PITCHING POWER: INCREASING ALTERNATIVES THROUGH SIGNALS IN NEW VENTURE FUNDING

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Abstract: New firms face challenging financing markets due to their liabilities of newness (Stinchcombe & March, 1965). As a result, entrepreneurs must seek out alternative financing avenues (Berger & Udell, 1998) and surrender equity to investors to receive funds needed for growth. Entrepreneurs use the business pitch as their primary tool to present their value proposition to investors through a combination of storytelling and sensegiving (Lounsbury & Glynn, 2001). The content of a business pitch can be crafted in a way that delivers a favorable impression of the opportunity and the entrepreneurial team (Pollack et al., 2012). What has not been investigated is whether signals sent through the business pitch can improve an entrepreneur's negotiating position. This analysis builds on prior research relating to entrepreneurial pitching behaviors and decision making (Thompson, 2014; Ellsberg, 1961) by focusing on the unexplored relationship between an entrepreneur's signals and deal structure. At the stage of a business pitch, the entrepreneur must selectively communicate information (in a finite amount of time) about themselves and the opportunity as there is asymmetric information about the opportunity (signaling theory) in a way that makes their opportunity attractive to investors, potentially creating more than one investor alternative for the entrepreneur to select reducing dependency on a single investor and their proposed deal terms (power-dependence theory). The determinants of venture quality (human capital, social capital, intellectual capital, and financial capital) were theorized to increase the quantity of investor alternatives, and subsequently improve the negotiating position of the entrepreneur. In addition, the relationship between high venture quality signals and the number of investor alternatives was theorized to be moderated by the signal characteristics of cost and honesty. Though support was not found for these hypotheses based on the selected dataset used in the empirical portion of the study, qualitative responses obtained by entrepreneurs and limitations that came to light when analyzing the dataset create the need for further research on the topic. The computer-aided text analysis linguistic dictionaries and framework established for this investigation provide a model to be utilized in these future studies.

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CHAPTER I

INTRODUCTION

Overview

Businesses need resources to grow and entrepreneurs are typically constrained by the lack of resources at both the start-up and growth stages of a company's life cycle. Due to this deficiency, entrepreneurs look for funding from banks, potential investors, or even acquirers to allow for the next stage of growth. On average, firms with greater resources increase their odds of growth and survival (Singh, Ang, & Leong, 2003) and insufficient funding leads to lower performance levels (Rutherford, 2015).

Debt financing from banks provides an avenue for business owners to repay loans with interest without having to give up equity or ownership control. However, new firms face challenging financing markets due to their lack of company financial history (Berger & Udel, 1998). Loans to start-ups are viewed as high risk as their "liability of newness" qualities result in a higher mortality rate when compared to older firms (Stinchcombe & March, 1965). Banks are generally risk adverse. The unwillingness of traditional banks to lend to start-ups creates a "funding gap" as entrepreneurs are not able to obtain capital from their preferred sources (Cosh, Cumming, & Hughes, 2009). Because of the funding

gap, entrepreneurs must seek out alternative financing avenues which involve giving up equity to angel investors to receive funds needed for growth. In the United States in 2017, it is estimated that angel/seed and early stage venture capital investments accounted for more than 77,750 investment deals at a funding amount of over $94.1 billion (Angel Capital Association, 2018; National Venture Capital Association, 2018). "Since there is no share price for units of new ventures, terms of equity investments or 'deals' are typically decided by negotiations between the entrepreneur and the investor" (Rutherford, 2015, p. 29). While entrepreneurs seek equity needed for their desired growth, it comes at a cost. The cost is the percentage of equity in the company that an entrepreneur must offer to receive the desired funding. It is the perceived desirability of the opportunity in the eyes of the investor that will potentially alter the percentage of equity that the investor will accept for a given investment amount.

Statement of Purpose

Entrepreneurs use the business pitch as their primary tool to present their value proposition to investors through a combination of storytelling and sensegiving (Lounsbury & Glynn, 2001). Indeed, the content of a business pitch can be crafted in a way that delivers a favorable impression of the opportunity and the entrepreneurial team (Pollack, Rutherford, and Nagy, 2012). If entrepreneurs understand the signals that strengthen their leverage in an equity financing negotiation, then entrepreneurs may be able to attract the desired amount of growth capital while minimizing the amount of equity needed to complete the transaction when addressing the "funding gap."

Problem Statement and Research Questions

What has not been investigated, though, is whether signals sent through the business pitch can improve an entrepreneur's negotiating position. The purpose of this dissertation is to address the following broad question:

> *In the context of the pitch, what signals can an entrepreneur send to attain a more powerful negotiating position and better financing deal terms?*

Three specific research questions to be explored regarding communicated signals from a business pitch and their relationship to the negotiation are:

(1) During an investment pitch, do signals of high venture quality as a result of human capital, social capital, intellectual capital, and/or financial capital affect the number of investor alternatives of a new venture?
(2) In addition, how do the characteristics of cost and honesty of the signal capital types affect the number of investor alternatives?
(3) Does the number of investor alternatives as a result of the signals affect the deal terms that are negotiated between the entrepreneur and investor?

Contributions of the Study

There are four main contributions of this research. First, this analysis builds on prior research relating to entrepreneurial pitching behaviors and decision making (Thompson, 2014; Ellsberg, 1961) by focusing on the previously unexplored relationship between an entrepreneur's signals and deal structure. As such, this study focuses on the attributes of

venture quality (human capital, social capital, intellectual capital, and financial capital) and the corresponding signals sent to potential investors.

Second, power-dependency theory is introduced to explain how alternatives may be created through signaling, thus expanding both the literature in new venture finance and negotiations. At the stage of a business pitch, the entrepreneur must selectively communicate information (in a finite amount of time) about themselves and the opportunity as there is asymmetric information about the opportunity (signaling theory) in a way that makes their opportunity attractive to investors, potentially creating more than one investor alternative for the entrepreneur to select reducing dependency on a single investor and their proposed deal terms (power-dependence theory). As we currently do not know much about the nomological net of alternatives - what precedes them and what follows them - this study intends to provide insight. Building on the work of Akerlof (1970) of information asymmetry relating to quality and uncertainty, I theorize that the determinants of venture quality (human capital, social capital, intellectual capital, and financial capital) will increase the quantity of alternatives. Subsequently, I theorize that this will improve the negotiating position of the entrepreneur. For this study, it is important to note that possessing a quality and signaling a quality would be not be viewed as one in the same. This study focuses on the capital (qualities) being communicated to investors and not those that a company may possess but are not communicated. This study looks at how these communicated messages lead to more (or less) alternatives for the entrepreneur.

Third, both negotiation and entrepreneurship literature is enriched as this study analyzes real world data, not experimental data where related limitations exist. As both the

entrepreneurs and investors have real money at stake in the negotiation, this study allows for the evaluation of outcomes related to alternatives between two parties in a negotiation.

Finally, as a secondary value-added benefit, the analysis may provide insight that entrepreneurs can use on how to effectively pitch their business opportunities to investors. With this research, an entrepreneur would be able to make a conscious decision on what attributes to highlight and emphasize to equity investors that would increase alternatives and ultimately improve the deal terms that they receive. By strengthening their leverage in equity financing negotiations, entrepreneurs can attract the desired amount of growth capital while minimizing the amount of equity needed to complete their financing transactions.

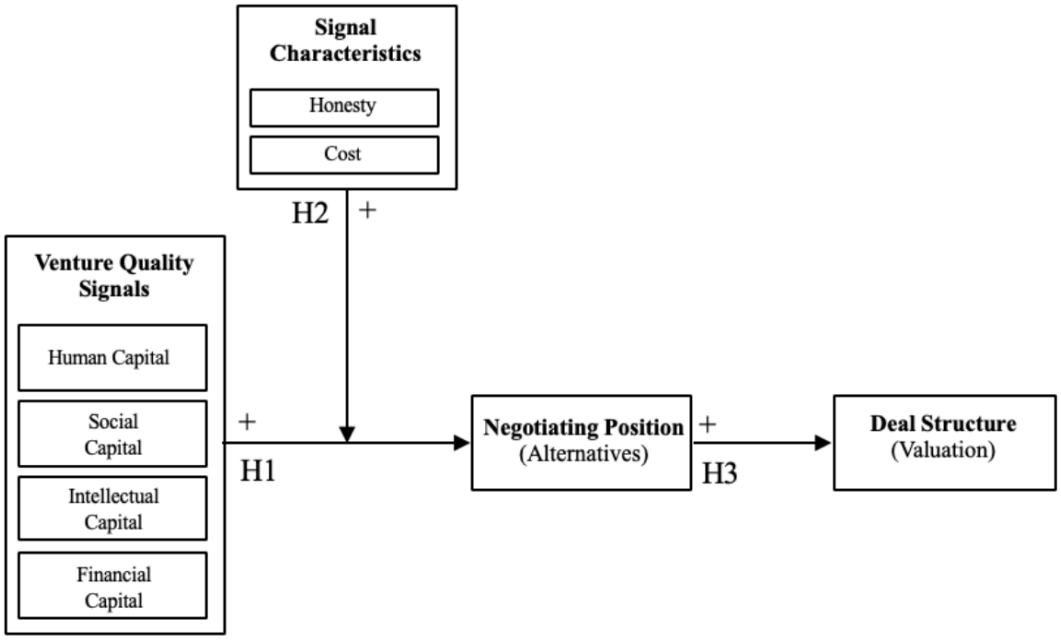
Through the use of signals, entrepreneurs have the ability to reduce the information asymmetry that exists between the new venture and investors. The lack of clarity related to an opportunity's quality and level of uncertainty contribute to an investor's perception of risk in the investment. Signals are a powerful way to communicate messages and entrepreneurs can inform potential investors about characteristics of their opportunity that were otherwise unknown (Pollack et al., 2012). As previously mentioned, each equity financing transaction is a negotiation between an entrepreneur and investor. Signaling is one way for entrepreneurs to reduce information asymmetry and transmit positive characteristics to potential financiers. Rutherford, Pollack, Mazzei, and Sanchez-Ruiz (2017, p. 691) ask the question, "What are the signals that entrepreneurs can send to their most critical, earliest stakeholders that are both costly and honest?" This study intends to answer this critical question providing an understanding of what signals increase the perception of venture quality or increase the level of confidence and lead to a more powerful negotiating position and better financing deal terms.

Presentation Format

This proposal is structured as follows: Chapter II includes a thorough review of signaling theory. I provide an overview of the signaling environment covering the components of senders, signals, receivers, and feedback. The quality of signals are covered in greater detail discussing how they are observable, costly, honest, consistent, and frequent. I then discuss how signals have been used throughout history providing a few examples from the anthropology domain as well as touch on signal use in other disciplines. I then go in greater detail to explain how new ventures use signals when pursuing investment. Building on the work of Akerlof (1970) of information asymmetry relating to the determinants of quality and uncertainty and Ahlers, Cumming, Günther, and Schweizer (2015) work which look at these factors at a more granular level related to early stage companies (in a similar, but different context), I create a theoretical model of venture quality and level of confidence leading to investment alternatives. Human capital, social capital, intellectual capital, and financial capital signals are covered to explain how they relate to venture quality signals. The delivery method of new venture signals in my study, the entrepreneur's business pitch, is then explained. As each equity financing transaction has deal terms negotiated independently, I then explain related topics of negotiations. Two central components of negotiations are discussed, *power* and the *best alternative to a negotiated agreement (BATNA)*. Negotiation dynamics are discussed with a deep explanation of fear of missing out (FoMO) as it relates to supply and demand being an influential component of the negotiation. In addition, the topics of operating and negotiation positions are explained as they are components of the theoretical model (see Figure 1). This includes a discussion of organizational life cycles and deal structure (valuation terms). I conclude Chapter II by

presenting my theoretical rationale and hypotheses for my research model. In Chapter III, I discuss the proposed methodology for my research study. This includes a discussion about my proposed method of analysis and data sources. Chapter IV includes a detailed outline of how the computer-aided text analysis dictionaries were created along with steps of data preparation for the analysis. Descriptive statistics results of the regression analysis are displayed and discussed. The results of both the moderation and mediation hypotheses are also included in this section. Finally, Chapter V discusses the results of each of the research questions. The external validity of the theory was tested by gaining insight directly from entrepreneurs through an open-ended question survey. A discussion of the responses is included. Implications related to entrepreneurship research, negotiation research, and practitioners is covered. The chapter concludes with a discussion on study limitations and thoughts for future research directions.

Figure 1. Theoretical Model



CHAPTER II

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In this dissertation, the bases of signaling theory and power-dependence theory are married to offer a model of pitch negotiation. Signaling theory describes the process in which a sender directs a deliberate message to a receiver as a way of reducing information asymmetry between the sender and the recipient (Spence, 1973). Signaling appropriately can affect the value of the firm through reducing information asymmetries (Levy & Lazarovich-Porat, 1995), thus ultimately improving deal terms for the entrepreneur. Akerlof (1970) explains that information asymmetry relates to quality and uncertainty. This study builds a framework around Akerlof's quality and uncertainty determinants to evaluate signals that new firms can send to reduce information asymmetry.

