER), or 03

The 4th Quarter Of 2004
(OCTOBER TO DECEMBER)? 04

DON'T KNOW ..... d

REFUSED ..... r

B10. Did [NAME BUSINESS] pay any federal social security taxes, which are also known as FICA payments, for calendar year 2004?

YES 01

NO ..... 00]

DON'T KNOW ..... d] **GO TO B13**

REFUSED ..... r]

[B10_FICA_0]

B11. **IF YES:** Was this the first year the business paid social security taxes (FICA payments)?

YES 01

NO ..... 00 **THANK AND TERMINATE**

DON'T KNOW ..... d] **GO TO B13**

REFUSED ..... r]

[B11_FICA_Year_0]

B12. **IF YES:** And for what month in 2004 were the first social security taxes (FICA payments) paid?

_____ MONTH

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:
Would you say it was in . . .

The 1st Quarter of 2004
(JANUARY TO MARCH),..... 01

The 2nd Quarter of 2004 (APRIL TO JUNE), ... 02

The 3rd Quarter of 2004
(JULY TO SEPTEMBER), or..... 03

The 4th Quarter of 2004
(OCTOBER TO DECEMBER)?..... 04

DON'T KNOW..... d

REFUSED..... r

B13. **INTERVIEWER NOTE: A RESPONDENT IS ELIGIBLE TO CONTINUE THE INTERVIEW IF THE FOLLOWING CONDITIONS APPLY:**

1. B1 – New business is **not** one of the following: Items a, b, f

AND

2. B2b – Business has **not** had any other legal status prior to 2004.

AND

3. B4 – Business did **not** apply for EIN in 2003 or earlier

AND

4. B6 – Business did **not** submit Schedule C or Schedule C EZ before 2004

AND

5. B8 – Business did **not** make UI payments before 2004

AND

6. B11 – Business did **not** make FICA payments before 2004

AND <u>ONE</u> OF THE FOLLOWING APPLIES:

1. B2a – Names one of the six forms of legal status
2. B4 – Business applied for EIN during calendar year 2004
3. B6 – Business submitted Schedule C or Schedule C-EZ for the first time in 2004
4. B8 – Business paid UI for the first time in 2004
5. B11 – Business paid FICA for the first time in 2004

C. BUSINESS CHARACTERISTICS

I'd like to find out more about [NAME BUSINESS].

C1a. As of December 31, 2004, the records indicate the principal activity of the business was [D&B NAICS CODE DESCRIPTION]. Is that correct?

YES ..... 01 **GO TO C2**
NO 00
DON'T KNOW ..... d
REFUSED ..... r

C1b. As of December 31, 2004, what was the principal activity of the business?

_____

_____

IF SOLE PROPRIETORSHIP AT QUESTION B2a, GO TO C5.

C2. As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business.

|___|___|___| NUMBER OF OWNERS

DON'T KNOW ..... d
REFUSED ..... r

[C2_Owners_0]

C3. Of the [NUMBER OF OWNERS FROM C2] owners as of December 31, 2004, how many owners actively helped to run [NAME BUSINESS]? By helped to run the business we mean that they provided regular assistance or advice with day-to-day operations of the business, rather than providing only money or occasional operating assistance.

|___|___|___| NUMBER OF OWNER/OPERATORS

DON'T KNOW ..... d
REFUSED ..... r

[C3a_Owner_ Operators_0]

IF ONE OWNER/OPERATOR REPORTED AT C3, GO TO C5. IF MORE THAN ONE OWNER/OPERATOR REPORTED AT C3, ASK:

C4. I'm going to be asking some questions about each of the owners who actively helped run [NAME BUSINESS]. Can you tell me the first and last name of the other owner(s) of [NAME BUSINESS]?

	FIRST NAME	LAST NAME	
OWNER A (RESPONDENT)	_____	_____	(CONFIRM)
OWNER B	_____	_____	
OWNER C	_____	_____	
OWNER D	_____	_____	

[C4_NumOwners_Confirm_0]

NOTE: UP TO 10 OWNER/OPERATOR/FOUNDERS WILL BE INCLUDED.

INTERVIEWER: RECORD NAMES OF ALL OWNERS REPORTED AT C4. CONFIRM SPELLING OF NAMES.

C5. Not counting owner(s), on December 31, 2004, how many people worked for [NAME BUSINESS]? Please include all full- and part-time employees, but exclude contract workers who work for the business either full- or part-time but are not on the business' official payroll.

|___|___|___| NUMBER OF DECEMBER 31st 2004 EMPLOYEES

DON'T KNOW..... d

REFUSED..... r

[C5_Num_Employees_0]

IF BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO C8.

C6. . . . And of those [NUMBER FROM C5], how many were full-time? (**IF NEEDED:** Full-time is considered 35 hours or more per week)

|___|___|___| NUMBER OF DECEMBER 31st 2004 FULL-TIME EMPLOYEES

DON'T KNOW..... d

REFUSED..... r

[C6_Num_FT_Employees_0]

C7. . . . And how many were part-time? (**IF NEEDED:** Part-time is considered less than 35 hours per week)

|__|__|__| NUMBER OF DECEMBER 31st 2004 PART-TIME EMPLOYEES

DON'T KNOW..... d

REFUSED..... r

[C7_Num_PT_Employees_0]

C8. How would you describe the primary location where [NAME BUSINESS] operates? Is it . . .

A residence such as a home or garage,..... 01

A rented or leased space, ... 02

Space the business purchased, ... 03

A site where a client is located, or..... 04

Some other location? (SPECIFY)..... 05

_____

DON'T KNOW..... d

REFUSED..... r

[C8_Primary_Loc_0]

D. STRATEGY AND INNOVATION

D1. Does [NAME BUSINESS] provide (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. A service ..... **[D1a_Provide_Service_0]**	01	00	d	r
b. A product..... **[D1a_Provide_Product_0]**	01	00	d	r

D2. Businesses often have to compete with other businesses. A competitive advantage is something unique or distinctive a business provides that gives it an advantage compared to competitors. In calendar year 2004, did [NAME BUSINESS] have a competitive advantage over its competitors?

YES 01
NO 00
DON'T KNOW..... d
REFUSED..... r

[D2_Comp_Advantage_0]

D3. Whether assigned by an owner or obtained in some other way, does [NAME BUSINESS] have any of the following? (READ LIST)

FOR EACH "YES," ASK: How many (READ ITEM) does [NAME BUSINESS] have?

INTERVIEWERS IF NEEDED:

Patent: A patent is a right given by the government to preclude others from making and selling an invention for 20 years from the date of application in return for disclosure of how the invention operates.

Copyright: The legal right granted to authors, composers, artists and publishers to protect their thoughts and ideas for exclusive publication, reproduction, sale and distribution of their works.

Trademark: Words, names, symbols or devices, or any combination of these used to identify the goods of a business and to distinguish these goods from the goods of others.

	YES	NO	DON'T KNOW	REFUSED	NUMBER BUSINESS HAS
a. Patents	01	00	d	r	|__|__|
b. Copyrights	01	00	d	r	|__|__|
c. Trademarks	01	00	d	r	|__|__|

D4. -Licensing outll is licensing patents, copyrights, or trademarks owned by the business to other parties under a licensing agreement. In calendar year 2004, did [NAME BUSINESS] **license out** any (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. Patents **[D4_a_Lic_Out_Patents_0]**	01	00	d	r
b. Copyrights **[D4_b_Lic_Out_Copyrights_0]**	01	00	d	r
c. Trademarks **[D4_c_Lic_Out_Trademarks_0]**	01	00	d	r

D5. -Licensing in‖ is acquiring the right to use intellectual property such as patents, copyrights, or trademarks created by someone outside the business through a licensing agreement. In calendar year 2004, did [NAME BUSINESS] **license in** any (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. Patents..... **[D5_a_Lic_In_Patents_0]**	01	00	d	r
b. Copyrights..... **[D5_b_Lic_In_Copyrights_0]**	01	00	d	r
c. Trademarks..... **[D5_c_Lic_In_Trademarks_0]**	01	00	d	r

D6. Did [NAME BUSINESS] have any customers or sales in calendar year 2004?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO E1

[D6_Have_Sales_0]

D7. I'd like to learn more about the type of customers that [NAME BUSINESS] had during calendar year 2004. I am going to ask you to estimate the percent of the business' sales that were made to individuals, businesses, and government agencies. The total should equal 100%.

a. During calendar year 2004, what percentage of the business' sales were to private individuals?

|__|__|__| PERCENTAGE

DON'T KNOW ..... d
REFUSED ..... r

[D7_Perc_Sales_Indiv_0]

b. What percentage of the business' sales were to other businesses? [**IF NEEDED:** Please include sales to for-profit and not-for-profit business.]

|__|__|__| PERCENTAGE

DON'T KNOW ..... d
REFUSED ..... r

[D7_Perc_Sales_Bus_0]

c. What percentage of the business' sales were to government agencies?

|__|__|__| PERCENTAGE

DON'T KNOW..... d

REFUSED..... r

[D7_Perc_Sales_Govt_0]

E. BUSINESS ORGANIZATION AND HR BENEFITS

IF ONE OWNER REPORTED AT C2 AND BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO F1.

Next, I'd like to ask about how [NAME BUSINESS] is organized and about the benefits that are offered to employees.

E1. On December 31, 2004, how many employees or owners, if any, did [NAME BUSINESS] have who were primarily responsible for (READ ITEM)? Please include only full- and part-time employees, but not contract workers who work for the business but are not on the business' official payroll.

	NUMBER EMPLOYEES OR OWNERS	DON'T KNOW	REFUSED
a. Human resources such as employee benefits, recruitment, or hiring ..... [E1_a_Num_Human_Res_0]	|__|__|	d	r
b. Sales or Marketing such as sales, market research, customer analysis, or promotional activities ..... [E1_b_Num_Sales_0]	|__|__|	d	r
c. Executive administration functions such as strategic planning, competitive analysis, shareholder relations, or general management [E1_c_Num_Exec_Admin_0]	|__|__|	d	r
d. Research and development on new products or services..... [E1_d_Num_ResDev_0]	|__|__|	d	r
e. Production or manufacturing such as producing materials or products, production planning, production control, quality control, or storage [E1_e_Num_Prod_Manu_0]	|__|__|	d	r
f. General administration such as office management, responding to maintenance requests, purchase supplies, or training employees in office procedures..... [E1_f_Num_Gen_Admin_0]	|__|__|	d	r
g. Financial administration such as accounting procedures, budgeting, financial analysis, or investment activities ..... [E1_g_Num_Fin_Admin_0]	|__|__|	d	r
h. Does [NAME BUSINESS] have employees with any other key responsibilities? (SPECIFY) [E1_h_Num_Other_0]	|__|__|	d	r

E2a. As of December 31, 2004, did [NAME BUSINESS] offer full-time employees or owners (READ ITEM):

	YES	NO	DON'T KNOW	REFUSED
a. A health insurance plan either through the business or an association..... **[E2a_FT_Emp_Hlth_Plan_0]**	01	00	d	r
b. A retirement plan such as profit sharing, pension, including 401K, annuity, Keogh, etc. ..... **[E2a_FT_Emp_Retire_Plan_0]**	01	00	d	r
c. Stock options or other stock ownership..... **[E2a_FT_Emp_Stock_Own_0]**	01	00	d	r
d. A bonus plan..... **[E2a_FT_Emp_Bonus_Plan_0]**	01	00	d	r
e. Tuition reimbursement ..... **[E2a_FT_Emp_Tuit_Reim_0]**	01	00	d	r
f. Paid vacation ..... **[E2a_FT_Emp_Paid_Vaca_0]**	01	00	d	r
g. Paid sick days..... **[E2a_FT_Emp_Paid_Sick_0]**	01	00	d	r
h. Alternative work schedules such as flex time or job sharing ..... **[E2a_FT_Emp_Flex_Time_0]**	01	00	d	r
i. Any other benefits? (SPECIFY)..... **[E2a_FT_Emp_Other_0]** _____	01	00	d	r

IF ZERO PART-TIME EMPLOYEES AT C7, GO TO F1.

E2b. As of December 31, 2004, did [NAME BUSINESS] offer part-time employees (READ ITEM):

	YES	NO	DON'T KNOW	REFUSED
a. A health insurance plan either through the business or an association..... **[E2b_PT_Emp_Hlth_Plan_0]**	01	00	d	r
b. A retirement plan such as profit sharing, pension, including 401K, annuity, Keogh, etc. ..... **[E2b_PT_Emp_Retire_Plan_0]**	01	00	d	r
c. Stock options or other stock ownership..... **[E2b_PT_Emp_Stock_Own_0]**	01	00	d	r
d. A bonus plan..... **[E2b_PT_Emp_Bonus_Plan_0]**	01	00	d	r
e. Tuition reimbursement ..... **[E2b_PT_Emp_Tuit_Reim_0]**	01	00	d	r
f. Paid vacation ..... **[E2b_PT_Emp_Paid_Vaca_0]**	01	00	d	r
g. Paid sick days..... **[E2b_PT_Emp_Paid_Sick_0]**	01	00	d	r
h. Alternative work schedules such as flex time or job sharing ..... **[E2b_PT_Emp_Flex_Time_0]**	01	00	d	r
i. Any other benefits? (SPECIFY)..... **[E2b_PT_Emp_Other_0]** _____	01	00	d	R

F. BUSINESS FINANCES

F1. Now I'd like to ask about [NAME BUSINESS]'s financing. Businesses can get money from the savings or investments of the owner(s), money from spouses, family or other individuals, from companies, borrowing in an owner's name, venture funds, or by borrowing **in the name of the business**. Some of the funds must be paid back and other funds represent an equity stake or share of the business.

First, in calendar year 2004, did you put any of your own money into [NAME BUSINESS] in return for an ownership share of the business? Please do not include any money borrowed from others or from credit cards.

YES	01	**GO TO F2a**
NO	00	**GO TO F2c**
DON'T KNOW	d	
REFUSED	r	

[F2_Owner_Eq_ Invest_01_0]

F2a. **IF YES:** How much of your own money did you put into the business during calendar year 2004?

OWNER A..... $ |___|___|___|,|___|___|___|,|___|___|___|

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:
Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW..... d

REFUSED..... r

F2b. **IF YES:** What percentage of the business did you own on December 31, 2004?

|__|__|__| PERCENTAGE OF BUSINESS

DON'T KNOW..... d

REFUSED..... r

IF MORE THAN ONE OWNER AT C4, ASK F2c. OTHERWISE, GO TO F3.

F2c. In calendar year 2004, did any of the other owners put any of their own money into [NAME BUSINESS] in return for an ownership share of the business?

YES ..... 01 **GO TO F2d**

NO 00

DON'T KNOW..... d **GO TO F3**

REFUSED..... r

[F2_Owner_Eq_ Invest_02_0]

F2d. And, in calendar year 2004, how much of his or her money did [OWNER B] put into the business?

OWNER B..... $ |__|__|__|,|__|__|__|,|__|__|__|

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

F2 series asked of up to 10 owner-operators.

[F2_Owner_Eq_Invest_03_0]
[F2_Owner_Eq_Invest_04_0]
[F2_Owner_Eq_Invest_05_0]
[F2_Owner_Eq_Invest_06_0]
[F2_Owner_Eq_Invest_07_0]
[F2_Owner_Eq_Invest_08_0]
[F2_Owner_Eq_Invest_09_0]
[F2_Owner_Eq_Invest_10_0]

IF SOLE PROPRIETORSHIP AT QUESTION B2a, GO TO F7a.

F3. Equity investment is money received in return for some portion of ownership, and it is another way to fund business expenses. During calendar year 2004, did the business obtain equity financing from any of the following sources?

	YES	NO	DON'T KNOW	REFUSED
a. Spouses or life partners of owners of the business. This does not include spouses or life partners already named as owners..... **[F3a_Eq_Invest_Spouse_0]**	01	00	d	r
b. Parents, in-laws or children of owners of the business ..... **[F3b_Eq_Invest_Parents_0]**	01	00	d	r
c. Individuals who are not spouses or life partners, parents, in-laws or children of the owners, excluding venture capitalists ..... **[F3c_Eq_Invest_Angels_0]**	01	00	d	r
d. Other companies..... **[F3d_Eq_Invest_Companies_0]**	01	00	d	r
e. Government agencies ..... **[F3e_Eq_Invest_Govt_0]**	01	00	d	r
f. Venture capitalists..... **[F3f_Eq_Invest_Vent_Cap_0]**	01	00	d	r
g. Any other sources? (SPECIFY)..... **[F3g_Eq_Invest_Other_0]** _____	01	00	d	r

F4. **FOR EACH EQUITY FINANCING OPTION REPORTED AS "YES" ABOVE, ASK:** In calendar year 2004, how much money did [NAME BUSINESS] receive from [EQUITY OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2004 AMOUNT FROM EQUITY OPTION

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F5. **FOR EACH EQUITY FINANCING OPTION REPORTED AS "YES" ABOVE, ASK:** What percentage of the business was owned by the [EQUITY OPTION] who invested money in the business as of December 31, 2004?

|__|__|__| PERCENT

DON'T KNOW ..... d
REFUSED ..... r

INTERVIEWER CHECK BOX : CHECK ANSWER FROM F2b, F2e, F2g, F2i, AND F5 FOR TOTAL PERCENTAGE OF BUSINESS ACCOUNTED FOR.

[F6Check_0]

IF TOTAL PERCENTAGE EQUALS 100%, GO TO F7a

IF TOTAL EQUALS LESS OR MORE THAN 100%, GO TO F6

F6. So far, you've given me the following information on who owns [NAME BUSINESS]: [LIST EQUITY INVESTORS FROM F2b, F2e, F2g, F2i, AND F5]. Can we review this list?

REVIEW LIST OF OWNERS AND PERCENTAGES WITH RESPONDENT. MAKE CHANGES AS NEEDED, ADDING NEW OWNERS AND/OR PERCENTAGES AS NECESSARY.

DON'T KNOW..... d
REFUSED..... r

GO TO F7a

[F6_perc_owned_owner_01_0]
[F6_perc_owned_owner_02_0]
[F6_perc_owned_owner_03_0]
[F6_perc_owned_owner_04_0]
[F6_perc_owned_owner_05_0]
[F6_perc_owned_owner_06_0]
[F6_perc_owned_owner_07_0]
[F6_perc_owned_owner_08_0]
[F6_perc_owned_owner_09_0]
[F6_perc_owned_owner_10_0]
[F6_perc_owned_owner_11_0]

F7a. Another way to finance a business is debt financing. Debt is money borrowed that has to be paid back with or without interest.

I'm going to ask you about some different types of debt financing **you** may have used on behalf of [NAME BUSINESS] to finance the operation of the business. For each, please tell me if you used this type at any time during calendar year 2004. Did you use (READ ITEM)?

F7b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED AS HAVING USED IN 2004, ASK:** How many [NAME DEBT FINANCING OPTION] did you use to finance the operation of the business during calendar year 2004?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Personal credit cards for business-related purposes ..... **[F7a_Pers_CredCard_0]**	01	00	d	r	| | | **[F7b_Pers_CredCard_NumUsed_0]**
b. Personal loans from a bank or other financial institution, such as a mortgage or home equity loan used for the business ..... **[F7a_Pers_Loan_Bank_0]**	01	00	d	r	|___|___| **[F7b_Pers_Loan_ Bank_NumUsed_0]**
c. Business or corporate credit cards issued in your name ..... **[F7a_Bus_CredCard_0]**	01	00	d	r	|___|___| **[F7b_Bus_CredCard_NumUsed_0]**
d. Personal loans from any family or friends ..... **[F7a_Pers_Loan_Fam_0]**	01	00	d	r	|___|___| **[F7b_Pers_Loan_Fam_NumUsed_0]**
e. Personal loans from any other individuals not associated with the management of the business..... **[F7a_Pers_Loan_Other_0]**	01	00	d	r	|___|___| **[F7b_Pers_Loan_ Other_NumUsed_0]**
f. Any other sources? (SPECIFY)..... **[F7a_Pers_Other_0]**	01	00	d	r	|___|___| **[F7a_Pers_Other_NumUsed_0]**

F8a. **IF ANSWERED "YES" TO F7a ITEMS a, c, ASK:** As of December 31, 2004, what was the maximum credit line on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2004 CREDIT LINE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F8b. **IF ANSWERED "YES" TO F7a ITEMS a, c, ASK:** As of December 31, 2004, what was the outstanding balance on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2004 OUTSTANDING CREDIT CARD BALANCE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F8c. **IF ANSWERED "YES" TO F7a ITEMS b, d, e, f, ASK:** In calendar year 2004, how much was obtained from the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2004 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

IF MORE THAN ONE OWNER, ASK F9a. OTHERWISE, GO TO F11a.

F9a. Now I'm going to ask you about some different types of debt financing that **other owners** of [NAME BUSINESS] may have used on behalf of the business. During calendar year 2004, did any of the other owners of [NAME BUSINESS] use (READ ITEM)?

F9b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED AS HAVING USED IN 2004, ASK**: How many [NAME DEBT FINANCING OPTION] did other owners use to finance the operation of the business during calendar year 2004?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Personal credit cards for business-related purposes ..... **[F9a_Pers_CredCard_0]**	01	00	d	r	|___|___| **[F9b_Pers_Cred Card_NumUsed_0]**
b. Personal loans from a bank or other financial institution, such as a mortgage or home equity loan used for the business ..... **[F9a_Pers_Loan_Bank_0]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Bank_NumUsed_0]**
c. Business or corporate credit cards issued in the other owner's name(s) ..... **[F9a_Bus_CredCard_0]**	01	00	d	r	|___|___| **[F9b_Bus_Cred Card_NumUsed_0]**
d. Personal loans from any family or friends ..... **[F9a_Pers_Loan_Fam_0]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Fam_NumUsed_0]**
e. Personal loans from any other individuals not associated with the management of the business ..... **[F9a_Pers_Loan_Other_0]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Other_NumUsed_0]**
f. Any other sources? (SPECIFY) ..... **[F9a_Pers_Other_0]**	01	00	d	r	|___|___| **[F9b_Pers_Other_ NumUsed_0]**
_____					

F10a. **IF ANSWERED "YES" TO F9a ITEMS a, c, ASK:** As of December 31, 2004, what was the maximum credit line on the [NAME DEBT FINANCING OPTION] of (one of) the other owner(s)?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2004 CREDIT LINE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F10b. **IF ANSWERED "YES" TO F9a ITEMS a, c, ASK:** As of December 31, 2004, what was the outstanding balance on the [NAME DEBT FINANCING OPTION] used by (one of) the other owner(s)?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2004 OUTSTANDING CREDIT CARD BALANCE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F10c.

IF ANSWERED "YES" TO F9a, ITEMS b, d, e, f, ASK: In calendar year 2004, how much was obtained from the [NAME DEBT FINANCING OPTION] other owners used?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2004 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F11a. Now I'm going to ask you about some different types of debt financing that may have been obtained in the name of the business. Not including any personal debt obtained on behalf of the business, did [NAME BUSINESS] use (READ ITEM) during calendar year 2004?

F11b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED AS HAVING USED IN 2004, ASK**: How many [NAME DEBT FINANCING OPTION] did the business use to finance the operation or the business during calendar year 2004?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Business or corporate credit cards issued in the name of the business ..... **[F11a_Bus_CredCard_0]**	01	00	d	r	|___|___| **[F11b_Bus_Cred Card_NumUsed_0]**
b. Business loans from a commercial bank ..... **[F11a_Bus_Loans_Bank_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Bank_NumUsed_0]**
c. Business line of credit (**READ IF NEEDED:** a business line of credit is when a business has an agreement with a bank or other financial institution to borrow up to a certain amount of funds) ..... **[F11a_Bus_Cred_Line_0]**	01	00	d	r	|___|___| **[F11b_Bus_Cred_ Line_NumUsed_0]**
d. Business loans from a non-bank financial institution..... **[F11a_Bus_Loans_Nonbank_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ NonBank_NumUsed_0]**
e. Business loans from any family or friends of the owners ..... **[F11a_Bus_Loans_Fam_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Fam_NumUsed_0]**
f. Business loans from another owner of the business or a partner..... **[F11a_Bus_Loans_Owner_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Owner_NumUsed_0]**
g. **[IF HAVE EMPLOYEES AT C5]** Loans to the business from employees that are not owners of the business..... **[F11a_Bus_Loans_Emp_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Emp_NumUsed_0]**
h. Loans from government agencies ..... **[F11a_Bus_Loans_Govt_0]**	01	00	d	r	|___|___| **[F11b_Bus_Loans Govt_NumUsed_0]**
i. Loans from other businesses ..... **[F11a_Bus_Loans_Other_Bus_0]**	01	00	d	r	|___|___| **[F11b_BusLoans_ OtherBus_NumUsed_0]**

j. Business loans from any other individuals not associated with the management of the business..... **[F11a_Bus_Loans_Other_Ind_0]**	01	00	d	r	|___|___| **[F11b_BusLoans_ OtherInd_NumUsed_0]**
k. Any other sources? (SPECIFY)..... **[F11a_Bus_Other_0]** _____	01	00	d	r	|___|___| **[F11b_Bus_Other_NumUsed_0]**

F12a. **IF ANSWERED "YES" TO F11a ITEMS a, c, ASK:** As of December 31, 2004, what was the maximum credit line on the [NAME DEBT FINANCING OPTION]?

$ |___|___|___|,|___|___|___|,|___|___|___| DECEMBER 31, 2004 CREDIT LINE

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

F12b. **IF ANSWERED "YES" TO F11a ITEMS a, c, ASK:** As of December 31, 2004, what was the outstanding balance on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2004 OUTSTANDING CREDIT BALANCE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F12c. **IF ANSWERED "YES" TO F11a ITEMS b, d-k, ASK:** In calendar year 2004, how much was the amount obtained from [NAME DEBT FINANCING OPTION] used by [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2004 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F13. Trade financing is where a business has an arrangement with a supplier to make purchases on account. In calendar year 2004, did [NAME BUSINESS] make any purchases through trade financing?

YES 01

NO 00

DON'T KNOW ..... d

REFUSED ..... r

GO TO F15

[F13_Trade_Fin_0]

F14. **IF YES:** In calendar year 2004, what was the amount of purchases made through trade financing?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2004 AMOUNT OF TRADE CREDIT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F15. In calendar year 2004, did [NAME BUSINESS] receive any revenue (money), from the sales of goods, services, or intellectual property? [**IF SOLE PROPRIETORSHIP, ADD:** This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

YES 01

NO ..... 00 ┐

DON'T KNOW ..... d ├ **GO TO F17**

REFUSED ..... r ┘

[F15_Revenue_2004_0]

F16. What was [NAME BUSINESS]'s total revenue for calendar year 2004?

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL REVENUE

DON'T KNOW..... d
REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more?..... 09
DON'T KNOW..... d
REFUSED..... r

F17. Now I'm going to ask about the expenses the business paid. Expenses are the costs paid for the operation of the business, including wages, salaries, interest on loans, capital leases, materials, etc. How much, if any, did [NAME BUSINESS] pay in expenses during calendar year 2004?

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL EXPENSES IN CALENDAR YEAR 2004

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F18. **IF BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO F19.**
How much, if any, did [NAME BUSINESS] pay in wages, salaries, and benefits to full- and part-time employees in calendar year 2004? Please do not include wages, salaries, and benefits to contract workers who work for the business but are not on the business' official payroll.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL PAYROLL EXPENSES IN CALENDAR YEAR 2004

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .
$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F19. Did [NAME BUSINESS] spend any money on research and development of new products and services during calendar year 2004?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F19_Res_Dev_0]

F20. Did [NAME BUSINESS] spend any money on the purchase of new or used machinery or equipment during calendar year 2004?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F20_Mach_0]

F21. Did [NAME BUSINESS] spend any money on rental or lease payments for buildings or other structures during calendar year 2004?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F21_Land_Rent_0]

F22. Did [NAME BUSINESS] spend any money on **rental or lease payments** for machinery or equipment during calendar year 2004?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F22_Mach_Rent_0]

F23. Profit is the business' income after all expenses and taxes have been deducted. What was [NAME BUSINESS]'s total profit or loss for calendar year 2004?

PROFIT ..... 01 **GO TO F24**
LOSS ..... 02 **GO TO F26**
DON'T KNOW ..... d
REFUSED ..... r

[F23_Profit_Or_Loss_0]

F24. ENTER PROFIT AMOUNT

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL PROFIT IN CALENDAR YEAR 2004

DON'T KNOW ..... d
REFUSED ..... r

F25. **IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:** Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F26. ENTER LOSS AMOUNT

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL LOSS IN CALENDAR YEAR 2004

DON'T KNOW ..... d
REFUSED ..... r

F27. **IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:** Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F28. Assets are what the business owns. As of December 31, 2004, did [NAME BUSINESS]'s assets include [NAME ASSET FROM LIST]?

	YES	NO	DON'T KNOW	REFUSED
a. Cash on hand in checking, savings, money market accounts, certificates of deposit and other time deposits ..... **[F28a_Asset_Cash_0]**	01	00	d	r
b. Accounts receivable ..... **[F28b_Asset_Acct_Rec_0]**	01	00	d	r
c. Product inventory ..... **[F28c_Asset_Inv_0]**	01	00	d	r
d. Equipment or machinery ..... **[F28d_Asset_Equip_0]**	01	00	d	r
e. Land, buildings, and other structures..... **[F28e_Asset_LandBuild_0]**	01	00	d	r
f. Vehicles ..... **[F28f_Asset_Veh_0]**	01	00	d	r
g. Any other business owned property (SPECIFY) ... **[F28g_Other_Bus_Prop_0]** _____	01	00	d	r
h. Any other assets? (SPECIFY) ..... **[F28h_Other_Assets_0]** _____	01	00	d	r

F29. **FOR EACH ASSET BUSINESS HAS, ASK:**
As of December 31, 2004, what was the estimated value of the [NAME OF ASSET] owned by [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| ASSET VALUE AS OF DECEMBER 31, 2004

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F30. Liabilities are what the business owes. Other than the loans and the financial debt we've already talked about, did [NAME BUSINESS]'s liabilities as of December 31, 2004 include [NAME LIABILITY FROM LIST]?

	YES	NO	DON'T KNOW	REFUSED
a. Accounts Payable ..... **[F30a_Liab_AcctPay_0]**	01	00	d	r
b. Pension and post retirement benefits ..... **[F30b_Liab_Pension_0]**	01	00	d	r
c. Any other liabilities? (SPECIFY)..... **[F30c_Liab_Other_0]**	01	00	d	r

_____

F31. **FOR EACH LIABILITY BUSINESS HAS, ASK:** As of December 31, 2004, what was the estimated value of [NAME BUSINESS]'s [NAME OF LIABILITY]?

$ |__|__|__|,|__|__|__|,|__|__|__| LIABILITY VALUE AS OF DECEMBER 31, 2004

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

G. WORK BEHAVIORS AND DEMOGRAPHICS OF OWNER(S)

The last few questions are for classification purposes only.

G1a. (Are/Is) (you/[OWNER B-J]) also a paid employee at [NAME BUSINESS]?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G1a_Emp_Owner_01_0] THROUGH [G1a_Emp_Owner_10_0]

G1b. During the time [NAME BUSINESS] was in business during 2004, how many hours in an average week did (you/[owner B-J]) spend working at [NAME BUSINESS]?

|__|__|__| HTHES WORKED IN AVERAGE WEEK

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED PROBE: Would you say it was . . .
Less than 20 hours, ... 01
20 hours to 35 hours, ... 02
36 hours to 45 hours, ... 03
46 hors to 55 hours, ... 04
56 hours to 65 hours, ... 05
66 hours or more? 06
DON'T KNOW ..... d
REFUSED ..... r

G2. How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

|__|__| YEARS

DON'T KNOW ..... d
REFUSED ..... r

[G2_Work_Exp_Owner_01_0] THROUGH [G2_Work_Exp_Owner_10_0]

G3a. How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

|__|__| NUMBER OF BUSINESSES
(ENTER -0‖ FOR NONE)

DON'T KNOW..... d

REFUSED..... r

[G3a_Oth_Bus_Owner_01_0] THROUGH [G3a_Oth_Bus_Owner_10_0]

IF ZERO NEW BUSINESSES AT G3a, GO TO G4.

G3b. (Was this/Were any of the) business(es) in the same industry as [NAME BUSINESS]?

YES 01

NO 00

DON'T KNOW..... d

REFUSED..... r

[G3b_Bus_Same_Ind_Owner_01_0] THROUGH [G3b_Bus_Same_Ind_Owner_10_0]

G4. How old will (you/[OWNER B-J]) be on (your/his/her) next birthday?

OWNER A..... |__|__|

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say . . .

18-24, ... 01

25-34, ... 02

35-44, ... 03

45-54, ... 04

55-64, ... 05

65-74, ... 06

75 or older?..... 07

DON'T KNOW..... d

REFUSED..... r

Now I have a few questions about race and ethnicity.

G5. Are/Is) (you/[OWNER B-J]) of Hispanic or Latino origin?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G5_Hisp_Origin_Owner_01_0] THROUGH [G5_Hisp_Origin_Owner_10_0]

G6. I am going to read a list of race categories. Please choose one or more that best describes (your/[OWNER B-J]'s) race. Are (you [OWNER B-J]) American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, Asian, Black or African American, or White?

AMERICAN INDIAN OR ALASKA NATIVE 01
[G6_Race_AmInd_ Owner_01_0] THROUGH [G6_Race_AmInd_ Owner_10_0]

NATIVE HAWAIIAN OR OTHER
PACIFIC ISLANDER 02
[G6_Race_NatHaw_Owner_01_0] THROUGH [G6_Race_NatHaw_Owner_10_0]

ASIAN 03
[G6_Race_Asian_Owner_01_0] THROUGH [G6_Race_Asian_Owner_10_0]

BLACK OR AFRICAN AMERICAN 04
[G6_Race_Black_Owner_01_0] THROUGH [G6_Race_Black_Owner_10_0]

WHITE 05
[G6_Race_White_Owner_01_0] THROUGH [G6_Race_White_Owner_10_0]

OTHER (SPECIFY) 06
[G6_Race_Other_Owner_01_0] THROUGH [G6_Race_Other_Owner_10_0]

_____

DON'T KNOW ..... d
REFUSED ..... r

G7. (Were/Was) (you/[OWNER B-J]) born in the United States?