Emerson's power-dependence theory (1962) explains that negotiation outcomes are related to the degree that each negotiator is dependent upon the other. High dependency on the opposition leads to high opposition power in negotiations. If alternatives to a negotiated deal lead a negotiator to be less dependent on the opposition, the power of the opposition diminishes. Building upon this logic, the best alternative to a

negotiated agreement (BATNA) construct was introduced by Fisher and Ury in their 1981 book titled *Getting to Yes*. "A minimally necessary condition for an agreement to be mutually acceptable is that each side prefers the deal to its BATNA" (Sebenius, 2017, p. 90). Outcomes in a negotiation are affected by the differential power that exists between negotiators (Pinkley, Neale, & Bennett, 1994). However, for a negotiator to possess power, one must have quality alternatives. Quality alternatives provide a negotiator with the ability to walk away from a negotiation knowing that a deal can be made on better terms than the current negotiation. The higher the quality of the alternatives, the more power that a negotiator possesses as the need to negotiate off of a current position lessens. However, for a negotiator to obtain this power, one must create quality alternatives. Quality alternatives are influential in getting the opposition to alter valuation of the subject of the negotiation (Pinkley, 1995).

As the capital markets show, risk and expected return are highly correlated. If an investor takes on more risk, they rightfully want to be rewarded for the potential loss in investment. As the risk of loss decreases, the reward also decreases as additional investors become willing to take on the lowered risk.

In new venture finance, entrepreneurs are faced with challenges due to their liabilities of newness (Stinchcombe & March, 1965). These liabilities of newness create an uncertainty pertaining to the new firm's ability to consistently pay off debt if granted. Entrepreneurs must seek out alternative financing which often involves giving up equity to angel investors to receive capital needed for growth. Knowing that an entrepreneur's firm is handicapped in regards to the type of financing that it could attain, equity investors (angel/seed investors and venture capitalists) recognize that there is an

imbalance of power. In the case of new venture finance, early stage investors have the ability to dictate investment deal terms often negotiating larger equity positions in return for their cash injection into the company. Because these alternative fanciers understand their negotiation leverage, in that entrepreneurs need cash but have limited financing options, they are often viewed as taking advantage of the situation and are referred to as "vulture capitalists" by entrepreneurs (Phillips & Kirchhoff, 1989).

The liability of newness often deters debt financiers, providing equity investors leverage as an entrepreneur's options for financing have been decreased. The uncertainty behind a new venture creates an unease in loaning money to the business. Information asymmetry causes high quality business opportunities to be mixed with low quality business opportunities, and financiers have difficulty distinguishing between the two (Akerlof, 1970). Whereas an existing firm has documented financial performance records and many observable characteristics (e.g. current or past customers) that can verify legitimacy, new ventures lack verifiable information. While there may be quality attributes of the new venture, these attributes are only known by those within the organization (i.e. information asymmetry). Thus, when negotiating, the outsiders are the potential investors with the negotiation leverage.

Entrepreneurs can decrease uncertainty by communicating attributes about the firm. Through the use of signals, entrepreneurs can send messages about the company's potential future success. Signaling theory (Spence, 1973) explains how information asymmetry can be reduced through deliberate messages sent by an entrepreneur to potential investors. However, not all attributes carry the same weight. Signals that are

costly and more difficult to manipulate are often viewed as stronger indicators of truthful information being sent.

In this chapter, I further elaborate on the characteristics of and the specific types of signals that new ventures can send to investors. I also provide an understanding of the signaling environment and delivery mechanism—the business pitch—which entrepreneurs use to convey these signals. I also further explain how alternatives drive power within the negotiation developing hypotheses related to how these alternatives lead to improved deal terms for entrepreneurs.

The Origins of Signaling

Signaling origins root back to evolutionary biology (e.g. Darwin, 1888; Zahavi & Zahavi, 1999) and anthropology (e.g. Darwin, 1888; Bird & Smith, 2005) with biologists and anthropologists agreeing that signals must be both costly and honest. Evolutionary biology helps explains how signals play an important role in survival and the expansion of species. Costly signals are ones that are difficult to imitate by those of lower quality. Peacocks dragging around large tails or deer carrying around large antlers are both examples of handicaps to the signalers, but their cost (in the way of producing them or exhibiting them) provide a way of distinguishing themselves from lower quality peers (Zahavi & Zahavi, 1999). These displays of large, beautiful feathers or expansive racks, provide signals to opposing sexes as potential mates (Darwin, 1888; Bird & Smith, 2005). "Signal cost (actual or potential) can serve as a powerful means of guaranteeing honesty and thus allow observers to gauge the relevant hidden qualities of potential allies, mates, or competitors" (Bird & Smith, 2005, p. 223) while "those who exaggerate their abilities

or accomplishments (signal a higher quality than they actually possess) will be punished (pay a disproportionate consequence cost) if their exaggerations are discovered" (Bird & Smith, 2005, p. 236). A costly signal for a gazelle, for example, is its behavior when confronted with a predator. Thomson's gazelles spring into the air lifting all four legs from the ground when a predator is seen, a behavior known as stotting. Prior to this leap, the predator suspects an unsuspecting prey that can easily be caught. However, once the gazelle becomes aware of the predator, their stotting behavior signals alertness and the athleticism to elude capture. Though this energy exertion comes as a cost to the gazelle, the signal is powerful enough for the predator to have second thoughts about the prey and call off the chase (Cronk, 2005; Zahavi & Zahavi, 1999).

Signals have played an important role across the development of human cultures and societies. "Culture is part of the milieu that determines the design, intensity, and use of signals" (Soler, Batiste, & Cronk, 2014). Anthropologists have examined ethnographic evidence to understand how signals communicate unobserved attributes. For example, the Melanesian society of Meriam Islanders were known to have elaborate celebrations following the death of a member of their clan. Public ceremonies and feasts were common with the display of food and gifts. The quality and quantity of the food distributed was a signal of the feast giver's strength in allies as others would contribute to the festivities. These redistributive feasts signal the strength and size of the alliance group. Two classes would typically attend such events, best described as inner and outer circles. Those in the inner circle, family members and close ties, receive gifts in addition to the feast food, while the outer circle are recipients of just feast food. For those in the inner circle, their social signal provides "enhanced political power and marriage-market

status" (Bird & Smith, p. 237). While the inner circle had these signaling qualities, outsiders received the signal and used this information as a way of deciding who to ally with or marry (Bird & Smith, 2005).

Anthropologists have also examined signals given off by individuals which signify superiority. In many Melanesian societies, the gardening skills of a man was a signaling method to others through the display of big-yams. "Big-yam men become high-status political entrepreneurs, using their trade contacts to thwart their rivals and pursue their political ambitions" (Bird & Smith, 2005, p. 229). Skill and knowledge were perceived as being the antecedents of the largest and best yams. Similar to today's society in which individual's with expensive hobbies signal wealth and freedom, Melanesian males signal status with their ability to devote time to extracurricular activities outside of typical food production requirements. Those within their society would view growers of long yams as individuals to ally with or marry (Bird & Smith, 2005).

Meriam Islanders are also known to be both hunters and collectors of marine turtles. The hunting of turtles was typically in conjunction with a public feast. As an event is announced, skilled hunters will expend time and resources to acquire turtle meat. While hunting turtle prey is considered difficult, *collecting* of marine turtles is more of a seasonal ritual which requires *minimal* effort. *Hunters* are considered to be generous in that they *exert more* energy, time, and risk in acquiring turtles for the planned public feasts. Hunters are perceived as being leaders with organization and decision-making skills, willing to accept the additional costs for the good of the community. These signals

of their quality likewise lead to increased social stature in attracting mates and deterring competitors (Bird & Smith, 2005).

Artistic elaborations were also seen as signals of cognitive and motor skill as well as available time for non-work activities. Women with superior artistic ability were able to secure better marriages to those socially connected. It was also viewed within their societies that the level of skill in artistic ability was the signal that the woman has reached a marriageable age (Bird & Smith, 2005; Bowser, 2000).

Anthropological studies have also focused on signals within societies lacking regulations, especially in the area of healthcare. One recent study showed that patients in Ghana and Tanzania read and interpret observable trust signals from herbalists when deciding whom to trust for medical care (Hampshire, Hamill, Mariwah, Mwanga, & Amoako-Sakyi, 2017). Patients were shown to be attracted to healers who were able to signal their technical expertise and good intentions. If patients become better readers of the signals, they will be able to distinguish between good and bad herbalists making a clearer distinction between quality. This may result in herbalists "raising their game" (Hampshire et al., 2017).

Anthropologists have also studied signaling theory from religious perspectives. Costly signaling has been prevalent across many religious practices through individuals showing commitment. The physical and emotional toll that would exist on an individual for some religious rituals would be too difficult for one to fake thus participation was viewed as a favorable signal leading to increased status and access to mates (Irons, 2001; Dengh, 2017; Singh & Chatterjee, 2017; Sosis & Bressler, 2003). A signal with perceived

investment (cost) by the signaler carries strength and these signals will continue to shape human cultures and societies.

Similar to how signals play an important role in survival and the expansion of species, signals are also important within organizations in the acquisition of resources and survival. As the human race has evolved, humans have seen advantages of organizing as groups; and the need for exchanging services and goods that are plentiful for resources of need, has led to the creation of businesses. In the same way that signals help reduce information asymmetry in evolutionary biology and anthropology, high quality signals likewise help reduce uncertainty in commerce. In the next section, signals will be discussed further explaining signaling theory and how information asymmetry relates to quality and uncertainty within organizations.

Signaling Theory in Organizations

Signaling theory explains the process in which a sender sends a deliberate message to a receiver as a way to reduce information asymmetry between the sender and the recipient (Spence, 1973). In his seminal piece, Spence (1973) theorized that employers look at specific attributes of potential new hires to speculate about potential work performance levels. At time of hiring, there is uncertainty, for example, in how much time it will take the new hire to learn the job. The hiring process is an investment that the company makes with a willingness to pay a specific wage for an expected level of contribution to the organization. Unfortunately for the employer, there is no fool-proof way to directly gauge the performance prior to hiring. However, there are a number of characteristics of the individual, such as education, prior work experience, physical

attributes, amongst others that can be observed. While some of these characteristics cannot be altered, others can be manipulated (Spence, 1973).

Education details, such as degree and the university attended, are signals that are considered relatively valuable. A university degree signals to employers that time and money has been sacrificed by an individual to receive an education. The signal is a costly signal. The degree signals to employers that the potential new hire has potential capabilities of performing a function and that they can complete a task as they have persevered through years of schooling after receiving a high school diploma. Knowing that potential employers value a job candidate with minimum education credentials, students weigh the benefits received from the time (opportunity cost) and expense in obtaining the degree. To an employer, the college degree signals that they will be a more productive future contributor to the company than one without a degree. Because of the difference in perceived capabilities between graduates and non-graduates, employers are often willing to pay these individuals higher wages. However, the degree itself may or may not have a direct correlation with how well an individual will perform in comparison to a candidate without a degree—information asymmetry exists between an employer and the job candidate. Therefore, individuals can reduce information asymmetry by securing—and communicating—an educational degree (Spence, 1973; Weiss, 1995). As time progresses, new entrants enter the job market and new wages are offered based on performance of employees that were previously hired. Thus over time, this feedback loop leads to revised expectations or beliefs from the signal (Spence, 1973).

Akerlof (1970) explains that information asymmetry relates to quality and uncertainty. Using the car market to illustrate, Akerlof segments cars into new or used

and good or bad vehicles. Bad cars are often referred to as "lemons." Both new or used cars could be good or bad. When the car is new, both the buyer and the seller do not know if the car is good or if it will be a lemon. However, if a car is used, the owner of the car who has had the car for a period of time has knowledge on whether the car is good or bad. In the case of a used car, the seller of the vehicle has more knowledge about the quality in comparison to the buyer. Akerlof points out that good cars and bad cars in the used market sell at the same price as the buyer is unable tell the difference in quality. In addition, more used "lemons" hit the used market as the good ones are kept by the owners. Because of the imbalance of good versus bad in the market, without additional information to otherwise show the difference, a good quality car will likely be viewed as if it is bad (Akerlof, 1970). Since there are many attributes that are not easily seen by outsiders of a firm, business opportunities similarly have a challenge in distinguishing themselves high quality versus low quality (Janney & Dess, 2006). "High quality entrepreneurs will have trouble attracting resources on favorable terms unless the entrepreneurs can differentiate themselves from similarly appearing peers" (Janney & Dess, 2006, p. 392). The better an entrepreneur can signal the quality difference, the better its chance in receiving interest from investors as the opportunity will appear to be above average.

Information asymmetry exists when one party has information that another party does not (Stiglitz, 2002). Information asymmetry in capital markets has led to led investors to call for financial reporting and disclosures due to agency conflicts between company managers and investors (Healy & Palepu, 2001). Since some signals can be misrepresented, signals that appear to be suspicious or that are easily manipulated are

disregarded by investors (Cohen & Dean, 2005). "Information asymmetry can lead to difficulties in deal negotiations, especially ascertaining an accurate value for the firm" (Howorth, Westhead, & Wright, 2004, p. 513).

Signaling theory consists of a communication loop with a sender (also known as the *signaler*) sending a *signal* to a *receiver* who interprets the signal ultimately returning *feedback* back to the signaler (Spence, 1973; Connelly, Certo, Ireland, & Reutzel, 2011). Each are discussed further in the next few sections.

Signalers

Signalers are insiders with information related to a quality of an individual, product, or organization that outsiders do not possess (Connelly et al., 2011). In the entrepreneurship literature, individuals are typically the entrepreneurs with a business idea approaching potential investors such as angel investors or venture capitalists for investment (e.g., Elitzur & Gavious, 2003). Product signaling is often used to communicate attributes about the product itself, such as quality (e.g., Kirmani & Rao, 2000), and is most often seen in marketing literature. Signalers at the organizational level in entrepreneurship literature can be at the early stage of development (e.g., Gulati & Higgins, 2003; Busenitz, Fiet, & Moesel, 2005) or later, as firms pursue initial public offerings (e.g., Certo, 2003; Daily, Certo, & Dalton, 2005; Jain, Jayaraman, and Kini, 2008). Though signalers are insiders that have private information that may be positive or negative, signaling theory focuses on the positive attributes that are conveyed intentionally to an outsider through a signal (Connelly et al., 2011).

Signals

The signal itself is complex. Signals communicate new information that may alter a previous understanding (Busenitz, Fiet, & Moesel, 2005, p. 3). The *quality* of a signal is best described as the linkage of the message being communicated from a signaler to the receiver and the signaler being able to actually carryout the requirements or promises of the message being sent. In the new venture context, for a signal to be deemed appropriate, it must be observable, costly, honest, consistent, and frequent (Rutherford et al., 2017). In other words, some signals may be better than others. Those with information to communicate should consider the two characteristics of efficacious signals - signal observability and signal cost. Signal observability explains the noticeability of a signal by an outsider whereas signal cost explains the resources required to express or deliver a signal (Connelly et al., 2011). Often labeled differently, this definition of signal observability encompasses other terms used in signaling theory literature including signal clarity, intensity, strength, and visibility (Connelly et al., 2011). Signals that can be received and understood with minimal error are viewed as having high signal clarity (Heil & Robertson, 1991). Signal intensity relates to emphasis placed on sending signals. In the context of products, high intensity relates to increased volume of marketing, promotion, and advertising. However, as Lampel and Shamsie (2000) point out, increased intensity does not increase the probability of effectiveness as competing messages may increase uncertainty. Signal strength refers to the relative power of the signal as some signals are more influential than others (Ramaswami, Dreher, Bretz, & Wiethoff, 2010). Signal visibility explains the context of where or when a signal will be influential (Ramaswami et al., 2010).

Signal costs differ for firms. Firms that are considered high-quality are those that possess valuable resources, such as knowledge, that provides a competitive advantage over low-quality firms which do not. From a signaling perspective, these high-quality firms are able to gain access to additional resources at an advantageous cost difference over the low quality firms (Ndofor & Levitas, 2004). *Signal honesty* describes the situation in which the signaler actually possesses the attributes being transmitted with the signal. In signaling theory literature, signal honesty is also referred to as *signal veracity* (Busenitz et al., 2005). When the signal given off by the signaler matches the unobserved quality being conveyed, the signal is said to have *signal fit* and when the signal has both honesty and fit making it credible, it is said to have *signal reliability* (Connelly et al., 2011). The quantity of the signals sent (the *signal frequency*) and the timing of signals can affect the effectiveness of the signal (Janney & Folta, 2003). In order to build trust, entrepreneurs need to signal ability and integrity early in the relationship with potential financiers (Pollack, Barr, & Hanson, 2017). Signals themselves can be both positive and negative and how a receiver interprets them can be different. As Fischer and Reuber (2007) point out, stakeholder groups often process signals differently based on their motivations to learn more about the signals. As they point out, motivations may come from the importance that is placed on the signal. For example, a stakeholder that has high reliance on the signaler may be motivated to learn more about a signal before making judgment in comparison to a stakeholder that has low dependence on a signaler. Signals can also be classified as pointing (signals that separate signalers from competitors), activating (signals that separate signalers from competitors that turn on the signaler's characteristic), intent (signals that are often future based often conditional on a response),

camouflage (signals that disguise potential liabilities), or needs based (signals that send requirements to receivers) (Connelly et al., 2011).

A signal is the message being communicated and is not part of a signaler (Nguyen, 2009), as it is not part of an individual, product, or organization. "A signal is not a signal when it comes from an ill-informed or self-interested source" (Hannon & Milkovich, 1995). This means that a signal can be distorted and if a receiver is not well-informed enough, may be confused or misinformed. As mentioned previously, signals can be both positive and negative. A negative signal, for example, may be an unplanned loss of a number of executives. This may signal to a board that their management style and/or strategic direction has not been well received (Perkins & Hendry, 2005). Receivers of this information, such as investors, may reduce the valuation of the sender based on receiving these negative signals (Block, De Vries, Schumann, & Sandner, 2014). Other negative signals can exist when companies attempt to raise funds. Companies that are required to issue more shares in an attempt to raise more capital is viewed as a negative signal in public markets (Myers & Majluf, 1984). Though negative signals are typically not desirable, they are not always detrimental to a firm (e.g. Fischer & Reuber).

Receivers

Receivers are the individuals or groups which process the signals from signalers. Most frequently in entrepreneurship related literature, receivers are either existing or potential investors, however signals to other stakeholders have been studied which include signals to customers (e.g., Lampel & Shamsie, 2000; Chung & Kalnins, 2001),

employees (e.g., Davila, Foster, & Gupta, 2003; Highhouse, Thornbury, & Little, 2007), and competitors (e.g., Basdeo, Smith, Grimm, Rindova, & Derfus, 2006) (Connelly et al., 2011). Receivers may "key in on a variety of signals and have differing views of the validity, interpretation, and importance of any one signal" (Busenitz et al., 2005). In addition, for a signal to be delivered effectively, there needs to be *receiver attention* in which receivers have their radars on "scanning the environment" (Connelly et al., 2011). Receivers will process the signals differently. This processing, known as *receiver interpretation*, causes recipients to weigh signals differently due to preconceived notions about the signals intent (Branzei, Ursacki-Bryant, Vertinsky, & Zhang, 2004; Ehrhart & Ziegert, 2005). For example, in the context of strategic change, receivers process and act upon information through sensemaking and sensegiving (Gioia & Chittipeddi, 1991).

It is important to recognize that at times, multiple signalers, receivers and/or signals may exist and that signalers may even try to deceive receivers (Connelly et al., 2011). In competitive environments, some signals given off by signalers are "false" as signalers attempt to trick receivers into selection (Johnstone & Grafen, 1993). *Environmental distortion* can also occur when signals get blurred due to surrounding factors both internal and external to an organization (Connelly et al., 2011). The medium in which the signal is being relayed and delivered can affect the quality of the signal. Outside forces such as competitors or peers can alter the way a signal is received and processed. For example, competitors acquiring companies within a specific industry space may make a company more attentive to opportunities that become available for investment or acquisition. Another example is that different financial markets view relational strengths between young firms and venture capital or investment banks

differently in dissimilar market conditions at the initial public offering stage (Gulati & Higgins, 2003).

Feedback

The final component of the communication loop is the feedback that travels back from the receiver to the signaler. Information that gets transmitted back is known as a *countersignal* (Connelly et al., 2011) and this feedback serves as a way for the signaler to receive an understanding of the signal's effectiveness (Gupta, Govindarajan, & Malhotra, 1999). The feedback that gets sent back to the signaler is useful to understand which signals are reliable and receive attention, along with information on how signals are being interpreted (Connelly et al., 2011). In the context of entrepreneurs and new ventures, processing the countersignals can help in understanding which signals are positive and which ones are negative and adjust their business investment pitch accordingly. Countersignals can come in a number of forms. For an interested investor, countersignals may be in the form of additional engagement such as follow-up questions to fully understand the business opportunity. Another positive countersignal may be in the form of an investment offer or term sheet. Negative countersignals that may be sent back to the signaling entrepreneur may be in the form of a response that terminates future discussions such as a decline in interest. Another negative countersignal may be in the form of a non-responsive investor. While one could speculate that a non-response is due serious consideration, the reality is that an extended period of time without a response is at best a pause in the communication loop, but potentially the end of the communication or negotiation (if a negotiation has already begun).

When looking at antecedents for characteristics of entrepreneurial firms, antecedents are the characteristics of the signals themselves as long as the signals are honest and truthful. For example, for an opportunity to be perceived as having quality, the opportunity must have high quality inputs (resources) and productivity assets which could lead to success (Rindova, Williamson, Petkova, & Sever, 2005). Then as a company becomes successful gaining a reputation of prominence, it would potentially be due to the antecedents of achievements or rankings along with affiliations with high-status actors (Rindova et al., 2005) that can be signaled. For online retailers, for example, a national reputation and impressive company size are antecedents to the signal that conveys legitimacy and lead to consumer trust (Wang, Beatty, & Foxx, 2004).

In the context of new venture fundraising, the antecedents of preparedness and cognitive legitimacy are shown to have a positive relationship to the amount of funding received by entrepreneurs seeking equity investment (Pollack et al., 2012). Preparedness explains how entrepreneurs develop content appropriate to their audience, which in this context are investors. Specifically, entrepreneurs can communicate this content through signals. The antecedent of cognitive legitimacy plays an important role in signaling confidence to investors that the firm will succeed (Pollack et al., 2012). The signals that new ventures can send will be covered in greater detail in the next section.

Signals in other Social Contract Literatures

Signaling theory has been applied across many disciplines. For example, in marketing, signaling theory has been used with branding to communicate superiority as attributes of a product such as quality are often unobservable (Rao, Qu, & Ruekert, 1999;

Kirmani & Rao, 2000). The potential longevity of a brand has also been signaled through corporate sponsorships such as stadium naming rights. This costly signal to a company has shown to have a positive effect on a company's share price (Clark, Cornwell, & Pruitt, 2002).

Costly signals and honest signals in the manufacturing space relate to obtaining accreditation or certification that not all peer firms have achieved. For example, being accredited at the quality standard of ISO 9000 is shown to have a positive relationship with increased revenue due to the perception of a higher quality product (Terlaak & King, 2006).

In finance, companies that decide to engage with management consultants see increases in stock prices as there is a signal of potential changes with expert advisors seeking strategic opportunities (Bergh & Gibbons, 2011). Strategically, a number of firms during the Internet boom, received increases in share price by changing their corporate names to end in ".com" as it signaled a change in their business models (Lee, 2001). Signals are also used in corporate finance to reduce perceived risk. For example, organizational virtue, defined as the "ethical character traits that are learnt from an accumulative perception of a firm's behavior in everyday business life, that drives internal and external stakeholder satisfaction, and that is aligned with its ethical values used for strategic positioning," (Chun, 2005, p. 272) exhibited in IPO prospectuses reduces uncertainties for investors (Payne, Moore, Bell, & Zachary, 2013).

Organizations use signals such as job titles as a way to signal individuals inside a company have knowledge and experience, hierarchy, and/or responsibilities within a

firm. The job title signal also serves as way for stakeholders outside of the firm to know that they are interacting with the appropriate person to address an issue (Martinez, Laird, Martin, & Ferris, 2008).

Signaling theory exists in everyday life as many individuals try to signal qualities to others. For example, adults often wear brand name clothing or have expensive toys like luxury cars and boats as a way to signal wealth (Nelissen & Meijers, 2011) and social status (Lee, Ko, & Megehee, 2015). Signals are being communicated endlessly in our environment and though not everyone processes each signal the same, signals can (and do) have effects.

Signals of New Ventures

Signals play an important role in the growth of a company. Based on Akerlof's (1970) work as summarized above, information asymmetry relates to quality and uncertainty. Similar to how Akerlof (1970) described the imbalance of good versus "lemon" cars in the market and without additional information to otherwise show a difference, a high quality business will likely be viewed as low due to information asymmetry tainting quality and confidence of the business. Businesses also have a challenge in distinguishing themselves with regard to high versus low quality (Janney & Dess, 2006). Ahlers, Cumming, Günther, and Schweizer (2015) similarly have focused on quality and uncertainty in their work related to crowdfunding. They use venture quality and level of certainty as determinants of funding success. Ahlers et al. (2015) defines funding success in equity crowdfunding as whether a project is fully funded, the amount of funding raised by the campaign, the number of funders, and how rapid the

campaign gets funded. While there are a number of equity crowdfunding websites which differ slightly in their processes and offerings, generally, the type of investor, investment size, and fundraising process differs from traditional fundraising of new ventures since the process lacks the negotiation that is inherent in traditional capital fundraising. In addition, the investment size in equity crowdfunding campaigns are small in comparison to angel seed or venture investments (Belleflamme et al., 2014). That being said, much of the signaling that occurs from an entrepreneur in equity crowdfunding resembles that signaling that occurs in traditional capital fundraising. Signaling can affect the value of the firm through reducing information asymmetries (Levy & Lazarovich-Porat, 1995), thus ultimately affecting funding success.

Akerlof (1970) shows that information asymmetry relates to quality and uncertainty. Ahlers et al. (2015) seemingly builds on this work taking these two determinants and breaking them down even further. Venture quality consists of properties such as human capital, social capital, and intellectual capital (Ahlers et al., 2015; Baum & Silverman, 2004). Elevated levels of these components of venture quality have a positive effect on equity crowdfunding success, and thus it would be reasonable to believe that they would have a positive effect in traditional capital fundraising through business pitches.

Human Capital Signals

Human capital signals are qualities that the entrepreneurial team possess that are viewed positively by stakeholders. Top management team legitimacy and reputation (e.g., Cohen & Dean, 2005; Ebbers & Wijnberg, 2012; Ko & McKelvie, 2018),

entrepreneurial team make-up (e.g., Baum & Silverman, 2004; Lagazio & Querci, 2018; Cooper, Gimeno-Gascon, & Woo, 1994; Zimmerman, 2008; Federico, Rabetino, & Kantis, 2012), gender and racial diversity (e.g., Welbourne, Cycyota, & Ferrante, 2007; Roberson & Park, 2007), industry knowledge and experience (e.g., Tyebjee & Bruno, 1984; Ko & McKelvie, 2018,; Kotha & George, 2012), and education (e.g., Cooper, Gimeno-Gascon, & Woo, 1994; Hsu, 2007) are shown to have effects on performance and serve as human capital signals.