YES ..... 01 **GO TO G9**
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO G8

[G7_Native_Born_Owner_01_0] THROUGH [G7_Native_Born_Owner_10_0]

G8. (Are/Is) (you/[OWNER B-J]) a U.S. citizen?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G8_US_Cit_Owner_01_0] THROUGH [G8_US_Cit_Owner_10_0]

G9. What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Less than 9th grade, ... 01
Some high school, but no diploma, ... 02
High school graduate (diploma or equivalent diploma [GED]), ... 03
Technical, trade or vocational degree, ... 04
Some college, but no degree, ... 05
Associate's degree, ... 06
Bachelor's degree, ... 07
Some graduate school but no degree, ... 08
Master's degree, or 09
Professional school or doctorate? 10
DON'T KNOW ..... d
REFUSED ..... r

[G9_Education_Owner_01_0] THROUGH [G9_Education_Owner_10_0]

BY OBSERVATION:

G10. (Are/Is) (you/[OWNER B-J]) male or female?

MALE 01
FEMALE 02
DON'T KNOW ..... d
REFUSED ..... r

[G10_Gender_Owner_01_0] THROUGH [G10_Gender_Owner_10_0]

REPEAT ITEMS G1a TO G10 FOR ALL OWNERS

G11. The Kauffman Foundation is interested in how businesses develop and grow over time, so we would like to contact your business for future interviews. Can you give me an email address where you can be reached?

Email:_____ @

DON'T KNOW..... d

REFUSED..... r

G12. Does [NAME BUSINESS] have its own website?

YES 01

NO ..... 00 ┐

DON'T KNOW..... d ├ **GO TO G14**

REFUSED..... r ┘

G13. Can you give me the web address?

Web Address:_____._____

DON'T KNOW..... d

REFUSED..... r

G14. Is the business likely to move to another location in the next 12 months?

YES 01

NO ..... 00 ┐

DON'T KNOW..... d ├ **GO TO G16**

REFUSED..... r ┘

G15. What city and state is the business likely to move to?

CITY:_____

STATE:_____

DON'T KNOW..... d

REFUSED..... r

G16. In case we are unable to contact you, can you provide a name and contact information for a person besides yourself who would know how to reach you or someone else associated with [NAME BUSINESS]? All information collected will be held in the strictest confidence, and will only be used if we cannot contact you or someone else associated with the business at the current business phone number or address.

NAME:_____

ADDRESS:_____

CITY:_____

STATE:_____

PHONE:_____

EMAIL:_____@ _____

DON'T KNOW..... d

REFUSED..... r

THANK AND TERMINATE

APPENDIX 4: THE KAUFFMAN FIRM SURVEY – FULL FOLLOW-UP QUESTIONNAIRE

A. INTRODUCTION

INTRO: Hello, my name is _____. I'm calling on behalf of the Kauffman Foundation.

A1. May I speak with ([CEO/OWNER]/the OWNER or CEO of [NAME BUSINESS])?

OWNER/CEO—PROCEED WITH INTERVIEW	01	
OWNER/CEO—BAD TIME/CALL BACK	02	**GO TO A2a**
OWNER/CEO NOT AVAILABLE	03	**GO TO A3**
OWNER/CEO NO LONGER WITH BUSINESS	04	
OWNER/CEO NOT AVAILABLE, OTHER OWNER AVAILABLE	05	
BUSINESS NO LONGER IN OPERATION	06	**GO TO A10**
DON'T KNOW	d	**THANK AND TERMINATE**
REFUSED	r	

A1a. We'd like to confirm that the name of the business is [NAME BUSINESS] and that [NAME BUSINESS] is still operating.

[NAME BUSINESS] IS THE CURRENT NAME AND [NAME BUSINESS] IS STILL OPERATING	01	**GO TO A1b**
THE BUSINESS NAME IS INCORRECT	00	**GO TO A2Web**
[NAME BUSINESS] IS OUT OF BUSINESS	03	**GO TO A10**
DON'T KNOW	d	
REFUSED	r	

A1a1. We need to know the answer to this question to see if your business is eligible for the study.

INTERVIEWER: IF THE RESPONDENT CANNOT ANSWER THIS QUESTION, USE THE ARROW KEY TO GO BACK TO THE INTRO SCREEN AND CODE.

A2a. I'm sorry. When would be a better time to reach (you/[OWNER])?

INTERVIEWER: ENTER CALLBACK DATE AND TIME.

READ: Is this the best number to reach you?

INTERVIEWER: UPDATE CONTACT INFORMATION AS NEEDED.

Thank you very much. Good-bye.

A2Web. What is the correct business name?

INTERVIEWER: TYPE IN BUSINESS NAME.

_____

A3Web. Is this a corrected spelling, a name change but the same business, or a different business?

SPELLING CORRECTION 01	┐	**GO TO BOX A4**
NAME CHANGE/SAME COMPANY 02	┘	
DIFFERENT COMPANY 03		

A3Webz. We are trying to find out what happened to [NAME BUSINESS]. Is [NAME BUSINESS] still in operation?

YES 01	**GO TO A1b**
NO 00	**GO TO A10**

A3. Please tell me when [OWNER/CEO] will be available and I'll call back later.

INTERVIEWER: ENTER CALLBACK DATE AND TIME.

READ: Is this the best number to reach (him/her)?

INTERVIEWER: UPDATE CONTACT INFORMATION AS NEEDED.

Thank you very much. Good-bye.

A4. Your business participated in the first year of the Kauffman Firm Study, which asked some questions about [NAME BUSINESS] for calendar year 2004. Now we'd like to ask about the year 2005. We'd like to confirm that the name of the business is [NAME BUSINESS] and that [NAME BUSINESS] is still operating.

[NAME BUSINESS] IS THE CURRENT NAME AND [NAME BUSINESS] IS STILL OPERATING	01	**GO TO A1b**
THE BUSINESS NAME IS INCORRECT	00	**GO TO A2Web**
[NAME BUSINESS] IS OUT OF BUSINESS	03	**GO TO A10**
DON'T KNOW	d	
REFUSED	r	

IF NEEDED: We need to know the answer to this question to see if your business is eligible for the study.

INTERVIEWER: IF THE RESPONDENT CANNOT ANSWER THIS QUESTION, USE THE ARROW KEY TO GO BACK TO THE INTRO SCREEN AND CODE.

A1b. We'd like to confirm that you are [OWNER NAME] and you are you are still an owner of [NAME BUSINESS]?

[OWNER NAME] IS THE RESPONDENT AND IS STILL AN OWNER OF [NAME BUSINESS]	01	**GO TO A5**
[OWNER NAME] IS THE RESPONDENT AND IS STILL AN OWNER OF [NAME BUSINESS], BUT CORRECT [OWNER NAME]'s NAME	02	**GO TO A1bn**
RESPONDENT IS NOT [OWNER NAME]	03	**GO TO A4Webz**
THE RESPONDENT [OWNER NAME] IS NO LONGER AN OWNER OF [NAME BUSINESS]	04	**GO TO A4new**
DON'T KNOW	d	
REFUSED	r	

A4confirm. May I confirm that you are still an owner of [NAME BUSINESS]?

YES	01	
NO	00	**GO TO A4new**

A1c. We'd like to confirm that the title of you position is [OWNER TITLE] Is that correct?

YES ..... 01 **GO TO A5**
NO 00

A1d. What is your job title?

INTERVIEWER: ENTER JOB TITLE.

_____

GO TO A5

A4Webz. Is [OWNER NAME] still an owner and actively involved in running [NAME BUSINESS]?

IF NEEDED: By actively involved, we mean providing regular assistance or advice with day-to-day operations of the business rather than providing only money or occasional operating assistance.

YES 01
NO ..... 00 **GO TO A4new**
DON'T KNOW ..... d
REFUSED ..... r

A4Webz1. Would [OWNER NAME] be available to do the study at another time?

YES ..... 01 **GO TO A3**
NO 00
DON'T KNOW ..... d **GO TO A4new**
REFUSED ..... r

A1bn. What is your name?

INTERVIEWER: ENTER FIRST AND LAST NAME.

_____

A5. May I confirm that you are still actively involved in running [NAME BUSINESS]? By actively involved in running the business, we mean providing regular assistance or advice with day-to-day operations of the business rather than providing only money or occasional operating assistance.

YES ..... 01 **GO TO A8**
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[A5_Actively_involved_1]

A5a. During the last interview with your business, we recorded other owners of [NAME BUSINESS]. Please tell me the person who is an owner of the firm, is actively involved in running [NAME BUSINESS], and will answer this study. By actively involved, we mean providing regular assistance or advice with day-to-day operations of the business rather than providing only money or occasional operating assistance.

READ THE OWNER NAMES BELOW. SELECT ONLY ONE.

NEW OWNER-OPERATOR WILL ANSWER 0
[NAME OWNER] 2-9

A5b. What is the title of [NAME OWNER]?

INTERVIEWER: ENTER JOB TITLE.

A5c. **INTERVIEWER: READ IF NECESSARY.**

Are you [NAME OWNER]?

YES 01
NO ..... 00 **GO TO A2a**

A4new. Your business participated in the first year of the Kauffman Firm Study, answering a series of questions about [NAME BUSINESS]'s operation in 2004. Because the Kauffman Foundation is studying how new businesses develop and grow, we'd like to ask about the experiences of [NAME BUSINESS] in the year 2005. Your answers will be kept confidential, and you will receive a $50 payment as a token of the appreciation.

A4anew. May I confirm that you are an owner of [NAME BUSINESS]?

YES	01	
NO	00	**GO TO A7**
DON'T KNOW	d	
REFUSED	r	

A5new. And are you actively involved in running [NAME BUSINESS]? By actively involved in running the business, we mean providing regular assistance or advice with day-to-day operations of the business rather than providing only money or occasional operating assistance.

YES	01	**GO TO A8**
NO	00	
DON'T KNOW	d	
REFUSED	r	

[**A5New_Actively_involved_1]**

A7. Is there another owner of [NAME BUSINESS]?

YES	01	**GO BACK TO A2**
NO	00	**THANK AND TERMINATE**
DON'T KNOW	d	
REFUSED	r	

A8. I'd like to confirm your business' mailing address. Is [NAME BUSINESS]'s mailing address (ADDRESS, CITY, STATE, ZIP)?

YES	01	**GO TO C1z**
NO	00	
DON'T KNOW	d	**GO TO C1z**
REFUSED	r	

[A8_Addr_ver_1]

A9. What is [NAME BUSINESS]'s correct mailing address?

INTERVIEWER: UPDATE MAILING ADDRESS INFORMATION.

ADDRESS:_____

CITY:_____

STATE:_____ ZIP:_____

DON'T KNOW ..... d
REFUSED ..... r

GO TO C1z

A10. What is the **main** reason [NAME BUSINESS] is out of business?

SOLD TO ANOTHER BUSINESS 01
MERGED WITH ANOTHER BUSINESS 02
TEMPORARILY STOPPED OPERATIONS 03
PERMANENTLY STOPPED OPERATIONS ..... 04 **GO TO A11a**
OTHER (SPECIFY) 05

_____

_____

DON'T KNOW ..... d
REFUSED ..... r

[A10_Out_Of_Business_1]

THANK AND TERMINATE

A11a. Did [NAME BUSINESS] file for bankruptcy?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[A11a_Bankruptcy_1]

THANK AND TERMINATE

NOTE: NO SECTION B

C. BUSINESS CHARACTERISTICS

All of the following questions I'm going to ask are about [NAME BUSINESS]. Some of the questions will ask to confirm information about your business which you provided to us previously. As we go through the interview, please tell me if any of the information about your business is incorrect and needs to be updated.

C1z. The records show that [NAME BUSINESS] had a legal status of [**tOWNERshipModel**]. As of December 31, 2005, is that still the legal status of [NAME BUSINESS]?

YES	01	**GO TO C1a**
NO	00	
DON'T KNOW	d	
REFUSED	r	

[C1z_Confirm_Legal_Status_1]

C1z2. I'm going to read you a list of some different forms of legal status a business can have. As of December 31, 2005, which form of legal status did [NAME BUSINESS] have? Was it a . . .

READ LIST AND READ DESCRIPTIONS AS NEEDED:

Sole Proprietorship: A type of business ownership in which a business is owned and managed by one individual and no subchapter S-corporation or C-corporation has been established.

Limited Liability Company: A cross between a corporation and a partnership, and offering some of the benefits of both. Similar to S corporations, income produced by a limited liability company flows through to owners (known as "members") who pay their own taxes as individuals. Unlike S-corporations, however, limited liability companies are not subject to as many government restrictions.

Subchapter S-Corporation: Corporations in which all profits and losses are passed through to shareholders, just as they are passed through to partners in a partnership.

C-Corporation: Legal entities separate from their owners that may engage in business, make contracts, own property, pay taxes, and sue and be sued by others.

General Partnership: An association of two or more people who co-own a business for the purpose of making a profit and no subchapter S-corporation or C-corporation has been established.

Limited Partnership: A partnership in which one or more partners are general partners who manage the business and others are limited partners who invest in the business but forego any right to manage the company.

Sole Proprietorship, ... 01

Limited Liability Company, ... 02

Subchapter S-Corporation, ... 03

C-Corporation, ... 04

General Partnership, ... 05

Limited Partnership, or 06

Something else? (SPECIFY) 07

_____

DON'T KNOW ..... d

REFUSED ..... r

[C1z2_Legal_Status_1]

C1a. As of December 31, 2004, the records indicate the principal activity of the business was [D&B NAICS CODE DESCRIPTION OR LAST YEAR'S OTHER SPECIFY TO THIS QUESTION]. Was that still the principal activity of the business as of December 31, 2005?

YES ..... 01 **GO TO C2**

NO 00

DON'T KNOW ..... d

REFUSED ..... r

[C1a_NAICS_verification_1]

C1b. As of December 31, 2005, what was the principal activity of the business?

_____

_____

IF SOLE PROPRIETORSHIP IN [tOWNERshipModel] [or C1z2], GO TO C5.

C2. As of December 31, 2005, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business.

|___|___|___| NUMBER OF OWNERS

DON'T KNOW ..... d

REFUSED ..... r

[C2_Owners_1]

C3. Of the [NUMBER OF OWNERS FROM C2] owners as of December 31, 2005, how many owners actively helped to run [NAME BUSINESS]? By helped to run the business we mean that they provided regular assistance or advice with day-to-day operations of the business, rather than providing only money or occasional operating assistance.

|___|___|___| NUMBER OF OWNER/OPERATORS

DON'T KNOW ..... d

REFUSED ..... r

[C3a_Owner_ Operators_1]

IF ONE OWNER/OPERATOR REPORTED AT C3, GO TO C5. IF MORE THAN ONE OWNER/OPERATOR REPORTED AT C3, ASK:

C4. **FOR EACH BASELINE OWNER/OPERATOR WHO IS NOT THE RESPONDENT, ASK:**
Was [OWNER NAME] still an owner who actively helped run [NAME BUSINESS]—as of December 31, 2005?

YES 01
NO 00
YES BUT THE NAME IS MISSPELLED..... 02
DON'T KNOW..... d
REFUSED..... r

FOR ALL MISSPELLED NAMES, ASK:
How do you spell (your/his/her) name?

INTERVIEWER: ENTER NAME

THEN ASK:
How many other people, not previously listed, were owners actively helping to run [NAME BUSINESS] as of December 31, 2005?

INTERVIEWER: PREVIOUSLY LISTED PEOPLE ARE STATED BELOW.
NUMBER OF OWNERS STATED IN C3: [FILL FROM C3]

I want to record with you the first and last names of these owners. These are people who joined the firm between December 31, 2004 and December 31, 2005. I'm going to be asking some questions about each of the owners who actively **helped run** [NAME BUSINESS]. Can you tell me the first and last name of the other owner(s) of [NAME BUSINESS]?

INTERVIEWER: ENTER FIRST AND LAST NAMES.

C4Confirm.

I have listed:

	FIRST NAME	LAST NAME
OWNER A (RESPONDENT)		
OWNER B		
OWNER C		
OWNER D		

[C4_NumOwners_Confirm_1]

Are there any other owner-operators as of December 31, 2005 of [NAME BUSINESS] that I have not mentioned?

INTERVIEWER: CONFIRM SPELLING OF NAMES. TO CORRECT NAMES, ARROW BACK TO TABLE.

ADD ANOTHER NAME OR
CORRECT A MISSPELLING 01

NO CHANGES..... 02

NOTE: UP TO 10 OWNER/OPERATORS WILL BE INCLUDED.

C5. Not counting owner(s), on December 31, 2005, how many people worked for [NAME BUSINESS]? Please include all full- and part-time employees, but exclude contract workers who work for the business either full- or part-time but are not on the business' official payroll.

|___|___|___| NUMBER OF EMPLOYEES ON DECEMBER 31, 2005

DON'T KNOW..... d

REFUSED..... r

[C5_Num_Employees_1]

C5b. Was this change an increase, a decrease, or no change in the number of people who worked for [NAME BUSINESS] on December 31, 2005 compared to December 31, 2004?

INCREASE 01

DECREASE..... 02

NO CHANGE..... 03

DON'T KNOW..... d

REFUSED..... r

[C5b_Num_Employees_Change_1]

C5c. And what was the (increase/decrease) in the number of people who worked for [NAME BUSINESS] on December 31, 2005 compared to December 31, 2004? Your best estimate is fine.

|__|__|__| CHANGE IN NUMBER OF EMPLOYEES

DON'T KNOW ..... d

REFUSED ..... r

[C5c_Num_Employees_Change_Amt_1]

IF BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO C8.

C6. . . . And of those [NUMBER FROM C5], how many were full-time? (**IF NEEDED:** Full-time is considered 35 hours or more per week)

|__|__|__| NUMBER OF DECEMBER 31, 2005 FULL-TIME EMPLOYEES

DON'T KNOW ..... d

REFUSED ..... r

[C6_Num_FT_Employees_1]

C7. . . . And how many were part-time? (**IF NEEDED:** Part-time is considered less than 35 hours per week)

|__|__|__| NUMBER OF DECEMBER 31, 2005 PART-TIME EMPLOYEES

DON'T KNOW ..... d

REFUSED ..... r

[C7_Num_PT_Employees_1]

C8z. The records show that the primary location where [NAME BUSINESS] operates is [**tPrimaryLocation**]. Is that correct?

YES ..... 01 **GO TO D1**

NO 00

DON'T KNOW ..... d ┐ **GO TO D1**

REFUSED ..... r ┘

[C8z_Primary_Loc_Confirm_1]

C8. How would you describe the primary location where [NAME BUSINESS] operates? Is it . . .

A residence such as a home or garage, ... 01
A rented or leased space, ... 02
Space the business purchased, ... 03
A site where a client is located, or 04
Some other location? (SPECIFY) 05

_____

DON'T KNOW ..... d
REFUSED ..... r

[C8_Primary_Loc_1]

C9. What was the main reason for the change of location?

Previous location too expensive 01
Needed more space due to growth of business 02
Moved closer to customers 03
Moved business and residence to new location 04
OTHER (SPECIFY) 05

_____

DON'T KNOW ..... d
REFUSED ..... r

[C9_Loc_Change_Reason_1]

D. STRATEGY AND INNOVATION

D1. Does [NAME BUSINESS] provide (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. A service..... **[D1a_Provide_Service_1]**	01	00	d	r
b. A product..... **[D1a_Provide_Product_1]**	01	00	d	r

D2. Businesses often have to compete with other businesses. A competitive advantage is something unique or distinctive a business provides that gives it an advantage compared to competitors. In calendar year 2005, did [NAME BUSINESS] have a competitive advantage over its competitors?

YES 01
NO 00
DON'T KNOW..... d
REFUSED..... r

[D2_Comp_Advantage_1]

D3. Whether assigned by an owner or obtained in some other way, does [NAME BUSINESS] have any of the following? **(READ LIST)**

FOR EACH "YES," ASK: How many (READ ITEM) does [NAME BUSINESS] have?

INTERVIEWERS IF NEEDED:

Patent: A patent is a right given by the government to preclude others from making and selling an invention for 20 years from the date of application in return for disclosure of how the invention operates.

Copyright: The legal right granted to authors, composers, artists and publishers to protect their thoughts and ideas for exclusive publication, reproduction, sale and distribution of their works.

Trademark: Words, names, symbols or devices, or any combination of these used to identify the goods of a business and to distinguish these goods from the goods of others.

	YES	NO	DON'T KNOW	REFUSED	NUMBER BUSINESS HAS
a. Patents.....	01	00	d	r	|___|___|
b. Copyrights.....	01	00	d	r	|___|___|
c. Trademarks.....	01	00	d	r	|___|___|

D4. "Licensing out" is licensing patents, copyrights, or trademarks owned by the business to other parties under a licensing agreement. In calendar year 2005, did [NAME BUSINESS] **license out** any (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. Patents.....	01	00	d	r
[D4_a_Lic_Out_Patents_1]				
b. Copyrights.....	01	00	d	r
[D4_b_Lic_Out_Copyrights_1]				
c. Trademarks.....	01	00	d	r
[D4_c_Lic_Out_Trademarks_1]				

D5. "Licensing in" is acquiring the right to use intellectual property such as patents, copyrights, or trademarks created by someone outside the business through a licensing agreement. In calendar year 2005, did [NAME BUSINESS] **license in** any (READ ITEM)?

	YES	NO	DON'T KNOW	REFUSED
a. Patents..... **[D5_a_Lic_In_Patent_1]**	01	00	d	r
b. Copyrights..... **[D5_b_Lic_In_Copyright_1]**	01	00	d	r
c. Trademarks..... **[D5_c_Lic_In_Trademark_1]**	01	00	d	r

D6. Did [NAME BUSINESS] have any customers or sales in calendar year 2005?

YES 01
NO 00
DON'T KNOW..... d
REFUSED..... r

GO TO E1

[D6_Have_Sales_1]

D7. I'd like to learn more about the type of customers that [NAME BUSINESS] had during calendar year 2005. I am going to ask you to estimate the percent of the business' sales that were made to individuals, businesses, and government agencies. The total should equal 100%.

a. During calendar year 2005, what percentage of the business' sales were to private individuals?

|__|__|__| PERCENTAGE

DON'T KNOW..... d

REFUSED..... r

[D7_Perc_Sales_Indiv_1]

b. What percentage of the business' sales were to other businesses? [**IF NEEDED:** Please include sales to for-profit and not-for-profit business.]

|__|__|__| PERCENTAGE

DON'T KNOW..... d

REFUSED..... r

[D7_Perc_Sales_Bus_1]

c. What percentage of the business' sales were to government agencies?

|__|__|__| PERCENTAGE

DON'T KNOW..... d

REFUSED..... r

[D7_Perc_Sales_Govt_1]

E. BUSINESS ORGANIZATION AND HR BENEFITS

IF ONE OWNER REPORTED AT C2 AND BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO F1.

Next, I'd like to ask about how [NAME BUSINESS] is organized and about the benefits that are offered to employees.

E1. On December 31, 2005, how many employees or owners, if any, did [NAME BUSINESS] have who were primarily responsible for (READ ITEM)? Please include only full- and part-time employees, but not contract workers who work for the business but are not on the business' official payroll.

	NUMBER EMPLOYEES OR OWNERS	DON'T KNOW	REFUSED
a. Human resources such as employee benefits, recruitment, or hiring ..... [E1_a_Num_Human_Res_1]	|__|__|	d	r
b. Sales or Marketing such as sales, market research, customer analysis, or promotional activities ..... [E1_b_Num_Sales_1]	|__|__|	d	r
c. Executive administration functions such as strategic planning, competitive analysis, shareholder relations, or general management..... [E1_c_Num_Exec_Admin_1]	|__|__|	d	r
d. Research and development on new products or services ..... [E1_d_Num_ResDev_1]	|__|__|	d	r
e. Production or manufacturing such as producing materials or products, production planning, production control, quality control, or storage..... [E1_e_Num_Prod_Manu_1]	|__|__|	d	r
f. General administration such as office management, responding to maintenance requests, purchase supplies, or training employees in office procedures [E1_f_Num_Gen_Admin_1]	|__|__|	d	r
g. Financial administration such as accounting procedures, budgeting, financial analysis, or investment activities..... [E1_g_Num_Fin_Admin_1]	|__|__|	d	r
h. Does [NAME BUSINESS] have employees with any other key responsibilities? (SPECIFY) ..... [E1_h_Num_Other_1]	|__|__|	d	r

_____

E2a. As of December 31, 2005, did [NAME BUSINESS] offer full-time employees or owners (READ ITEM):

	YES	NO	DON'T KNOW	REFUSED
a. A health insurance plan either through the business or an association..... **[E2a_FT_Emp_Hlth_Plan_1]**	01	00	d	r
b. A retirement plan such as profit sharing, pension, including 401K, annuity, Keogh, etc. ..... **[E2a_FT_Emp_Retire_Plan_1]**	01	00	d	r
c. Stock options or other stock ownership..... **[E2a_FT_Emp_Stock_Own_1]**	01	00	d	r
d. A bonus plan..... **[E2a_FT_Emp_Bonus_Plan_1]**	01	00	d	r
e. Tuition reimbursement ..... **[E2a_FT_Emp_Tuit_Reim_1]**	01	00	d	r
f. Paid vacation ..... **[E2a_FT_Emp_Paid_Vaca_1]**	01	00	d	r
g. Paid sick days..... **[E2a_FT_Emp_Paid_Sick_1]**	01	00	d	r
h. Alternative work schedules such as flex time or job sharing ..... **[E2a_FT_Emp_Flex_Time_1]**	01	00	d	r
i. Any other benefits? (SPECIFY)..... **[E2a_FT_Emp_Other_1]**	01	00	d	r

IF ZERO PART-TIME EMPLOYEES AT C7, GO TO F1.

E2b. As of December 31, 2005, did [NAME BUSINESS] offer part-time employees (READ ITEM):

	YES	NO	DON'T KNOW	REFUSED
a. A health insurance plan either through the business or an association..... **[E2b_PT_Emp_Hlth_Plan_1]**	01	00	d	r
b. A retirement plan such as profit sharing, pension, including 401K, annuity, Keogh, etc. ..... **[E2b_PT_Emp_Retire_Plan_1]**	01	00	d	r
c. Stock options or other stock ownership..... **[E2b_PT_Emp_Stock_Own_1]**	01	00	d	r
d. A bonus plan..... **[E2b_PT_Emp_Bonus_Plan_1]**	01	00	d	r
e. Tuition reimbursement ..... **[E2b_PT_Emp_Tuit_Reim_1]**	01	00	d	r
f. Paid vacation ..... **[E2b_PT_Emp_Paid_Vaca_1]**	01	00	d	r
g. Paid sick days..... **[E2b_PT_Emp_Paid_Sick_1]**	01	00	d	r
h. Alternative work schedules such as flex time or job sharing ..... **[E2b_PT_Emp_Flex_Time_1]**	01	00	d	r
i. Any other benefits? (SPECIFY)..... **[E2b_PT_Emp_Other_1]**	01	00	d	r

F. BUSINESS FINANCES

F1. Now I'd like to ask about [NAME BUSINESS]'s financing. Businesses can get money from the savings or investments of the owner(s), money from spouses, family or other individuals, from companies, borrowing in an owner's name, venture funds, or by borrowing **in the name of the business**. Some of the funds must be paid back and other funds represent an equity stake or share of the business. We will ask some questions about what happened **during calendar year 2005**, some questions about what has happened since the business began, and other questions about balances **as of December 31, 2005**.

F1a. First, in calendar year 2005, did you put any of your own money into [NAME BUSINESS] in return for an ownership share of the business? Please do not include any money borrowed from others or from credit cards.
IF NEEDED: This would include all additional money invested by [you/OWNER NAME] in the business during calendar year 2005.

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO F2a1

[F2_Owner_Eq_ Invest_01_1]

F2a. **IF YES:** How much of [your/her/his] own money did [you/he/she] put into the business during calendar year 2005? **IF NEEDED:** Your best estimate is fine.

OWNER A ..... $ |___|___|___|,|___|___|___|,|___|___|___|
DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F2a1. Counting **all** years, how much of [your/OWNER B-J] own money did [you/she/he] put into [NAME BUSINESS] as of December 31, 2005?

IF NEEDED: This includes all money [you/she/he] invested in the business as of December 31, 2005.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL EQUITY

DON'T KNOW..... d
REFUSED..... r

PROBE: IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:
Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more?..... 09
DON'T KNOW..... d
REFUSED..... r

IF F2a IS GREATER THAN F2a1:
I may have made a mistake. The amount invested in 2005 is greater than the amount invested in all years combined. Is there an error?

F2b. What percentage of the business did [you/OWNER B-J] own on December 31, 2005?

|__|__|__| PERCENTAGE OF BUSINESS

DON'T KNOW..... d
REFUSED..... r

IF MORE THAN ONE OWNER/OPERATOR AT C4, ASK F1a-F2b FOR EACH OWNER/OPERATOR. OTHERWISE, GO TO F3.

F2 series asked of up to 10 owner-operators.

[F2_Owner_Eq_Invest_02_1]
[F2_Owner_Eq_Invest_03_1]
[F2_Owner_Eq_Invest_04_1]
[F2_Owner_Eq_Invest_05_1]
[F2_Owner_Eq_Invest_06_1]
[F2_Owner_Eq_Invest_07_1]
[F2_Owner_Eq_Invest_08_1]
[F2_Owner_Eq_Invest_09_1]
[F2_Owner_Eq_Invest_10_1]

IF SOLE PROPRIETORSHIP AT QUESTION C1z OR C1z2, GO TO F6b.

F3. Equity investment is money received in return for some portion of ownership, and it is another way to fund business expenses. During calendar year 2005, did the business obtain equity financing from any of the following sources?

	YES	NO	DON'T KNOW	REFUSED
a. Spouses or life partners of owners of the business. This does not include spouses or life partners already named as owners..... **[F3a_Eq_Invest_Spouse_1]**	01	00	d	r
b. Parents, in-laws or children of owners of the business ..... **[F3b_Eq_Invest_Parents_1]**	01	00	d	r
c. Individuals who are not spouses or life partners, parents, in-laws or children of the owners, excluding venture capitalists ..... **[F3c_Eq_Invest_Angels_1]**	01	00	d	r
d. Other companies..... **[F3d_Eq_Invest_Companies_1]**	01	00	d	r
e. Government agencies ..... **[F3e_Eq_Invest_Govt_1]**	01	00	d	r
f. Venture capitalists..... **[F3f_Eq_Invest_Vent_Cap_1]**	01	00	d	r
g. Any other sources? (SPECIFY) ..... **[F3g_Eq_Invest_Other_1]** _____	01	00	d	r

F4. **FOR EACH EQUITY FINANCING OPTION REPORTED AS "YES" ABOVE, ASK:** In calendar year 2005, how much money did [NAME BUSINESS] receive from [EQUITY OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2005 AMOUNT FROM EQUITY OPTION

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F4a. Counting all years, how much did [EQUITY OPTION] put into [NAME BUSINESS] as of December 31, 2005?

PROBE: This includes all money invested by [EQUITY OPTION] in all years.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL EQUITY

DON'T KNOW ..... d

REFUSED ..... r

PROBE: IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

IF F4 IS GREATER THAN F4a:
I may have made a mistake. The amount invested in 2005 is greater than the amount invested in all years combined. Is there an error?

F5. **FOR EACH EQUITY FINANCING OPTION REPORTED AS "YES" ABOVE, ASK:** What was the total percentage of the business owned by the [EQUITY OPTION] who invested money in the business as of December 31, 2005?

|__|__|__| PERCENT

DON'T KNOW..... d

REFUSED..... r

INTERVIEWER CHECK BOX: CHECK ANSWER FROM F2b AND F5 FOR TOTAL PERCENTAGE OF BUSINESS ACCOUNTED FOR.

[F6Check_1]

IF TOTAL PERCENTAGE EQUALS 100%, GO TO F6a
IF TOTAL EQUALS LESS OR MORE THAN 100%

F6. So far, you've given me the following information on who owns [NAME BUSINESS]: [LIST EQUITY INVESTORS FROM F2b AND F5]. Can we review this list?

REVIEW LIST OF OWNERS AND PERCENTAGES WITH RESPONDENT. MAKE CHANGES AS NEEDED, ADDING NEW OWNERS AND/OR PERCENTAGES AS NECESSARY.

DON'T KNOW..... d

REFUSED..... r

[F6_perc_owned_owner_01_1]
[F6_perc_owned_owner_02_1]
[F6_perc_owned_owner_03_1]
[F6_perc_owned_owner_04_1]
[F6_perc_owned_owner_05_1]
[F6_perc_owned_owner_06_1]
[F6_perc_owned_owner_07_1]
[F6_perc_owned_owner_08_1]
[F6_perc_owned_owner_09_1]
[F6_perc_owned_owner_10_1]
[F6_perc_owned_owner_11_1]

F6a. Have you or other owners withdrawn money from the business for personal use in **either** 2004 **or** 2005?

INTERVIEWER: IF NEEDED—

This does not include owner salaries.

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO F7a

[F6a_Personal_Use_1]

F6b. **IF YES:** Thinking of calendar year **2004**, how much money, if any, did you and other owners withdraw from the business for personal use? This includes any dividends paid.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL DRAWINGS 2004

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F6c. Now, thinking about calendar year **2005**, how much money, if any, did you and other owners withdraw from the business for personal use? This includes any dividends paid.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL DRAWINGS 2005

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

F7a. Another way to finance a business is debt financing. Debt is money borrowed that has to be paid back with or without interest.

We will be talking about categories of debt based on who is responsible for paying it back. For each category, I'll ask you about several sources of debt business owners or businesses can use to fund operations. We want to make sure that any business-related debt is reported in the right category, and is reported only once. I will identify each category and remind you when I change categories. Here is the first category.

I'm going to ask you about some different types of debt financing **you** may have borrowed **in your name** on behalf of [NAME BUSINESS]. For each, please tell me if you used this type at any time during calendar year 2005. Did you use [NAME FINANCING OPTION FROM LIST]?

F7b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED, ASK:** How many [NAME DEBT FINANCING OPTION] did you use to finance the operation of the business during calendar year 2005?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Personal credit cards for business-related purposes ..... **[F7a_Pers_CredCard_1]**	01	00	d	r	| | | **[F7b_Pers_CredCard_NumUsed_1]**
b. Personal loans from a bank or other financial institution, such as a mortgage or home equity loan used for the business..... **[F7a_Pers_Loan_Bank_1]**	01	00	d	r	|__|__| **[F7b_Pers_Loan_ Bank_NumUsed_1]**
c. Business or corporate credit cards issued in your name ..... **[F7a_Bus_CredCard_1]**	01	00	d	r	|__|__| **[F7b_Bus_CredCard_NumUsed_1]**
d. Personal loans from any family or friends ..... **[F7a_Pers_Loan_Fam_1]**	01	00	d	r	|__|__| **[F7b_Pers_Loan_Fam_NumUsed_1]**
e. Personal loans from any other individuals not associated with the management of the business ..... **[F7a_Pers_Loan_Other_1]**	01	00	d	r	|__|__| **[F7b_Pers_Loan_ Other_NumUsed_1]**
f. Any other sources? (SPECIFY)..... **[F7a_Pers_Other_1]** _____	01	00	d	r	|__|__| **[F7b_Pers_Other_NumUsed_1]**

F8a. **IF ANSWERED "YES" TO F7a ITEMS a, c, ASK:** As of December 31, 2005, what was the maximum credit line on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2005 CREDIT LINE

DON'T KNOW..... d
REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more?..... 09
DON'T KNOW..... d
REFUSED..... r

F8b. **IF ANSWERED "YES" TO F7a ITEMS a, c, ASK:** As of December 31, 2005, what was the outstanding balance on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2005 OUTSTANDING CREDIT CARD BALANCE

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

IF F8b IS GREATER THAN F8a:
Perhaps I made a mistake. The amount I recorded as the balance outstanding is greater than the amount reported as the maximum credit limit.

F8c. **IF ANSWERED "YES" TO F7a ITEMS b, d, e, f, ASK:** In calendar year 2005, how much was obtained from the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2005 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F8d. As of December 31, 2005, what was the estimated amount of the [NAME DEBT FINANCING OPTION] **owed** by you on behalf of [NAME BUSINESS]?

$ |___|___|___|,|___|___|___|,|___|___|___| DEBT FINANCING VALUE AS OF DECEMBER 31, 2005

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

IF MORE THAN ONE OWNER/OPERATOR AT C4, ASK F9a. OTHERWISE, GO TO F11a.

F9a. Here is the next debt category. I'm going to ask you about some different types of debt financing that **other owners** may have borrowed on behalf of [NAME BUSINESS]. This debt does **not** include amounts already reported in the previous section about **your** debt. For each, please tell me if other owners used this type at any time during calendar year 2005. Did other owners use [NAME DEBT FINANCING OPTION FROM LIST]?

F9b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED, ASK**: How many [NAME DEBT FINANCING OPTION] did other owners use to finance the operation of the business during calendar year 2005?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Personal credit cards for business-related purposes ..... **[F9a_Pers_CredCard_1]**	01	00	d	r	|___|___| **[F9b_Pers_Cred Card_NumUsed_1]**
b. Personal loans from a bank or other financial institution, such as a mortgage or home equity loan used for the business ..... **[F9a_Pers_Loan_Bank_1]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Bank_NumUsed_1]**
c. Business or corporate credit cards issued in the other owner's name(s)..... **[F9a_Bus_CredCard_1]**	01	00	d	r	|___|___| **[F9b_Bus_Cred Card_NumUsed_1]**
d. Personal loans from any family or friends..... **[F9a_Pers_Loan_Fam_1]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Fam_NumUsed_1]**
e. Personal loans from any other individuals not associated with the management of the business..... **[F9a_Pers_Loan_Other_1]**	01	00	d	r	|___|___| **[F9b_Pers_Loan_ Other_NumUsed_1]**
f. Any other sources? (SPECIFY) ..... **[F9a_Pers_Other_1]**	01	00	d	r	|___|___| **[F9b_Pers_Other_ NumUsed_1]**

_____

F10a. **IF ANSWERED "YES" TO F9a ITEMS a, c, ASK:** As of December 31, 2005, what was the maximum credit line on the [NAME DEBT FINANCING OPTION] of (one of) the other owner(s)?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2005 CREDIT LINE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F10b. **IF ANSWERED "YES" TO F9a ITEMS a, c, ASK:** As of December 31, 2005, what was the outstanding balance on the [NAME DEBT FINANCING OPTION] used by (one of) the other owner(s)?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2005 OUTSTANDING CREDIT CARD BALANCE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

IF F10b IS GREATER THAN F10a:
Perhaps I made a mistake. The amount I recorded as the balance outstanding is greater than the amount reported as the maximum credit limit.

F10c. **IF ANSWERED "YES" TO F9a, ITEMS b, d, e, f, ASK:** In calendar year 2005, how much was obtained from the [NAME DEBT FINANCING OPTION] other owners used?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2005 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F10d. As of December 31, 2005, what was the estimated amount of the [NAME DEBT FINANCING OPTION] **owed** by other owners on behalf of [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| DEBT AMOUNT AS OF DECEMBER 31, 2005

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F11a. We are once again switching to another debt category. Now I'm going to ask you about some different types of debt financing that may have been obtained in the name of the business during calendar year 2005. This debt does **not** include amounts already reported in the previous sections about **your debt** or **the debt of other owners**. During calendar year 2005, did [NAME BUSINESS] use [NAME DEBT FINANCING OPTION FROM LIST]?

F11b. **IN BELOW LIST, FOR EACH DEBT FINANCING OPTION BUSINESS REPORTED, ASK:** How many [NAME DEBT FINANCING OPTION] did the business use to finance the operation or the business during calendar year 2005?

	YES	NO	DON'T KNOW	REFUSED	NUMBER USED
a. Business or corporate credit cards issued in the name of the business ..... **[F11a_Bus_CredCard_1]**	01	00	d	r	|___|___| **[F11b_Bus_Cred Card_NumUsed_1]**
b. Business loans from a commercial bank ..... **[F11a_Bus_Loans_Bank_1]**	01	00	D	r	|___|___| **[F11b_Bus_Loans_ Bank_NumUsed_1]**
c. Business line of credit (**READ IF NEEDED:** a business line of credit is when a business has an agreement with a bank or other financial institution to borrow up to a certain amount of funds) ..... **[F11a_Bus_Cred_Line_1]**	01	00	d	r	|___|___| **[F11b_Bus_Cred_ Line_NumUsed_1]**
d. Business loans from a non-bank financial institution..... **[F11a_Bus_Loans_Nonbank_1]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ NonBank_NumUsed_1]**
e. Business loans from any family or friends of the owners ..... **[F11a_Bus_Loans_Fam_1]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Fam_NumUsed_1]**
f. Business loans from another owner of the business or a partner..... **[F11a_Bus_Loans_Owner_1]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Owner_NumUsed_1]**
g. **[IF HAVE EMPLOYEES AT C5]** Loans to the business from employees that are not owners of the business..... **[F11a_Bus_Loans_Emp_1]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Emp_NumUsed_1]**
h. Loans from government agencies ..... **[F11a_Bus_Loans_Govt_1]**	01	00	d	r	|___|___| **[F11b_Bus_Loans_ Govt_NumUsed_1]**
i. Loans from other businesses ..... **[F11a_Bus_Loans_Other_Bus_1]**	01	00	d	r	|___|___| **[F11a_BusLoans_ OtherBus_NumUsed_1]**

j. Business loans from any other individuals not associated with the management of the business.....					|___|___|
[F11a_Bus_Loans_Other_Ind_1]	01	00	d	r	**[F11b_BusLoans_ OtherInd_NumUsed_1]**
k. Any other sources? (SPECIFY).....					|___|___|
[F11a_Bus_Other_1]	01	00	d	r	**[F11b_Bus_Other_NumUsed_1]**

_____

F12a. **IF ANSWERED "YES" TO F11a ITEMS a, c, ASK:** As of December 31, 2005, what was the maximum credit line on the [NAME DEBT FINANCING OPTION]?

$ |___|___|___|,|___|___|___|,|___|___|___| DECEMBER 31, 2005 CREDIT LINE

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

F12b. **IF ANSWERED "YES" TO F11a ITEMS a, c, ASK:** As of December 31, 2005, what was the outstanding balance on the [NAME DEBT FINANCING OPTION]?

$ |__|__|__|,|__|__|__|,|__|__|__| DECEMBER 31, 2005 OUTSTANDING CREDIT BALANCE

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

IF F12a IS GREATER THAN F12b:
Perhaps I made a mistake. The amount I recorded as the balance outstanding is greater than the amount reported as the maximum credit limit.

F12c. **IF ANSWERED "YES" TO F11a ITEMS b, d-k, ASK:** In calendar year 2005, how much was the amount obtained from [NAME DEBT FINANCING OPTION] used by [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2005 DEBT AMOUNT

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F12d. As of December 31, 2005, what was the estimated amount of the [NAME DEBT FINANCING OPTION] **owed** by [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| DEBT AMOUNT AS OF DECEMBER 31, 2005

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

F13. Trade financing is where a business has an arrangement with a supplier to make purchases on account. In calendar year 2005, did [NAME BUSINESS] make any purchases through trade financing?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO F15

[F13_Trade_Fin_1]

F14. **IF YES:** In calendar year 2005, what was the amount of purchases made through trade financing?

$ |__|__|__|,|__|__|__|,|__|__|__| CALENDAR YEAR 2005 AMOUNT OF TRADE PURCHASES

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F15. In calendar year 2005, did [NAME BUSINESS] receive any revenue (money), from the sales of goods, services, or intellectual property? [**IF SOLE PROPRIETORSHIP, ADD:** This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

GO TO F17

[F15_Revenue_2005_1]

F16. What was [NAME BUSINESS]'s total revenue for calendar year 2005? [**IF SOLE PROPRIETORSHIP, ADD:** This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL REVENUE 2005

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F16b. Was this an increase, a decrease, or no change in the amount of revenue for [NAME BUSINESS] in 2005 compared to 2004?

INCREASE 01
DECREASE 02
NO CHANGE ..... 03 **GO TO F17**
DON'T KNOW ..... d
REFUSED ..... r

[F16b_Rev_2005_Change_1]

F16c. And what was the percentage change in revenue in 2005 compared 2004? Your best estimate is fine.

|__|__|__| % CHANGE IN REVENUE

DON'T KNOW ..... d
REFUSED ..... r

[F16c_Perc_Change_1]

F17. Now I'm going to ask about the expenses the business paid. Expenses are the costs paid for the operation of the business, including wages, salaries, interest on loans, capital leases, materials, etc. How much, if any, did [NAME BUSINESS] pay in expenses during calendar year 2005?

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL EXPENSES IN CALENDAR YEAR 2005

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F17b. Was this an increase, a decrease, or no change in total expenses for [NAME BUSINESS] in 2005 compared to 2004?

INCREASE 01
DECREASE 02
NO CHANGE ..... 03 **GO TO F18**
DON'T KNOW ..... d
REFUSED ..... r

[F17b_Total_Exp_2005_Change_1]

F17c. And what was the percentage change in total expenses in 2005 compared to 2004? Your best estimate is fine.

|__|__|__| % CHANGE IN EXPENSES

DON'T KNOW..... d

REFUSED..... r

[F17c_Perc_Change_1]

F18. **IF BUSINESS REPORTED "0" EMPLOYEES AT C5, GO TO F19.**
How much, if any, did [NAME BUSINESS] pay in wages, salaries, and benefits to full- and part-time employees in calendar year 2005? Please do not include wages, salaries, and benefits to contract workers who work for the business but are not on the business' official payroll.

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL PAYROLL EXPENSES IN CALENDAR YEAR 2005

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more?..... 09

DON'T KNOW..... d

REFUSED..... r

F19. Did [NAME BUSINESS] spend any money on research and development of new products and services during calendar year 2005?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F19_Res_Dev_1]

F20. Did [NAME BUSINESS] spend any money on the purchase of new or used machinery or equipment during calendar year 2005?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F20_Mach_1]

F21. Did [NAME BUSINESS] spend any money on rental or lease payments for buildings or other structures during calendar year 2005?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F21_Land_Rent_1]

F22. Did [NAME BUSINESS] spend any money on **rental or lease payments** for machinery or equipment during calendar year 2005?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[F22_Mach_Rent_1]

F23. Profit is the business' income after all expenses and taxes have been deducted. What was [NAME BUSINESS]'s total profit or loss for calendar year 2005?

PROFIT ..... 01 **GO TO F24**
LOSS ..... 02 **GO TO F26**
DON'T KNOW ..... d
REFUSED ..... r

[F23_Profit_Or_Loss_1]

F24. ENTER PROFIT AMOUNT

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL PROFIT IN CALENDAR YEAR 2005

DON'T KNOW ..... d
REFUSED ..... r

F25. **IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:** Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F26. ENTER LOSS AMOUNT

$ |__|__|__|,|__|__|__|,|__|__|__| TOTAL LOSS IN CALENDAR YEAR 2005

DON'T KNOW ..... d
REFUSED ..... r

F27. **IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:** Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F28. Assets are what the business owns. As of December 31, 2005, did [NAME BUSINESS]'s assets include [NAME ASSET FROM LIST]?

	YES	NO	DON'T KNOW	REFUSED
a. Cash on hand in checking, savings, money market accounts, certificates of deposit and other time deposits ..... **[F28a_Asset_Cash_1]**	01	00	d	r
b. Accounts receivable ..... **[F28b_Asset_Acct_Rec_1]**	01	00	d	r
c. Product inventory ..... **[F28c_Asset_Inv_1]**	01	00	d	r
d. Equipment or machinery ..... **[F28d_Asset_Equip_1]**	01	00	d	r
e. Land, buildings, and other structures..... **[F28e_Asset_LandBuild_1]**	01	00	d	r
f. Vehicles ..... **[F28f_Asset_Veh_1]**	01	00	d	r
g. Any other business owned property (SPECIFY) ... **[F28g_Other_Bus_Prop_1]** _____	01	00	d	r
h. Any other assets? (SPECIFY) ..... **[F28h_Other_Assets_1]** _____	01	00	d	r

F29. **FOR EACH ASSET BUSINESS REPORTED, ASK:**
As of December 31, 2005, what was the estimated <u>value</u> of the [NAME OF ASSET] owned by [NAME BUSINESS]?

$ |__|__|__|,|__|__|__|,|__|__|__| ASSET VALUE AS OF DECEMBER 31, 2005

DON'T KNOW..... d

REFUSED..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01
$501 to $1,000, ... 02
$1,001 to $3,000, ... 03
$3,001 to $5,000, ... 04
$5,001 to $10,000, ... 05
$10,001 to $25,000, ... 06
$25,001 to $100,000, ... 07
$100,001 to $1,000,000, ... 08
$1,000,001 or more? 09
DON'T KNOW ..... d
REFUSED ..... r

F30. Liabilities are what the business owes. Other than the loans and the financial debt we've already talked about, did [NAME BUSINESS]'s liabilities as of December 31, 2005 include [NAME LIABILITY FROM LIST]?

	YES	NO	DON'T KNOW	REFUSED
a. Accounts Payable ..... **[F30a_Liab_AcctPay_1]**	01	00	d	r
b. Pension and post retirement benefits ..... **[F30b_Liab_Pension_1]**	01	00	d	r
c. Any other liabilities? (SPECIFY) ..... **[F30c_Liab_Other_1]**	01	00	d	r

F31. **FOR EACH LIABILITY BUSINESS HAS, ASK:** As of December 31, 2005, what was the estimated value of [NAME BUSINESS]'s [NAME OF LIABILITY]?

$ |__|__|__|,|__|__|__|,|__|__|__| LIABILITY VALUE AS OF DECEMBER 31, 2005

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .

$500 or less, ... 01

$501 to $1,000, ... 02

$1,001 to $3,000, ... 03

$3,001 to $5,000, ... 04

$5,001 to $10,000, ... 05

$10,001 to $25,000, ... 06

$25,001 to $100,000, ... 07

$100,001 to $1,000,000, ... 08

$1,000,001 or more? 09

DON'T KNOW ..... d

REFUSED ..... r

G. WORK BEHAVIORS AND DEMOGRAPHICS OF OWNER/OPERATOR(S)

The last section contains questions for classification purposes only.

C4 LISTING OF OWNER/OPERATORS SHOULD BE ASKED THIS SERIES IN THE FOLLOWING ORDER:

RESPONDENT FIRST, THEN OTHER BASELINE OWNER/OPERATORS, THEN NEW OWNER/OPERATORS. NO QUESTIONS WILL BE ASKED ABOUT OWNER/OPERATORS WHO HAVE LEFT.

FOR ALL BASELINE OWNER/OPERATORS IN C4, ASK *BLOCK bSectionG1*

FOR ALL NEW OWNER/OPERATORS, ASK *BLOCK bSectionG2*

BLOCK bSectionG1—

G1a. (Are/Is) (you/[OWNER B-J]) also a paid employee at [NAME BUSINESS]?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G1a_Emp_Owner_01_1] THROUGH [G1a_Emp_Owner_10_1]

G1b. During the time [NAME BUSINESS] was in business during 2005, how many hours in an average week did (you/[OWNER B-J]) spend working at [NAME BUSINESS]?

|__|__|__| HTHES WORKED IN AVERAGE WEEK

DON'T KNOW ..... d
REFUSED ..... r

IF DON'T KNOW OR REFUSED PROBE: Would you say it was . . .

Less than 20 hours, ... 01
20 hours to 35 hours, ... 02
36 hours to 45 hours, ... 03
46 hours to 55 hours, ... 04
56 hours to 65 hours, ... 05
66 hours or more? 06
DON'T KNOW ..... d
REFUSED ..... r

BASELINE OWNERS/OPERATORS: ANY DEMOGRAPHIC QUESTION G1d-G10a NOT ANSWERED IN BASELINE WILL BE ASKED AGAIN.

ENDBLOCK bSectionG1

BLOCK bSectionG2—for all NEW OWNERS

G1a. (Are/Is) (you/[OWNER B-J]) also a paid employee at [NAME BUSINESS]?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

During the time [NAME BUSINESS] was in business during 2005, how many hours in an average week did (you [OWNER B-J] spend working at [NAME BUSINESS]?

|__|__|__| HTHES WORKED IN AVERAGE WEEK

DON'T KNOW ..... d
REFUSED ..... r

G1b1. **IF DON'T KNOW OR REFUSED, PROBE:** Would you say it was . . .

Less than 20 hours, ... 01
20 hours to 35 hours, ... 02
36 hours to 45 hours, ... 03
46 hours to 55 hours, ... 04
56 hours to 65 hours, ... 05
66 hours or more? 06
DON'T KNOW ..... d
REFUSED ..... r

G2. How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

|__|__| YEARS

DON'T KNOW ..... d
REFUSED ..... r

[G2_Work_Exp_Owner_01_1] THROUGH [G2_Work_Exp_Owner_10_1]

G3a. How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

|__|__| NUMBER OF BUSINESSES
(ENTER "0" FOR NONE)

DON'T KNOW ..... d

REFUSED ..... r

[G3a_Oth_Bus_Owner_01_1] THROUGH [G3a_Oth_Bus_Owner_10_1]

IF ZERO NEW BUSINESSES AT G3a, GO TO G4.

G3b. (Was this/Were any of the) business(es) in the same industry as [NAME BUSINESS]?

YES 01

NO 00

DON'T KNOW ..... d

REFUSED ..... r

[G3b_Bus_Same_Ind_Owner_01_1] THROUGH [G3b_Bus_Same_Ind_Owner_10_1]

G4. How old will (you/[OWNER B-J]) be on (your/his/her) next birthday?

OWNER A..... |__|__|

DON'T KNOW ..... d

REFUSED ..... r

IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say . . .

18-24, ... 01

25-34, ... 02

35-44, ... 03

45-54, ... 04

55-64, ... 05

65-74, ... 06

75 or older? 07

DON'T KNOW ..... d

REFUSED ..... r

Now I have a few questions about race and ethnicity.

G5. (Are/Is) (you/[OWNER B-J]) of Hispanic or Latino origin?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G5_Hisp_Origin_Owner_01_1] THROUGH [G5_Hisp_Origin_Owner_10_1]

G6. I am going to read a list of race categories. Please choose one or more that best describes (your/[OWNER B-J]'s) race. Are (you [OWNER B-J]) American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, Asian, Black or African American, or White?

AMERICAN INDIAN OR ALASKA NATIVE 01
[G6_Race_AmInd_ Owner_01_1] THROUGH [G6_Race_AmInd_ Owner_10_1]

NATIVE HAWAIIAN OR OTHER
PACIFIC ISLANDER 02
[G6_Race_NatHaw_Owner_01_1] THROUGH [G6_Race_NatHaw_Owner_10_1]

ASIAN 03
[G6_Race_Asian_Owner_01_1] THROUGH [G6_Race_Asian_Owner_10_1]

BLACK OR AFRICAN AMERICAN 04
[G6_Race_Black_Owner_01_1] THROUGH [G6_Race_Black_Owner_10_1]

WHITE 05
[G6_Race_White_Owner_01_1] THROUGH [G6_Race_White_Owner_10_1]

OTHER (SPECIFY) 06
[G6_Race_Other_Owner_01_1] THROUGH [G6_Race_Other_Owner_10_1]

_____

DON'T KNOW ..... d
REFUSED ..... r

G7. (Were/Was) (you/[OWNER B-J]) born in the United States?

YES ..... 01 **GO TO G9**
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G7_Native_Born_Owner_01_1] THROUGH [G7_Native_Born_Owner_10_1]

G8. (Are/Is) (you/[OWNER B-J]) a U.S. citizen?

YES 01
NO 00
DON'T KNOW ..... d
REFUSED ..... r

[G8_US_Cit_Owner_01_1] THROUGH [G8_US_Cit_Owner_10_1]

G9. What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Less than 9th grade, ... 01
Some high school, but no diploma, ... 02
High school graduate (diploma or equivalent diploma [GED]), ... 03
Technical, trade or vocational degree, ... 04
Some college, but no degree, ... 05
Associate's degree, ... 06
Bachelor's degree, ... 07
Some graduate school but no degree, ... 08
Master's degree, or 09
Professional school or doctorate? 10
DON'T KNOW ..... d
REFUSED ..... r

[G9_Education_Owner_01_1] THROUGH [G9_Education_Owner_10_1]

BY OBSERVATION:

G10a. (Are/Is) (you/[OWNER B-J]) male or female?

MALE 01
FEMALE 02
DON'T KNOW ..... d
REFUSED ..... r

[G10_Gender_Owner_01_1] THROUGH [G10_Gender_Owner_10_1]

ENDBLOCK bSectionG2

G11. **IF EMAIL ADDRESS COLLECTED AT BASELINE:**
Can we confirm your email address?

INTERVIEWER: READ E-MAIL ADDRESS AND CORRECT AS NECESSARY.

IF EMAIL ADDRESS FIELD BLANK FROM BASELINE:
Can you give us an email address where you can be reached?

EMAIL:_____ @

DON'T KNOW..... d

REFUSED..... r

G12. **IF WEBSITE ADDRESS COLLECTED AT BASELINE:**
May we confirm your web site address as:

Web Address: .

INTERVIEWER: CORRECT AS NECESSARY GO TO G14

IF WEBSITE ADDRESS BLANK FROM BASELINE:
Does [NAME BUSINESS] have its own website?

YES 01

NO 00

DON'T KNOW..... d

REFUSED..... r

GO TO G14

G13. Can you give me the web address?

WEB ADDRESS:_____._____

DON'T KNOW..... d

REFUSED..... r

G14. Is the business likely to move to another location in the next 12 months?

YES 01

NO 00

DON'T KNOW..... d

REFUSED..... r

GO TO G16

G15. What city and state is the business likely to move to?

CITY:_____

STATE:_____

DON'T KNOW..... d

REFUSED..... r

G16. **IF CONTACT INFORMATION COLLECTED AT BASELINE:**
Here is the information we have for a contact person. This information will be held in the strictest confidence, and will only be used if we cannot contact you or someone else associated with the business at the current business phone number or address.

INTERVIEWER: PLEASE ASK FOR ANY INFORMATION THAT IS NOT FILLED IN.

NAME:_____

ADDRESS:_____

CITY:_____

STATE:_____

PHONE:_____

EMAIL:_____@ _____

DON'T

KNOW..... d

REFUSED..... r

IF CONTACT INFORMATION IS BLANK FROM BASELINE:
In case we are unable to contact you, can you provide a name and contact information for a person besides yourself who would know how to reach you or someone else associated with [NAME BUSINESS]? All information collected will be held in the strictest confidence, and will only be used if we cannot contact you or someone else associated with the business at the current business phone number or address.

NAME:_____

ADDRESS:_____

CITY:_____

STATE:_____

PHONE:_____

EMAIL:_____@ _____

DON'T KNOW..... d
REFUSED..... r

THANK AND TERMINATE

APPENDIX 5: QUESTIONS TO BE USED FROM THE KAUFFMAN FIRM SURVEY

INDEPENDENT VARIABLES – 2004 BASELINE SURVEY

C3. Of the [NUMBER OF OWNERS FROM C2] owners as of December 31, 2004, how many owners actively helped to run [NAME BUSINESS]? By helped to run the business we mean that they provided regular assistance or advice with day-to-day operations of the business, rather than providing only money or occasional operating assistance.
NUMBER OF OWNER/OPERATORS ?
DON'T KNOW
REFUSED

G2. How many years of work experience (have/has) (you/[OWNER B-O]) had in this industry—the one in which [NAME BUSINESS] competes?
YEARS?
DON'T KNOW
REFUSED

G3a. How many other new businesses (have/has) (you/[OWNER B-O]) started besides [NAME BUSINESS]?
NUMBER OF BUSINESSES (ENTER "0" FOR NONE)?
DON'T KNOW
REFUSED

G9. What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .
Less than 9th grade,
Some high school, but no diploma,
High school graduate (diploma or equivalent
diploma [GED]),
Technical, trade or vocational degree,
Some college, but no degree,
Associate's degree,
Bachelor's degree,
Some graduate school but no degree,
Master's degree, or
Professional school or doctorate?
DON'T KNOW
REFUSED

INDEPENDENT VARIABLES - 2008 SURVEY

D2. Businesses often have to compete with other businesses. A competitive advantage is something unique or distinctive a business provides that gives it an advantage compared to competitors. In calendar year 2008, did [NAME BUSINESS] have a competitive advantage over its competitors?
YES ..... 01 GO TO D2a
NO
DON'T KNOW
REFUSED

D2a. Was the competitive advantage [NAME BUSINESS] had in calendar year 2008 related in any way to [ITEM]?
YES ..... 01 GO TO D2b
NO
DON'T KNOW
REFUSED

D2b. Do you consider this to have given [NAME BUSINESS] a major or a minor competitive advantage in calendar year 2008?
REPEAT D2a-D2b FOR EACH ITEM.
D2a. Reason For Competitive Advantage
YES NO DON'T KNOW REFUSED
D2b. Strength of reason for Competitive Advantage
MAJOR REASON MINOR REASON DON'T KNOW REFUSED
a. teaming up with a college or university?
b. teaming up with another company?
c. teaming up with a government lab or research center?
d. patents that [NAME BUSINESS] owns, has applied for, or licensed?

DEPENDENT VARIABLES - 2011 SURVEY

F16. What was [NAME BUSINESS]'s total revenue for calendar year 2008? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]
$ TOTAL REVENUE 2008?
DON'T KNOW
REFUSED
IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .
$500 or less,
$501 to $1,000,
$1,001 to $3,000,
$3,001 to $5,000,
$5,001 to $10,000,
$10,001 to $25,000,

$25,001 to $100,000,
$100,001 to $1,000,000,
$1,000,001 or more?
DON'T KNOW
REFUSED

F2a1. Counting all years, how much of [your/ OWNER BO]'s own money did [you/she/he] put into [NAME BUSINESS] as of December 31, 2008?
IF NEEDED: This includes all money [you/she/he] invested in the business as of December 31, 2008.
$ TOTAL EQUITY?
DON'T KNOW
REFUSED
PROBE: IF DON'T KNOW OR REFUSED, PROBE WITH RANGES:
Would you say it was . . .
$500 or less,
$501 to $1,000,
$1,001 to $3,000,
$3,001 to $5,000,
$5,001 to $10,000,
$10,001 to $25,000,
$25,001 to $100,000,
$100,001 to $1,000,000,
$1,000,001 or more?
DON'T KNOW
REFUSED

F6b. Thinking of calendar year 2008, how much money, if any, did you and other owners withdraw from the business for personal use? This includes any dividends paid.
$ TOTAL DRAWINGS CALENDAR YEAR 2008?
DON'T KNOW
REFUSED
IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .
$500 or less,
$501 to $1,000,
$1,001 to $3,000,
$3,001 to $5,000,
$5,001 to $10,000,
$10,001 to $25,000,
$25,001 to $100,000,
$100,001 to $1,000,000,
$1,000,001 or more?

DON'T KNOW
REFUSED

F24. What was [NAME BUSINESS]'s total profit for calendar year 2008?
$ TOTAL PROFIT IN CALENDAR YEAR 2008?
DON'T KNOW
REFUSED
IF DON'T KNOW OR REFUSED, PROBE WITH RANGES: Would you say it was . . .
$500 or less,
$501 to $1,000,
$1,001 to $3,000,
$3,001 to $5,000,
$5,001 to $10,000,
$10,001 to $25,000,
$25,001 to $100,000,
$100,001 to $1,000,000,
$1,000,001 or more?
DON'T KNOW
REFUSED

F26. What was [NAME BUSINESS]'s total loss for calendar year 2008?
$ TOTAL LOSS IN CALENDAR YEAR 2008?
DON'T KNOW
REFUSED

MODERATORS – 2004 BASELINE SURVEY

A8.
I'd like to confirm your business' mailing address. Is [NAME BUSINESS]'s mailin g address (ADDRESS, CITY, STATE, ZIP)?
WEB: The records indicate that the mailing address for [NAME BUSINESS] is (ADDRESS, CITY, STATE, ZIP). Is this correct?
YES
NO
DON'T KNOW
REFUSED
A9. What is [NAME BUSINESS]'s correct mailing address?
INTERVIEWER: UPDATE MAILING ADDRESS INFORMATION.
ADDRESS:
CITY:
STATE:
ZIP:
DON'T KNOW
REFUSED

C1a. As of December 31, 2004, the records indicate the principal activity of the business was [D&B NAICS CODE DESCRIPTION]. Is that correct?

YES ..... 01 GO TO C2
NO
DON'T KNOW
REFUSED

C1b. As of December 31, 2004, what was the principal activity of the business?

APPENDIX 6: EXAMPLE OF THE TEMPLETON'S (2011) TWO STEPS APPROACH TO TRANSFORM NON-NORMAL DATA DISTRIBUTION INTO NORMAL DISTRIBUTION – HYPOTHESIS 1

Step 1:
Transforming the dependent variable (revenues low performers) into a percentile rank to obtain uniformly distributed probabilities. This creates a new variable (RP1_F16a) into the database.

Created Variables[a]

Source Variable	Function	New Variable	Label
P1_F16a_Rev_2011_Amt_7[b]	Fractional Rank	RP1_F16a	Fractional Rank of P1_F16a_Rev_2011_Amt_7

a. Mean rank of tied values is used for ties

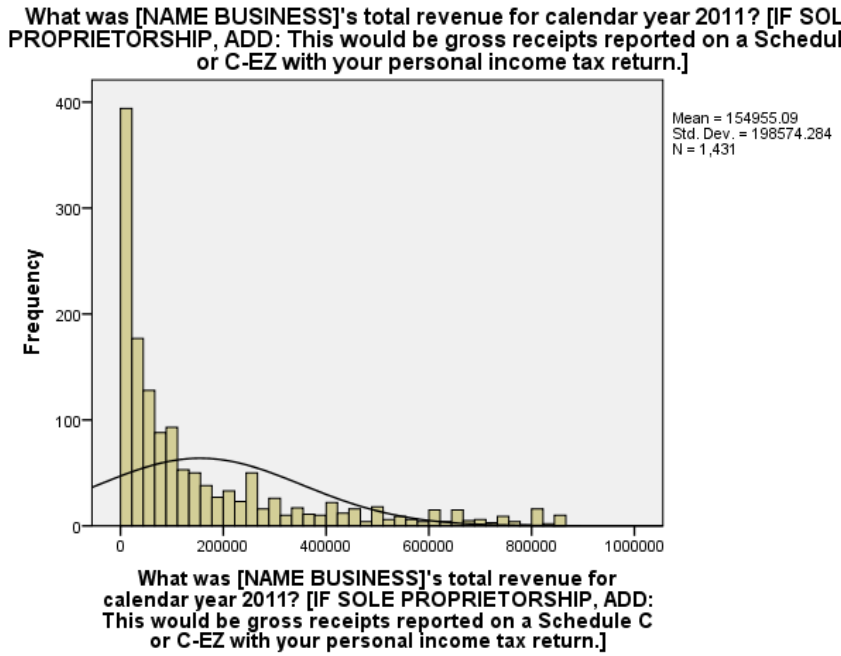
b. Ranks are in ascending order

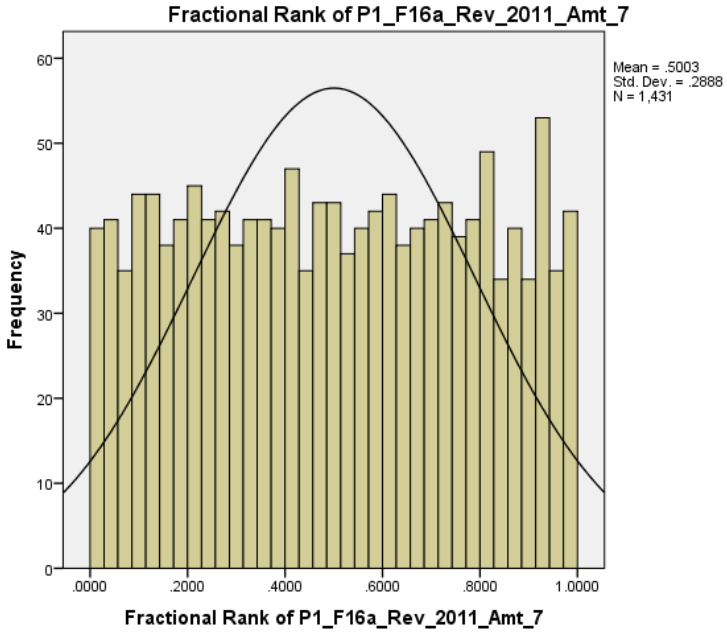
Step 2:
An inverse-normal transformation is applied to the percentile rank results to create a variable with normally distributed z-scores. To achieve this step, the mean and standard deviation of the initial variable, revenues low performers (P1_F16a_Rev_2011_Amt_7) are needed to complete the 'Inverse df.normal' function. The histograms of the initial revenues low performers, revenues low performers percentile rank and normalized revenues low performers are obtained.