Social Capital Signals

Entrepreneurs with positive relationships or alliances with other partners can signal strength of a new venture. New ventures with third-party alliances or affiliations (e.g., Plummer, Allison, & Connelly, 2016; Lee, Pollock, & Jin, 2011; Stuart, Hoang, & Hybels, 1999), well-known board members (e.g., Certo, 2003; Filatotchev & Bishop, 2002; Certo, Daily, & Dalton, 2001), large board diversity (e.g., Miller & del Carmen Triana, 2009), or existing high-profile investors or venture capitalists (e.g., Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Plummer et al. 2016) are shown to have effects on performance and serve as social capital signals.

Intellectual Capital Signals

Entrepreneurs with intellectual property can signal strength of a new venture. Patents and prototypes (e.g., Audretsch, Bönte, & Mahagaonkar, 2012; Baum & Silverman, 2004) and business plans (Mason & Stark, 2004) are shown to have effects on performance and serve as intellectual capital signals.

Financial Capital Signals

Positive financial capital signals are qualities that stakeholders seek to gain an understanding of a new firm's chance of survival. Meaningful company financial projections (e.g., Ahlers et al., 2015), management's certification of financial statements (e.g., Zhang & Wiersema, 2009), and positive industry growth rate projections (e.g., MacMillan, Siegel, & Narasimha, 1985; McDougall, Covin, Robinson, & Herron, 1994) serve as positive financial signals of future performance.

The Business Pitch and Negotiations

Entrepreneurs use business pitches as a way to introduce the company to potential investors communicating company history, product and service details, and growth opportunities. Entrepreneurs look to present their value proposition to investors through a combination of storytelling and sensemaking (Pollack, Rutherford, and Nagy, 2012). These investor pitches are typically given at organizations or universities promoting economic development with the goal of linking entrepreneurs with angel investors. Business pitches are typically limited to short presentations followed by potential investor questions. Though pitch competitions often result in prizes to entrepreneurs with the best presentations, these competitions are used as a method to effectively and efficiently introduce entrepreneurs to potential investors for investment. The business pitch is a critical component of the entrepreneur strategy for obtaining investment (Pollack et al., 2012; Elsbach, 2003). An entrepreneur pitching a business idea is similar to screenwriters pitching ideas to television executives. Screenwriters act as “pitchers” often delivering 30-minute presentations to Hollywood executives wearing the “catching gear” (Elsbach, 2003). Like entrepreneurial pitches, catchers often look to detect cues

from the pitch in deciding on whether the opportunity is worthwhile. Business pitch decks help tell the story of the investment opportunity to investors. However, the storytelling that occurs in a business pitch must be efficient emphasizing only relevant information for evaluation while minimizing the less important information. Venture capitalists, for example, spend less than six minutes screening an investment opportunity, on average (Hall & Hofer, 1993).

While passion is often thought of as being a differentiator in whether or not an entrepreneur gets funded, it is actually preparedness that impacts funding (Chen, Yao, & Kotha, 2009). Preparedness behaviors of entrepreneurs are positively related to the perceived cognitive legitimacy of the business opportunity and this cognitive legitimacy is shown to predict the amount of funding the new venture receives (Pollack et al., 2012). Some of the major components of preparedness is tied directly to the entrepreneur. An entrepreneur's credentials (compelling work history, education, objectives, and affiliations) create a mix of skills and experience that can potentially make a business a success. However, having these characteristics are only part of the equation and they must be communicated to other stakeholders. An entrepreneur's credentials and impression management behaviors are positively related to perceived cognitive legitimacy (Nagy, Pollack, Rutherford, & Lohrke, 2012).

The venture capital investment decision making process has six stages, each with different activities occurring. The six stages include: origination (sourcing of opportunities), venture capital firm-specific screening (elimination of non-fit investment opportunities), generic screening (high level review), first-phase evaluation (increased due diligence and meetings with the entrepreneurs to evaluate seriousness of interest),

second phase evaluation (in-depth determination of investment obstacles and development of strategies to overcome), and closing (Fried & Hisrich, 1994). The general criteria used in evaluation of the business investment pitch include evaluating the concept (potential for earnings growth, a business idea that can be brought to market within two to three years, must offer a competitive advantage or be in a non-competitive industry, and must have reasonable capital requirements), management (must have personal integrity, done well at prior jobs, must be realistic, hardworking, flexible, have a thorough understanding of the business, exhibit leadership under pressure, and have general management experience), and returns (provide an exit opportunity, offer the potential for a high rate of return, and offer the potential for a high absolute return) (Fried & Hisrich, 1994). Entrepreneurs that use symbolic actions to convey their credibility, professional organization, organizational achievement, and quality of stakeholder relationships are able to acquire the resources they need (Zott & Huy, 2007).

Making sure that the story that is being told about the business opportunity is important for the opportunity to make it through the firm-specific screening stage. Entrepreneurs must use what Lounsbury & Glynn (2001) define as cultural entrepreneurship, the formation of a story by combining firm level resource capital and industry level opportunity capital, to legitimize the business opportunity and do it in a way that is aligned with the correct audience that will respond with a favorable interpretation.

Different types of investors have different investment criteria. Though each has the ability to fund a new venture's growth, bankers, venture capital fund managers, and angel investors focus on different aspects of a business plan. Depending on the target

investor, the entrepreneur must customize the pitch providing different levels of emphasis on the market, founders, financials, and investor fit (Mason & Stark, 2004). Even within a category of investor type, there are differences in priorities. For example, experienced VCs evaluate entrepreneurial team characteristics putting more emphasis on team cohesion, while novice VCs look more at the qualifications of the entrepreneurs (Franke, Gruber, Harhoff, & Henkel, 2008). Venture capital firms or angel investors can have different types of industry experience, including operating experience, start-up experience, and/or investing experience in a focal industry (Mitteness, Baucus, & Sudek, 2012) and thus an entrepreneur needs to customize the pitch to the audience.

Similar to how articles and books can be written from various perspectives, stories from entrepreneurs can be constructed and told in different ways. Ellen O'Connor's (2002) typology of entrepreneurial narratives segments styles into three categories - personal, generic, and situational stories. Personal stories are ones that are either founding (autobiographical) or vision (innovation related) stories that are created by the company's founder. Generic stories are ones that are typically more structured, as in a business plan, and consist of either marketing or strategy stories. Situational stories, on the other hand, consist of historical (event related) or conventional (generally accepted beliefs of the industry) stories, that relate more to context that the founder does not necessarily control. These narratives are used by entrepreneurs for three purposes: 1) justifying the organization, 2) to influence resource gathering, and 3) to make near-term key decisions (O'Connor, 2002). Well-constructed stories also help entrepreneurs acquire financial resources by creating unambiguous identities of entrepreneurs,

explaining simply how exploitation will reduce risk, and using context to familiarize those unfamiliar with the opportunity (Martens, Jennings, & Jennings, 2007).

The business pitch serves as a way to introduce the opportunity to angel investors and venture capitalists for evaluation. Venture capitalists evaluate new ventures based on the information provided in business pitches or business plans. Surveyed venture capitalists look to the quality of the entrepreneur, placing high priority in their experience and personality, when deciding whether or not to fund the venture (MacMillan, Siegel, & Narasimha, 1985). One longitudinal study of a single VC firm, however, showed that the product/service fit was the major factor on whether or not to reject an opportunity, and not the management team (Petty & Gruber, 2011). A study of angel investors showed that the strength of the entrepreneur is most important factor for deciding to proceed to due diligence then shifts to opportunity through evaluation process (Mitteness et al., 2012).

The opportunity attractiveness is in part related to the existing human capital (knowledge, skills, and abilities) of the entrepreneur (Haynie, Shepherd, & McMullen, 2009). Other conditions may lead to attraction outside of existing human capital due to rarity of opportunity, limited competition, and age of firm when considering the value of the opportunity (Haynie et al., 2009). Investors also turn to the pitch to uncover predictors of a venture's success, two of which include insulation from competition and demonstrated market acceptance (MacMillan, Zemann, & Subbanarasimha, 1987).

Investors also look for objective verifiable information like a company's level of sales, the venture's status of organizing, and their marketing activities at the time of

investment (Eckhardt, Shane, & Delmar, 2006). An angel investor's decision to move forward is based on the quality and content of the entrepreneur's pitch and how it is delivered (Clark, 2008). Entrepreneurs that fail to "sell" potential investors through their pitch, raises doubts that they will be able to convince customers to buy their products or services (Mason & Harrison, 2003).

In the context of new ventures, it is common for entrepreneurs to have taken the path of bootstrapping prior to seeking a first round of equity financing. "Bootstrapping is understood as the condition whereby start-up entrepreneurs operate (often in creative ways) their firms with no outside financial assistance" (Rutherford, 2015). As Rutherford et al. (2017) point out, the fact that an entrepreneur is bootstrapping actually sends negative signals in that the entrepreneur has been unable to secure financing from outsiders, regardless of the entrepreneur's reasoning to bootstrap. Firms that are bootstrapping that are able to "fake" qualities may be able to do so in the short-run, but this often catches up with the entrepreneur due to the firm being undercapitalized (Rutherford et al., 2017). Lack of honesty in signals sent will cause a low-quality firm that mimics a high-quality firm to lose money directly or indirectly (Kirmani & Rao, 2000). Limitations in acquiring resources for growth reveals that bootstrapping will lead to substandard firm results over time (Rutherford et al., 2017).

Table 1. Business Pitch Articles

Year	Title	Authors	Source	Key Points
1985	Criteria used by venture capitalists to evaluate new venture proposals	MacMillan, I. C., Siegel, R., & Narasimha, P. S.	Journal of Business venturing	- Questionnaire to 100 VC's confirmed that quality of the entrepreneur determines funding decision - Five of the top ten most important factors relate to entrepreneur's experience or personality
1987	Criteria distinguishing successful from unsuccessful ventures in the venture screening process	MacMillan, I. C., Zemann, L., & Subbanarasimha, P. N.	Journal of Business Venturing	- Major finding of study shows that insulation from competition and demonstrated market acceptance are predictors of venture success
1993	Venture capitalists' decision criteria in new venture evaluation	Hall, J., & Hofer, C. W.	Journal of Business Venturing	- Study shows that VC's initial screening of business proposals averages less than 6 minutes - VC investment preferences must be considered on who to target - Proposals should be professional, emphasizing relevant information while minimizing less important information
1994	Toward a model of venture capital investment decision making	Fried, V. H., & Hisrich, R. D.	Financial Management	- A six-stage venture capital investment decision making model is proposed - Fifteen criteria common to investments were identified in the areas of concept, management, and returns

2001	Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources	Lounsbury, M., & Glynn, M. A.	Strategic Management Journal	- Introduces term cultural entrepreneurship into literature which explains how entrepreneurs use stories to identify and legitimate new ventures - Content must align with the audience for favorable interpretation - Cultural entrepreneurship is a formed through both entrepreneurial stocks of resource capital (firm level) and institutional capital (industry level)
2002	Storied business: Typology, intertextuality, and traffic in entrepreneurial narrative	O'Connor, E.	The Journal of Business Communication	- A typology of entrepreneurial narratives is developed which includes personal (founding and vision) stories, generic (marketing and strategy) stories, and situational (historical and conventional) stories which are used by entrepreneurs to justify existence, pursue resources from others, and make strategic decisions
2003	"Auditioning for Money": What Do Technology Investors Look for at the Initial Screening Stage?	Mason, C. M., & Harrison, R. T.	The Journal of Private Equity	- Real-time reactions of angel investors of investment pitch revealing the importance of the entrepreneur's pitch and impression management skills for funding success

2003	How to pitch a brilliant idea	Elsbach, K. D.	Harvard Business Review	- Making a positive impression about creativity in business pitch is compared with Hollywood screenwriter pitches - An explanation of business pitching styles is discussed, which include three prototype categories - showrunners, artists, and neophytes
2004	What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels	Mason, C., & Stark, M.	International Small Business Journal	- Perspectives of bankers, venture capital fund managers, and business angels on the business plan content that they focus are compared - Results indicate that entrepreneurs must customize their business plans based on the audience, providing different levels of emphasis on the market, entrepreneur, finance issues, and investor fit
2006	Multistage selection and the financing of new ventures	Eckhardt, J. T., Shane, S., & Delmar, F.	Management Science	- Venture finance is a multi-stage selection process with entrepreneurs basing financing decisions on market & competition and employment growth with investors basing funding decisions on objective verifiable information like level of sales, and status of organizing and marketing activities

2007	Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition	Martens, M. L., Jennings, J. E., & Jennings, P. D.	Academy of Management Journal	- Well constructed stories help entrepreneurs acquire financial resources - Good stories consist of unambiguous identities of entrepreneurs, explain simply how exploitation will reduce risk, use context to familiarize the unfamiliar
2007	How entrepreneurs use symbolic management to acquire resources	Zott, C., & Huy, Q. N.	Administrative Science Quarterly	- Resource acquisition by British ventures using symbolic actions studied - Four symbolic action categories identified: conveying entrepreneur's credibility, professional organizing, organizational achievement, quality of stakeholder relationships - Structural similarity, intrinsic quality, and uncertainty moderate relationship between resource acquisition and symbolic management
2008	Venture capitalists' evaluations of start-up teams: trade-offs, knock-out criteria, and the impact of VC experience	Franke, N., Gruber, M., Harhoff, D., & Henkel, J.	Entrepreneurship Theory and Practice	- Evaluations of venture team characteristics are reviewed for desired attributes by VCs - Analysis reveals difference in novice versus experienced VCs in the evaluation of team characteristics with experienced putting more emphasis on team cohesion, not just qualifications of individuals