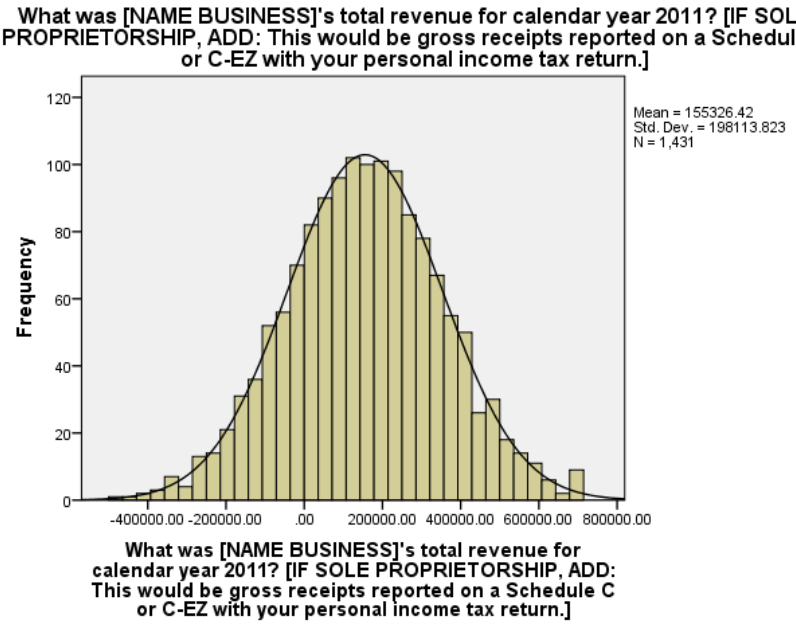
Statistics

		What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	Fractional Rank of P1_F16a_Rev_2011_Amt_7	What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]
N	Valid	1431	1431	1431
	Missing	0	0	0
Skewness		1.749	.000	.006
Std. Error of Skewness		.065	.065	.065
Kurtosis		2.393	-1.200	-.079
Std. Error of Kurtosis		.129	.129	.129

Histogram


What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]
Mean = 154955.09
Std. Dev. = 198574.284
N = 1,431
Frequency
400
300
200
100
0
0
200000
400000
600000
800000
1000000
What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]


Fractional Rank of P1_F16a_Rev_2011_Amt_7
Mean = .5003
Std. Dev. = .2888
N = 1,431
Frequency
60
50
40
30
20
10
0
.0000
.2000
.4000
.6000
.8000
1.0000
Fractional Rank of P1_F16a_Rev_2011_Amt_7



This concludes the transformation of the data into a bell shape curve.

APPENDIX 7: MULTIPLE REGRESSION ASSUMPTIONS RESULTS: HYPOTHESIS 1

The examination of the Skewness and Kurtosis of both dependent variables (revenues and profits) show revenues are normally distributed as the Skewness and Kurtosis ratios are less than 2 ($Skewness_{rev\_low\_perf}$ = 0.006, Skewness ratio: |0.092| < 2 and $Kurtosis_{rev\_low\_perf}$ = -0.079, Kurtosis ratio |-0.612| < 2 (Table A7-1); $Skewness_{rev\_med\_perf}$ = -0.011, Skewness ratio: |-0.061| < 2 and $Kurtosis_{rev\_med\_perf}$ = -0.333, Kurtosis ratio: |-0.933| < 2 (Table A7-2) $Skewness_{rev\_high\_perf}$ = 0.002, Skewness ratio: |0.010| < 2 and $Kurtosis_{rev\_high\_perf}$ = -0.271, Kurtosis ratio: |-0.671| < 2 (Table A7-3) and profits ($Skewness_{prof\_low\_perf}$ = 0.055, Skewness ratio: |0.714| < 2 and $Kurtosis_{prof\_low\_perf}$ = -0.229, Kurtosis ratio: |-1.497| < 2 (Table A7-4) $Skewness_{prof\_med\_perf}$ = 0.014, Skewness ratio: |0.068| < 2 and $Kurtosis_{prof\_med\_perf}$ = -0.311, Kurtosis ratio: |-0.757| < 2 (Table A7-5) $Skewness_{prof\_high\_perf}$ = -0.001, Skewness ratio: |-0.005| < 2 and $Kurtosis_{prof\_high\_perf}$ = -0.295, Kurtosis ratio: |-0.670| < 2 (Table A7-6)).

Table A7-1: Low-Performing Organizations Revenues Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	Fractional Rank of P1_F16a_Rev_2011_Amt_7	Norm_P1_F16a_Rev_2011_LowPerformers
N	Valid	1431	1431	1431
	Missing	0	0	0
Skewness		1.749	.000	.006
Std. Error of Skewness		.065	.065	.065
Kurtosis		2.393	-1.200	-.079
Std. Error of Kurtosis		.129	.129	.129

Table A7-2: Medium Performing Organizations Revenues Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	Fractional Rank of P1_F16a_Rev_2011_Amt_7	Norm_P1_F16a_Rev_2011_MediumPerformers
N	Valid	183	183	183
	Missing	0	0	0
Skewness		.656	-.001	-.011
Std. Error of Skewness		.180	.180	.180
Kurtosis		-.746	-1.202	-.333
Std. Error of Kurtosis		.357	.357	.357

Table A7-3: High Performing Organizations Revenues Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	Fractional Rank of P1_F16a_Rev_2011_Amt_7	Norm_P1_F16a_Rev_2011_HighPerformers
N	Valid	143	143	142
	Missing	0	0	1
Skewness		6.881	.001	.002
Std. Error of Skewness		.203	.203	.203
Kurtosis		54.064	-1.201	-.271
Std. Error of Kurtosis		.403	.403	.404

Table A7-4: Low Performing Organizations Profits Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total profit for calendar year 2011?	Fractional Rank of F24_Profit_Amt_7	What was [NAME BUSINESS]'s total profit for calendar year 2011?
N	Valid	1016	1016	1015
	Missing	415	415	416
Skewness		3.623	.000	.055
Std. Error of Skewness		.077	.077	.077
Kurtosis		18.508	-1.200	-.229
Std. Error of Kurtosis		.153	.153	.153

Table A7-5: Medium Performing Organizations Profits Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total profit for calendar year 2011?	Fractional Rank of F24_Profit_Amt_7	What was [NAME BUSINESS]'s total profit for calendar year 2011?
N	Valid	138	138	137
	Missing	45	45	46
Skewness		6.358	.000	.014
Std. Error of Skewness		.206	.206	.207
Kurtosis		52.022	-1.200	-.311
Std. Error of Kurtosis		.410	.410	.411

Table A7-6: High Performing Organizations Profits Distribution after the Templeton (2011) Two-Step Approach

Statistics

		What was [NAME BUSINESS]'s total profit for calendar year 2011?	Fractional Rank of F24_Profit_Amt_7	What was [NAME BUSINESS]'s total profit for calendar year 2011?
N	Valid	120	120	119
	Missing	23	23	24
Skewness		6.688	.000	-.001
Std. Error of Skewness		.221	.221	.222
Kurtosis		53.227	-1.200	-.295
Std. Error of Kurtosis		.438	.438	.440

All models have no multicollinearity problem. In fact, all independent variables generated VIF between 1 and 10 (revenues low performers: $VIF_{industry\ experience}$ = 1.013; $VIF_{education}$ =1.003; $VIF_{start\text{-}up\ experience}$ = 1.013 (Table A7-7); revenues medium performers: $VIF_{industry\ experience} = 1.010$; $VIF_{education}$ =1.009; $VIF_{start\text{-}up\ experience}$ = 1.000 (Table A7-8); revenues high performers: $VIF_{industry\ experience}$ = 1.049; $VIF_{education}$ =1.048; $VIF_{start\text{-}up\ experience}$ = 1.006 (Table A7-9); profits low performers: $VIF_{industry\ experience}$ = 1.014; $VIF_{education}$ =1.003; $VIF_{start\text{-}up\ experience}$ = 1.011 (Table A7-10); profits medium performers: $VIF_{industry\ experience}$ = 1.021; $VIF_{education}$ =1.024; $VIF_{start\text{-}up\ experience}$ = 1.007 (Table A7-11); profits high performers: $VIF_{industry\ experience}$ = 1.062; $VIF_{education}$ =1.048; $VIF_{start\text{-}up\ experience}$ = 1.030 (Table A7-12)).

Table A7-7: Low Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	110576.508	34455.295		3.209	.001		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	468.476	493.586	.025	.949	.343	.987	1.013
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	2108.013	2224.175	.025	.948	.343	.997	1.003
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	6612.116	2204.243	.080	3.000	.003	.987	1.013

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-8: Medium Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1066600.657	250173.661		4.263	.000		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	2897.664	3629.323	.060	.798	.426	.991	1.010
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	23064.736	15655.957	.111	1.473	.142	.991	1.009
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	6325.075	21740.377	.022	.291	.771	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-9: High Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-23985685.97	4169070.80		-.509	.612		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	474599.782	609908.158	.068	.778	.438	.954	1.049
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	2145863.842	2766598.490	.067	.776	.439	.955	1.048
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	4108887.384	3880234.849	.090	1.059	.291	.994	1.006

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-10: Low-Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	14179.725	10847.140		1.307	.191		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	220.720	155.478	.045	1.420	.156	.986	1.014
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	1028.578	700.133	.046	1.469	.142	.977	1.003
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	934.991	630.272	.047	1.483	.138	.989	1.011

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A7-11: Medium Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-207851.155	168126.597		-1.236	.219		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	4819.286	2674.248	.155	1.802	.074	.979	1.021
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	20818.775	10721.769	.167	1.942	.054	.977	1.024
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	-1185.998	14501.840	-.007	-.082	.935	.993	1.007

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A7-12: High Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1648908.194	1876971.020		-.878	.382		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	39587.887	24594.024	.153	1.610	.110	.941	1.062
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	132368.369	110348.378	.113	1.200	.233	.954	1.048
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	-56541.653	177438.273	-.030	-.319	.751	.971	1.030

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

The Durbin–Watson results also confirms there is no autocorrelation present in the sample (revenues: $d_{low\_performers}$= 1.972 (Table A7-13), $d_{med\_performers}$= 1.802 (Table A7-14), $d_{low\_performers}$= 1.958 (Table A7-15); profits: $d_{low\_performers}$= 1.997

(Table A7-16), $d_{med\_performers}$= 1.855 (Table A7-17), $d_{low\_performers}$= 2.000 (Table A7-18)).

Table A7-13: Durbin-Watson Low Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.091[a]	.008	.006	197697.69695	1.972

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-14: Durbin-Watson Medium Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.133[a]	.018	.001	481745.32705	1.802

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-15: Durbin-Watson High Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.124[a]	.015	-.006	72853833.75906	1.958

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A7-16: Durbin-Watson Low Performing Organizations Profits Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.084[a]	.007	.004	52551.86315	1.997

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A7-17: Durbin-Watson Medium Performing Organizations Profits Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.243[a]	.059	.037	295557.69983	1.855

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A7-18: Durbin-Watson High Performing Organizations Profits Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.172[a]	.029	.004	2705872.35826	2.000

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Moreover, the examination of the Kolmogorov-Smirnov (*revenues*: p-val$_{low_performers}$= 0.200 (Table A7-19); p-val$_{med_performers}$= 0.200 (Table A7-20); p-val$_{high_performers}$= 0.200 (Table A7-21); *profits*: p-val$_{low_performers}$= 0.200 (Table A7-22); p-val$_{med_performers}$= 0.200 (Table A7-23); p-val$_{high_performers}$= 0.200 (Table A7-24)) and the Shapiro-Wilk statistics confirm the normality assumption (*revenues*: p-val$_{low_performers}$= 0.768 (Table A7-19); p-val$_{med_performers}$= 0.340 (Table A7-20); p-

$val_{high\_performers}$= 0.999 (Table A7-21); ***profits***: $p\text{-}val_{low\_performers}$= 0.003 (Table A7-22); $p\text{-}val_{med\_performers}$= 0.965 (Table A7-23); $p\text{-}val_{high\_performers}$= 0.999 (Table A7-24)). The residual analyses show that the expected value of the error term is zero (see Figures A7-1, A7-2 and A7-3 for all revenues hypotheses and Figures A7-4, A7-5 and A7-6 for all profits hypotheses).

These results allow us to pursue with the multiple regression analyses.

Table A7-19: Low Performers – Revenues Normality Compliance

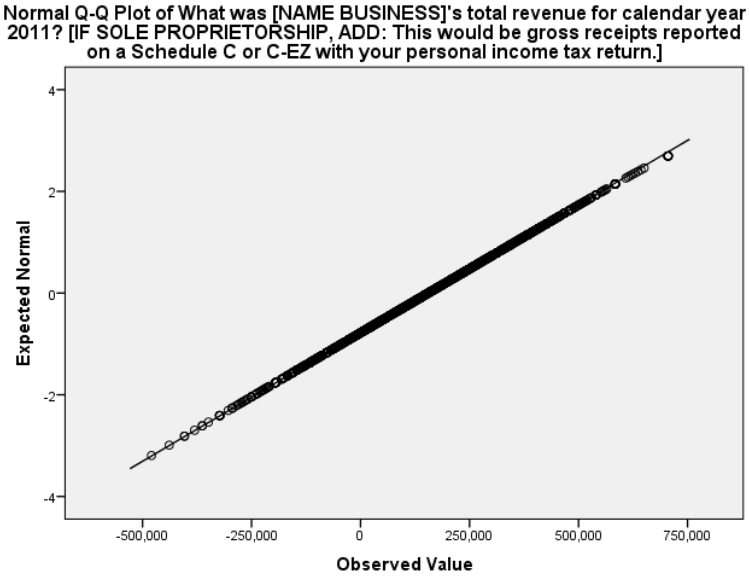
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	.010	1431	.200*	.999	1431	.768

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-1: Low Performers – Revenues Normality Distribution Compliance



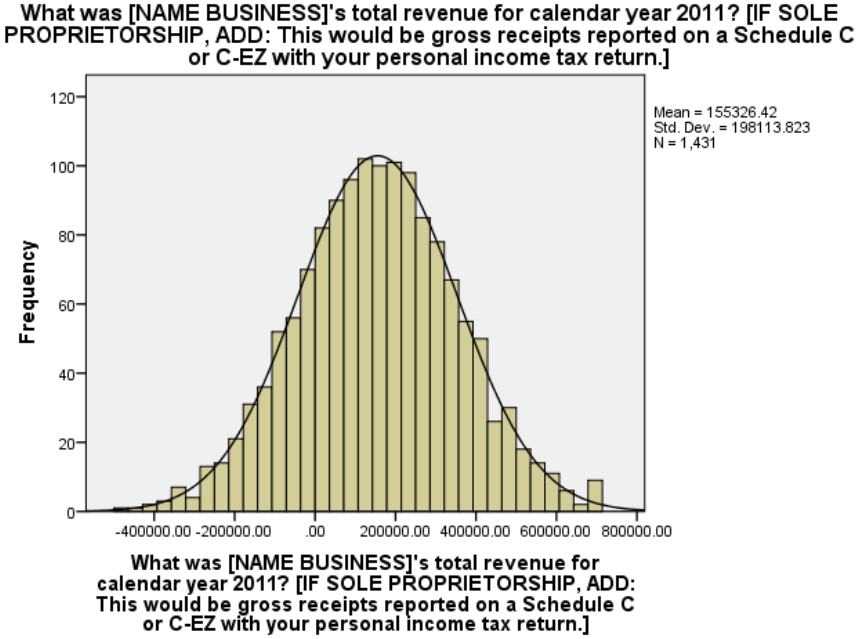


Table A7-20: Medium Performers - Revenues Normality Compliance

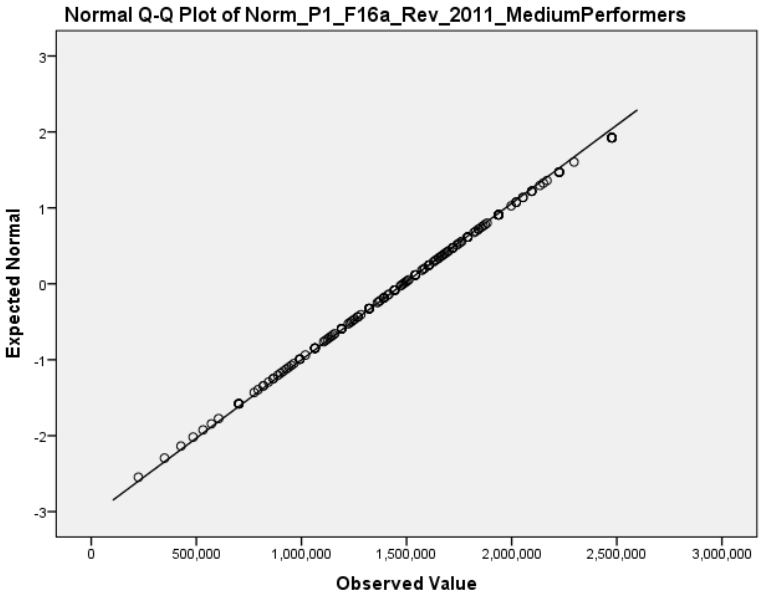
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Norm_P1_F16a_Rev_2011_MediumPerformers	.031	183	.200*	.991	183	.340

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-2: Medium Performers – Revenues Normality Distribution Compliance



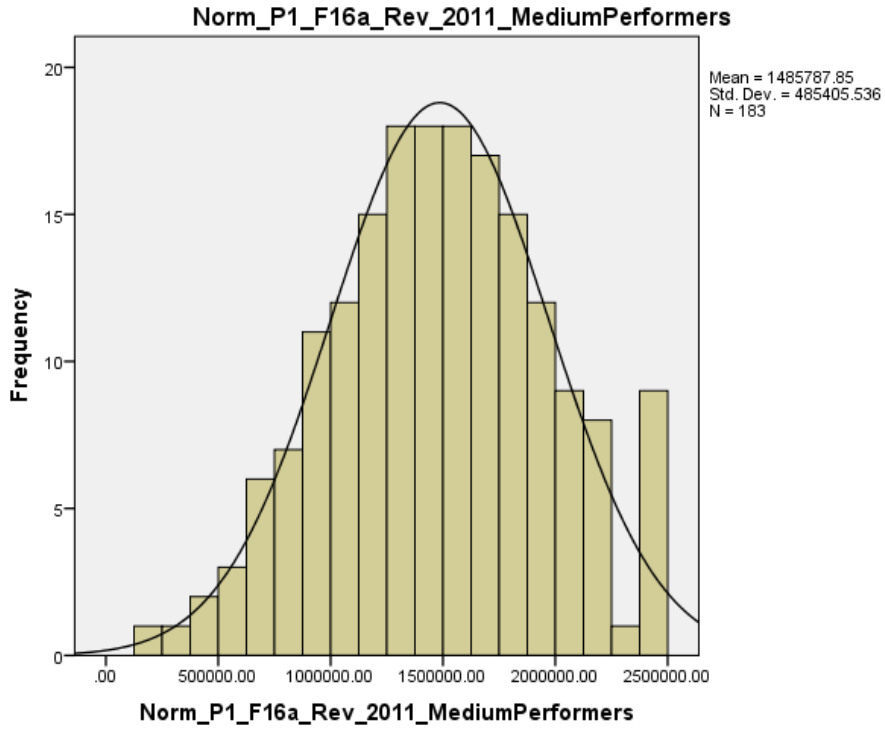


Table A7-21: High Performers - Revenues Normality Compliance

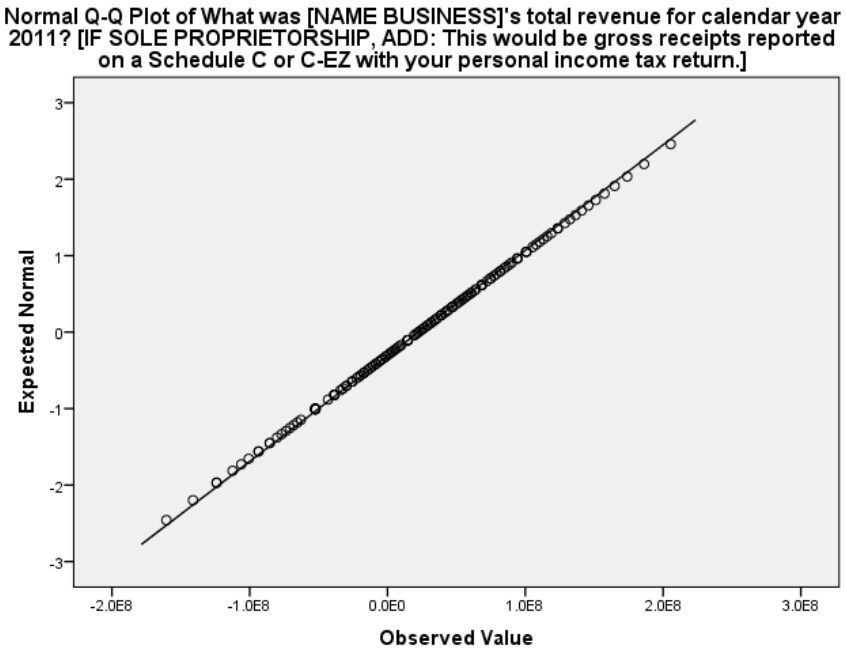
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]	.032	142	.200*	.998	142	.999

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-3: High Performers – Revenues Normality Distribution Compliance



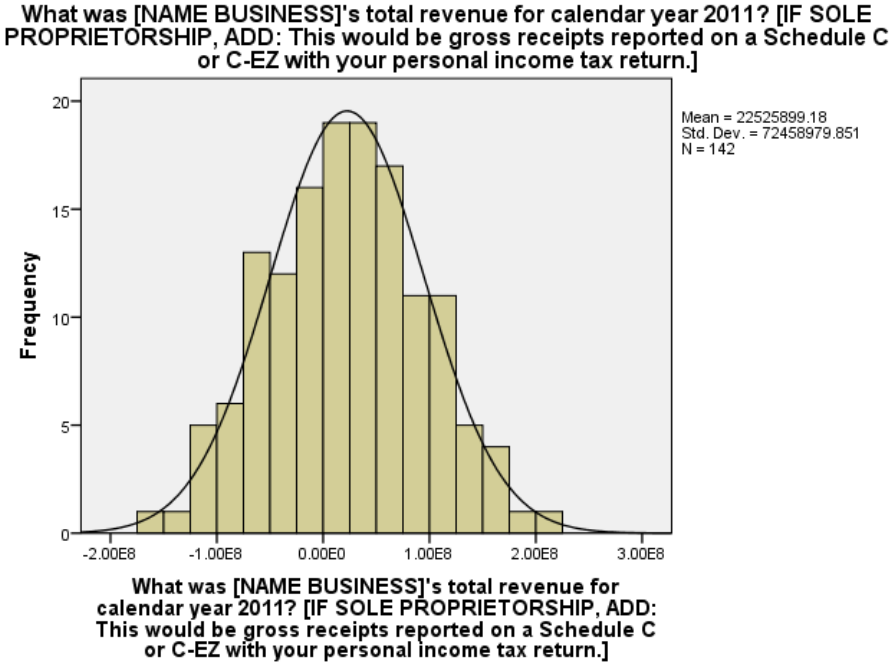


Table A7-22: Low Performers - Profits Normality Compliance

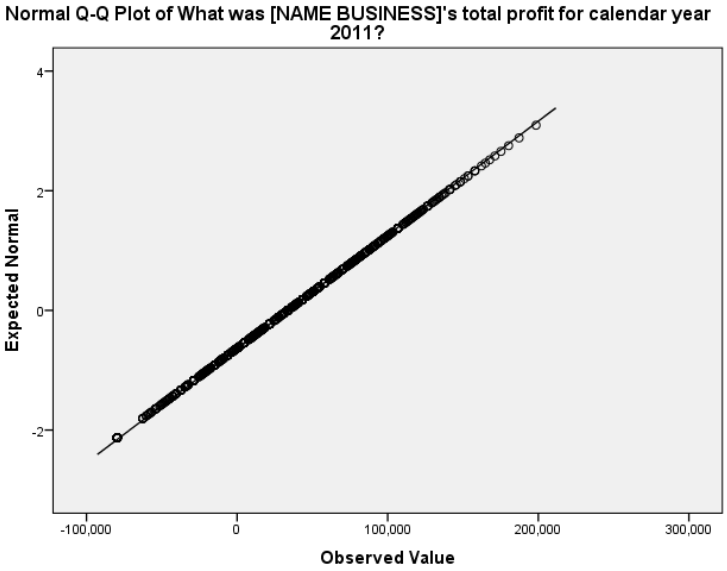
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What was [NAME BUSINESS]'s total profit for calendar year 2011?	.023	1015	.200*	.995	1015	.003

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-4: Low Performers – Profits Normality Distribution Compliance



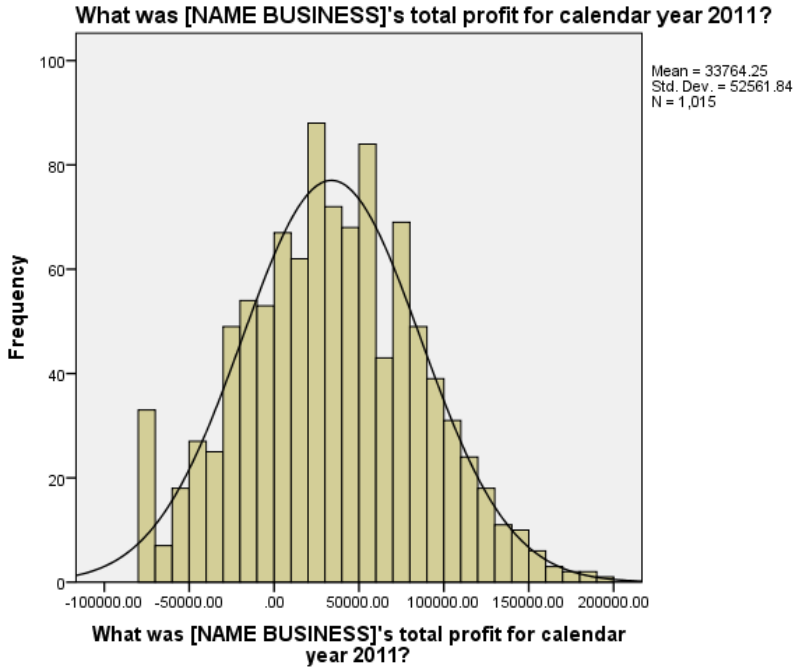


Table A7-23: Medium Performers - Profits Normality Compliance

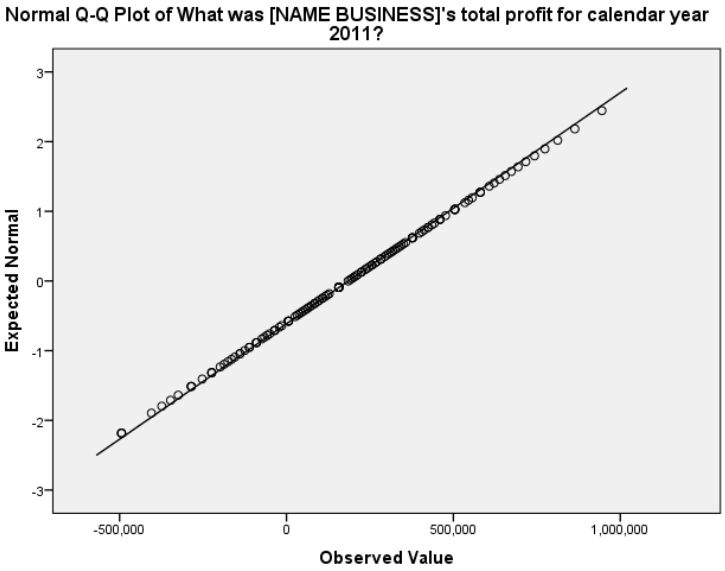
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What was [NAME BUSINESS]'s total profit for calendar year 2011?	.034	137	.200*	.996	137	.965

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-5: Medium Performers – Profits Normality Distribution Compliance



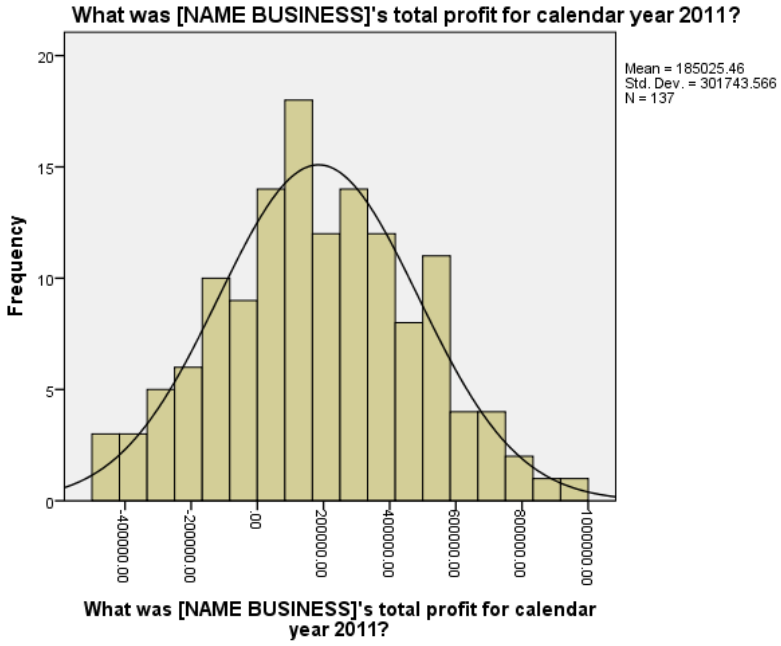


Table A7-24: High Performers - Profits Normality Compliance

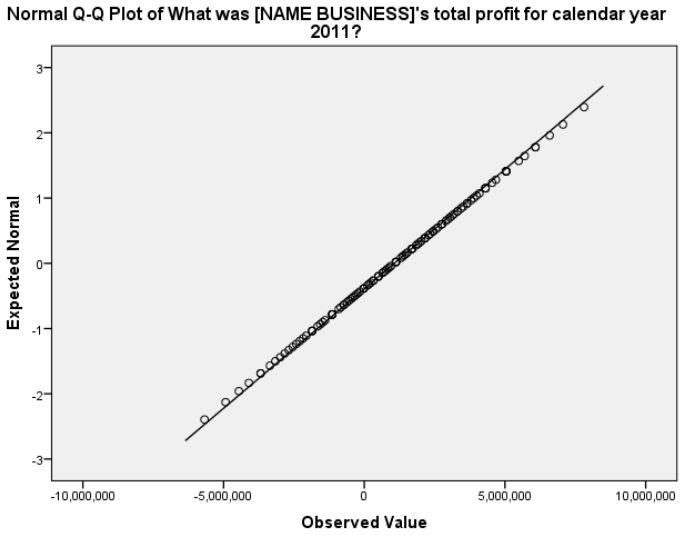
Tests of Normality

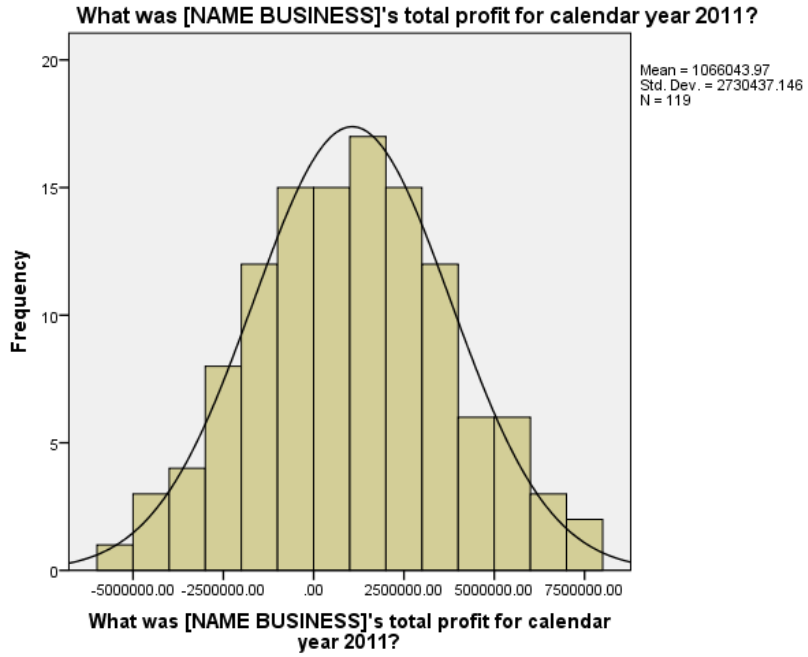
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What was [NAME BUSINESS]'s total profit for calendar year 2011?	.026	119	.200*	.998	119	.999

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure A7-6: High Performers – Profits Normality Distribution Compliance





APPENDIX 8: SPSS TABLES – HYPOTHESIS 1

Low Performers

Table A8-1: Entrepreneurial Background Impacts Positively Firm Financial Performance: Low Performers

(N = 1423)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	463198350958.906	3	154399450319.635	3.950	.008[b]
	Residual	55499818715907.080	1420	39084379377.399		
	Total	55963017066865.984	1423			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.091[a]	.008	.006	197697.69695	1.972

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	110576.508	34455.295		3.209	.001		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	468.476	493.586	.025	.949	.343	.987	1.013
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	2108.013	2224.175	.025	.948	.343	.997	1.003
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	6612.116	2204.243	.080	3.000	.003	.987	1.013

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A8-2: Entrepreneurial Background Impacts Positively Firm Financial Performance: Low Performers

(N = 1009)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19918834048.654	3	6639611349.551	2.404	.066[b]
	Residual	2778268510319.818	1006	2761698320.397		
	Total	2798187344368.472	1009			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Medium Performers

Table A8-3: Entrepreneurial Background Impacts Positively Firm Financial Performance: Medium Performers

(N = 179)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	730455823573.180	3	243485274524.393	1.049	.372[b]
	Residual	40845826583945.125	176	232078560136.052		
	Total	41576282407518.305	179			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A8-4: Entrepreneurial Background Impacts Positively Firm Financial Performance: Medium Performers

(N = 133)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	710721064844.180	3	236907021614.727	2.712	.048[b]
	Residual	11356066011126.936	130	87354353931.746		
	Total	12066787075971.115	133			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.243[a]	.059	.037	295557.69983	1.855

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-207851.155	168126.597		-1.236	.219		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	4819.286	2674.248	.155	1.802	.074	.979	1.021
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	20818.775	10721.769	.167	1.942	.054	.977	1.024
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	-1185.998	14501.840	-.007	-.082	.935	.993	1.007

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

High Performers

Table A8-5: Entrepreneurial Background Impacts Positively Firm Financial Performance: High Performers

(N = 140)

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113713785594080 00.000	3	379045951980266 6.000	.714	.545[b]
	Residual	727152309794785 660.000	137	530768109339259 7.000		
	Total	738523688354193 790.000	140			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A8-6: Entrepreneurial Background Impacts Positively Firm Financial Performance: High Performers

(N = 117)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25339474481671.000	3	8446491493890.333	1.154	.331[b]
	Residual	834678954989122.000	114	7321745219202.824		
	Total	860018429470793.000	117			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]? What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

APPENDIX 9: SIMPLE LINEAR REGRESSION ASSUMPTIONS RESULTS: HYPOTHESIS 2

Low Performers

The relationship between revenues and entrepreneurial team size (Figure A9-1) as well as the relationship between profits and team size are somewhat linear (Figure A9-3). The histogram (Figure A7-4) and the Kolmogorov-Smirnof test (p-$val_{low\_performers}$= 0.200 (Table A7-22)) show the normality of the profit model data. Similar findings were obtained for the revenue model (see histogram Figure A7-1 and Table A7-19 for the Kolmogorov-Smirnof test (p-$val_{low\_performers}$= 0.200).