2008	The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions	Clark, C.	Venture Capital	- Empirical evidence that an angel investor's perception of the quality and content of the entrepreneurs pitch was clearly related to their decision to pursue investment - Angel investor judgment of a pursuable opportunity not only derived by content but also the way the entrepreneur delivered the content and the perceived attributes of the delivery entrepreneur
2009	Should investors bet on the jockey or the horse? Evidence from the evolution of firms from early business plans to public companies	Kaplan, S. N., Sensoy, B. A., & Strömberg, P.	The Journal of Finance	- Evidence shows that investors in start-ups should put more weight in the business than the management team if looking for opportunities to grow to an IPO - Core businesses tend to stay the same instead of pivoting with proprietary IP and patents gaining importance over time whereas management is often replaced as a company grows, thus importance of expertise of the founding team decreases over time

2009	An opportunity for me? The role of resources in opportunity evaluation decisions	Haynie, J. M., Shepherd, D. A., & McMullen, J. S.	Journal of Management Studies	- Support found that opportunity attractiveness is in part related to the existing human capital (knowledge, skills, and abilities) of the entrepreneur - Three other conditions may lead to attraction outside of existing human capital due to rarity of opportunity, limited competition, and age of firm when considering the value of the opportunity
2009	Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions	Chen, X. P., Yao, X., & Kotha, S.	Academy of Management Journal	- Perceived passion and preparedness scales developed to distinguish between affective and cognitive components for preparing and presenting business plans - Qualitative analysis revealed that preparedness and not passion had a positive impact on funding
2011	"In pursuit of the real deal": A longitudinal study of VC decision making	Petty, J. S., & Gruber, M.	Journal of Business Venturing	- 11 year longitudinal qualitative study of VC decision-making in one firm - VC fund related criteria plays major role in deal rejection - Product/service plays key role in proposal rejection with management team not being a major factor compared to other factors - VC's frequently lose investment opportunities that are promising - Initial rejection doesn't prevent later VC reassessment and investment

2012	Preparedness and cognitive legitimacy as antecedents of new venture funding in televised business pitches	Pollack J.M., Rutherford M.W., Nagy B.G.	Entrepreneurship: Theory and Practice	- Empirical evidence that preparedness behaviors are positively related to perceived cognitive legitimacy and cognitive legitimacy predicts amount of funding
2012	The influence of entrepreneurs' credentials and impression management behaviors on perceptions of new venture legitimacy	Nagy, B. G., Pollack, J. M., Rutherford, M. W., & Lohrke, F. T.	Entrepreneurship Theory and Practice	- Empirical evidence that an entrepreneur's credentials (compelling work history, education, objectives, and affiliations) and impression management behaviors are positively related to perceived cognitive legitimacy
2012	Horse vs. jockey? How stage of funding process and industry experience affect the evaluations of angel investors	Mitteness, C. R., Baucus, M. S., & Sudek, R.	Venture Capital	- Study shows that the strength of the entrepreneur is most important factor for angel investment on deciding to proceed to due diligence then shifts to opportunity through evaluation process - Study highlights 3 areas of industry experience by evaluators - operating experience, start-up experience, and investing experience in the focal industry
2014	Making the Pitch: Examining dialogue and revisions in entrepreneurs' pitch decks	Spinuzzi C., Nelson S., Thomson K.S., Lorenzini F., French R.A., Pogue G., Burback S.D., Momberger J.	IEEE Transactions on Professional Communication	- Study looks at pitch revisions that occur after entrepreneurs speak with target market - from claims, evidence, and argument complexity perspectives

2015	Remaking the Pitch: Reuse strategies in entrepreneurs' pitch decks	Spinuzzi C., Nelson S., Thomson K.S., Lorenzini F., French R.A., Pogue G., Burback S.D., Momberger J.	IEEE Transactions on Professional Communication	- Qualitative study related to revisions to pitches after receiving feedback from unfamiliar markets - Discusses different reuse strategies of information by entrepreneurs - accepting, continuing, and resisting
2015	How do entrepreneurs hone their pitches?: analyzing how pitch presentations develop in a technology commercialization competition	Spinuzzi, C., Pogue, G., Nelson, R.S., Thomson, K.S., Lorenzini, F., French, R.A., Burback, S.D. & Momberger, J.	Proceedings of the 33rd Annual International Conference on the Design of Communication	-Study looks at the development and adjustments of the business pitch instead of the presentation of the pitch - Identifies an issue that pitch feedback is mostly combined without separating issues related to the Argument and Design and Use, limiting the pivot options for entrepreneurs in the context of a pitch
2018	Using the business model canvas to improve investment processes	Sort J.C., Nielsen C.	Journal of Research in Marketing and Entrepreneurship	- Discusses the use of a business model canvas as a way to improve communication between an entrepreneur and angel investors
2018	Bite me! ABC's Shark Tank as a path to entrepreneurship	Smith B., Viceisza A.	Small Business Economics	- Details on Shark Tank television show acceptance and pitch process - The business pitch content editing compresses negotiations into "palatable acts" leaving in all elements crucial to the outcome - Study looks at the funding differences of the team make-up based on gender, race/ethnicity, as well as funding impact of innovation

2018	Are the life and death of an early-stage venture indeed in the power of the tongue? Lessons from online crowdfunding pitches	Gafni H., Marom D., Sade O.	Strategic Entrepreneurship Journal	- Crowdfunding pitches examined looking at pitch content related to entrepreneur presenting themselves versus presenting business idea - Entrepreneurs in different business categories focus differently on the amount of focus placed on themselves - Name mentions shown to be positively associated with success of funding campaign, possibly as a result of gaining trust and familiarity with funders

The Negotiating Position – Power and BATNA

Emerson's power-dependence theory (1962) explains that negotiation outcomes are related to the degree that each negotiator is dependent upon one the other. High dependency on the opposition leads to high opposition power in negotiations. If alternatives to a negotiated deal lead a negotiator to be less dependent upon the opposition, the power of the opposition diminishes. The higher the quality of the alternatives, the more power that a negotiator has in a negotiation (Raiffa, 1982). Thus, best alternative to a negotiated agreement (BATNA) concept was introduced by Fisher and Ury in their 1981 book titled *Getting to Yes*. "A minimally necessary condition for an agreement to be mutually acceptable is that each side prefers the deal to its BATNA" (Sebenius, 2017, p. 90). To command power, an entrepreneur can use conciliatory power-use negotiation tactics, as opposed to hostile power-use tactics, and in this way, signal their willingness to jointly collaborate with investors as a way to attempt to appeal

to their investment needs and wants (Lawler, 1992; Kim, Pinkley, & Fragale, 2005). As part of this positive negotiation approach, entrepreneurs attempt to improve their negotiation position (BATNA) by signaling that they have an attractive investment opportunity. Information asymmetry is reduced as investors begin to see (or envision) customer adoption translated into revenue. These negotiation concepts are discussed further in this section.

The business pitch is the beginning of the negotiation between the entrepreneur and potential investors. Negotiation has been defined as "an interpersonal decision-making process necessary whenever we cannot achieve our objectives single-handedly" (Thompson, 2014, p. 2). In new venture finance, negotiation plays a critical role in an entrepreneur acquiring necessary resources for growth. However, many individuals are ineffective in the negotiating process; as they often leave money on the table, settle for too little, walk away from the table, or settle for worse terms than a better alternative (Thompson, 2014). Over-aggressive or naïve negotiators may ask for extreme terms, causing the other party to walk away (Schweinsberg, Ku, Wang, & Pillutla, 2012). Entrepreneur's place a high value on their contribution to the success of a business. In a related study, Franco-Watkins, Edwards, and Acuff (2013) showed that for those that earned income through *effort* compared to those that received income from an unexpected windfall, that a there is a difference in level of fairness in negotiations. An individual that earned through effort will value the rewards higher than if less effort was placed in receiving the reward. As such, it is expected for entrepreneurs to place a higher monetary value on their efforts and want to be compensated accordingly through higher rewards than their financier due to their hard work building and creating their companies. As

power-dependency theory relates, entrepreneurs feel that their contribution to the relationship is high, thus the power they have in the negotiation should accordingly be high resulting in better deal terms for themselves.

To be effective negotiators, entrepreneurs must first understand the negotiation dynamics. One core concept in negotiations that is generally recognized by scholars as being important is *power*. Sociologist Max Weber (1947) defined power as "the probability that a person can carry out his or her own will despite resistance" with most power theorists agreeing with this broad definition (Kim, Pinkley, & Fragale, 2005, p. 800; Weber, 1947). "A negotiator's power may be critical for the quality of his or her success, because it can determine the allocation of rewards in an agreement" (Kim et al., 2005, p. 799). In new venture finance, the allocation of rewards that is referred to in the previous quote is the amount of equity that the entrepreneur must offer to an investor for the desired capital in the equity financing negotiation. Power has been researched and described differently throughout literature. Some of the most accepted explanations include: 1) French and Raven's (1959) bases of power which includes reward, coercive, expert, legitimate, referent, and information powers; 2) Kipnis, Schmidt, and Wilkinson's (1980) typology of influence tactics and the extensions provided by both Kipnis and Schmidt (1983) and Yukl and Tracey (1992) which includes pressure, legitimation, exchange, coalition, ingratiation, rational persuasion, inspirational appeal, consultation, and personal appeal; and 3) Emerson's (1962) power-dependence theory. Kim et al.'s (2005) *dynamic model of negotiator power* points out that though each of these descriptions have benefits of explaining power, they collectively fail to account for the *dynamic* context inherit in a negotiation. Kim et al. (2005) point out that French and

Raven's (1959) bases of power does not examine relational power between others. They also point out that Kipnis et al.'s (1980) examine post relational power without accounting the antecedents of the relationship. Emerson's power-dependence theory (1962) explains relative and total power as one party in a negotiation gains an upper hand over the other and uses this power to improve one's outcome. Kim et al. (2005) explains that Emerson's work fails to examine the valuation that one places on relationships or alternatives as well as how power will be used. While Kim et al. (2005) point out some of the shortcomings of the three, they acknowledge that they are important building blocks and that their work extends the literature to consider the "strategic acts" that occur in a dynamic negotiation.

The theoretical dynamic model of negotiator power proposed by Kim et al. (2005) builds on Emerson's power-dependence theory (1962) dividing power into four components: 1) potential power; 2) perceived power; 3) power tactics; and 4) realized power. Potential power is dependent upon ones dependence upon another which comes from the valuation of both the current negotiation and alternatives if a deal is not reached (Emerson, 1962, Kim et al., 2005). French and Raven's (1959) power bases are used by negotiators to formulate valuations of the implications of the negotiation as well as if the benefits can be obtained through alternative means (Kim et al., 2005). Perceived power is developed by assessing another's potential power (Kim et al., 2005). These perceptions are a function of one's opinion of quantity, probability, and weight assigned to alternatives and contributions exchanged in a negotiation (Kim et al., 2005). In other words, a negotiator needs to evaluate details to formulate likely outcomes to take appropriate next steps in a negotiation. Negotiators can attempt to use or change power

within a negotiation through *power-change* or *power-use tactics*. Power-change tactics are initiatives that negotiators use to improve their power position as they perceive their power lower than their counterpart (Kim et al., 2005; Lawler, 1992). Negotiations fall within Emerson's power-dependence theory (1962) as parties are dependent upon one another to complete transactions. Within a negotiation, different levels of power can exist and be used, which makes negotiation a dynamic exercise. Imbalance of power leads to negotiators to take steps to improve their outcomes. A negotiator can (1) increase the quality of his or her alternatives, (2) decrease the quality of their counterpart's alternatives, (3) decrease the valuation of the counterpart's commitment to bargaining outcomes, or (4) increase the counterpart's valuation of the negotiator's commitment to bargaining outcomes (Kim et al., 2005; Rutherford, Tocher, Anderson, & Buller, 2012). Power-use tactics are used by negotiators when they feel that their level of power is at a point they can influence (Kim et al., 2005). Yukl and Tracey's (1992) typology of influence tactics (pressure, legitimation, exchange, coalition, ingratiation, rational persuasion, inspirational appeal, consultation, and personal appeal) are methods that can be used to influence the negotiation. Power-use tactics can be either *conciliatory* or *hostile*. Conciliatory tactics are positive in nature, such as encouraging collaboration, whereas hostile tactics are negative, such as using intimidation to influence outcomes (Kim et al., 2005). The use of conciliatory tactics first requires an understanding of other party's outcome desires (Kim et al., 2005), thus, the more that an entrepreneur understands an investor's needs and wants, the more likely he or she will be able to influence the investor.

Power-dependence theory looks at the relationship between negotiators and how alternatives create less dependency and how contribution increases one's position of being dependent upon. However, it is possible that both parties may see that they are dependent upon each other and that they both contribute equally. When two parties combine their resources from a negotiation, the combination may be greater than the parts. The benefits obtained from the negotiation is referred to as realized power (Kim et al., 2005). In new venture finance, though, there is a negotiation between the entrepreneur and potential investors over the equity financing terms, the ultimate goal is for the resources to improve the position of both parties over time. For negotiations in which long-term relationships are being secured, conciliatory power-use tactics are suggested over hostile tactics "to retain some potential power for their future interactions" (Kim, et al., 2005, p. 819).