Moreover, the data does not contain any issue pertaining to a potential problem of multicollinearity ($VIF_{revenue}$ = 1.000, Table A9-1; VIF_{profit} = 1.000, Table A9-3) and the Durbin-Watson tests shows that there is no autocorrelation ($d_{revenue\_low\_performers}$= 1.968 (Table A9-2); $d_{profit\_low\_performers}$= 2.005 (Table A9-4)). Lastly, the scatterplot in Figure A9-2 (i.e., revenues) and Figure A9-4 (i.e., profits) somewhat shows a pattern of homoscedasticity in the data. These results allow us to pursue with the linear regression analysis.

Figure A9-1: Low Performers – Relationship Between Team Size and Revenues

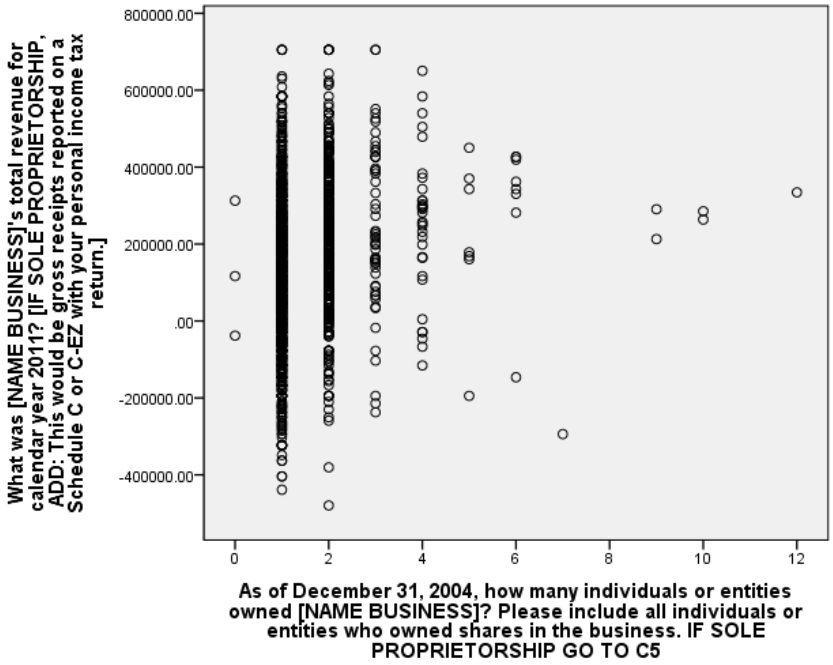


Table A9-1: Low-Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	100048.104	9514.560		10.515	.000		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	37072.398	5405.497	.179	6.858	.000	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A9-2: Durbin-Watson Low Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.179[a]	.032	.031	195034.79816	1.968

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A9-2: Low Performers – Revenues Homoscedasticity Compliance

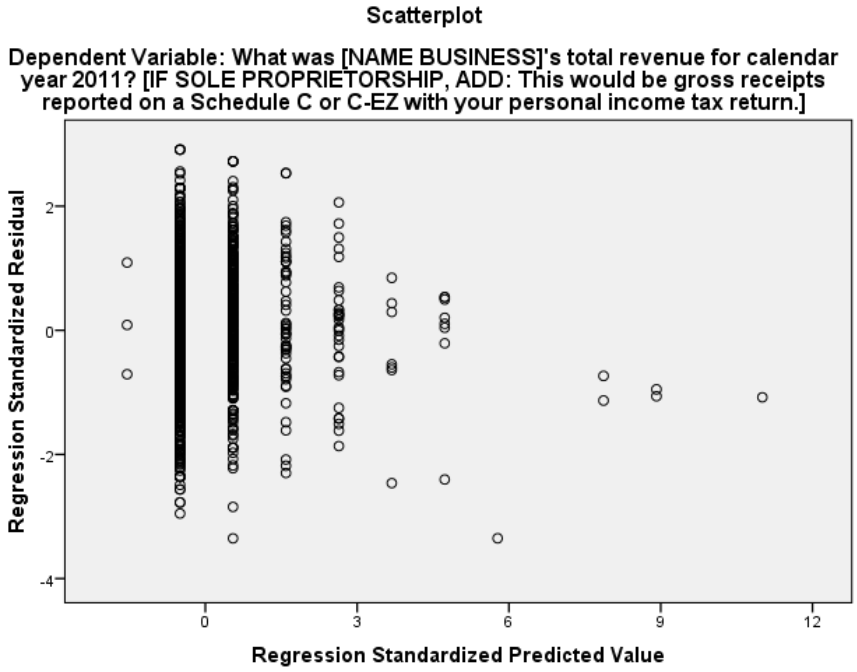


Figure A9-3: Low Performers – Relationship Between Team Size and Profits

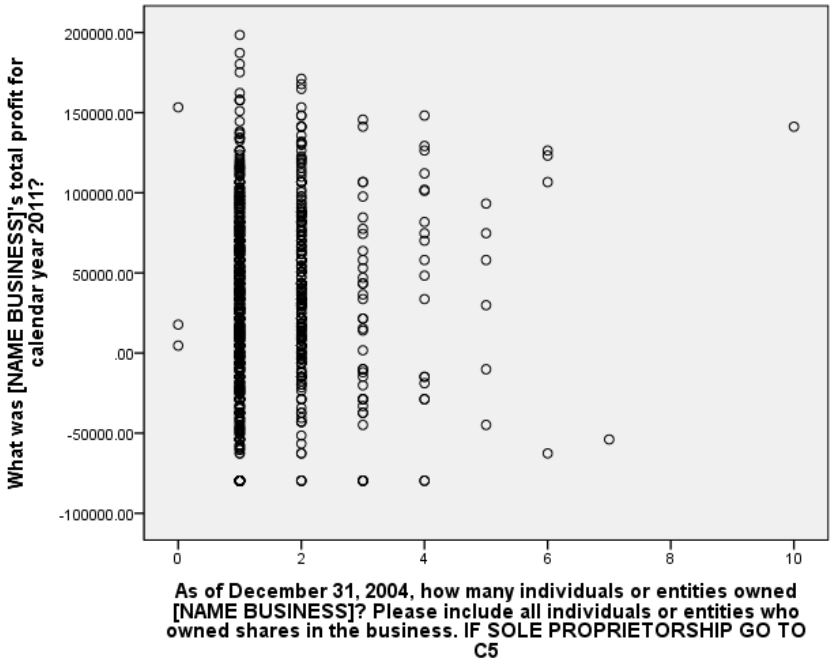


Table A9-3: Low-Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27926.792	3289.039		8.491	.000		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	4052.033	1990.434	.064	2.036	.042	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A9-4: Durbin-Watson Low Performing Organizations Profits Autocorrelation Compliance

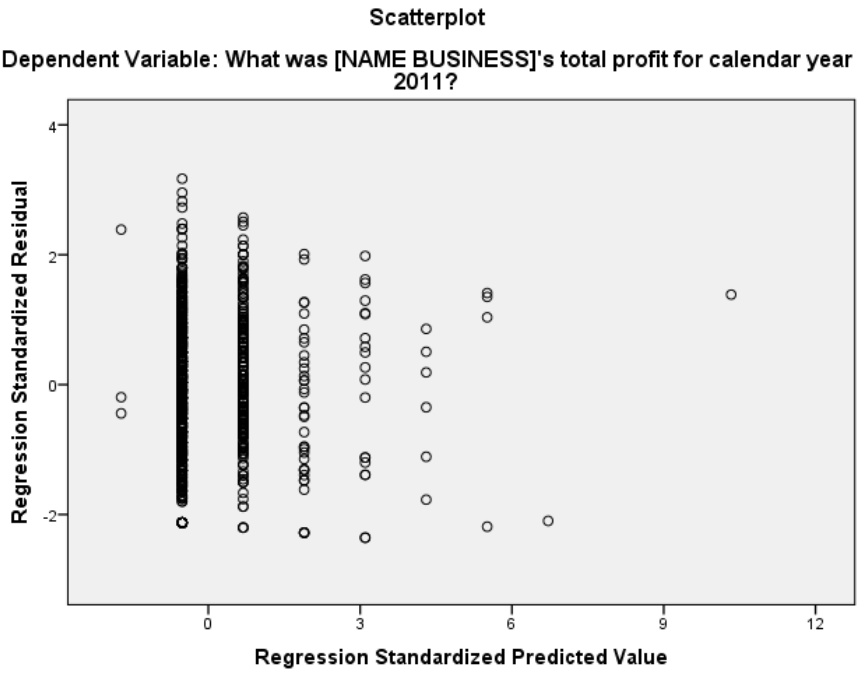
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.064[a]	.004	.003	52518.91724	2.005

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A9-4: Low Performers – Profits Homoscedasticity Compliance



Medium Performers

As can be seen in Figure A9-5, the relationship between revenues and team size is more linear than the one observed on low performers. Figure A9-7 also shows a somewhat linear relationship between profits and entrepreneurial team size. The histograms (Figure A7-2 and Figure A7-5) as well as the statistic Kolmogorov-Smirnov ($p\text{-val}_{revenue\_medium\_performers}$= 0.200, Table A7-20); $p\text{-val}_{profit\_medium\_performers}$= 0.200, Table A7-23) support the normality of the data both in terms of revenues and profits. Results also show no presence of a problem

with a potential multicollinearity issue in the data (revenues: VIF = 1.000 (Table A9-5) and Durbin-Watson = 1.774 (Table A9-6); VIF_{profit} = 1.000 (Table A9-7) and Durbin-Watson = 1.765 (Table A9-8)). The scatterplots (Figure A9-6 and A9-8) also show a pattern resembling homoscedasticity.

Figure A9-5: Medium Performers – Relationship Between Team Size and Revenues

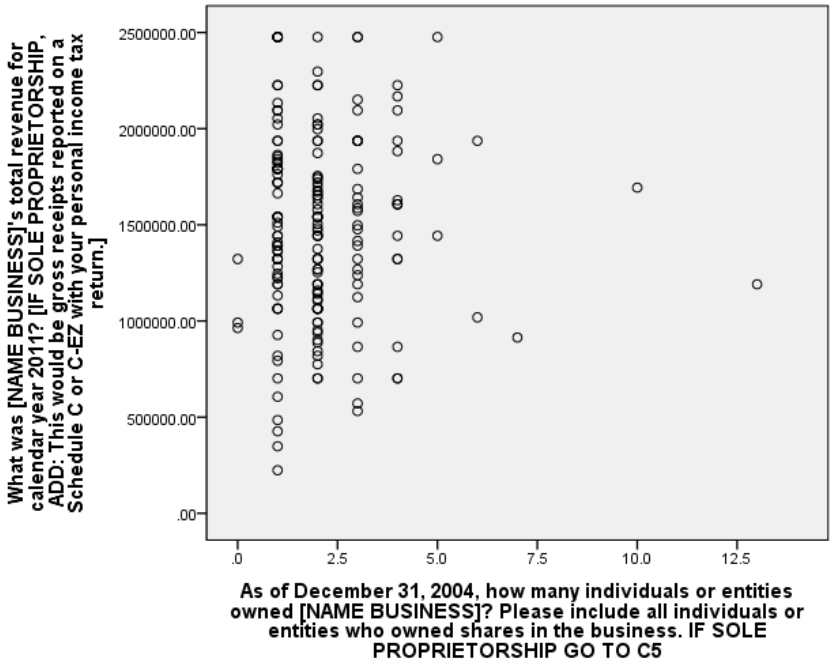


Table A9-5: Medium Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1477727.149	62046.863		23.816	.000		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	3743.927	23479.019	.012	.159	.873	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A9-6: Durbin-Watson Medium Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.012[a]	.000	-.005	486710.40289	1.774

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A9-6: Medium Performers – Revenues Homoscedasticity Compliance

Figure A9-7: Medium Performers – Relationship Between Team Size and Profits

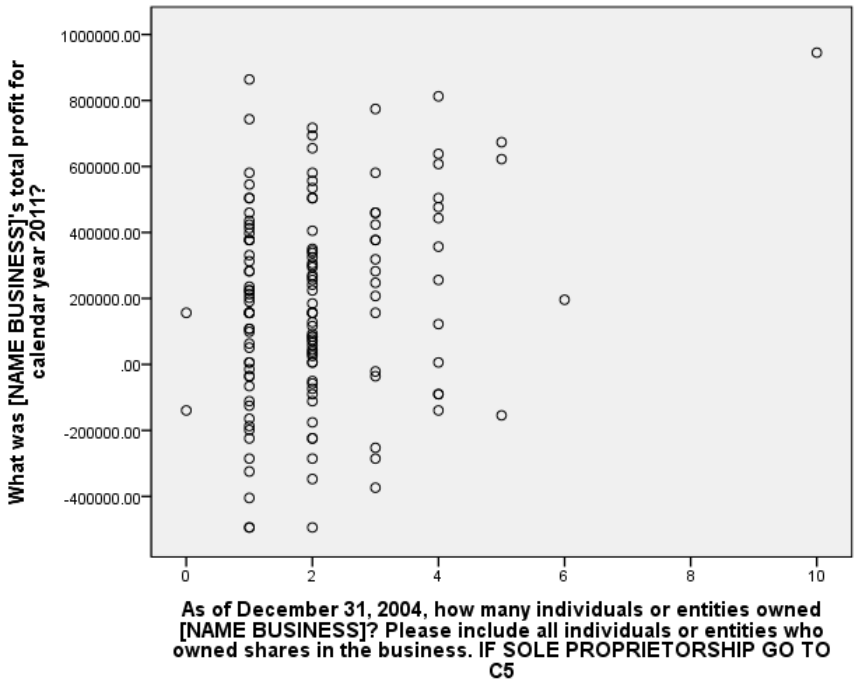


Table A9-7: Medium Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	60730.909	46898.460		1.295	.198		
	As of December 31, 2004, any individuals or entities [NAME BUSINESS]? Please all individuals or entities who shares in the business. IF PROPRIETORSHIP GO TO	59958.991	19146.216	.260	3.132	.002	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A9-8: Durbin-Watson Medium Performing Organizations Profits Autocorrelation Compliance

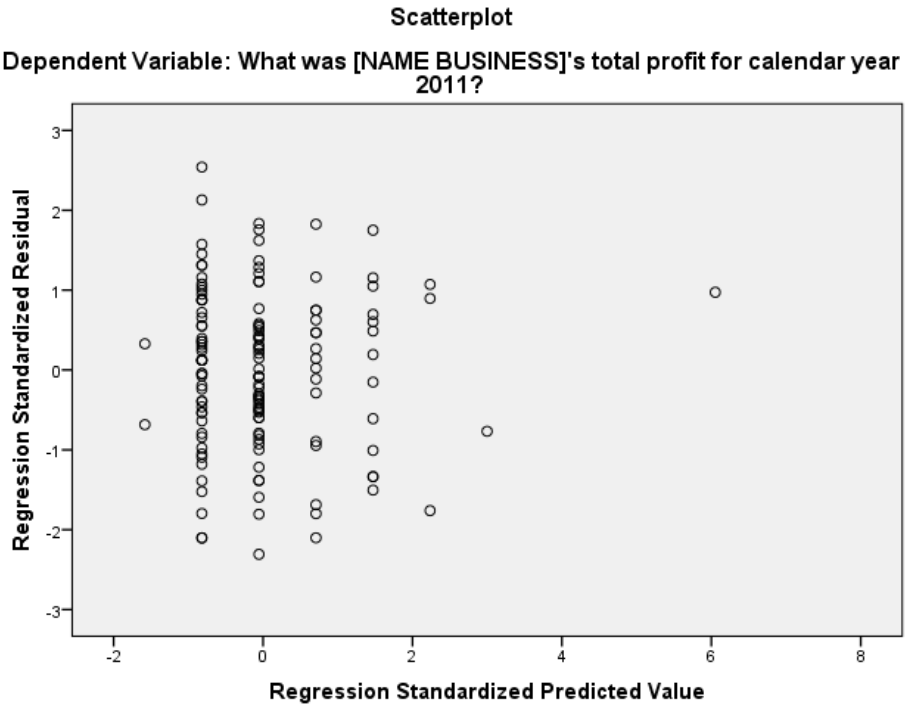
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.260[a]	.068	.061	292423.63686	1.765

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A9-8: Medium Performers – Profits Homoscedasticity Compliance



High Performers

Figure A9-9 shows that compared to low performers and medium performers, the relationship between revenues and entrepreneurial team size of high performers is the most linear one. Similarly, Figure A9-11 shows a presence of linearity between profits and entrepreneurial team size. The histograms on Figures A7-3 and A7-6 as the statistics Kolmogorov-Smirnov demonstrate the normality of the data ($p\text{-val}_{revenue\_high\_performers}$= 0.200 (Table A7-21); $p\text{-val}_{profit\_high\_performers}$= 0.200 (Table A7-24)). Furthermore, no multicollinearity issue was detected in the data

sets pertaining to revenues and profits (revenues: VIF = 1.000 (Table A9-9) and Durbin-Watson = 2.023 (Table A9-10); VIF_{profit} = 1.000 (Table A9-11) and Durbin-Watson = 2.131 (Table A9-12)). Lastly, the scatterplots on Figures A9-10 and A9-12 show a pattern that the data is somewhat homoscedastic.

Figure A9-9: High Performers – Relationship Between Team Size and Revenues

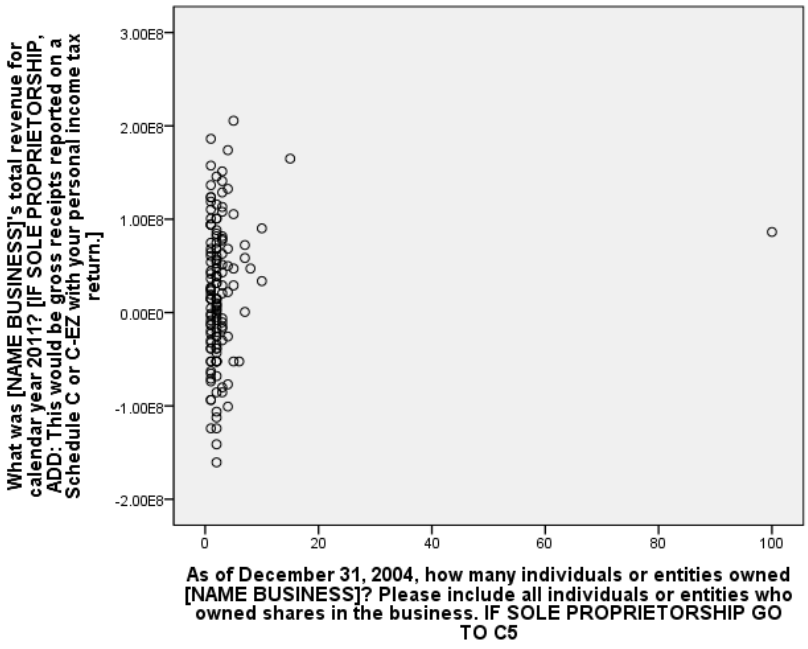


Table A9-9: High Performing Organizations Revenues Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	19297935.374	6502516.344		2.968	.004		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	1013038.823	724534.710	.118	1.398	.164	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A9-10: Durbin-Watson High Performing Organizations Revenues Autocorrelation Compliance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.118[a]	.014	.007	72462925.30476	2.023

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A9-10: High Performers – Revenues Homoscedasticity Compliance

Figure A9-11: High Performers – Relationship Between Team Size and Profits

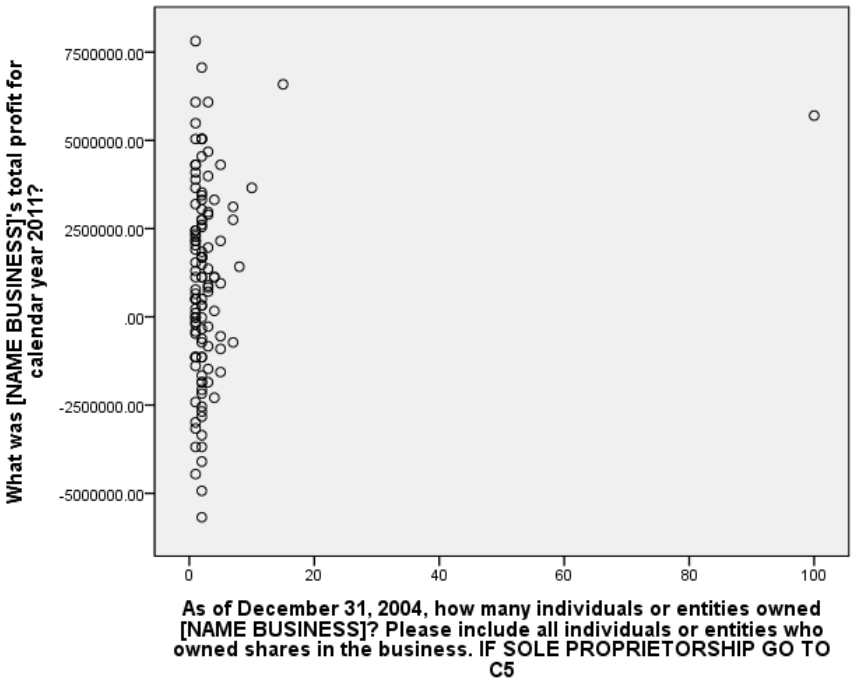


Table A9-11: High Performing Organizations Profits Multicollinearity Compliance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	865153.978	262376.807		3.297	.001		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	55944.624	27043.821	.189	2.069	.041	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A9-12: Durbin-Watson Low Performing Organizations Profits Autocorrelation Compliance

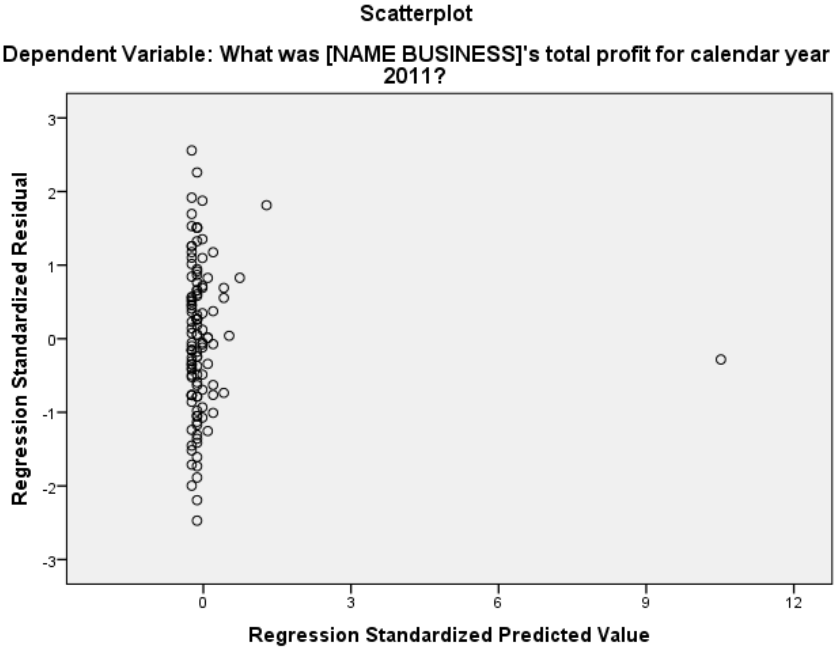
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.189[a]	.036	.027	2692899.66828	2.131

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A9-12: High Performers – Profits Homoscedasticity Compliance



APPENDIX 10: SPSS TABLES – HYPOTHESIS 2

Low Performers

Table A10-1: Entrepreneurial Team Size Impacts Positively Firm Financial Revenue: Low Performers

(N = 1425)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1789181181253.461	1	1789181181253.461	47.036	.000[b]
	Residual	54166927228291.530	1424	38038572491.778		
	Total	55956108409544.990	1425			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.179[a]	.032	.031	195034.79816	1.968

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	100048.104	9514.560		10.515	.000		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	37072.398	5405.497	.179	6.858	.000	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A10-2: Entrepreneurial Team Size Impacts Positively Firm Financial Profits: Low Performers

(N = 1012)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11430942373.170	1	11430942373.170	4.144	.042[b]
	Residual	2788577270897.249	1011	2758236667.554		
	Total	2800008213270.419	1012			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.064[a]	.004	.003	52518.91724	2.005

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27926.792	3289.039		8.491	.000		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	4052.033	1990.434	.064	2.036	.042	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Medium Performers

Table A10-3: Entrepreneurial Team Size Impacts Positively Firm Financial Revenue: Medium Performers

(N = 182)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6023323715.242	1	6023323715.242	.025	.873[b]
	Residual	42876549947386.750	181	236887016283.905		
	Total	42882573271101.990	182			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Table A10-4: Entrepreneurial Team Size Impacts Positively Firm Financial Profits: Medium Performers

(N = 136)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	838624709715.397	1	838624709715.397	9.807	.002[b]
	Residual	11544063757894.970	135	85511583391.815		
	Total	12382688467610.367	136			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.260[a]	.068	.061	292423.63686	1.765

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	60730.909	46898.460		1.295	.198		
	As of December 31, 2004, how many uals or entities owned [NAME IESS]? Please include all individuals or s who owned shares in the business. IF PROPRIETORSHIP GO TO C5	59958.991	19146.216	.260	3.132	.002	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

High Performers

Table A10-5: Entrepreneurial Team Size Impacts Positively Firm Financial Profits: High Performers

(N = 117)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31032798241214.000	1	31032798241214.000	4.279	.041[b]
	Residual	841198200319755.500	116	7251708623446.168		
	Total	872230998560969.600	117			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.189[a]	.036	.027	2692899.66828	2.131

a. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

b. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	865153.978	262376.807		3.297	.001		
	As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5	55944.624	27043.821	.189	2.069	.041	1.000	1.000

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Table A10-6: Entrepreneurial Team Size Impacts Positively Firm Financial Revenue: High Performers

(N = 140)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10265155006128890.000	1	10265155006128890.000	1.955	.164[b]
	Residual	729871700577504770.000	139	5250875543723056.000		
	Total	740136855583633660.000	140			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

APPENDIX 11: SPSS TABLES – HYPOTHESIS 3

Low Performers

Table A11-1: Entrepreneurial Background Impacts Positively the Degree of University Alliance Network Formed by a Firm: Low Performers

(N = 608)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	29.893	3	.000
	Block	29.893	3	.000
	Model	29.893	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	285.930[a]	.048	.118

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FE1_G2_Work_Exp_Owner_01_0	.005	.015	.114	1	.735	1.005	.977	1.034
	FE2_G9_Education_Owner_01_0	.372	.072	26.495	1	.000	1.450	1.259	1.671
	FE3_G3a_Oth_Bus_Owner_01_0	-.012	.059	.041	1	.840	.988	.880	1.110
	Constant	-8.627	1.250	47.662	1	.000	.000		

a. Variable(s) entered on step 1: FE1_G2_Work_Exp_Owner_01_0, FE2_G9_Education_Owner_01_0, FE3_G3a_Oth_Bus_Owner_01_0.

Table A11-2: Entrepreneurial Background Impacts Positively the Degree of Company Alliance Network Formed by a Firm: Low Performers

(N = 608)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12.328	3	.006
	Block	12.328	3	.006
	Model	12.328	3	.006

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	704.431[a]	.020	.029

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FE1_G2_Work_Exp_Owner_01_0	-.009	.009	1.137	1	.286	.991	.974	1.008
	FE2_G9_Education_Owner_01_0	.114	.039	8.700	1	.003	1.121	1.039	1.209
	FE3_G3a_Oth_Bus_Owner_01_0	.056	.039	2.029	1	.154	1.058	.979	1.142
	Constant	-2.659	.616	18.641	1	.000	.070		

a. Variable(s) entered on step 1: FE1_G2_Work_Exp_Owner_01_0, FE2_G9_Education_Owner_01_0, FE3_G3a_Oth_Bus_Owner_01_0.

Table A11-3: Entrepreneurial Background Impacts Positively the Degree of Government Alliance Network Formed by a Firm: Low Performers

(N = 607)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.651	3	.199
	Block	4.651	3	.199
	Model	4.651	3	.199

Table A11-4: Entrepreneurial Background Impacts Positively the Degree of Total Alliance Network Formed by a Firm: Low Performers

(N = 606)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.067	3	1.689	9.411	.000[b]
	Residual	108.215	603	.179		
	Total	113.281	606			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.211[a]	.045	.040	.42363	2.048

a. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

b. Dependent Variable: NormA4_Total_Alliances_LowPerformers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.133	.113		-1.182	.237		
	How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?	-.002	.002	-.042	-1.034	.301	.975	1.026
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.036	.007	.201	5.039	.000	.996	1.004
	How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?	.009	.007	.052	1.283	.200	.973	1.028

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

Medium Performers

Table A11-5: Entrepreneurial Background Impacts Positively the Degree of University Alliance Network Formed by a Firm: Medium Performers

(N = 97)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	10.623	3	.014
	Block	10.623	3	.014
	Model	10.623	3	.014

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	61.982[a]	.104	.197

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FE1_G2_Work_Exp_Owner_01_0	-.023	.039	.367	1	.545	.977	.906	1.054
	FE2_G9_Education_Owner_01_0	.223	.147	2.297	1	.130	1.250	.937	1.669
	FE3_G3a_Oth_Bus_Owner_01_0	-1.172	.648	3.270	1	.071	.310	.087	1.103
	Constant	-4.740	2.420	3.838	1	.050	.009		

a. Variable(s) entered on step 1: FE1_G2_Work_Exp_Owner_01_0, FE2_G9_Education_Owner_01_0, FE3_G3a_Oth_Bus_Owner_01_0.

Table A11-6: Entrepreneurial Background Impacts Positively the Degree of Company Alliance Network Formed by a Firm: Medium Performers

(N = 96)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.227	3	.527
	Block	2.227	3	.527
	Model	2.227	3	.527

Table A11-7: Entrepreneurial Background Impacts Positively the Degree of Government Alliance Network Formed by a Firm: Medium Performers

(N = 96)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6.253	3	.100
	Block	6.253	3	.100
	Model	6.253	3	.100

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	38.635[a]	.063	.199

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FE1_G2_Work_Exp_Owner_01_0	.012	.048	.062	1	.804	1.012	.921	1.112
	FE2_G9_Education_Owner_01_0	.486	.230	4.444	1	.035	1.625	1.035	2.554
	FE3_G3a_Oth_Bus_Owner_01_0	-.069	.270	.066	1	.798	.933	.549	1.585
	Constant	-11.162	4.179	7.133	1	.008	.000		

a. Variable(s) entered on step 1: FE1_G2_Work_Exp_Owner_01_0, FE2_G9_Education_Owner_01_0, FE3_G3a_Oth_Bus_Owner_01_0.

Table A11-8: Entrepreneurial Background Impacts Positively the Degree of Total Alliance Network Formed by a Firm: Medium Performers

(N = 95)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.035	3	.345	1.494	.222[b]
	Residual	21.248	92	.231		
	Total	22.283	95			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

High Performers

Table A11-9: Entrepreneurial Background Impacts Positively the Degree of University Alliance Network Formed by a Firm: High Performers

(N = 82)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.090	3	.378
	Block	3.090	3	.378
	Model	3.090	3	.378

Table A11-10: Entrepreneurial Background Impacts Positively the Degree of Company Alliance Network Formed by a Firm: High Performers

(N = 82)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.697	3	.195
	Block	4.697	3	.195
	Model	4.697	3	.195

Table A11-11: Entrepreneurial Background Impacts Positively the Degree of Government Alliance Network Formed by a Firm: High Performers

(N = 81)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.805	3	.283
	Block	3.805	3	.283
	Model	3.805	3	.283

Table A11-12: Entrepreneurial Background Impacts Positively the Degree of Total Alliance Network Formed by a Firm: High Performers

(N = 81)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.132	3	.711	1.735	.167[b]
	Residual	31.950	78	.410		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?, What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . ., How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

APPENDIX 12: SPSS TABLES – HYPOTHESIS 4

Low Performers

Table A12-1: Entrepreneurial Team Size Impacts Positively the Degree of University Alliance Network Formed by a Firm: Low Performers

(N = 607)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1.166	1	.280
	Block	1.166	1	.280
	Model	1.166	1	.280

Table A12-2: Entrepreneurial Team Size Impacts Positively the Degree of Company Alliance Network Formed by a Firm: Low Performers

(N = 607)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.919	1	.338
	Block	.919	1	.338
	Model	.919	1	.338

Table A12-3: Entrepreneurial Team Size Impacts Positively the Degree of Government Alliance Network Formed by a Firm: Low Performers

(N = 606)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.433	1	.510
	Block	.433	1	.510
	Model	.433	1	.510

Table A12-4: Entrepreneurial Team Size Impacts Positively the Degree of Total Alliance Network Formed by a Firm: Low Performers

(N = 605)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.173	1	.173	.933	.335[b]
	Residual	111.997	604	.185		
	Total	112.170	605			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Medium Performers

Table A12-5: Entrepreneurial Team Size Impacts Positively the Degree of University Alliance Network Formed by a Firm: Medium Performers

(N = 99)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.142	1	.143
	Block	2.142	1	.143
	Model	2.142	1	.143

Table A12-6: Entrepreneurial Team Size Impacts Positively the Degree of Company Alliance Network Formed by a Firm: Medium Performers

(N = 98)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.288	1	.592
	Block	.288	1	.592
	Model	.288	1	.592

Table A12-7: Entrepreneurial Team Size Impacts Positively the Degree of Government Alliance Network Formed by a Firm: Medium Performers

(N = 98)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.128	1	.721
	Block	.128	1	.721
	Model	.128	1	.721

Table A12-8: Entrepreneurial Team Size Impacts Positively the Degree of Total Alliance Network Formed by a Firm: Medium Performers

(N = 97)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.504	1	.504	2.185	.143[b]
	Residual	22.128	96	.230		
	Total	22.632	97			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

High Performers

Table A12-9: Entrepreneurial Team Size Impacts Positively the Degree of University Alliance Network Formed by a Firm: High Performers

(N = 81)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.166	1	.075
	Block	3.166	1	.075
	Model	3.166	1	.075

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	49.056[a]	.038	.081

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FT1_C2_Owners_0	-.681	.491	1.919	1	.166	-.506	.193	1.326
	Constant	-.889	.900	.974	1	.324	.411		

a. Variable(s) entered on step 1: FT1_C2_Owners_0.

Table A12-10: Entrepreneurial Team Size Impacts Positively the Degree of Company Alliance Network Formed by a Firm: High Performers

(N = 81)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.208	1	.648
	Block	.208	1	.648
	Model	.208	1	.648

Table A12-11: Entrepreneurial Team Size Impacts Positively the Degree of Government Alliance Network Formed by a Firm: High Performers

(N = 80)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.159	1	.076
	Block	3.159	1	.076
	Model	3.159	1	.076

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	48.854[a]	.039	.081

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	FT1_C2_Owners_0	-.673	.487	1.911	1	.167	-.510	.197	1.324
	Constant	-.888	.894	.986	1	.321	.412		

a. Variable(s) entered on step 1: FT1_C2_Owners_0.

Table A12-12: Entrepreneurial Team Size Impacts Positively the Degree of Total Alliance Network Formed by a Firm: High Performers

(N = 80)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.111	1	.111	.260	.612[b]
	Residual	33.704	79	.427		
	Total	33.815	80			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

APPENDIX 13: SPSS TABLES – HYPOTHESIS 5

Low Performers

Table A13-1 – Total alliances mediating the industry experience/revenue relationship of low performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.082	1	.082	.439	.508[b]
	Residual	113.199	605	.187		
	Total	113.281	606			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-2 – Total alliances mediating the education/revenue relationship of low performers

Step 1: Education has a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.585	1	4.585	25.529	.000[b]
	Residual	109.021	607	.180		
	Total	113.606	608			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.129	.107		-1.197	.232		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.035	.007	.201	5.053	.000	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

Step 2: Total alliances do not have a significant effect on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36576249296.406	1	36576249296.406	.985	.321[b]
	Residual	22539295881597.830	607	37132283165.730		
	Total	22575872130894.234	608			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), NormA4_Total_Alliances_LowPerformers

Table A13-3 – Total alliances mediating the startup experience/revenue relationship of low performers

Step 1: Start-up experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.351	1	.351	1.879	.171[b]
	Residual	113.175	606	.187		
	Total	113.526	607			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

Table A13-4 – Total alliances mediating the industry experience/profits relationship of low performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.082	1	.082	.439	.508[b]
	Residual	113.199	605	.187		
	Total	113.281	606			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-5 – Total alliances mediating the education/profits relationship of low performers

Step 1: Education has a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.585	1	4.585	25.529	.000[b]
	Residual	109.021	607	.180		
	Total	113.606	608			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.129	.107		-1.197	.232		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.035	.007	.201	5.053	.000	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

Step 2: Total alliances do not have a significant effect on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4190551200.078	1	4190551200.078	1.461	.227[b]
	Residual	1253500947227.280	437	2868423220.200		
	Total	1257691498427.358	438			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), NormA4_Total_Alliances_LowPerformers

Table A13-6 – Total alliances mediating the startup/profits relationship of low performers

Step 1: Start-up does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.351	1	.351	1.879	.171[b]
	Residual	113.175	606	.187		
	Total	113.526	607			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

Medium Performers

Table A13-7 – Total alliances mediating the industry experience/revenue relationship of medium performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.134	1	.134	.570	.452[b]
	Residual	22.371	95	.235		
	Total	22.505	96			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-8 – Total alliances mediating the education/revenue relationship of medium performers

Step 1: Education has a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.664	1	.664	2.903	.092[b]
	Residual	21.967	96	.229		
	Total	22.632	97			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.070	.334		-.211	.834		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.035	.021	.171	1.704	.092	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

Step 2: Total alliances do not have a significant effect on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.012E+11	1	2.012E+11	.761	.385[b]
	Residual	2.540E+13	96	2.645E+11		
	Total	2.560E+13	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), NormA4_Total_Alliances_MediumPerformers

Table A13-9 – Total alliances mediating the startup experience/revenue relationship of medium performers

Step 1: Startup experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.234	1	.234	.998	.320[b]
	Residual	22.049	94	.235		
	Total	22.283	95			

ja. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

Table A13-10 – Total alliances mediating the industry experience/profits relationship of medium performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.134	1	.134	.570	.452[b]
	Residual	22.371	95	.235		
	Total	22.505	96			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-11 – Total alliances mediating the education/profits relationship of medium performers

Step 1: Education does not have significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.664	1	.664	2.903	.092[b]
	Residual	21.967	96	.229		
	Total	22.632	97			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.070	.334		-.211	.834		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.035	.021	.171	1.704	.092	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

Step 2: Total alliances do not have a significant effect on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10629673173	1	10629673173	.139	.710[b]
	Residual	5.267E+12	69	76337408407		
	Total	5.278E+12	70			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), NormA4_Total_Alliances_MediumPerformers

Table A13-12 – Total alliances mediating the startup/profits relationship of medium performers

Step 1: Start-up does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.234	1	.234	.998	.320[b]
	Residual	22.049	94	.235		
	Total	22.283	95			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

High Performers

Table A13-13 – Total alliances mediating the industry experience/revenue relationship of high performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.125	1	.125	.294	.589[b]
	Residual	33.958	80	.424		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-14 – Total alliances mediating the education/revenue relationship of high performers

Step 1: Education has a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.829	1	1.829	4.537	.036[b]
	Residual	32.254	80	.403		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.425	.516		-.824	.413		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.068	.032	.232	2.130	.036	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

Step 2: Total alliances do not have a significant effect on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6540621183245248.000	1	6540621183245248.000	1.588	.211[b]
	Residual	3253763342563850 20.000	79	4118687775397279.000		
	Total	3319169554396302 10.000	80			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), NormA4_Total_Alliances_HighPerformers

Table A13-15 – Total alliances mediating the startup experience/revenue relationship of high performers

Step 1: Startup experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.132	1	.132	.310	.579[b]
	Residual	33.951	80	.424		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

Table A13-16 – Total alliances mediating the industry experience/profits relationship of high performers

Step 1: Industry experience does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.125	1	.125	.294	.589[b]
	Residual	33.958	80	.424		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry—the one in which [NAME BUSINESS] competes?

Table A13-17 – Total alliances mediating the education/profits relationship of high performers

Step 1: Education has a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.829	1	1.829	4.537	.036[b]
	Residual	32.254	80	.403		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.425	.516		-.824	.413		
	What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say . . .	.068	.032	.232	2.130	.036	1.000	1.000

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

Step 2: Total alliances do not have a significant effect on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5507391449336.875	1	5507391449336.875	.721	.399[b]
	Residual	481520154153253.600	63	7643177050051.645		
	Total	487027545602590.500	64			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), NormA4_Total_Alliances_HighPerformers

Table A13-18 – Total alliances mediating the startup/profits relationship of high performers

Step 1: Start-up does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.132	1	.132	.310	.579[b]
	Residual	33.951	80	.424		
	Total	34.083	81			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?

APPENDIX 14: SPSS TABLES – HYPOTHESIS 6

Low Performers

Table A14-1 – Total alliances mediating the number of founders/revenue relationship of low performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.173	1	.173	.933	.335[b]
	Residual	111.997	604	.185		
	Total	112.170	605			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Table A14-2 – Total alliances mediating the number of founders/profits relationship of low performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.173	1	.173	.933	.335[b]
	Residual	111.997	604	.185		
	Total	112.170	605			

a. Dependent Variable: NormA4_Total_Alliances_LowPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Medium Performers

Table A14-3 – Total alliances mediating the number of founders/revenue relationship of medium performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.504	1	.504	2.185	.143[b]
	Residual	22.128	96	.230		
	Total	22.632	97			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Table A14-4 – Total alliances mediating the number of founders/profits relationship of medium performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.504	1	.504	2.185	.143[b]
	Residual	22.128	96	.230		
	Total	22.632	97			

a. Dependent Variable: NormA4_Total_Alliances_MediumPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

High Performers

Table A14-5 – Total alliances mediating the number of founders/revenue relationship of high performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.111	1	.111	.260	.612[b]
	Residual	33.704	79	.427		
	Total	33.815	80			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

Table A14-6 – Total alliances mediating the number of founders/profits relationship of high performers

Step 1: Number of founders does not have a significant effect on the formation of total alliances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.111	1	.111	.260	.612[b]
	Residual	33.704	79	.427		
	Total	33.815	80			

a. Dependent Variable: NormA4_Total_Alliances_HighPerformers

b. Predictors: (Constant), As of December 31, 2004, how many individuals or entities owned [NAME BUSINESS]? Please include all individuals or entities who owned shares in the business. IF SOLE PROPRIETORSHIP GO TO C5

APPENDIX 15: SPSS TABLES – HYPOTHESIS 7

Low Performers

Table A15-1 – Hierarchical regression: total alliances and firm revenue of low performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	176530.219	10735.415		16.444	.000		
	NormA4_Total_Alliances_LowPerformers	17943.135	18079.007	.040	.992	.321	1.000	1.000
2	(Constant)	163459.897	13259.565		12.328	.000		
	NormA4_Total_Alliances_LowPerformers	107958.088	56699.203	.242	1.904	.057	.101	9.865
	TotalSquared_Low_Performers	-66961.927	39983.508	-.213	-1.675	.095	.101	9.865

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A15-1 – Scatterplot: total alliances and firm revenue of low performers

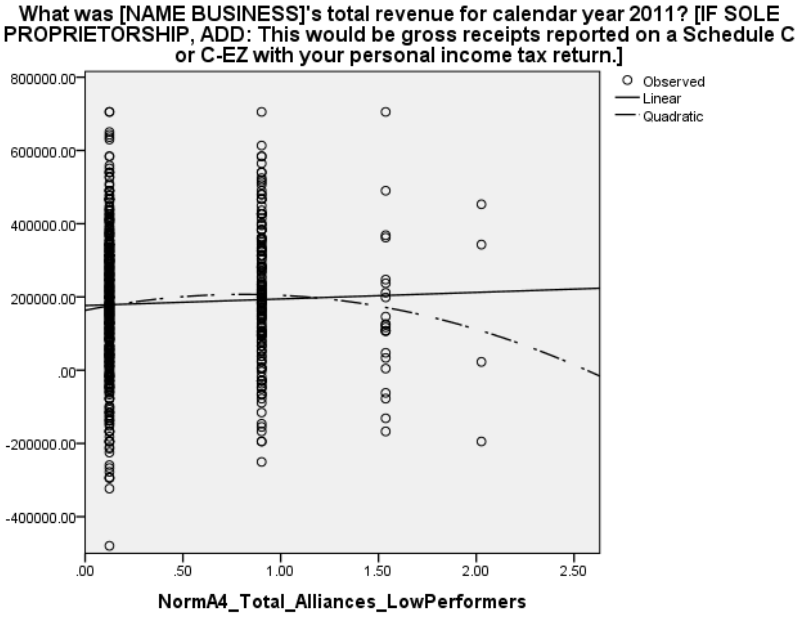


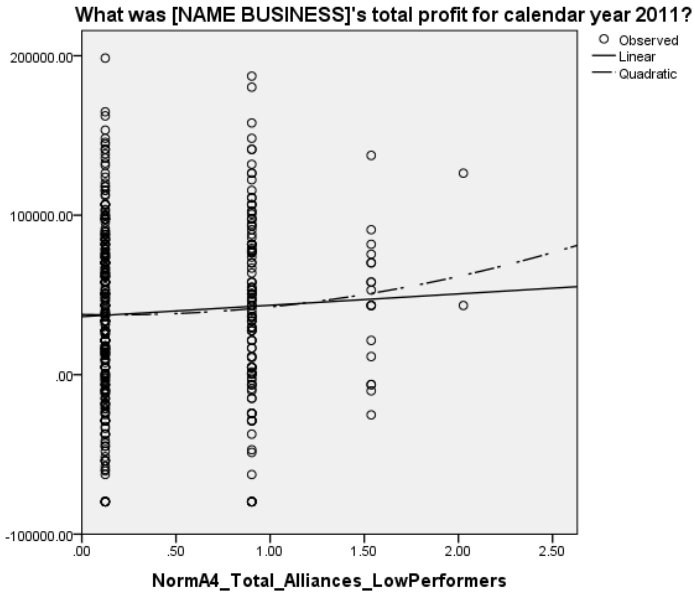
Table A15-2 – Hierarchical regression: total alliances and firm profits of low performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	36387.230	3523.688		10.326	.000		
	NormA4_Total_Alliances_LowPerformers	7139.760	5907.036	.058	1.209	.227	1.000	1.000
2	(Constant)	37758.548	4406.250		8.569	.000		
	NormA4_Total_Alliances_LowPerformers	-2427.508	19354.436	-.020	-.125	.900	.093	10.718
	TotalSquared_Low_Performers	7185.504	13841.412	.081	.519	.604	.093	10.718

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A15-2 – Scatterplot: total alliances and firm profits of low performers



Medium Performers

Table A15-3 – Hierarchical regression: total alliances and firm revenue of medium performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1496276.105	74403.088		20.110	.000		
	NormA4_Total_Alliances_MediumPerformers	94283.264	108113.835	.089	.872	.385	1.000	1.000
2	(Constant)	1528110.365	96051.963		15.909	.000		
	NormA4_Total_Alliances_MediumPerformers	-104696.677	392820.050	-.098	-.267	.790	.076	13.102
	TOTALSquared_Med_Performers	139750.758	265154.261	.195	.527	.599	.076	13.102

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A15-3 – Scatterplot: total alliances and firm revenue of medium performers

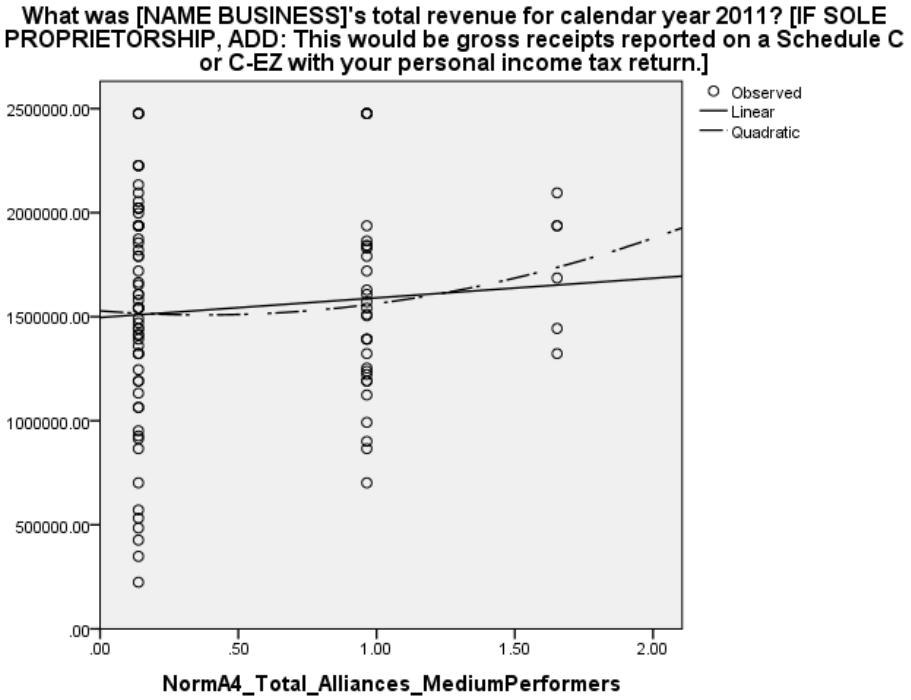


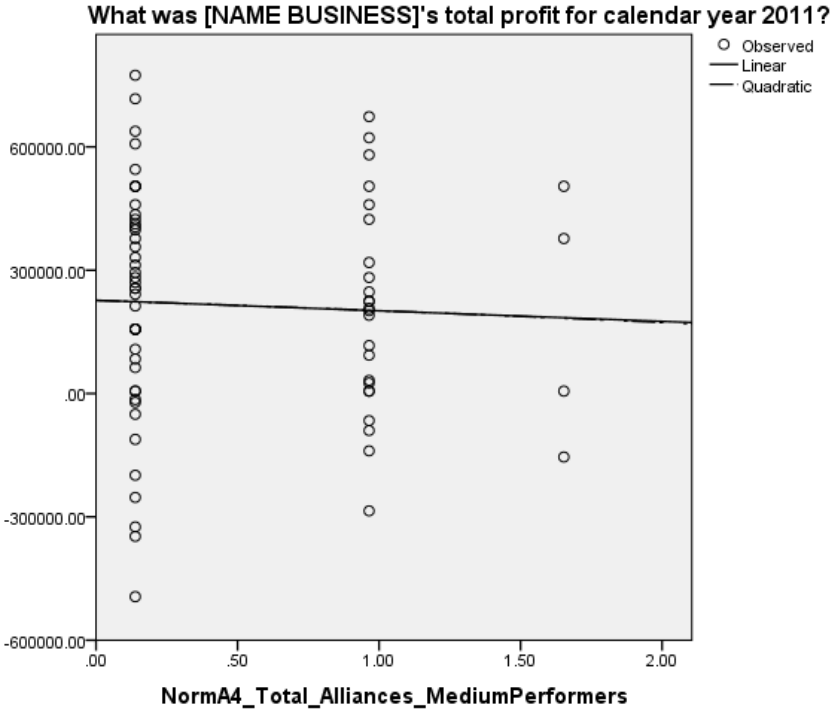
Table A15-4 – Hierarchical regression: total alliances and firm profits of medium performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	226896.621	47690.464		4.758	.000		
	NormA4_Total_Alliances_MediumPerformers	-25682.783	68825.730	-.045	-.373	.710	1.000	1.000
2	(Constant)	226470.545	61395.394		3.689	.000		
	NormA4_Total_Alliances_MediumPerformers	-23025.756	248283.467	-.040	-.093	.926	.078	12.825
	TOTALSquared_Med_Performers	-1896.981	170210.644	-.005	-.011	.991	.078	12.825

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A15-4 – Scatterplot: total alliances and firm profits of medium performers



High Performers

Table A15-5 – Hierarchical regression: total alliances and firm revenue of high performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	12987242.879	10277329.850		1.264	.210		
	NormA4_Total_Alliances_HighPerformers	13907747.987	11036382.645	.140	1.260	.211	1.000	1.000
2	(Constant)	9168533.919	12577571.672		.729	.468		
	NormA4_Total_Alliances_HighPerformers	31138105.889	34256647.319	.314	.909	.366	.105	9.547
	TOTALSquared_HIGH_Performers	-8920968.322	16781716.373	-.184	-.532	.597	.105	9.547

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Figure A15-5 – Scatterplot: total alliances and firm revenue of high performers

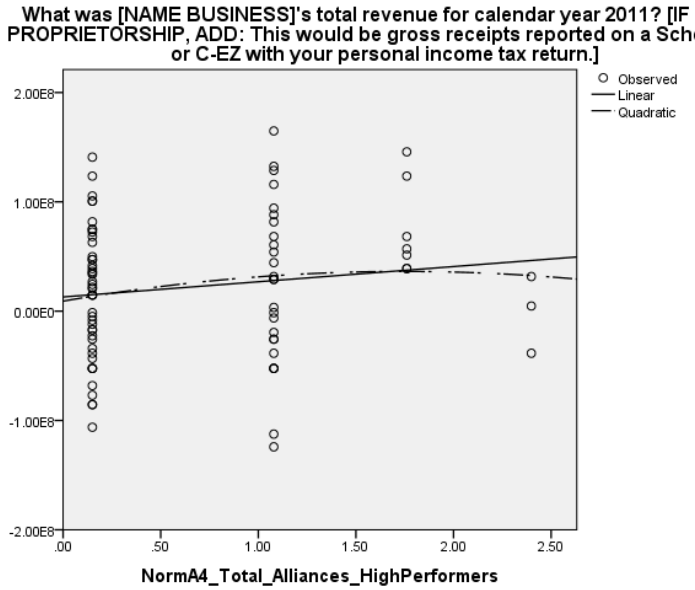


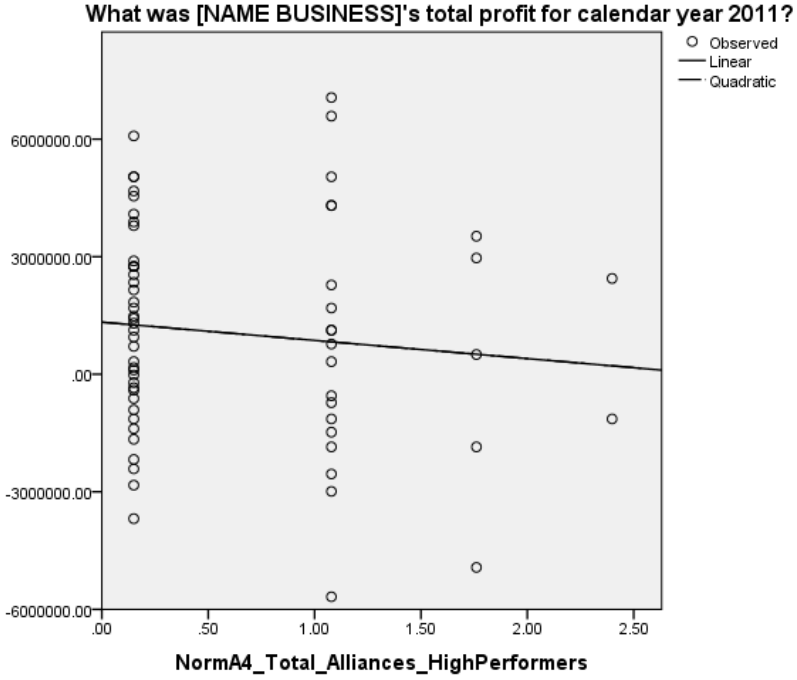
Table A15-6 – Hierarchical regression: total alliances and firm profits of high performers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1329291.473	480623.143		2.766	.007		
	NormA4_Total_Alliances_HighPerformers	-465154.459	547975.543	-.106	-.849	.399	1.000	1.000
2	(Constant)	1330239.713	591552.149		2.249	.028		
	NormA4_Total_Alliances_HighPerformers	-469714.390	1723175.582	-.107	-.273	.786	.103	9.732
	TOTALSquared_HIGH_Performers	2410.199	862738.401	.001	.003	.998	.103	9.732

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Figure A15-6 – Scatterplot: total alliances and firm profits of high performers



APPENDIX 16: SPSS TABLES – HYPOTHESIS 8

Low Performers

Figure A16-1: Interaction Effects Between University Alliances, Industry Type and Revenue

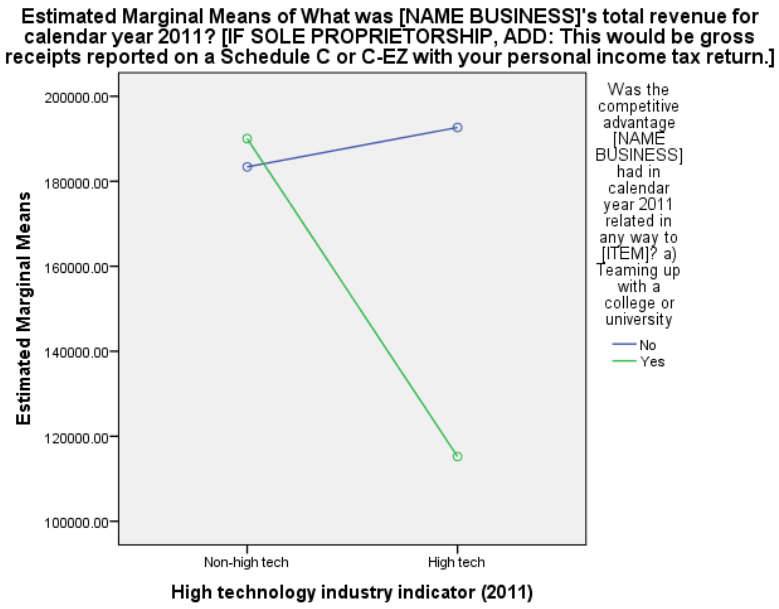


Table A16-1: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type and Revenue

(n=610)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.524	3	606	.666

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	49564718596.918[a]	3	16521572865.639	.444	.721	.002	1.333	.140
Intercept	2990348308366.257	1	2990348308366.257	80.443	.000	.117	80.443	1.000
A1_D2a_CompAdv_Univ_Reason_7	32274073237.895	1	32274073237.895	.868	.352	.001	.868	.154
M1_hightech_7	27681555792.642	1	27681555792.642	.745	.389	.001	.745	.138
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	45540693575.634	1	45540693575.634	1.225	.269	.002	1.225	.197
Error	22527198400849.120	606	37173594720.873					
Total	43204481823538.640	610						
Corrected Total	22576763119446.040	609						

a. R Squared = .002 (Adjusted R Squared = -.003)

b. Computed using alpha = .05

Figure A16-2: Interaction Effects Between Company Alliances, Industry Type and Revenue

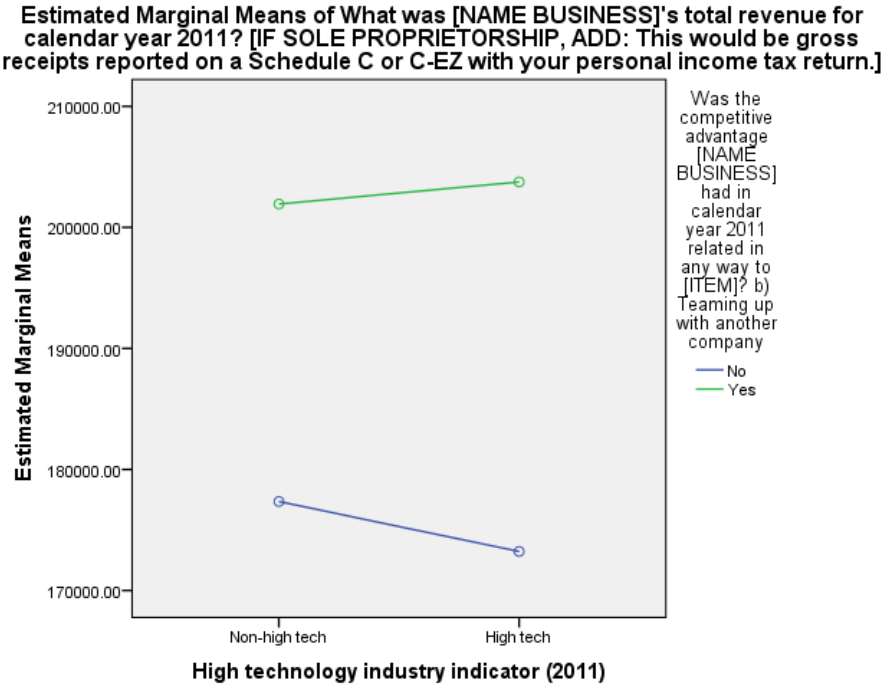


Table A16-2: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Revenue

(n=610)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.232	3	606	.874

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	79688349794.770[a]	3	26562783264.923	.716	.543	.004	2.147	.203
Intercept	9228645127336.475	1	9228645127336.475	248.590	.000	.291	248.590	1.000
A2_D2a_CompAdv_Comp_Reason_7	49002069428.877	1	49002069428.877	1.320	.251	.002	1.320	.209
M1_hightech_7	85418541.169	1	85418541.169	.002	.962	.000	.002	.050
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	571395733.555	1	571395733.555	.015	.901	.000	.015	.052
Error	22497074769651.277	606	37123885758.500					
Total	43204481823538.625	610						
Corrected Total	22576763119446.047	609						

a. R Squared = .004 (Adjusted R Squared = -.001)

b. Computed using alpha = .05

Figure A16-3: Interaction Effects Between Government Alliances, Industry Type and Revenue

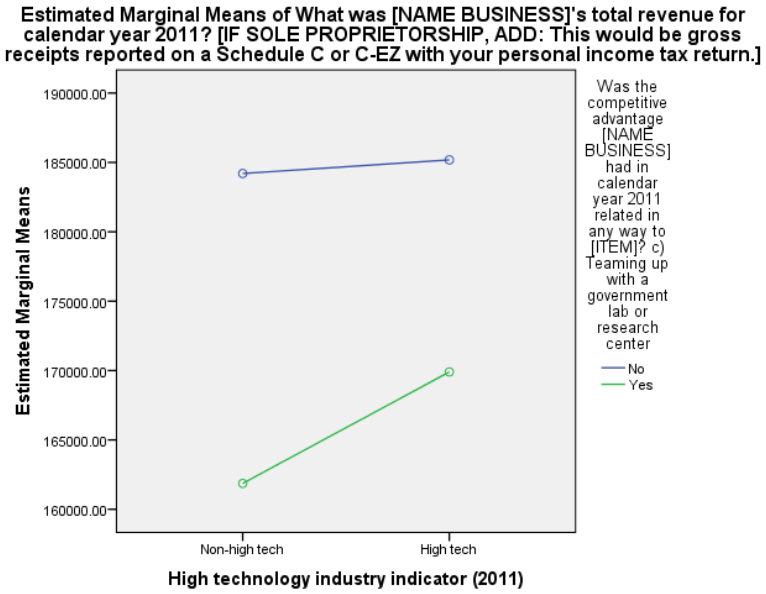


Table A16-3: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type and Revenue

(n=609)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.401	3	605	.752

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	6007895191.773[a]	3	2002631730.591	.054	.984	.000	.161	.060
Intercept	1561845769113.022	1	1561845769113.022	41.866	.000	.065	41.866	1.000
A3_D2a_CompAdv_GovLab_Reason_7	4495495243.748	1	4495495243.748	.121	.729	.000	.121	.064
M1_hightech_7	258068013.055	1	258068013.055	.007	.934	.000	.007	.051
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	158134193.067	1	158134193.067	.004	.948	.000	.004	.050
Error	22569864235702.492	605	37305560720.169					
Total	43158807276623.620	609						
Corrected Total	22575872130894.266	608						

a. R Squared = .000 (Adjusted R Squared = -.005)

b. Computed using alpha = .05

Table A16-4 – Industry type moderating the total alliances/revenue relationship (n=608)

Step 1 Total alliances and the industry type do not have a significant impact on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36812112235.152	2	18406056117.576	.495	.610[b]
	Residual	22539060018659.082	606	37193168347.622		
	Total	22575872130894.234	608			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (low performers)

Table A16-5: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type, and Profits

(n=440)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.397	3	436	.068

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	4697308281.447[a]	3	1565769427.149	.544	.652	.004	1.632	.162
Intercept	116338478782.289	1	116338478782.289	40.412	.000	.085	40.412	1.000
A1_D2a_CompAdv_Univ_Reason_7	4668967946.361	1	4668967946.361	1.622	.204	.004	1.622	.246
M1_hightech_7	2021148099.845	1	2021148099.845	.702	.403	.002	.702	.133
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	2758536268.261	1	2758536268.261	.958	.328	.002	.958	.164
Error	1255174957962.245	436	2878841646.702					
Total	1943777383645.736	440						
Corrected Total	1259872266243.693	439						

a. R Squared = .004 (Adjusted R Squared = -.003)

b. Computed using alpha = .05

Table A16-6: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Profits

(n=440)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.512	3	436	.211

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	4290021026.553[a]	3	1430007008.851	.497	.685	.003	1.490	.151
Intercept	297243878422.411	1	297243878422.411	103.218	.000	.191	103.218	1.000
A2_D2a_CompAdv_Comp_Reason_7	362552731.366	1	362552731.366	.126	.723	.000	.126	.064
M1_hightech_7	202869554.995	1	202869554.995	.070	.791	.000	.070	.058
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	1010337858.070	1	1010337858.070	.351	.554	.001	.351	.091
Error	1255582245217.140	436	2879775791.782					
Total	1943777383645.736	440						
Corrected Total	1259872266243.693	439						

a. R Squared = .003 (Adjusted R Squared = -.003)

b. Computed using alpha = .05

Table A16-7: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type, and Profits

(n=439)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.035	3	435	.108

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	5864633973.664[a]	3	1954877991.221	.679	.565	.005	2.038	.194
Intercept	79095133551.094	1	79095133551.094	27.485	.000	.059	27.485	.999
A3_D2a_CompAdv_GovLab_Reason_7	1443585918.078	1	1443585918.078	.502	.479	.001	.502	.109
M1_hightech_7	4517302015.542	1	4517302015.542	1.570	.211	.004	1.570	.240
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	5721367949.924	1	5721367949.924	1.988	.159	.005	1.988	.290
Error	1251826864453.694	435	2877762906.790					
Total	1936369238109.404	439						
Corrected Total	1257691498427.358	438						

a. R Squared = .005 (Adjusted R Squared = -.002)

b. Computed using alpha = .05

Table A16-8 – Industry type moderating the total alliances/profits relationship

Step 1 Total alliances and the industry type do not have a significant impact on profits (n=438)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4209376429.309	2	2104688214.655	.732	.481[b]
	Residual	1253482121998.048	436	2874958995.408		
	Total	1257691498427.357	438			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (low performers)

Medium Performers

Table A16-9: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type and Revenue

(n=99)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.927	3	95	.431

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	10529001351.883[a]	3	3509667117.294	.013	.998	.000	.039	.052
Intercept	87033062606747.580	1	87033062606747.580	320.316	.000	.771	320.316	1.000
A1_D2a_CompAdv_Univ_Reason_7	1952682768.878	1	1952682768.878	.007	.933	.000	.007	.051
M1_hightech_7	531653.888	1	531653.888	.000	.999	.000	.000	.050
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	4734001342.965	1	4734001342.965	.017	.895	.000	.017	.052
Error	25812461582584.754	95	271710121921.945					
Total	2599675504010 51.800	99						
Corrected Total	25822990583936.637	98						

a. R Squared = .000 (Adjusted R Squared = -.031)

b. Computed using alpha = .05

Table A16-10: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Revenue

(n=98)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
1.346	3	94	.264

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	341491510396.492[a]	3	113830503465.497	.421	.738	.013	1.264	.131
Intercept	16688121103799 1.780	1	16688121103799 1.780	617.604	.000	.868	617.604	1.000
A2_D2a_CompAdv_Comp_Reason_7	7940792897.254	1	7940792897.254	.029	.864	.000	.029	.053
M1_hightech_7	18187260123.850	1	18187260123.850	.067	.796	.001	.067	.058
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	327310851451.666	1	327310851451.666	1.211	.274	.013	1.211	.193
Error	25399496918646.996	94	270207414028.160					
Total	25839759955060 0.340	98						
Corrected Total	25740988429043.490	97						

a. R Squared = .013 (Adjusted R Squared = -.018)

b. Computed using alpha = .05

Table A16-11: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type and Revenue