Power can exist when one party has more options than the other. Possessing high quality alternatives is an effective way to increase the power of a negotiator (Raiffa, 1982). BATNA is the defining the point in which a "rational negotiator will exit a current negotiation" (Pinkley, Conlon, Sawyer, Sleesman, Vandewalle, & Kuenzi, 2017, p. 16,888). An entrepreneur's BATNA implies the minimum terms that one would accept as a seller of equity of their company. For an investor, the BATNA implies the maximum terms one would be willing to offer and invest in exchange for equity in an entrepreneur's company (Sebenius, 2017). For a deal to be accepted, negotiators must value its terms at a level higher that their BATNAs (Sebenius, 2017). Negotiators should work to obtain alternatives and then inform their negotiation opponents about the alternatives as it increases gains in a negotiation and reduces the probability of an

impasse (Pinkley, 1995). The existence, and quality level of, alternatives affect negotiation outcomes (Arunachalam, Dilla, Shelley, & Chan, 1998). Based on Emerson's power-dependency theory (1962), as the opposition recognizes this dependency and that the other party has alternatives, the opposition has less leverage in the negotiation.

As having quality alternatives is directly related to power within the power-dependence theory model, it is important to understand the literature related to BATNA (see table 2). An agreement must fall within the *zone of possible agreement (ZOPA)*, the range established by what would be considered acceptable by each party (Sebenius, 2017). A first offer serves as an anchor during a negotiation (Galinsky, Mussweiler, & Medvec, 2002) and by considering the opponent's BATNA, the ZOPA can be established (Sebenius, 2017). At times, negotiators consider information about the opposition prior to the initial offer and adjust their offers considering this information. A recent study by Eichstädt, Hotait, and Dahlen (2017) shows that alternative offers, additional information (knowledge of another's reservation or BATNA), and time pressure influence negotiations. Maaravi, Pazy, and Ganazach's (2011) study showed that the amount of the first offer was affected by the other party's wealth or by either their perceived or actual ability to pay. This phenomenon is similar to what tourists experience at gift shops in foreign countries that rely on negotiating prices instead of marked prices. The bargaining zone that is established by each party's BATNA, defines the resources that need to be distributed during the negotiation (Kim & Fragale, 2005). However, the benefits of a superior BATNA diminishes as the bargaining zone grows (Kim & Fragale, 2005). One can speculate that there is a point at which the opposition can no longer give as there is nothing left to give in the negotiation. Superior contribution is shown to increase benefits

as the bargaining zone grows (Kim & Fragale, 2005). Similarly, one can speculate that as one party is 'upping the ante' as far as what they are providing to the relationship, they are further justifying their value and thus reap the benefits from the increase. Empirical evidence shows that final agreements favor those making the first offer due to the offer being an anchor which defines a negotiators position (Galinsky et al., 2002). Initial offers are mainly influenced by information about the other party's BATNA (Buelens & Van Poucke, 2004). During a negotiation, considering an opponent's alternatives helps negotiators overcome first offer anchors for better bargaining results (Galinsky & Mussweiler, 2001; Galinsky et al., 2002). Evidence shows that negotiators with multiple offers in comparison to those with single offers make lower first offers, even with identical BATNAs (Schaerer, Loschelder, & Swaab, 2016). A situation known as distributive disadvantage occurs which causes negotiators to consider lower offers even when they are told to focus on the best offer (Schaerer et al., 2016). As shown expressed by several studies above, though multiple have advantages, if offers are of low quality, they can have an overall negative effect.

As negotiations evolve and become more complex, those with an understanding of their BATNA options know their limitations and when they should or should not act on an offer. Entrepreneurs must understand the price and terms which make sense for them to walk away in negotiations. Before beginning negotiations, a negotiator should identify the point that they will not go (Lewicki & Litterer, 1985). The least acceptable agreement point that is better than selecting an alternative is commonly referred to as the reservation price or reservation value (Sebenius, 2017).

Most negotiations occur with incomplete information. That is, one party does not know the other's reservation value or BATNA. When one party has this information about the other party, they have a superior negotiating position (Eichstädt, Hotait, & Dahlen, 2016). Once the other party's BATNA is known, negotiators tend to neglect their own priorities; and instead, focus upon the other party's BATNA (Buelens & Van Poucke, 2004). For example, when a negotiator receives past performance information about an opponent, it leads to higher aspirations of the negotiator that received the information (Zarankin & Wall, 2012). Empirical evidence indicates that there is a positive relationship between company wealth and the ability to obtain alternatives (Maaravi et al., 2011). Unfortunately, at the point of new venture funding, not much company wealth exists. From the beginning of the negotiation, entrepreneurs are at a disadvantage in that investors understand the liability of newness issues that entrepreneurs face. Investors know that debt financing options are typically not available and that entrepreneurs have to seek equity financing as an alternative thus this strengthens the investor's negotiating position. Fairness is often in the eye of the beholder. Strong negotiators believe results should reflect power advantage whereas weak negotiators believe in equality (Wong & Howard, 2017).

Table 2. BATNA Studies

Year	Title	Authors	Source	Key Points
1981	Getting to yes: Negotiating Agreement Without Giving in	Fischer, R., Ury, W., & Patton, B.	Book	- Introduction of the best alternative to a negotiation agreement (BATNA) concept

1995	Impact of knowledge regarding alternatives to settlement in dyadic negotiations: Whose knowledge counts?	Pinkley, R. L.	Journal of Applied Psychology	- Empirical evidence shows that negotiators should obtain alternatives and inform the opponent when possible as it increases the gain and decreases the probability of impasse - Evidence shows that attractive alternatives are influential causing the opposition to alter the value of the subject being negotiated
1996	Alternatives to having a BATNA in dyadic negotiation: The influence of goals, self-efficacy, and alternatives on negotiated outcomes	Brett, J.F., Pinkley, R.L., Jackofsky, E.F.	International Journal of Conflict Management	- Findings suggest specific goal or self-efficacy results in higher outcomes or did not settle compared to accepting a lower agreement - Addition of alternative influences willingness to walk away in negotiation
1998	Market Alternatives, Third Party Intervention, and Third Party Informedness in Negotiation	Arunachalam, V., Dilla, W., Shelley, M., Chan, C.	Group Decision and Negotiation	- Evidence showing that existence and level of alternatives affect reservation price, expected profit, level of aspiration, and profit - Negotiators with unequal BATNAs did not achieve higher joint profits compare to situations with equal BATNAs - Negotiators with unequal BATNAs had unequal distribution of profits when compared to equal BATNA negotiations

2001	First offers as anchors: the role of perspective-taking and negotiator focus	Galinsky, A. D., & Mussweiler, T.	Journal of Personality and Social Psychology	- Empirical evidence showing that thinking about opponent's alternatives (without adding any additional information) helps negotiators overcome first offer anchors to achieve better results
2001	Six habits of merely effective negotiators	Sebenius, J. K. (2001).	Harvard Business Review	- BATNAs define the zone of possible agreement - Negotiators need to assess not only their own but also the other side's BATNA
2002	Disconnecting outcomes and evaluations: the role of negotiator focus	Galinsky, A. D., Mussweiler, T., & Medvec, V. H.	Journal of Personality and Social Psychology	- Empirical evidence shows that final agreements favor those who make the first offer by functioning as an anchor - One can eliminate an opponent's powerful first offer by considering their reservation price or BATNA
2004	Determinants of a negotiator's initial opening offer	Buelens, M., Van Poucke, D.	Journal of Business and Psychology	- Initial offers are mainly influenced by information about other party's BATNA - Once other party's BATNA is known, negotiators forget about their own and focus on the other party's BATNA
2005	Choosing the path to bargaining power: an empirical comparison of BATNAs and contributions in negotiation.	Kim, P. H., & Fragale, A. R.	Journal of Applied Psychology	- Discusses the bargaining zone of resource distribution which is determined by negotiators' BATNAs - Benefits of superior BATNA diminish and superior contribution increase as bargaining zone grows - Negotiators' contributions determine allocation of bargaining zone

2005	Power dynamics in negotiation	Kim, P. H., Pinkley, R. L., & Fragale, A. R.	Academy of Management Review	- Review of the difference in power definition in literature thus the development of the dynamic model of negotiator power due to the need for negotiations to be dynamic as information and parameters change - Power-change and power-use (which include Conciliatory that require negotiators to understand counterparts' needs and wants) tactics are explained
2007	Power, propensity to negotiate, and moving first in competitive interactions	Magee, J. C., Galinsky, A. D., & Gruenfeld, D. H.	Personality and Social Psychology Bulletin	- Empirical evidence showing that having power (possessing a BATNA) more likely leads to being the first mover in a negotiation
2010	Negotiation	Thompson, L. L., Wang, J., & Gunia, B. C.	Annual Review of Psychology	- Research review of negotiation examining empirical research from social psychology and organizational behavior - Examines negotiation behavior and outcomes at different levels, one being the intrapersonal level which includes power (which includes the source of power, BATNA) and alternatives
2011	Mediation and the art of shuttle diplomacy	Hoffman, D.A.	Negotiation Journal	- Discussion on how caucus mediation can provide reality testing of BATNAs as joint sessions tend to cause exaggerations of likely success

2011	Pay as much as you can afford: Counterpart's ability to pay and first offers in negotiation	Maaravi, Y., Pazy, A., Ganzach, Y.	Judgment and Decision Making	-Empirical evidence showing that the amount of seller first offers were affected by buyer's wealth or by either perceived or actual ability to pay - There was a positive relationship between company wealth and ability to obtain alternatives
2012	Negotiators' information sharing: The effects of opponent behavior and information about previous negotiators' performance	Zarankin, T.G., Wall, J.A.	Negotiation and Conflict Management Research	- Negotiators tend to share more information when opponents call for sharing or share themselves - Receiving information about opponent past performance leads to higher aspirations of the receiving negotiator
2014	Getting something out of nothing: Reaping or resisting the power of a phantom BATNA	Conlon, D.E., Pinkley, R.L., Sawyer, J.E.	Handbook of Conflict Management Research	- Article suggests that there is always a BATNA, however the level of certainty may be low - With multiple alternatives, the one with the highest probability should drive power - Phantom BATNAs, though they can improve outcomes, can also be misguided by them as they may be far from reality
2015	Anchors weigh more than power: Why absolute powerlessness liberates negotiators to achieve better outcomes	Schaerer, M., Swaab, R. I., & Galinsky, A. D.	Psychological Science	- Studies showed that having no power (no BATNA) was better than little power (weak BATNA) - The lack of an alternative allows negotiators to be more aggressive in initial offers and achieve better results

2016	Bargaining zone distortion in negotiations: The elusive power of multiple alternatives	Schaerer, M., Loschelder, D.D., Swaab, R.I.	Organizational Behavior and Human Decision Processes	- Evidence that negotiators with multiple offers in comparison to those with single offers make lower first offers even with identical BATNAs - This distributive disadvantage causes negotiators to consider lower offers even when told to focus on the best during negotiations
2017	BATNAs in Negotiation: Common Errors and Three Kinds of "No"	Sebenius, J.K.	Negotiation Journal	- Misconceptions of BATNAs discussed - Provides alternative way to compare BATNAs using three kinds of "no"
2017	Blinded by Power: Untangling Mixed Results Regarding Power and Efficiency in Negotiation	Wong, R.S., Howard, S.	Group Decision and Negotiation	- Knowledge of BATNA asymmetries leads to a strong negotiator's value claiming and contrasts in fairness (strong negotiators believe results should reflect power advantage whereas weak negotiators believe in equality)
2017	Unpacking BATNA availability: How probability can impact power in negotiation	Pinkley, R.L., Conlon, D.E., Sawyer, J.E., Sleesman, D.J., Vandewalle, D., Kuenzi, M.	2017 Annual Meeting of the Academy of Management	- Both Phantom and available alternatives provide power in negotiations leading to better outcomes
2017	Bargaining power – Measuring it's drivers and consequences in negotiations	Eichstädt, T., Hotait, A., Dahlen, N.	Lecture Notes in Business Information Processing	- Empirical evidence that alternative offers, additional information (knowledge of other's reservation or BATNA), and time pressure influence negotiations - Coercive power imposed by threatening potential not found to influence negotiations

As noted, improved alternatives lead to increased power in a negotiation (Rutherford et al., 2012). In order to increase power in negotiations through the increase of number and/or quality of alternatives, one must first develop viable alternatives and be able to signal these alternatives to the other party in a negotiation (Rutherford et al., 2012). More alternatives or higher caliber options that negotiators appear to have, the less power can be used against them. Conversely, in order to increase power in negotiations through the decrease of number and/or quality of alternatives, one must reduce the "perception of the viability and/or quality of the other party's alternatives" (Rutherford et al., 2012, p. 344). Similar to supply and demand dynamics in markets, by reducing the supply (in this case, the quantity of or quality of alternatives), demand (or leverage) increases. When decreasing the valuation of the stakeholder's commitment to bargaining outcomes, one must build a case in why the resources being provided by the other party are not as valuable as the other perceives (Rutherford et al., 2012). This is often done by creating additional alternatives removing the dependency. Finally, when increasing the stakeholder's valuation of the entrepreneur's commitment to bargaining outcomes, one must use techniques to emphasize the quality or uniqueness of what is being offered in the negotiation (Rutherford et al., 2012). The better that one can articulate the value that is being offered, potentially in the way of intellectual property or other competitive advantages, one can increase the value perception. This is something that can be achieved through signaling to the opposition.