(n=98)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
1.574	3	94	.201

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	335058294974.832[a]	3	111686098324.944	.413	.744	.013	1.240	.130
Intercept	50730114836920.550	1	50730114836920.550	187.698	.000	.666	187.698	1.000
A3_D2a_CompAdv_GovLab_Reason_7	72138630519.631	1	72138630519.631	.267	.607	.003	.267	.080
M1_hightech_7	98328084531.449	1	98328084531.449	.364	.548	.004	.364	.092
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	149979541622.618	1	149979541622.618	.555	.458	.006	.555	.114
Error	25405930134068.656	94	270275852490.092					
Total	258397599550600.340	98						
Corrected Total	25740988429043.490	97						

a. R Squared = .013 (Adjusted R Squared = -.018)

b. Computed using alpha = .05

Table A16-12 – Industry type moderating the total alliances/revenue relationship (n=97)

Step 1 Total alliances and the industry type do not have a significant impact on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	213129330520.719	2	106564665260.359	.399	.672[b]
	Residual	25383071405846.066	95	267190225324.695		
	Total	25596200736366.785	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (medium performers)

Table A16-13: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type and Profits

(n=72)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.041	3	68	.380

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	232778542285.476[a]	3	77592847428.492	1.025	.387	.043	3.076	.267
Intercept	714528214243.414	1	714528214243.414	9.441	.003	.122	9.441	.857
A1_D2a_CompAdv_Univ_Reason_7	24760246.933	1	24760246.933	.000	.986	.000	.000	.050
M1_hightech_7	23089442400.741	1	23089442400.741	.305	.583	.004	.305	.085
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	30495865004.947	1	30495865004.947	.403	.528	.006	.403	.096
Error	5146372213237.932	68	75681944312.323					
Total	8814220208021.504	72						
Corrected Total	5379150755523.407	71						

a. R Squared = .043 (Adjusted R Squared = .001)

b. Computed using alpha = .05

Table A16-14: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Profits

(n=71)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.309	3	67	.818

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	237756427508.046[a]	3	79252142502.682	1.036	.382	.044	3.108	.269
Intercept	1512549332951.287	1	1512549332951.287	19.772	.000	.228	19.772	.992
A2_D2a_CompAdv_Comp_Reason_7	18926945831.419	1	18926945831.419	.247	.621	.004	.247	.078
M1_hightech_7	195914621496.132	1	195914621496.132	2.561	.114	.037	2.561	.351
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	33594774332.584	1	33594774332.584	.439	.510	.007	.439	.100
Error	5125474168734.000	67	76499614458.716					
Total	8805547244303.115	71						
Corrected Total	5363230596242.046	70						

a. R Squared = .044 (Adjusted R Squared = .002)

b. Computed using alpha = .05

Table A16-15: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type and Profits

(n=71)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.505	3	67	.221

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	458843781529.319[a]	3	152947927176.440	2.089	.110	.086	6.268	.512
Intercept	1083584585651.951	1	1083584585651.951	14.803	.000	.181	14.803	.967
A3_D2a_CompAdv_GovLab_Reason_7	257787181619.354	1	257787181619.354	3.522	.065	.050	3.522	.456
M1_hightech_7	1826032025.444	1	1826032025.444	.025	.875	.000	.025	.053
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	36722040791.367	1	36722040791.367	.502	.481	.007	.502	.107
Error	4904386814712.727	67	73199803204.668					
Total	8805547244303.115	71						
Corrected Total	5363230596242.046	70						

a. R Squared = .086 (Adjusted R Squared = .045)

b. Computed using alpha = .05

Table A16-16 – Industry type moderating the total alliances/profits relationship (n=70)

Step 1 Total alliances and the industry type do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	274537570425.538	2	137268785212.769	1.866	.163[b]
	Residual	5003373282852.753	68	73579018865.482		
	Total	5277910853278.291	70			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (medium performers)

High Performers

Figure A16-4: Interaction Effects Between University Alliances, Industry Type, and Revenue

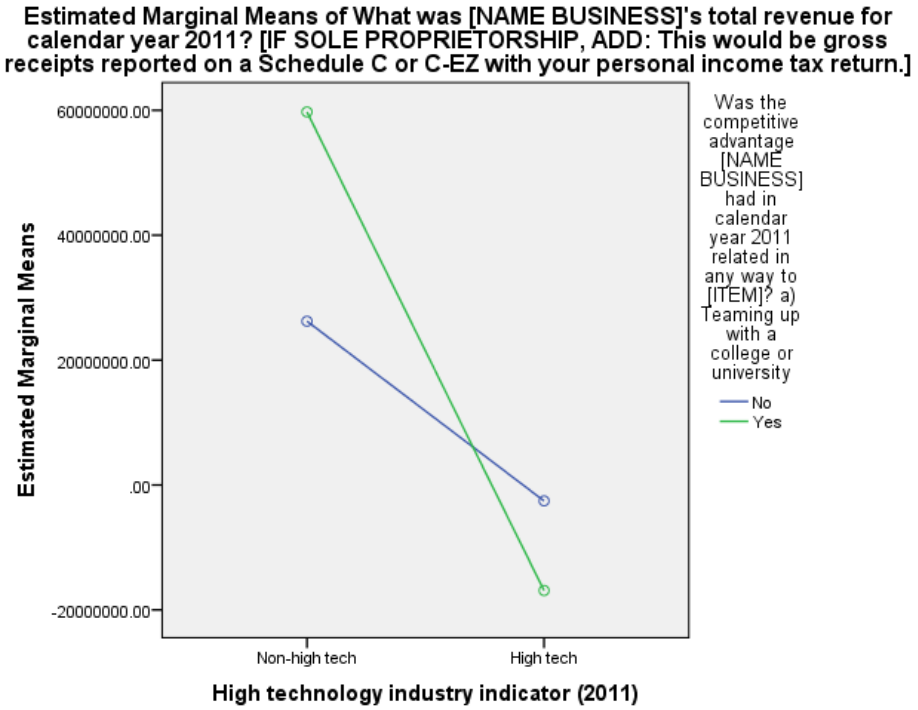


Table A16-17: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type, and Revenue

(n=81)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
1.427	3	77	.241

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	21635089289172160.000[a]	3	7211696429724053.000	1.790	.156	.065	5.369	.449
Intercept	5897422319513380.000	1	5897422319513380.000	1.464	.230	.019	1.464	.223
A1_D2a_CompAdv_Univ_Reason_7	4898845542221 49.700	1	4898845542221 49.700	.122	.728	.002	.122	.064
M1_hightech_7	1480123631077 8560.000	1	1480123631077 8560.000	3.673	.059	.046	3.673	.473
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	3052742400417 680.000	1	3052742400417 680.000	.758	.387	.010	.758	.138
Error	3102818661504 58180.000	77	4029634625330 626.000					
Total	3722474645575 38690.000	81						
Corrected Total	3319169554396 30400.000	80						

a. R Squared = .065 (Adjusted R Squared = .029)

b. Computed using alpha = .05

Figure A16-5: Interaction Effects Between Company Alliances, Industry Type and Revenue

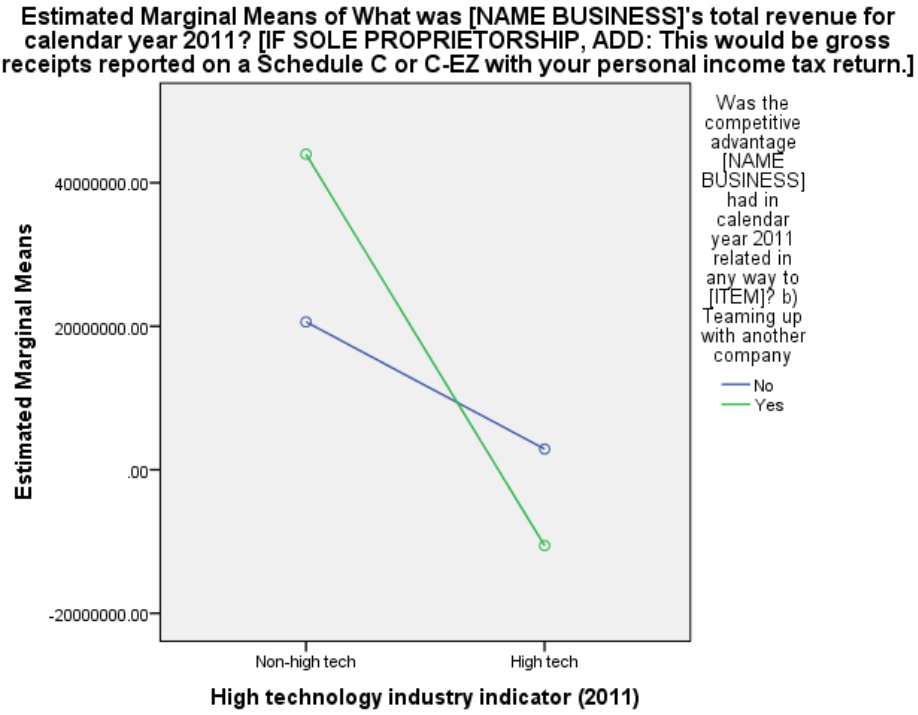


Table A16-18: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Revenue

(n=81)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.197	3	77	.898

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	24127374601321980.000[a]	3	8042458200440662.000	2.012	.119	.073	6.036	.498
Intercept	10693962544445170.000	1	10693962544445170.000	2.675	.106	.034	2.675	.365
A2_D2a_CompAdv_Comp_Reason_7	32419800553197 1.060	1	32419800553197 1.060	.081	.777	.001	.081	.059
M1_hightech_7	17238858665707680.000	1	17238858665707680.000	4.313	.041	.053	4.313	.536
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	44839543750161 03.000	1	44839543750161 03.000	1.122	.293	.014	1.122	.182
Error	30778958083830 8420.000	77	3997267283614394.000					
Total	37224746455753 8690.000	81						
Corrected Total	33191695543963 0400.000	80						

a. R Squared = .073 (Adjusted R Squared = .037)

b. Computed using alpha = .05

Figure A16-6: Interaction Effects Between Government Alliances, Industry Type and Revenue

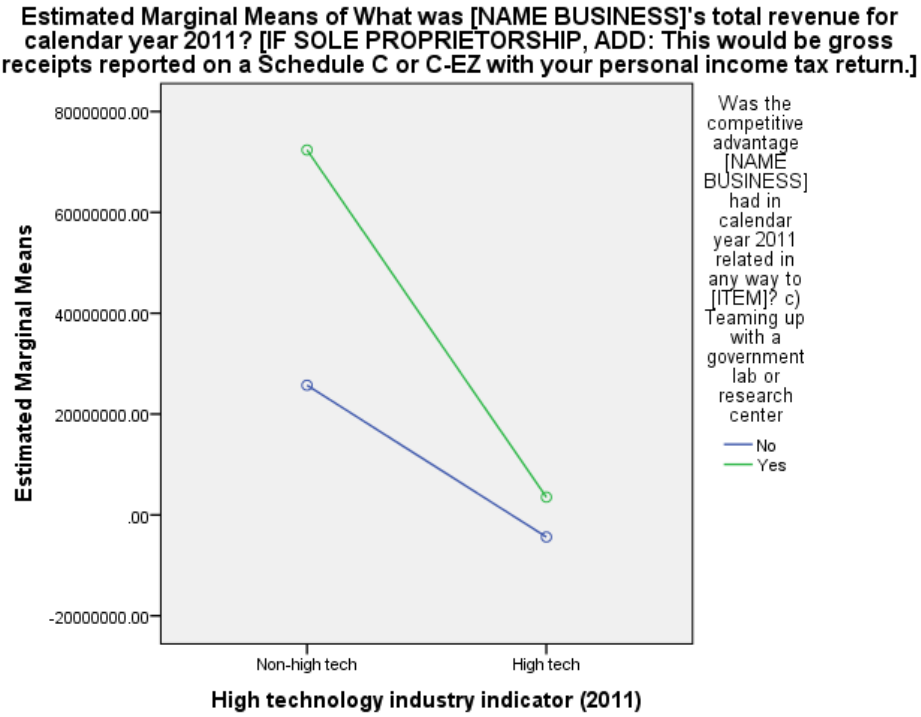


Table A16-19: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type and Revenue

(n=80)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.666	3	76	.575

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	23504076314399868.000[a]	3	7834692104799957.000	1.945	.129	.071	5.836	.483
Intercept	15079168175628640.000	1	15079168175628640.000	3.744	.057	.047	3.744	.480
A3_D2a_CompAdv_GovLab_Reason_7	4745298532496539.000	1	4745298532496539.000	1.178	.281	.015	1.178	.188
M1_hightech_7	15608421405627510.000	1	15608421405627510.000	3.876	.053	.049	3.876	.494
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	2395072774422172.000	1	2395072774422172.000	.595	.443	.008	.595	.119
Error	306080100467600000.000	76	4027369742994737.000					
Total	3715876970960435800.000	80						
Corrected Total	3295841767819998100.000	79						

a. R Squared = .071 (Adjusted R Squared = .035)

b. Computed using alpha = .05

Table A16-20 – Industry type moderating the total alliances/revenue relationship (n=80)

Step 1: Total alliances and the industry type have a significant impact on revenue but only the moderating variable is significant

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.275[a]	.076	.052	62717736.14686

a. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (high performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25102830103418488.000	2	12551415051709240.000	3.191	.047[b]
	Residual	30681412533621 1780.000	78	39335144273873 30.000		
	Total	33191695543963 0210.000	80			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (high performers)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18578509.383	10368197.979		1.792	.077
	Total Alliances (high performers)	17327688.558	10899730.084	.175	1.590	.116
	High technology industry indicator (2011)	-37568248.283	17294041.266	-.239	-2.172	.033

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Step 2: There is no multicolinearity effect among the independent and moderating variables

Correlations

		Total Alliances (high performers)	High technology industry indicator (2011)
Total Alliances (high performers)	Pearson Correlation	1	.149
	Sig. (2-tailed)		.183
	N	82	82
High technology industry indicator (2011)	Pearson Correlation	.149	1
	Sig. (2-tailed)	.183	
	N	82	143

Step 3: The adjusted R^2 has improved and the result show that the β for the moderator3 factor is not significant leading to the conclusion that there is no moderating effect in the relationship.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.305[a]	.093	.058	62532951.54923

a. Predictors: (Constant), Moderator3, High technology industry indicator (2011), Total Alliances (high performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30818463171324800.000	3	10272821057108260.000	2.627	.056[b]
	Residual	30109849226830 5470.000	77	39103700294585 12.000		
	Total	33191695543963 0210.000	80			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

b. Predictors: (Constant), Moderator3, High technology industry indicator (2011), Total Alliances (high performers)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17050334.746	10414640.115		1.637	.106
	Total Alliances (high performers)	20119214.571	11110194.898	.203	1.811	.074
	High technology industry indicator (2011)	-33752416.663	17529567.852	-.215	-1.925	.058
	Moderator3	-7276446.376	6018608.455	-.137	-1.209	.230

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Table A16-21: Test of Between Subject Effects for Interaction Effects Between University Alliances, Industry Type, and Profits

(n=65)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.307	3	61	.820

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M1_hightech_7 + A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	18025101722583.562[a]	3	6008367240861.188	.781	.509	.037	2.344	.208
Intercept	4198986330129.461	1	4198986330129.461	.546	.463	.009	.546	.112
A1_D2a_CompAdv_Univ_Reason_7	4543290550693.111	1	4543290550693.111	.591	.445	.010	.591	.118
M1_hightech_7	477980396108.313	1	477980396108.313	.062	.804	.001	.062	.057
A1_D2a_CompAdv_Univ_Reason_7 * M1_hightech_7	4877083004217.181	1	4877083004217.181	.634	.429	.010	.634	.123
Error	469002443880006.900	61	7688564653770.605					
Total	557795288640808.600	65						
Corrected Total	487027545602590.440	64						

a. R Squared = .037 (Adjusted R Squared = -.010)

b. Computed using alpha = .05

Table A16-22: Test of Between Subject Effects for Interaction Effects Between Company Alliances, Industry Type and Profits

(n=65)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.656	3	61	.056

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M1_hightech_7 + A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	12010249065164.938[a]	3	4003416355054.979	.514	.674	.025	1.542	.149
Intercept	25343326309881.918	1	25343326309881.918	3.254	.076	.051	3.254	.427
A2_D2a_CompAdv_Comp_Reason_7	227759706988.609	1	227759706988.609	.029	.865	.000	.029	.053
M1_hightech_7	1679123571474.646	1	1679123571474.646	.216	.644	.004	.216	.074
A2_D2a_CompAdv_Comp_Reason_7 * M1_hightech_7	5182126897930.792	1	5182126897930.792	.665	.418	.011	.665	.127
Error	475017296537425.500	61	7787168795695.500					
Total	557795288640808.600	65						
Corrected Total	487027545602590.440	64						

a. R Squared = .025 (Adjusted R Squared = -.023)

b. Computed using alpha = .05

Table A16-23: Test of Between Subject Effects for Interaction Effects Between Government Alliances, Industry Type, and Profits

(n=64)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.455	3	60	.714

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M1_hightech_7 + A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	6620709422402.813[a]	3	2206903140800.938	.276	.843	.014	.828	.100
Intercept	23905366203498.434	1	23905366203498.434	2.988	.089	.047	2.988	.398
A3_D2a_CompAdv_GovLab_Reason_7	1667961913566.298	1	1667961913566.298	.209	.650	.003	.209	.073
M1_hightech_7	4933327964469.187	1	4933327964469.187	.617	.435	.010	.617	.121
A3_D2a_CompAdv_GovLab_Reason_7 * M1_hightech_7	712027619188.800	1	712027619188.800	.089	.766	.001	.089	.060
Error	479983209681019.800	60	7999720161350.330					
Total	554941674738344.440	64						
Corrected Total	486603919103422.600	63						

a. R Squared = .014 (Adjusted R Squared = -.036)

b. Computed using alpha = .05

Table A16-24 – Industry type moderating the total alliances/profits relationship (n=64)

Step 1 Total alliances and the industry type do not have a significant impact on profit

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6944837792602.875	2	3472418896301.438	.448	.641[b]
	Residual	48008270780998 7.600	62	7743269480806.252		
	Total	48702754560259 0.500	64			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), High technology industry indicator (2011), Total Alliances (high performers)

APPENDIX 17: THE MODERATING EFFECT OF US DIVISIONS: HYPOTHESIS 9

These are the sub-hypothesis that were used to test the moderating effect of US census division on the alliance network and firm performance relationship:

Table A17-1: US Census Division Moderating Effect on the Alliance Network/Revenue Relationship

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H9g	H9i	H9k	Firm US census division moderates the relationship between alliance networks and firm revenue
H9g1	H9i1	H9k1	- Firm US census division moderates the relationship between university alliances networks and firm revenue
H9g2	H9i2	H9k2	- Firm US census division moderates the relationship between company alliances networks and firm revenue
H9g3	H9i3	H9k3	- Firm US census division moderates the relationship between government alliances networks and firm revenue
H9g4	H9i4	H9k4	- Firm US census division moderates the relationship between total alliances networks and firm revenue

Table A17-2: US Census Division Moderating Effect on the Alliance Network/Profits Relationship

Low Performers	Medium Performers	High Performers	Sub-Hypothesis
H9h	H9j	H9l	Firm US census division moderates the relationship between alliance networks and firm profits
H9h1	H9j1	H9l1	- Firm US census division moderates the relationship between university alliances networks and firm profits
H9h2	H9j2	H9l2	- Firm US census division moderates the relationship between company alliances networks and firm profits
H9h3	H9j3	H9l3	- Firm US census division moderates the relationship between government alliances networks and firm profits
H9h4	H9j4	H9l4	- Firm US census division moderates the relationship between total alliances networks and firm profits

Looking at the main differences characterizing the sample, we observe company alliances are the predominant type of alliances found among low performers (28%) and high performers (40%). University alliances are mainly seen among medium performers (12%) followed by high performers (10%) and low performers (7%). While, high performing companies are the ones that hold the largest proportion of government alliances (10%) whereas, only 2% of low performers have chosen to that type of alliances. In terms of total alliances, low performing organizations are the ones who dispose of the smallest percentage rate of total alliances (33% versus 45% for high performers). Out of the 33% of low performers who created alliances networks, 28% are all placed into 1 out of the 3

categories (university, company, and government), 4% into 2 categories and merely 1% in all 3 categories. High performers have diversified slightly more the use of categories for their network types: 32% of their alliances are all placed into 1 category, 9% into 2 categories and 4% in all 3 categories.

We saw throughout this research that high performers benefit from average profits 41 times greater ($1,270.241.28) than low performers ($30,339.73) and have revenues 134 times more ($21,949,880.23) than low performers ($166,203.59). In the coming section, we will see the detailed results of the potential impact of firm location on network alliances and firm financial performance as a moderator. To do so, the following 9 US census division are part of this study: New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific. As an overall location profile, the sampled high performers are mainly from the Pacific (22%) and South Atlantic (20%) areas. Medium performers are mostly located in the South Atlantic (18%) and East North Central (15%) while low performers are mainly from East North Central (20%) and South Atlantic (18%).

As the detailed results will demonstrate next, the US census division does not moderate the relationship between network alliances and firm financial performance whether for revenues or for profits.

Low Performers – US Census Division

Low performers reported to be located in the East North Central (20%), the South Atlantic (18%), the Pacific (15%) and the Mid-Atlantic (12%). Others stated to have their businesses in the West South Central (9%), the Mountain (9%), the West North Central (8%), the New England (5%) and the East South Central (4%). Overall, these entrepreneurs have average revenues of $166,203.59 and average profits of $30,339.73. The level of revenues of this group is seen to oscillate between less that $1,000.00 to $850,000.00 and their profits from $0.00 to $50,000.00. Most of them have concentrated their alliances efforts with other companies (28%) followed by university alliances (7%) and with the government (2%). As previously stated, out of the 33% of these entrepreneurs who created alliances, 28% was by exploring 1 of the 3 categories (university, company, government), 4% by using 2 out of the 3 categories and 1% appealed to all 3 categories.

H9g1 Firm US census divisions moderate the relationship between university alliance networks and firm revenues of low performers (not supported)

H9g2 Firm US census divisions moderate the relationship between company alliance networks and firm revenues of low performers (not supported)

H9g3 Firm US census divisions moderate the relationship between government alliance networks and firm revenues of low performers (not supported)

H9g4 Firm US census divisions moderate the relationship between total alliances networks and firm revenues of low performers (not supported)

When examining US Census divisions as a potential moderator on alliance networks and firm's revenue, the results lack demonstrating such effects. To prove the moderation of divisions, a significant interaction effect needs to be obtained among the university alliances, company alliances, and government alliances models. Results show no interaction between university alliances-revenue (p-val = 0.836 > α; Table A17-3), company alliances-revenue (p-val = 0.921 > α; Table A17-4) and government alliances-revenue (p-val = 0.210 > α; Table A17-5) thereby disconfirming the potential moderation effect of division. Moreover, no statistical evidence was found to support total alliances and US census division as predictors of revenues ($F_{(2,\ 606)}$ = 0.512, p-val = 0.599 > α; Table A17-6). This was one of the requirements to fulfill in order to pursue with the moderation analysis. Consequently, H9g is not supported.

Table A17-3: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division, and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.839	17	592	.648

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	518242613728.953[a]	17	30484859631.115	.818	.673	.023	13.908	.593
Intercept	3518218893216.998	1	3518218893216.998	94.421	.000	.138	94.421	1.000
A1_D2a_CompAdv_Univ_Reason_7	6526506498.793	1	6526506498.793	.175	.676	.000	.175	.070
M2A_Divisions	247431004927.510	8	30928875615.939	.830	.576	.011	6.640	.390
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	157115670674.842	8	19639458834.355	.527	.836	.007	4.217	.247
Error	22058520505717.094	592	37261014367.765					
Total	43204481823538.625	610						
Corrected Total	22576763119446.047	609						

a. R Squared = .023 (Adjusted R Squared = -.005)

b. Computed using alpha = .05

Table A17-4: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with your personal income tax return.]

F	df1	df2	Sig.
.512	17	592	.948

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	540662015565.867[a]	17	31803647974.463	.854	.629	.024	14.525	.617
Intercept	12411043642531.244	1	12411043642531.244	333.423	.000	.360	333.423	1.000
A2_D2a_CompAdv_Comp_Reason_7	75731754939.342	1	75731754939.342	2.035	.154	.003	2.035	.296
M2A_Divisions	266176727786.911	8	33272090973.364	.894	.521	.012	7.151	.421
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	118737979364.814	8	14842247420.602	.399	.921	.005	3.190	.190
Error	22036101103880.160	592	37223143756.554					
Total	43204481823538.610	610						
Corrected Total	22576763119446.027	609						

a. R Squared = .024 (Adjusted R Squared = -.004)

b. Computed using alpha = .05

Table A17-5: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division, and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.951	15	593	.507

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	671847762221.055[a]	15	44789850814.737	1.213	.257	.030	18.189	.772
Intercept	1666246374005.614	1	1666246374005.614	45.110	.000	.071	45.110	1.000
A3_D2a_CompAdv_GovLab_Reason_7	5351621730.287	1	5351621730.287	.145	.704	.000	.145	.067
M2A_Divisions	399741487020.644	8	49967685877.581	1.353	.215	.018	10.822	.623
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	311814894405.706	6	51969149067.618	1.407	.210	.014	8.442	.552
Error	21904024368673.188	593	36937646490.174					
Total	43158807276623.620	609						
Corrected Total	22575872130894.242	608						

a. R Squared = .030 (Adjusted R Squared = .005)

b. Computed using alpha = .05

Table A17-6 – Firm US census divisions moderating the total alliances/revenues relationship

Step 1 Total alliances and the US census divisions do not have a significant impact on revenues

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38103587245.473	2	19051793622.736	.512	.599[b]
	Residual	22537768543648.760	606	37191037200.741		
	Total	22575872130894.234	608			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Division, Total Alliances (low performers)

H9h1 Firm US census divisions moderate the relationship between university alliance networks and firm profits of low performers (not supported)

H9h2 Firm US census divisions moderate the relationship between company alliance networks and firm profits of low performers (not supported)

H9h3 Firm US census divisions moderate the relationship between government alliance networks and firm profits of low performers (not supported)

H9h4 Firm US census divisions moderate the relationship between total alliances networks and firm profits of low performers (not supported)

The results reveal no interaction effect occurring between university networks and census division (p-val = 0.816 > α; Table A17-7), company networks and census division (p-val = 0.898 > α; Table A17-8) and government networks and

census division (p-val = 0.221 > α; Table A17-9) voiding the moderation effect between networks and profits. As for total alliances networks, it is observed in Table A17-10 that total alliances and US census division are not significant explanatory variables ($F_{(2,\ 436)}$ = 0.877, p-val = 0.417 > α) of profits. Hence, the moderation effect could not be tested, as this is one of the requirements of the moderated multiple regression approach. H9h is disconfirmed.

Table A17-7: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division, and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.895	16	423	.576

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	36492146858.448[a]	16	2280759178.653	.789	.699	.029	12.618	.549
Intercept	177954789544.285	1	177954789544.285	61.530	.000	.127	61.530	1.000
A1_D2a_CompAdv_Univ_Reason_7	2526870581.393	1	2526870581.393	.874	.350	.002	.874	.154
M2A_Divisions	20398445564.858	8	2549805695.607	.882	.532	.016	7.053	.413
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	10634085230.213	7	1519155032.888	.525	.816	.009	3.677	.229
Error	1223380119385.244	423	2892151582.471					
Total	1943777383645.736	440						
Corrected Total	1259872266243.692	439						

a. R Squared = .029 (Adjusted R Squared = -.008)

b. Computed using alpha = .05

Table A17-8: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.655	17	422	.847

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	36721324458.402[a]	17	2160077909.318	.745	.756	.029	12.669	.536
Intercept	402445878096.249	1	402445878096.249	138.848	.000	.248	138.848	1.000
A2_D2a_CompAdv_Comp_Reason_7	1876596647.857	1	1876596647.857	.647	.421	.002	.647	.126
M2A_Divisions	26622379422.869	8	3327797427.859	1.148	.330	.021	9.185	.535
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	10164002580.971	8	1270500322.621	.438	.898	.008	3.507	.206
Error	1223150941785.290	422	2898461947.359					
Total	1943777383645.736	440						
Corrected Total	1259872266243.692	439						

a. R Squared = .029 (Adjusted R Squared = -.010)

b. Computed using alpha = .05

Table A17-9: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.079	15	423	.374

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	48498194616.466[a]	15	3233212974.431	1.131	.326	.039	16.966	.729
Intercept	62432184472.436	1	62432184472.436	21.840	.000	.049	21.840	.997
A3_D2a_CompAdv_GovLab_Reason_7	26671085.454	1	26671085.454	.009	.923	.000	.009	.051
M2A_Divisions	19360507885.829	8	2420063485.729	.847	.562	.016	6.773	.396
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	23656294070.630	6	3942715678.438	1.379	.221	.019	8.275	.540
Error	1209193303810.890	423	2858613011.373					
Total	1936369238109.404	439						
Corrected Total	1257691498427.357	438						

a. R Squared = .039 (Adjusted R Squared = .004)

b. Computed using alpha = .05

Table A17-10 – Firm US census divisions moderating the total alliances/profits relationship

Step 1 Total alliances and the US census divisions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5040307131.175	2	2520153565.588	.877	.417[b]
	Residual	1252651191296.182	436	2873053191.046		
	Total	1257691498427.357	438			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Division, Total Alliances (low performers)

To recapitulate, these findings revealed that US census division does not moderate any of the relationships between network alliances and firm revenues including firm profits. These findings could be explained by the very limited number of entrepreneurs who formed alliances with universities (7%) including with the government (2%). In addition to the fact that only one-third of low performers instituted network alliances as part of their businesses. These elements might have impacted the findings. It was also found that no US division moderation effect occurs in the presence of total alliances and firm financial performance.

Medium Performers – US Census Division

The network alliances of medium performers entrepreneurs were mainly formed with other companies (29%) followed by universities (12%) and the government (6%). In total, 39% of these entrepreneurs have incorporated alliances into their businesses. Out of these total alliances, 31% have been established in 1 out of the 3 categories, 6% into 2 categories and 2% in all 3 categories. These organizations are from the South Atlantic (18%), the East North Central (15%), the Mid-Atlantic (14%), the West North Central (13%) and the Pacific (13%) areas. Others are in the West South Central (10%), the Mountain (8%) and in New England (7%). Only 2% are from the East South Central. As previously stated in this research, these entrepreneurs have reported average revenues of $1,516,938.00 varying from $860,000.00 to $2,500,000.00. Their average profits are $207,543.77 ranging from $0.00 to $3,000,000.00.

We next examine, the potential US division moderating effect over the network alliances and firm financial performance relationships.

H9i1 Firm US census divisions moderate the relationship between university alliance networks and firm revenues of medium performers (not supported)

H9i2 Firm US census divisions moderate the relationship between company alliance networks and firm revenues of medium performers (not supported)

H9i3 Firm US census divisions moderate the relationship between government alliance networks and firm revenues of medium performers (not supported)

H9i4 Firm US census divisions moderate the relationship between total alliances networks and firm revenues of medium performers (not supported)

It is anticipated that US divisions moderate the network alliances, in terms of university, company and government, and revenues relationships. However, no interaction effect is found between university alliances-revenue (p-val = 778 > α; Table A17-11), company alliances-revenue (p-val = 890 > α; Table A17-12) and government alliances-revenue (p-val = 0.942 > α; Table A17-13) relationships. This discredits any potential moderation effect as the first requirement of the moderated multiple regression approach is not fulfilled.

In addition, the research reveals that total alliances and US census division are significant predictors ($F_{(2,\ 95)}$ = 3.790, p-val = 0.026 < α; Table A17-14) of the revenues of medium performing organizations. Nonetheless, no statistical evidence was found to suggest that US census divisions moderate (p-$val_{H9moderator2}$ = 0.957 > α; Table A17-14) that relationship. Therefore, H9i is not supported.

Table A17-11: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division, and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
1.058	14	84	.407

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	3606704967728.965[a]	14	257621783409.212	.974	.486	.140	13.637	.565
Intercept	77092218398604.970	1	77092218398604.970	291.486	.000	.776	291.486	1.000
A1_D2a_CompAdv_Univ_Reason_7	37559435149.277	1	37559435149.277	.142	.707	.002	.142	.066
M2A_Divisions	2126105364098.073	8	265763170512.259	1.005	.439	.087	8.039	.438
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	656452191142.398	5	131290438228.480	.496	.778	.029	2.482	.178
Error	22216285616207.668	84	264479590669.139					
Total	25996755040105 1.800	99						
Corrected Total	25822990583936.633	98						

a. R Squared = .140 (Adjusted R Squared = -.004)

b. Computed using alpha = .05

Table A17-12: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
1.512	17	80	.112

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	3757213789624.504[a]	17	221012575860.265	.804	.683	.146	13.673	.509
Intercept	131466813697940.230	1	131466813697940.230	478.414	.000	.857	478.414	1.000
A2_D2a_CompAdv_Comp_Reason_7	2910778516.089	1	2910778516.089	.011	.918	.000	.011	.051
M2A_Divisions	1931252765237.306	8	241406595654.663	.878	.538	.081	7.028	.381
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	979349565680.405	8	122418695710.051	.445	.890	.043	3.564	.195
Error	21983774639418.990	80	274797182992.737					
Total	258397599550600.340	98						
Corrected Total	25740988429043.492	97						

a. R Squared = .146 (Adjusted R Squared = -.036)

b. Computed using alpha = .05

Table A17-13: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division, and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.948	11	86	.499

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	2841446597780.625[a]	11	258313327070.966	.970	.480	.110	10.671	.500
Intercept	56468636592381.690	1	56468636592381.690	212.070	.000	.711	212.070	1.000
A3_D2a_CompAdv_GovLab_Reason_7	53667277192.410	1	53667277192.410	.202	.655	.002	.202	.073
M2A_Divisions	2243126618745.110	8	280390827343.139	1.053	.404	.089	8.424	.460
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	31958563722.200	2	15979281861.100	.060	.942	.001	.120	.059
Error	22899541831262.867	86	266273742223.987					
Total	258397599550600.340	98						
Corrected Total	25740988429043.492	97						

a. R Squared = .110 (Adjusted R Squared = -.003)

b. Computed using alpha = .05

Table A17-14 – Firm US census division moderating the total alliances/revenues relationship

Step 1 Total alliances and the US census division have a significant impact on revenues and only total alliances is significant in the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.272[a]	.074	.054	499521.82233

a. Predictors: (Constant), US Division, Total Alliances (medium performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1891605892934.012	2	945802946467.006	3.790	.026[b]
	Residual	23704594843432.773	95	249522050983.503		
	Total	25596200736366.785	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Division, Total Alliances (medium performers)

Step 2 There is no multicollinearity effect among the independent and moderating variables

Correlations

		Total Alliances (medium performers)	US Division
Total Alliances (medium performers)	Pearson Correlation	1	-.128
	Sig. (2-tailed)		.209
	N	98	98
US Division	Pearson Correlation	-.128	1
	Sig. (2-tailed)	.209	
	N	98	183

Step 3 The adjusted R^2 has slightly decreased than in step 1 and the results show that the β for the H9moderator2 factor is not significant leading to the conclusion that there is no moderating effect

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.272[a]	.074	.044	502163.84371

a. Predictors: (Constant), H9Moderator2, US Division, Total Alliances (medium performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1892359299323.484	3	630786433107.828	2.501	.064[b]
	Residual	23703841437043.300	94	252168525925.993		
	Total	25596200736366.785	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), H9Moderator2, US Division, Total Alliances (medium performers)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1776880.579	130479.339		13.618	.000
	Total Alliances (medium performers)	60058.960	108153.169	.056	.555	.580
	US Division	-53223.161	20587.318	-.260	-2.585	.011
	H9Moderator2	2735.777	50050.849	.006	.055	.957

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

H9j1 Firm US census divisions moderate the relationship between university alliance networks and firm profits of medium performers (not supported)

H9j2 Firm US census divisions moderate the relationship between company alliance networks and firm profits of medium performers (not supported)

H9j3 Firm US census divisions moderate the relationship between government alliance networks and firm profits of medium performers (not supported)

H9j4 Firm US census divisions moderate the relationship between total alliances networks and firm profits of medium performers (not supported)

As seen in Table A17-15 to Table A17-18, US census divisions, within medium performing organizations, do not moderate the relationships between university alliances and profits (p-val = 0.647 > α; Table A17-15), company alliances and profits (p-val = 0.295 > α; Table A17-16) and government alliances and profits (p-val = 0.645 > α; Table A17-17). This disconfirms H9j1, H9j2, and H9j3 as no interaction effect was found in those relationships. Likewise, total alliances and US census divisions are not significant regressors of profits ($F_{(2, 68)}$ = 0.287, p-val = 0.751 > α; Table A17-18). Therefore, no further analysis could be carried to test for the moderation effect. H9j is not supported.

Table A17-15: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division, and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.916	13	58	.047

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	846623559795.655[a]	13	65124889215.050	.833	.624	.157	10.834	.442
Intercept	747533124313.608	1	747533124313.608	9.566	.003	.142	9.566	.860
A1_D2a_CompAdv_Univ_Reason_7	73896724371.578	1	73896724371.578	.946	.335	.016	.946	.160
M2A_Divisions	785926497509.233	8	98240812188.654	1.257	.284	.148	10.057	.525
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	195127935892.503	4	48781983973.126	.624	.647	.041	2.497	.193
Error	4532527195727.755	58	78147020615.996					
Total	8814220208021.506	72						
Corrected Total	5379150755523.410	71						

a. R Squared = .157 (Adjusted R Squared = -.031)

b. Computed using alpha = .05

Table A17-16: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.053	17	53	.024

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	1329687237562.704[a]	17	78216896327.218	1.028	.446	.248	17.472	.603
Intercept	1959995397534.877	1	1959995397534.877	25.754	.000	.327	25.754	.999
A2_D2a_CompAdv_Comp_Reason_7	59846137856.212	1	59846137856.212	.786	.379	.015	.786	.140
M2A_Divisions	461092850774.195	8	57636606346.774	.757	.641	.103	6.059	.313
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	754361106740.164	8	94295138342.521	1.239	.295	.158	9.912	.512
Error	4033543358679.341	53	76104591673.195					
Total	8805547244303.117	71						
Corrected Total	5363230596242.045	70						

a. R Squared = .248 (Adjusted R Squared = .007)

b. Computed using alpha = .05

Table A17-17: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.365	10	60	.020

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	652156692436.188[a]	10	65215669243.619	.831	.601	.122	8.306	.390
Intercept	1189781476951.669	1	1189781476951.669	15.153	.000	.202	15.153	.969
A3_D2a_CompAdv_GovLab_Reason_7	81110529802.763	1	81110529802.763	1.033	.314	.017	1.033	.170
M2A_Divisions	452837054744.912	8	56604631843.114	.721	.672	.088	5.767	.302
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	16878168741.343	1	16878168741.343	.215	.645	.004	.215	.074
Error	4711073903805.857	60	78517898396.764					
Total	8805547244303.117	71						
Corrected Total	5363230596242.045	70						

a. R Squared = .122 (Adjusted R Squared = -.025)

b. Computed using alpha = .05

Table A17-18 – Firm US census divisions moderating the total alliances/profits relationship

Step 1 Total alliances and the US census divisions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44194977815.994	2	22097488907.997	.287	.751[b]
	Residual	5233715875462.297	68	76966409933.269		
	Total	5277910853278.291	70			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Division, Total Alliances (medium performers)

To sum up, we had anticipated that US census divisions would moderate the various relationships between network alliances and firm revenues as well as profits. It was found that location does not moderate these relationships. The sample included a fairly good distribution across the divisions but not in the case of network alliances. A more even representation across the university and government alliances including a larger proportion of companies using network alliances could have produced different results. Though, the results confirm that US census divisions and total alliances impact firm revenues of medium performing organizations. However, H9 is not supported.

High Performers – US Census Division

High performing companies have as well focused their alliances with other companies (40%) and fewer have appealed to university (10%) alliances and government (10%) alliances. Out of all of high performing organizations, 45% have implemented network alliances as part of their businesses. From this 45%, 32% have chosen to create their total alliances in a single category, whereas 9% have their alliances into 2 out of the 3 network categories and 4% in all 3 categories. These companies are from the Pacific (22%) and South Atlantic (20%). Others are from the East North Central (15%), the Mountain (10%), the Mid-Atlantic (9%) and the West South Central (8%). The remaining organizations are from the West North Central (7%), New England (6%), and East South Central (3%) areas.

As noted throughout the research, high performers have average revenues of $21,949,880.23 and average profits of $1,270,241.28. Revenue levels oscillate between $2,600,000.00 to $700,000,000.00 and profits are seen to vary from $0.00 to $25,926,789.00. In the coming section, we test to see the potential impact of US division on the network alliances and firm financial performance relationships.

H9k1 Firm US census divisions moderate the relationship between university alliance networks and firm revenues of high performers (not supported)

H9k2 Firm US census divisions moderate the relationship between company alliance networks and firm revenues of high performers (not supported)

H9k3 Firm US census divisions moderate the relationship between government alliance networks and firm revenues of high performers (not supported)

H9k4 Firm US census divisions moderate the relationship between total alliances networks and firm revenues of high performers (not supported)

We anticipate that US census region will moderate the university alliances-revenues, company alliances-revenues and government alliances-revenues relationships. However, the results do not show an interaction effect as required by the moderated multiple regression approach to test for moderation. Thus, the results voids all US census division moderation effect for university alliances and revenues (p-val = 0.991 > α; Table A17-19), company alliances and revenues (p-val = 0.474 > α; Table A17-20) and government alliances and revenues (p-val = 0.690 > α; Table A17-21).

Furthermore, the findings demonstrate on Table A17-22 that total alliances and US census division are not significant predictors of revenue ($F_{(2, 78)}$ = 0.831, p-val = 0.440 > α). Therefore, H9k is not supported.

Table A17-19: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
2.568	14	66	.005

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	20191819868484348.000[a]	14	1442272847748882.000	.305	.992	.061	4.275	.169
Intercept	31574489802962524.000	1	31574489802962524.000	6.685	.012	.092	6.685	.722
A1_D2a_CompAdv_Univ_Reason_7	2179008587678458.000	1	2179008587678458.000	.461	.499	.007	.461	.103
M2A_Divisions	8013348224967864.000	8	1001668528120983.000	.212	.988	.025	1.697	.109
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	2463375728834378.000	5	492675145766875.700	.104	.991	.008	.522	.072
Error	311725135571145980.000	66	4723108114714333.000					
Total	372247464557538690.000	81						
Corrected Total	331916955439630270.000	80						

a. R Squared = .061 (Adjusted R Squared = -.138)

b. Computed using alpha = .05

Table A17-20: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
1.904	17	63	.034

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	52775179761624056.000[a]	17	3104422338919062.000	.701	.790	.159	11.911	.423
Intercept	38518269983366608.000	1	38518269983366608.000	8.693	.004	.121	8.693	.827
A2_D2a_CompAdv_Comp_Reason_7	9475087718942940.000	1	9475087718942940.000	2.138	.149	.033	2.138	.302
M2A_Divisions	26994629004234000.000	8	3374328625529250.000	.762	.637	.088	6.092	.321
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	34086334442921524.000	8	4260791805365190.500	.962	.474	.109	7.693	.407
Error	279141775678006208.000	63	4430821836158829.000					
Total	372247464557538690.000	81						
Corrected Total	331916955439630270.000	80						

a. R Squared = .159 (Adjusted R Squared = -.068)

b. Computed using alpha = .05

Table A17-21: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division and Revenues

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
2.509	11	68	.010

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	24849528437958460.000[a]	11	2259048039814406.000	.504	.894	.075	5.545	.248
Intercept	42094661872760536.000	1	42094661872760536.000	9.393	.003	.121	9.393	.856
A3_D2a_CompAdv_GovLab_Reason_7	6518191470152582.000	1	6518191470152582.000	1.455	.232	.021	1.455	.221
M2A_Divisions	14669906145932300.000	8	1833738268241538.000	.409	.912	.046	3.274	.178
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	3347091837032199.000	2	1673545918516099.000	.373	.690	.011	.747	.108
Error	304734648344041220.000	68	4481391887412372.000					
Total	371587697096043580.000	80						
Corrected Total	329584176781999680.000	79						

a. R Squared = .075 (Adjusted R Squared = -.074)

b. Computed using alpha = .05

Table A17-22 – Firm US census divisions moderating the total alliances/revenues relationship

Step 1 Total alliances and the US census divisions do not have a significant impact on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6921123888855232.000	2	3460561944427616.000	.831	.440[b]
	Residual	3249958315507749 80.000	78	4166613225009936.500		
	Total	3319169554396302 10.000	80			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Division, Total Alliances (high performers)

H9l1 Firm US census divisions moderate the relationship between university alliance networks and firm profits of high performers (not supported)

H9l2 Firm US census divisions moderate the relationship between company alliance networks and firm profits of high performers (not supported)

H9l3 Firm US census divisions moderate the relationship between government alliance networks and firm profits of high performers (not supported)

H9l4 Firm US census divisions moderate the relationship between total alliances networks and firm profits of high performers (not supported)

Results were not able to confirm the interaction effect within the following relationships: university networks-profits (p-val = 0.292 > α; Table A17-23), company networks-profits (p-val = 0.459 > α; Table A17-24) and government

networks-profits (p-val = 0.471 > α; Table A17-25) annulling all potential moderation effect. Also, total alliances and US census divisions are significant predictors of profits ($F_{(2, 62)}$ = 0.380, p-val = 0.685 > α; Table A17-26) within high performing organizations. Hence, no moderation test could be further examined. All of these results do not support H9l.

Table A17-23: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.321	13	51	.232

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2A_Divisions + A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	106637792035613.880[a]	13	8202907079662.605	1.100	.381	.219	14.297	.569
Intercept	2901773640196.863	1	2901773640196.863	.389	.536	.008	.389	.094
A1_D2a_CompAdv_Univ_Reason_7	14836942398585.857	1	14836942398585.857	1.989	.164	.038	1.989	.283
M2A_Divisions	77347876627596.530	8	9668484578449.566	1.296	.267	.169	10.370	.532
A1_D2a_CompAdv_Univ_Reason_7 * M2A_Divisions	38049598906327.710	4	9512399726581.928	1.275	.292	.091	5.101	.370
Error	380389753566976.700	51	7458622618960.327					
Total	557795288640808.440	65						
Corrected Total	487027545602590.560	64						

a. R Squared = .219 (Adjusted R Squared = .020)

b. Computed using alpha = .05

Table A17-24: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.153	17	47	.020

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2A_Divisions + A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	125403758752887.600[a]	17	7376691691346.335	.959	.516	.257	16.299	.550
Intercept	22627394822782.293	1	22627394822782.293	2.941	.093	.059	2.941	.390
A2_D2a_CompAdv_Comp_Reason_7	5101254749838.967	1	5101254749838.967	.663	.420	.014	.663	.125
M2A_Divisions	84804343721828.690	8	10600542965228.586	1.378	.231	.190	11.022	.557
A2_D2a_CompAdv_Comp_Reason_7 * M2A_Divisions	60660175940912.016	8	7582521992614.002	.985	.459	.144	7.884	.402
Error	361623786849702.900	47	7694123124461.764					
Total	557795288640808.440	65						
Corrected Total	487027545602590.560	64						

a. R Squared = .257 (Adjusted R Squared = -.011)

b. Computed using alpha = .05

Table A17-25: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Division and Profits

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.218	11	52	.299

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2A_Divisions + A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	73913777416313.750[a]	11	6719434310573.978	.847	.596	.152	9.313	.407
Intercept	17767840217960.844	1	17767840217960.844	2.239	.141	.041	2.239	.312
A3_D2a_CompAdv_GovLab_Reason_7	1200703397.081	1	1200703397.081	.000	.990	.000	.000	.050
M2A_Divisions	64844527245024.690	8	8105565905628.086	1.021	.432	.136	8.171	.423
A3_D2a_CompAdv_GovLab_Reason_7 * M2A_Divisions	12111710493671.695	2	6055855246835.848	.763	.471	.029	1.526	.173
Error	412690141687109.060	52	7936348878598.251					
Total	554941674738344.400	64						
Corrected Total	486603919103422.800	63						

a. R Squared = .152 (Adjusted R Squared = -.028)

b. Computed using alpha = .05

Table A17-26 – Firm US census divisions moderating the total alliances/profits relationship

Step 1 Total alliances and the US census divisions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5898623873634.250	2	2949311936817.125	.380	.685[b]
	Residual	4811289217289 56.300	62	7760143898854.133		
	Total	4870275456025 90.500	64			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Division, Total Alliances (high performers)

In sum, the findings on high performers were not able to evidence that firm location, in terms of divisions, act as a moderator in the relationship between alliance networks and firms' financial performance. H9 consequently is not supported as no moderating effect was found among low, medium and high performing organizations.

APPENDIX 18: SPSS TABLES – HYPOTHESIS 9

Low Performers

Table A18-1: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Regions and Revenue

(n=610)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.450	7	602	.871

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	131668051979.707[a]	7	18809721711.387	.504	.831	.006	3.531	.221
Intercept	4946286658733.203	1	4946286658733.203	132.664	.000	.181	132.664	1.000
A1_D2a_CompAdv_Univ_Reason_7	2370144035.940	1	2370144035.940	.064	.801	.000	.064	.057
M2B_Regions	58671583430.402	3	19557194476.801	.525	.666	.003	1.574	.158
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	115667311874.896	3	38555770624.965	1.034	.377	.005	3.102	.282
Error	22445095067466.320	602	37284211075.525					
Total	43204481823538.610	610						
Corrected Total	22576763119446.027	609						

a. R Squared = .006 (Adjusted R Squared = -.006)

b. Computed using alpha = .05

Table A18-2: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Regions and Revenue

(n=610)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.342	7	602	.935

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	133289620493.492[a]	7	19041374356.213	.511	.827	.006	3.575	.224
Intercept	16187781442570.523	1	16187781442570.523	434.204	.000	.419	434.204	1.000
A2_D2a_CompAdv_Comp_Reason_7	98691269439.751	1	98691269439.751	2.647	.104	.004	2.647	.369
M2B_Regions	25003023580.866	3	8334341193.622	.224	.880	.001	.671	.092
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	42533197358.810	3	14177732452.937	.380	.767	.002	1.141	.125
Error	22443473498952.535	602	37281517440.120					
Total	43204481823538.610	610						
Corrected Total	22576763119446.027	609						

a. R Squared = .006 (Adjusted R Squared = -.006)

b. Computed using alpha = .05

Table A18-3: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions and Revenue

(n=609)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.440	7	601	.877

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	94646567973.629[a]	7	13520938281.947	.361	.924	.004	2.530	.165
Intercept	1190405978562.950	1	1190405978562.950	31.824	.000	.050	31.824	1.000
A3_D2a_CompAdv_GovLab_Reason_7	1746228572.823	1	1746228572.823	.047	.829	.000	.047	.055
M2B_Regions	54502868343.088	3	18167622781.029	.486	.692	.002	1.457	.149
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	76999110378.618	3	25666370126.206	.686	.561	.003	2.058	.196
Error	22481225562920.613	601	37406365329.319					
Total	43158807276623.620	609						
Corrected Total	22575872130894.242	608						

a. R Squared = .004 (Adjusted R Squared = -.007)

b. Computed using alpha = .05

Table A18-4 – Firm US census regions moderating the total alliances/revenue relationship (n=608)

Step 1 Total alliances and the US census regions do not have a significant impact on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37172218507.441	2	18586109253.721	.500	.607[b]
	Residual	22538699912386.793	606	37192574112.849		
	Total	22575872130894.234	608			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Regions, Total Alliances (low performers)

Table A18-5: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Regions and Profits

(n= 440)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.790	7	432	.596

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	18392762868.993[a]	7	2627537552.713	.914	.495	.015	6.400	.397
Intercept	180793397171.881	1	180793397171.881	62.911	.000	.127	62.911	1.000
A1_D2a_CompAdv_Univ_Reason_7	1733617785.413	1	1733617785.413	.603	.438	.001	.603	.121
M2B_Regions	13874167646.457	3	4624722548.819	1.609	.187	.011	4.828	.423
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	10273061679.395	3	3424353893.132	1.192	.313	.008	3.575	.320
Error	1241479503374.699	432	2873795146.701					
Total	1943777383645.736	440						
Corrected Total	1259872266243.692	439						

a. R Squared = .015 (Adjusted R Squared = -.001)

b. Computed using alpha = .05

Table A18-6: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Regions and Profits

(n=440)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.751	7	432	.629

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	12834361819.938[a]	7	1833480259.991	.635	.727	.010	4.446	.275
Intercept	565157291694.618	1	565157291694.618	195.782	.000	.312	195.782	1.000
A2_D2a_CompAdv_Comp_Reason_7	3495020445.636	1	3495020445.636	1.211	.272	.003	1.211	.195
M2B_Regions	4243967704.335	3	1414655901.445	.490	.689	.003	1.470	.150
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	3565942448.925	3	1188647482.975	.412	.745	.003	1.235	.132
Error	1247037904423.754	432	2886661815.796					
Total	1943777383645.736	440						
Corrected Total	1259872266243.692	439						

a. R Squared = .010 (Adjusted R Squared = -.006)

b. Computed using alpha = .05

Table A18-7: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions and Profits

(n=439)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
.731	7	431	.646

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	18854513510.984[a]	7	2693501930.141	.937	.477	.015	6.560	.407
Intercept	63645220066.572	1	63645220066.572	22.143	.000	.049	22.143	.997
A3_D2a_CompAdv_GovLab_Reason_7	419135871.195	1	419135871.195	.146	.703	.000	.146	.067
M2B_Regions	10148248211.967	3	3382749403.989	1.177	.318	.008	3.531	.317
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	11985089527.930	3	3995029842.643	1.390	.245	.010	4.170	.370
Error	1238836984916.373	431	2874331751.546					
Total	1936369238109.404	439						
Corrected Total	1257691498427.357	438						

a. R Squared = .015 (Adjusted R Squared = -.001)

b. Computed using alpha = .05

Table A18-8 – Firm US census regions moderating the total alliances/profits relationship (n=438)

Step 1 Total alliances and the US census regions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5941537683.795	2	2970768841.898	1.035	.356[b]
	Residual	1251749960743.562	436	2870986148.494		
	Total	1257691498427.357	438			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Regions, Total Alliances (low performers)

Medium Performers

Table A18-9: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Regions and Revenue

(n=99)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.623	7	91	.736

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	2835548509980.297[a]	7	405078358568.614	1.604	.144	.110	11.225	.635
Intercept	85419598292671.970	1	85419598292671.970	338.149	.000	.788	338.149	1.000
A1_D2a_CompAdv_Univ_Reason_7	98313238114.337	1	98313238114.337	.389	.534	.004	.389	.095
M2B_Regions	1069591048682.123	3	356530349560.708	1.411	.245	.044	4.234	.363
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	438362060262.655	3	146120686754.218	.578	.631	.019	1.735	.166
Error	22987442073956.336	91	252609253559.960					
Total	259967550401051.800	99						
Corrected Total	25822990583936.633	98						

a. R Squared = .110 (Adjusted R Squared = .041)

b. Computed using alpha = .05

Table A18-10: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Regions and Revenue

(n=98)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
2.246	7	90	.038

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	3048431024374.633[a]	7	435490146339.233	1.727	.113	.118	12.090	.674
Intercept	188031434589829.030	1	188031434589829.030	745.744	.000	.892	745.744	1.000
A2_D2a_CompAdv_Comp_Reason_7	3699288666.843	1	3699288666.843	.015	.904	.000	.015	.052
M2B_Regions	1792077473521.457	3	597359157840.486	2.369	.076	.073	7.107	.576
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	785756317096.552	3	261918772365.517	1.039	.379	.033	3.116	.273
Error	22692557404668.860	90	252139526718.543					
Total	258397599550600.340	98						
Corrected Total	25740988429043.492	97						

a. R Squared = .118 (Adjusted R Squared = .050)

b. Computed using alpha = .05

Table A18-11: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions and Revenue

(n=98)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
.898	5	92	.486

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	2325737934829.106[a]	5	465147586965.821	1.828	.115	.090	9.138	.601
Intercept	73000508569356.700	1	73000508569356.700	286.824	.000	.757	286.824	1.000
A3_D2a_CompAdv_GovLab_Reason_7	67747380909.128	1	67747380909.128	.266	.607	.003	.266	.080
M2B_Regions	1218259024437.212	3	406086341479.071	1.596	.196	.049	4.787	.407
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	90030888.709	1	90030888.709	.000	.985	.000	.000	.050
Error	23415250494214.387	92	254513592328.417					
Total	258397599550600.340	98						
Corrected Total	25740988429043.492	97						

a. R Squared = .090 (Adjusted R Squared = .041)

b. Computed using alpha = .05

Table A18-12 – Firm US census region moderating the total alliances/revenue relationship (n=97)

Step 1: Total alliances and the US census regions have a significant impact on revenue and only US census regions is significant in the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.280[a]	.078	.059	498357.91063

a. Predictors: (Constant), US Regions, Total Alliances (medium performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2001943063063.082	2	1000971531531.541	4.030	.021[b]
	Residual	23594257673303.703	95	248360607087.407		
	Total	25596200736366.785	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Regions, Total Alliances (medium performers)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1859672.497	153005.413		12.154	.000
	Total Alliances (medium performers)	51373.343	105962.356	.048	.485	.629
	US Regions	-133100.384	49430.196	-.268	-2.693	.008

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Step 2: There is no multicollinearity effect among the independent and moderating variables

Correlations

		Total Alliances (medium performers)	US Regions
Total Alliances (medium performers)	Pearson Correlation	1	-.150
	Sig. (2-tailed)		.139
	N	98	98
US Regions	Pearson Correlation	-.150	1
	Sig. (2-tailed)	.139	
	N	98	183

Step 3: The adjusted R^2 has slightly decrease compared to step 1 and the results show that the β for the H9moderator2 factor is not significant. Leading us to the conclusion that there is no moderating effect.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.283[a]	.080	.051	500481.97333

a. Predictors: (Constant), H9rModerator2, US Regions, Total Alliances (medium performers)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2050873407378.934	3	683624469126.311	2.729	.048[b]
	Residual	23545327328987.850	94	250482205627.530		
	Total	25596200736366.785	97			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), H9rModerator2, US Regions, Total Alliances (medium performers)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1866962.169	154540.184		12.081	.000
	Total Alliances (medium performers)	58894.226	107765.921	.055	.547	.586
	US Regions	-136179.814	50127.445	-.274	-2.717	.008
	H9rModerator2	20895.727	47277.748	.045	.442	.660

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Table A18-13: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions, and Profits

(n=72)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.221	7	64	.044

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	540058532401.299[a]	7	77151218914.471	1.020	.426	.100	7.143	.405
Intercept	1055531543019.369	1	1055531543019.369	13.960	.000	.179	13.960	.957
A1_D2a_CompAdv_Univ_Reason_7	13146129608.130	1	13146129608.130	.174	.678	.003	.174	.070
M2B_Regions	268677221939.268	3	89559073979.756	1.184	.323	.053	3.553	.304
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	237442785053.476	3	79147595017.825	1.047	.378	.047	3.140	.271
Error	4839092223122.111	64	75610815986.283					
Total	8814220208021.506	72						
Corrected Total	5379150755523.410	71						

a. R Squared = .100 (Adjusted R Squared = .002)

b. Computed using alpha = .05

Table A18-14: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions and Profits

(n=71)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.566	7	63	.162

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	597881198208.348[a]	7	85411599744.050	1.129	.356	.111	7.904	.447
Intercept	3322997770396.582	1	3322997770396.582	43.931	.000	.411	43.931	1.000
A2_D2a_CompAdv_Comp_Reason_7	27422431887.456	1	27422431887.456	.363	.549	.006	.363	.091
M2B_Regions	172556467904.297	3	57518822634.766	.760	.521	.035	2.281	.204
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	336038451785.437	3	112012817261.812	1.481	.228	.066	4.443	.373
Error	4765349398033.697	63	75640466635.456					
Total	8805547244303.117	71						
Corrected Total	5363230596242.045	70						

a. R Squared = .111 (Adjusted R Squared = .013)

b. Computed using alpha = .05

Table A18-15: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions and Profits

(n=71)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
2.180	5	65	.067

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	402537236700.131[a]	5	80507447340.026	1.055	.394	.075	5.274	.352
Intercept	1460028740241.384	1	1460028740241.384	19.131	.000	.227	19.131	.991
A3_D2a_CompAdv_GovLab_Reason_7	142524150490.634	1	142524150490.634	1.867	.176	.028	1.867	.270
M2B_Regions	95442682589.995	3	31814227529.998	.417	.741	.019	1.251	.129
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	32341570380.305	1	32341570380.305	.424	.517	.006	.424	.098
Error	4960693359541.914	65	76318359377.568					
Total	8805547244303.117	71						
Corrected Total	5363230596242.045	70						

a. R Squared = .075 (Adjusted R Squared = .004)

b. Computed using alpha = .05

Table A18-16 – Firm US census regions moderating the total alliances/profits relationship (n=70)

Step 1 Total alliances and the US census regions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47413109779.627	2	23706554889.813	.308	.736[b]
	Residual	5230497743498.664	68	76919084463.216		
	Total	5277910853278.291	70			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Regions, Total Alliances (medium performers)

High Performers

Table A18-17: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Regions and Revenue

(n=81)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
2.252	7	73	.039

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	7802100056316800.000[a]	7	1114585722330971.000	.251	.970	.024	1.757	.118
Intercept	26840639387465340.000	1	26840639387465340.000	6.045	.016	.076	6.045	.680
A1_D2a_CompAdv_Univ_Reason_7	2771645932085490.000	1	2771645932085490.000	.624	.432	.008	.624	.122
M2B_Regions	1685873082177350.000	3	561957694059116.940	.127	.944	.005	.380	.072
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	1701419952733886.000	3	567139984244628.600	.128	.943	.005	.383	.072
Error	324114855383313470.000	73	4439929525798815.500					
Total	372247464557538690.000	81						
Corrected Total	331916955439630270.000	80						

a. R Squared = .024 (Adjusted R Squared = -.070)

b. Computed using alpha = .05

Table A18-18: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Regions and Revenue

(n=81)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
1.534	7	73	.169

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	7745418274315584.000[a]	7	1106488324902226.000	.249	.971	.023	1.744	.117
Intercept	42287203686402280.000	1	42287203686402280.000	9.523	.003	.115	9.523	.861
A2_D2a_CompAdv_Comp_Reason_7	2961405371217698.000	1	2961405371217698.000	.667	.417	.009	.667	.127
M2B_Regions	3900119475428564.000	3	1300039825142854.000	.293	.831	.012	.878	.104
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	1834262743904796.000	3	611420914634932.100	.138	.937	.006	.413	.074
Error	324171537165314690.000	73	4440705988565956.000					
Total	372247464557538690.000	81						
Corrected Total	331916955439630270.000	80						

a. R Squared = .023 (Adjusted R Squared = -.070)

b. Computed using alpha = .05

Table A18-19: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions, and Revenue

(n=80)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

F	df1	df2	Sig.
1.658	6	73	.144

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	10954570574146110.000[a]	6	1825761762357685.000	.418	.865	.033	2.510	.164
Intercept	32833150626054172.000	1	32833150626054172.000	7.522	.008	.093	7.522	.772
A3_D2a_CompAdv_GovLab_Reason_7	3023844027229766.000	1	3023844027229766.000	.693	.408	.009	.693	.130
M2B_Regions	1384593520647255.000	3	461531173549085.200	.106	.956	.004	.317	.068
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	2793887324450012.000	2	1396943662225006.000	.320	.727	.009	.640	.099
Error	318629606207853570.000	73	4364789126134981.000					
Total	371587697096043580.000	80						
Corrected Total	329584176781999680.000	79						

a. R Squared = .033 (Adjusted R Squared = -.046)

b. Computed using alpha = .05

Table A18-20 – Firm US census regions moderating the total alliances/revenue relationship (n=80)

Step 1: Total alliances and the US census regions do not have a significant impact on revenue

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66749139096733 44.000	2	33374569548366 72.000	.800	.453[b]
	Residual	32524204152995 6930.000	78	41697697632045 75.000		
	Total	33191695543963 0210.000	80			

a. Dependent Variable: What was [NAME BUSINESS]'s total revenue for calendar year 2011? [IF SOLE PROPRIETORSHIP, ADD: This would be gross receipts reported on a Schedule C or C-EZ with the personal income tax return.]

b. Predictors: (Constant), US Regions, Total Alliances (high performers)

Table A18-21: Test of Between Subject Effects for Interaction Effects Between University Alliances, US Census Regions and Profits

(n=65)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.746	7	57	.117

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A1_D2a_CompAdv_Univ_Reason_7 + M2B_Regions + A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	27749586525605.938[a]	7	3964226646515.134	.492	.836	.057	3.444	.196
Intercept	1914448978428.955	1	1914448978428.955	.238	.628	.004	.238	.077
A1_D2a_CompAdv_Univ_Reason_7	14715071361927.395	1	14715071361927.395	1.826	.182	.031	1.826	.264
M2B_Regions	6869584639619.185	3	2289861546539.728	.284	.837	.015	.853	.101
A1_D2a_CompAdv_Univ_Reason_7 * M2B_Regions	12207127263745.664	3	4069042421248.555	.505	.680	.026	1.515	.146
Error	459277959076984.600	57	8057508053982.187					
Total	557795288640808.440	65						
Corrected Total	487027545602590.560	64						

a. R Squared = .057 (Adjusted R Squared = -.059)

b. Computed using alpha = .05

Table A18-22: Test of Between Subject Effects for Interaction Effects Between Company Alliances, US Census Regions and Profits

(n=65)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.377	7	57	.233

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2_D2a_CompAdv_Comp_Reason_7 + M2B_Regions + A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	10291226183030.625[a]	7	1470175169004.375	.176	.989	.021	1.230	.094
Intercept	49706096339369.940	1	49706096339369.940	5.943	.018	.094	5.943	.669
A2_D2a_CompAdv_Comp_Reason_7	4836741329915.484	1	4836741329915.484	.578	.450	.010	.578	.116
M2B_Regions	4637539592137.012	3	1545846530712.337	.185	.906	.010	.554	.082
A2_D2a_CompAdv_Comp_Reason_7 * M2B_Regions	356707124261.525	3	118902374753.842	.014	.998	.001	.043	.052
Error	476736319419559.940	57	8363795077536.140					
Total	557795288640808.440	65						
Corrected Total	487027545602590.560	64						

a. R Squared = .021 (Adjusted R Squared = -.099)

b. Computed using alpha = .05

Table A18-23: Test of Between Subject Effects for Interaction Effects Between Government Alliances, US Census Regions, and Profits

(n=64)

Levene's Test of Equality of Error Variances[a]

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

F	df1	df2	Sig.
1.327	6	57	.260

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A3_D2a_CompAdv_GovLab_Reason_7 + M2B_Regions + A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions

Tests of Between-Subjects Effects

Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

Sthece	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	24269673826061.688[a]	6	4044945637676.948	.499	.807	.050	2.992	.187
Intercept	14534467123160.156	1	14534467123160.156	1.792	.186	.030	1.792	.260
A3_D2a_CompAdv_GovLab_Reason_7	60177750625.842	1	60177750625.842	.007	.932	.000	.007	.051
M2B_Regions	9996849045941.540	3	3332283015313.846	.411	.746	.021	1.232	.127
A3_D2a_CompAdv_GovLab_Reason_7 * M2B_Regions	16794700689306.742	2	8397350344653.371	1.035	.362	.035	2.071	.222
Error	462334245277361.100	57	8111127110129.143					
Total	554941674738344.400	64						
Corrected Total	486603919103422.800	63						

a. R Squared = .050 (Adjusted R Squared = -.050)

b. Computed using alpha = .05

Table A18-24 – Firm US census regions moderating the total alliances/profits relationship (n=64)

Step 1 Total alliances and the US census regions do not have a significant impact on profits

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5520661384379.750	2	2760330692189.875	.355	.702[b]
	Residual	481506884218210.700	62	7766240068035.657		
	Total	487027545602590.500	64			

a. Dependent Variable: What was [NAME BUSINESS]'s total profit for calendar year 2011?

b. Predictors: (Constant), US Regions, Total Alliances (high performers)