Goals, not just high quality BATNA alternatives of negotiators, may lead to higher negotiation outcomes (Brett et al., 1996). Entrepreneurs seeking investment typically have a BATNA which is based on their personal goals and needs. For

entrepreneurs, the goal is often maintaining as much equity in their company in negotiations while obtaining the needed resources such as growth and human capital. When goals are not met, one must be willing to walk away. The perception of the willingness to walk away strengthens a negotiation position (Sebenius, 2017). Negotiators that show they care less about obtaining agreement gain power as it creates a perception of a high BATNA and low dependence on the other party (Eichstädt, Hotait, & Dahlen, 2016, p. 92). The strength (or weakness) of one's BATNA is what I will define as their *negotiating position*. An entrepreneur with alternatives would be considered to have a strong negotiating position. The more options, the stronger the negotiating position.

When better alternatives exist, it is much easier to walk away (Brett et al., 1996). At times, those in a negotiation put weight into an option that they hope may exist but actually does not, at least at the time of making critical decisions in a negotiation. A phantom alternative, known as a *phantom BATNA* in negotiation terms, is a "choice option that looks real but is unavailable at the time a decision is made" (Pratkanis & Farquhar, 1992, p. 103; Conlon, Pinkley, & Sawyer, 2014). For new ventures, other perceived alternatives may or may not be real or obtainable. Conlon et al. (2014) suggest that there is always a BATNA, but the level of certainty may be low in some instances. They suggest that one may have multiple alternatives, but the one with the highest probability should drive a negotiator's power. Entrepreneurs must make critical choices on weights to place on BATNAs during a negotiation. A study by Schaerer, Swaab, and Galinsky (2015) showed that having no power (as defined as no BATNA) was better than negotiating with little power (a weak BATNA). The lack of an alternative allows a

negotiator to be more aggressive in their initial offers and this has shown to lead to better results (Schaerer et al., 2015). At least some weight should be considered as those negotiating with phantom alternatives are shown to negotiate better than those negotiating without an alternative (Pinkley et al., 2017). Phantom BATNAs, though they can improve outcomes, can also be misguiding as they may be far from reality (Conlon et al., 2014).

In new venture funding, entrepreneurs can potentially counterbalance the advantage that investors have in the negotiation by signaling that they have an attractive investment opportunity. Similar to supply and demand economics, Cialdini (2009) notes that availability influences value perception in that we put more value in opportunities when then they are scarcer. Entrepreneurs, who are able to be influential in their businesses pitches in that their opportunity is unique, may be able to invoke *fear* in an investor that they may miss out on an opportunity. The term *fear of missing out (FoMO)* has been defined "as a pervasive apprehension that others might be having rewarding experiences from which one is absent" where "FoMO is characterized by the desire to stay continually connected with what others are doing" (Przybylski, Murayama, DeHaan, and Gladwell, 2013, p. 1841). Hodkinson (2016) performed an exploratory qualitative study on FoMO to understand the phenomena at a deeper level. Through the use of focal groups, Hodkinson analyzed the qualitative responses using both content analysis and thematic analysis techniques to show the importance and interrelatedness of the themes and concepts expressed by the groups. FoMO was "acknowledged as a negative emotional response to a choice situation, the degree of which was variable and, in the extreme, could manifest as fear in some individuals" and this manifestation was

"generally exhibited during the pre-decision process while consideration was being given to the importance of the decision, alternative possibilities and any anticipated post-decision ramifications" (Hodkinson, 2016, p. 8). He further identified four cognitive issues of those exhibiting FoMO which include opportunity cost, anticipated regret, perceived scarcity, and consideration of post-decision or post-event outcomes. Each of these will be discussed further related to potential investors in business pitch funding events.

Opportunity Cost

Entrepreneurial risk has both the risk of failure and the risk of missing an opportunity. An opportunity is defined as one's personal view of a future situation that is both desirable and feasible and this level of desirability and feasibility is relative to the individual (Krueger, 1993). While risk of failure can be explained as "sinking-the-boat" financially from poor decisions, risk of missing an opportunity relates to the upside that is not realized (Dickson & Giglierano, 1986). Angel investors evaluate these same risks before exchanging seed capital in exchange for ownership equity. "In the FOMO context, an individual is attempting to optimize their net benefit by considering two elements. The first is the perceived (i.e. anticipated) benefits inherent in taking their preferred option, whereas the second is the anticipated combined detriments caused by not taking the other option(s)" (Hodkinson, 2016, p. 12). Entrepreneurial discovery is through recognition and not search, and the prior knowledge related to markets, customer problems, and how to serve these markets will differ between individuals (Shane, 2000). Opportunity cost is an evaluation of perceived risk and thus perception differs by individuals. For private investors, they have "a more intuitive, less quantitative, rather emotionally driven risk

perception" (Jordan & Kaas, 2002, p. 130; Olsen & Cox, 2010). In evaluating risk perception, they must consider the following four dimensions: "1) Downside risk: the perceived risk of suffering financial losses due to negative deviations of returns, starting from an individual reference point, 2) Upside risk: the perceived chance of realizing higher-than-average returns, starting from an individual reference point, 3) Volatility: the perceived fluctuations of returns over time, 4) Ambiguity: a subjective feeling of uncertainty due to lack of information and lack of competence" (Jordan & Kaas, 2002, p. 130).

Anticipated Regret

Past choices can influence future behaviors. Experienced regret, which is regret based on prior decisions, influences individual investment decision-making (Bailey & Kinerson, 2005). This experienced regret could be due to action or inaction of an individual. Anticipated regret, which is an unpleasant feeling that will result of inaction (Abraham & Sheeran, 2003), has been found to predict intention (e.g. Richard, de Vries, & van der Pligt, 1998) as well as moderate the relationship between intention and behavior (Sheeran & Orbell, 1999). The fear due to the anticipation of what the outcome may be if the investor misses out on the opportunity can influence behavior.

Perceived Scarcity

Basic supply and demand logic influences pricing and behaviors. This phenomenon is displayed by daily fluctuations of oil and gas prices as a result of production and demand. Similarly, perceived scarcity of consumer products is shown to impact on assumed expensiveness. Perceived scarcity of consumer products also impacts

the perceived uniqueness, and perceived uniqueness significantly influences perceived value thereby influencing purchase intentions (Wu, Lu, Wu, & Fu, 2012). The perception of scarcity can have an effect on anticipated regret. The regret of losing the chance of getting a bargain on a scarce item in an auction is likely to drive bidding upwards whereas regret of overpaying is the concern when items are not perceived to be scarce (Du, Abendroth, & Chandran, 2006).

Consideration of Post-Decision and Post-Event Outcomes

While fear response emotions typically occur during the pre-decision stage, an individual's focus is "given to the importance of the decision, alternative possibilities and any anticipated post-decision ramifications" (Hodkinson, 2016). Preservation of reputation is a concern for investors and thus they are concerned that they may receive a negative evaluation. The fear of a negative evaluation is defined as the "apprehension about others' evaluations, distress over their negative evaluations, avoidance of evaluative situations, and the expectation that others would evaluate oneself negatively" (Watson & Friend, 1969, p. 449). Another social evaluation relates to schadenfreude. Schadenfreude is defined as the feeling of pleasure one gets at the expense of another's misfortune (Takahashi, Kato, Matsuura, Mobbs, Suhara, & Okubo, 2009). In competitive environments, some individuals take pleasure in their competitor's misfortune. For example, in the highly competitive arena of politics, those with a strong allegiance to a party are shown to experience schadenfreude when the opposition does something foolish (Combs, Powell, Schurtz, & Smith, 2009). While one may enjoy the feelings from schadenfreude as others have misfortune, others may fear that the misfortune could happen to them. In the Chinese culture, this is phenomenon is similar to "gaining or

losing 'face' because of positive or negative social evaluation" (Zhang, Cao, & Grigoriou, 2011, p. 130). The fear of losing face is the equivalent of having the fear of experiencing schadenfreude. In the context of investments, one might fear that another will find pleasure in their misfortune of missing out on the next unicorn opportunity.

Incomplete Information in Negotiations

Fear in negotiations can arise when another party is viewed to have a better bargaining position, another is perceived to have better preparation, or when one has insecurities about their negotiation skills (Adler et al., 1998). Most successful people learn how to control these fear manifestations by using such techniques as calling a halt to negotiations to slow things down and to compose oneself in order to improve their performance (Adler et al., 1998). Others realize that preparation is important before the negotiation so that they are aware of their best alternative to a negotiated agreement BATNA position (Fisher et al., 2011).

"Incomplete information is seen by economists as a key source of inefficiency as it might cause delays in the negotiation or even a break-up in a situation where a positive zone of potential agreement exists" (Eichstädt, Hotait, & Dahlen, 2016, p. 93). This incomplete information is often the reason that new ventures do not get funded. If an entrepreneur cannot signal the opportunity that exists by investing in their business, an investor is not going to feel pressure (or fear) as the entrepreneur will not have successfully increased the number and/or quality of her own alternatives or altered the perceived valuations of the stakeholder and entrepreneur commitments to the bargaining outcomes. Thus, proper signaling of opportunity characteristics becomes an important

component of the business pitch. Not only can signals remove information asymmetry in the negotiation process that lead to less delays and break-up situations, clearer signals that get transmitted from entrepreneurs to investors may lead to better terms for an entrepreneur.

Hypotheses

When there is minimal investor interest or lack of alternatives, entrepreneurs do not hold the cards in a negotiation. Investors have goals to achieve lofty financial returns for the stakeholders they represent. Investments in privately-held companies are typically of higher risk thus investors demand high return on investment, typically in the form of equity ownership in exchange for the growth capital needed by the entrepreneur. With investment opportunities being presented to them regularly, investors generally have available alternatives. However, market conditions, the desire to be active in certain industries, and/or their interest in a specific entrepreneur's business opportunity may dictate investment actions. Promising business opportunities are desirable to investors. There is the potential scarcity of opportunities that are most desirable. However, entrepreneurs must be able to convey their quality traits to investors. Signals have the ability to reduce information asymmetry allowing parties of a negotiation to transact with better evidence. Tactics can be taken in negotiations to exert influence (Yukl and Tracey, 1992). Entrepreneurs have the ability to use conciliatory tactics to appeal to investor needs. A new venture can attempt to influence through signals. Positive signals related to a new venture's human capital, social capital, intellectual capital, and/or financial capital can be delivered through a business pitch giving potential investors characteristics about the business opportunity that are otherwise unknown. The content of these

business pitches can be crafted in a way for the investor to make sense of the opportunity. "The pitch is a critical portion of the entrepreneur's signaling and enticement strategy. In some cases, it is the entrepreneur's only signaling strategy" (Pollack et al., 2012, p. 916). An entrepreneur can use conciliatory tactics in their negotiation to signal to an investor's needs and wants (Kim et al., 2005) to help influence their investment decision. Preparedness can help the entrepreneur when delivering a business pitch (Pollack et al., 2012). More specifically, a new venture can send human capital, social capital, intellectual capital, and/or financial capital signals as described below:

Human Capital Signals: Having an entrepreneurial team can be a positive signal for investment. Venture capitalists look at opportunities with top management teams when evaluating opportunities (Bachher & Guild, 1996; Muzyka, Birley, & Leleux, 1996). Top management team legitimacy is a signal that has an effect on valuation as investors perceive it as an indicator of economic potential of a company (Cohen & Dean, 2005). Businesses that are run by entrepreneurial teams can bring a more "diversified and skilled resource base" with a larger network of business contacts as well as increased firm legitimacy (Lagazio & Querci, 2018, p. 319; Cooper, Gimeno-Gascon, & Woo, 1994). More diversity in functional and educational backgrounds of top management teams signal quality of an IPO to investors and is shown to result in greater capital raised in an IPO (Zimmerman, 2008). In larger firms, gender and racial diversity signals have been studied. Gender diversity signaled in top management teams in large firms can lead to better performance in IPOs (Welbourne, Cycyota, & Ferrante, 2007). Racial diversity reputation is shown to have a positive effect on book-to-market equity and diversity of leadership is shown to have a U-shaped relationship on book-to-market equity showing

that the positive effect comes in at a point after an initial decline (Roberson & Park, 2007). In addition, team size has been shown to be positively related to company growth (Federico, Rabetino, & Kantis, 2012). More individuals bring greater resources to the new venture. Top management team experience and skills are often used by venture capitalists as a predictor of future performance (Baum & Silverman, 2004). Some of these skills come from the education of the team members. Education level of the founding team can be an important human capital signal predicting performance (Cooper, Gimeno-Gascon, & Woo, 1994) and funding (Hsu, 2007). Benefits of experience can come from several angles. Industry-specific experience is shown to be an important signal to venture capital investment (Tyebjee & Bruno, 1984). Prior industry experience implies "that founders possess 1) tacit knowledge about customers and industry success factors, 2) experience with understanding opportunities in that industry, and 3) social ties with important stakeholders" which leads to an understanding of marketplace needs (Ko & McKelvie, 2018, p. 441; Kotha & George, 2012). Prior founding experience has also been shown to have a positive signaling effect when trying to obtain financing, especially when individuals were successful in the past (Hsu, 2007). Even if the entrepreneur did not start a business in the past, he or she may have had parents that were entrepreneurs. Having parents who owned a business has shown to increase firm survival, likely due to the fact that the entrepreneur would be more aware of and prepared for challenges related to business ownership (Cooper et al., 1994). Education, experience, and skills are tools that can help build an entrepreneur's reputation. Founding member reputation is a human capital signal that is often used to predict viability (Ebbers & Wijnberg, 2012; Ko & McKelvie, 2018).

Hypothesis 1a: During an investment pitch, signals of high venture quality as a result of human capital positively affect the number of investor alternatives of a new venture.

Social Capital Signals: Business alliances are important for companies to gain access to needed resources (Ahlers et al., 2015; Baum & Silverman, 2004). "In the context of early-stage financing, third party affiliations (venture development organizations) signal investors in two ways, by (1) endorsing the quality of the startup and founding team, and (2) communicating to investors that the third party will provide key substantive benefits to the startup" (Plummer, Allison, & Connelly, 2016 p. 6; Lee, Pollock, & Jin, 2011). Private firms with prominent business partners are shown to go to an initial public offering (IPO) faster and have higher valuations at IPO (Stuart, Hoang, & Hybels, 1999). Through affiliation, prestigious executives and directors are shown to have a positive linear effect on the value of a young firm (Pollock, Chen, Jackson, & Hambrick, 2010). Early stage ventures heading for an IPO attempt to legitimize their company by adding well-known leaders to their boards of directors (Certo, 2003; Filatotchev & Bishop, 2002). A large board structure with prestigious directors sends positive signals to investors in an IPO (Certo, Daily, & Dalton, 2001). In addition, CEO's with "more external directorships may signal greater social capital and thus may be perceived as being more credible and trustworthy" (Zhang & Wiersema, 2009, p. 705). Other signals, like board diversity signal characteristics of social values within the firm (Miller & del Carmen Triana, 2009). Alliances also have an effect on mortality rates. Relationships are shown to have a positive effect on firm survival when linked with institutions of greater legitimacy (Baum & Oliver, 1991; Baum & Silverman, 2004).

Firms that have connections with legitimate firms such as high-profile investors or venture capitalists signal to other stakeholders their acceptance as being considered legitimate (Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Plummer et al. 2016). There are benefits of finding alliance partners early that are well connected and have large networks themselves. These networks also aid in gaining useful information that isn't always available to the public (Ahlers et al., 2015). By aligning with such partners such as prominent investors, new ventures are often able to expand their network to include those additional connections increasing the overall size of their network enabling better access to resources (Milanov & Fernhaber, 2009). Financial commitments set forth by partners such as venture capitalists signal that the company will have access to resources thus be able to survive longer (Jain & Kini, 2000).

> **Hypothesis 1b:** During an investment pitch, signals of high venture quality as a result of social capital positively affect the number of investor alternatives of a new venture.

Intellectual Capital Signals: New ventures that create innovations often have difficulty in explaining both the appropriateness or showing the feasibility of their ideas (Audretsch, Bönte, & Mahagaonkar, 2012). In some industries, start-ups with patents and prototypes are more likely to obtain equity financing as it shows feasibility to investors (Audretsch et al., 2012). At times, working prototypes are beneficial to tangibly show a concept to potential investors. Entrepreneurs that can formalize their ideas and designs are better able to explain their ideas that potentially would not be understood by investors (Ahlers et al., 2015; Cohen & Lemley, 2001). By patenting a product or process, entrepreneurs can attempt to obtain a competitive advantage.

Entrepreneurs that are able to secure a patent for their innovations in products or processes are able to obtain 20-year monopoly protections (Baum & Silverman, 2004). Firms with patents are shown to be able to obtain other growth resources such as investment capital and partners (Baum & Silverman, 2004). Likewise, a study of biotech firms with patent pending applications were positively correlated with chance of survival (Silverman & Baum, 2002). "Patent ownership can serve somewhat of a deterrent against future market entrants, which could also be interpreted as a positive signal of a company's strength and quality (Ahlers et al., 2015). Business plans are often required by investors and lenders to get an understanding of a company's strategy and approach before a transaction. Business plans can and should be tailored towards the appropriate audience as different stakeholders focus on different details (Mason & Stark, 2004). Bankers look to market and finance issues as they are concerned about debt repayment where-as equity investors like angels and venture capitalists look for return on their investment (Mason & Stark, 2004). Even equity investors review business plans differently as angel investors put more emphasis on their 'fit' with the business than do venture capitalists (Mason & Stark, 2004). "Most potential funders wish to see a business plan as a first step in deciding whether or not to invest" (Mason & Stark, 2004, p. 227) thus going through the process of strategic planning is a signal of preparedness to investors.

> **Hypothesis 1c:** During an investment pitch, signals of high venture quality as a result of intellectual capital positively affect the number of investor alternatives of a new venture.

Financial Capital Signals: Entrepreneurs with financial projections have a better understanding of potential resource deficiencies as they consider income and expense timing. When financial projections do not exist, it leads to increased risk for an investor (Ahlers et al., 2015). In addition, failure to create disclaimers creates uncertainty as achieving certain milestones are often based on specific conditions being met (Ahlers et al., 2015). A business plan or prospectus allows "investors to analyze a venture's attractiveness, providing a more precise overview of the risks and opportunities, and helping lessen the risk of asymmetric information" (Ahlers et al., 2015, p. 963). Companies that reveal more profitable futures in the information presented to outsiders send buying signals to potential shareholders (Connelly et al., 2011). Again, an entrepreneur's commitment to the organization helps alleviate moral hazards concerns as CEO's send signals to investors through their certification of financial statements based on large shareholdings of a company (Zhang & Wiersema, 2009). Where a company is heading financially is an important determinant for investment. For example, high industry growth rate is viewed as the top market requirement for investment for venture capitalists (MacMillan, Siegel, & Narasimha, 1985; McDougall, Covin, Robinson, & Herron, 1994). Firms that provide guidance of their financial future send a positive signal and decrease the level of uncertainty. After the company begins to have success in customer adoption, the company transitions from the *formation stage* to the *early growth stage*. Like the formation stage, there is still a high level of uncertainty and additional resources are likely needed to manage the effects of increased demand (Dodge & Robbins, 1992). A company is considered to be entering the early growth stage when they have achieved traction which is evident by achieving a respectable level of revenue

and is continuing to quickly increase over time. Through this market acceptance, the new venture begins to increase its legitimacy. A business that sends signals of high quality should increase the interest in investment thus improve an entrepreneur's negotiation position (BATNA) by either increasing the number of interested investors or causing investors to feel that the quantity of available opportunities at the level of quality to be reduced as the positive signals increase the desirability (i.e. the investor potentially experiences FoMO). Thus:

> **Hypothesis 1d:** During an investment pitch, signals of high venture quality as a result of financial capital positively affect the number of investor alternatives of a new venture.

The quality of a signal can differ based on its characteristics. For example, costly signals are more difficult to manipulate and thus become stronger indicators of truthful information (e.g., Spence, 1973; Bird & Smith, 2005). Costly signals are those that are considered difficult to obtain preventing imitation by those of lower quality. Not only monetary costs should be considered as signalers may exert energy or time towards obtaining a signal. Education (e.g., Spence, 1973; Cooper, Gimeno-Gascon, & Woo, 1994; Hsu, 2007), industry experience (Ko & McKelvie, 2018), alliances and affiliations (e.g., Plummer, Allison, & Connelly, 2016; Lee, Pollock, & Jin, 2011; Stuart, Hoang, & Hybels, 1999), and the development of patents and prototypes (e.g., Audretsch, Bönte, & Mahagaonkar, 2012; Baum & Silverman, 2004) all serve as costly signals. Signal honesty (veracity) describes the truthfulness of messages. Akerlof (1970) explains that information asymmetry relates to quality and uncertainty and that without honest signals, good quality cars may be penalized due to the negative qualities of "lemons." The

quantity of the signals sent (the signal frequency) can affect the effectiveness of the signal (Janney & Folta, 2003). A business that sends signals with strong characteristics of being costly and honest should increase the interest in investment thus improve an entrepreneur's negotiation position (BATNA) by either increasing the number of interested investors or causing investors to feel that the quantity of available opportunities at the level of quality to be reduced as the positive signals increase the desirability (i.e. the investor potentially experiences FoMO). Thus:

> **Hypothesis 2:** During an investment pitch, the positive relationship between high venture quality signals of a new venture and the number of investor alternatives is moderated by the signal characteristics of cost and honesty.

An entrepreneur and investor must negotiate the deal structure in equity financing situations. An entrepreneur will typically start with an asking (offer) price. This price consists of two components: the amount of investment capital desired and the amount of equity that the entrepreneur is willing to exchange for the capital being requested. The entrepreneur's valuation of the firm is established by dividing the desired capital by the percentage stake in the business being offered in exchange (Smith & Viceisza, 2018). For example, if an entrepreneur is asking $200,000 for 20% of the company, the entrepreneur's implied valuation of the firm is $1,000,000. Investors may counter the entrepreneur's asking price by offering an amount of capital that they are willing to invest for the percentage stake in the business that they desire for the amount of money they are offering. The valuation calculation is similar in that the capital is divided by the percentage stake in the business. Subsequent rounds of negotiations may continue until either both parties agree to terms that are acceptable or walk away. As discussed earlier,

the liability of newness scares away debt financiers providing equity investors leverage as an entrepreneur's options for financing have been decreased. However, when an entrepreneur can signal that they have available options, leverage begins to shift. As alternatives become available to the entrepreneur, investors must become more competitive in the deal terms offered to a new venture. Thus:

> **Hypothesis 3:** During an investment pitch, the positive relationship between high venture quality signals of a new venture and the investment valuation received is mediated by the number of investor alternatives available to the new venture.

CHAPTER III

METHODOLOGY

Identification of Signals and Computer-Aided Text Analysis

In order to develop a list of potential signals that entrepreneurs can communicate to investors, a systematic review of literature was completed (Tranfield, Denyer, & Smart, 2003). To further refine the scope, the articles selected: 1) were published in a peer-reviewed outlet; and 2) cover signaling theory in the context of entrepreneurs and/or small business owners. Works that did not directly study signaling theory in an entrepreneurial context were eliminated. Works that were related to initial public offerings were generally excluded due to the context being different as a result of different organizational life cycle stages (unless there appeared to be evidence in the article abstract that the signal may also apply to new ventures).

The search process involved several steps. In the search criteria within Scopus, the search query inputted was [“signal* theory” OR signal*] AND [entrepreneur* OR innovation* OR intrapreneur* OR “new firm*” OR “new venture*” OR “small business*” OR “spin-off*” OR “spinoff*” OR “start-up*” OR “startup*” OR ventur*]. Wildcards and truncated words were used in this string to extract different variations of

these keywords. The query searched for the combination of words in the Title, Abstract, and Keywords of an article. The additional search criteria limited the articles to: (1) Document Type: Article, Article in Press; (2) Source Type: Journals; and (3) Subject area: limited to *Business, Management and Accounting* and *Economics, Econometrics and Finance*. Generally, books were excluded due to the practicality of retrieving data through remote library access. A total of 877 articles were drawn from this initial query search. The abstracts of these articles were then sorted for relevance based on signals in the context of this study. This narrowing step of literature parsed the list down to 237 articles. This list was then further sorted by separating articles that related to new ventures and ones related to pre-IPO or post-IPO signals. The articles related to new ventures totaled 185 articles. These articles were downloaded using Scopus and Google Scholar and then were reviewed a level deeper beyond Title, Abstract, and Keywords looking into the article content to identify signals. The signals present in the other articles were then categorized within the determinants of venture quality signals (represented by human capital, social capital, intellectual capital, or financial capital). These signals will be used in assisting in the creation of the word dictionaries.

Linguistic word-based dictionaries will be created to operationalization the venture quality signals (human capital, social capital, intellectual capital, and financial capital) as part of the computer-aided text analysis (CATA) process (Short, Broberg, Cogliser, and Brigham, 2010). Individual word count systems classify text by assigning words to pre-specified equivalent categories (Weber, 1990). Frequency counts of words in each category will be used to determine the relative importance of each signal category that the entrepreneur uses in their pitch. The computer software program, DICTION, is

the initially proposed to software to be used, however, there are several programs capable of the analysis. Through this methodology, the verbal pitch is converted into numbers that can be used in the quantitative analysis. BATNA will be operationalized by recording the number of active investors presenting offers after a pitch which represents financing alternatives for the entrepreneur.

Data

The data set being used in this analysis includes 294 *Shark Tank* business pitches from the episodes from seasons 1-6. The *Shark Tank* business pitch content editing compresses negotiations into "palatable acts" leaving in all elements crucial to the outcome (Smith & Viceisza, 2018). TranscriptionStar (iSource Solutions Inc.) was used to translate the episodes from video to text. It is important to note that though there is useful information in the question and answer interaction that occurs between the entrepreneurs and investors after the initial business pitch, this study will solely focus on the business pitch prior to negotiations. The rationale for implementing this boundary is that an entrepreneur has total control of the signals that they can send during the initial planned business pitch. Entrepreneurs have a short window to present their business and have the opportunity to craft a story with the most essential information related to their business during this limited time. Thus, an entrepreneur must be selective in the signals presented during their limited pitch time, focusing on the potential signals that they feel are most important in gaining investment.

Study Design

This study will be conducted by analyzing negotiations between entrepreneurs and investors in the context of a business pitch where entrepreneurs are looking for growth capital to address "the funding gap."

A spreadsheet will be created with the show episode number, pitch number, and airing date. The spreadsheet will also contain the following fields that will be obtained from watching the *Shark Tank* business pitches and will potentially be used as control variables: Name of Investor(s) making a bid; # of investors involved in making bids; Entrepreneur Initial Deal Proposal- Proposed $ Amount; Entrepreneur Initial Deal Proposal- Proposed Percentage of Equity for $; Accepted Deal- $ Amount; Accepted Deal- Percentage of Equity for $; CALCULATION: Entrepreneur Initial Deal Proposal Valuation $; CALCULATION: Accepted Deal Valuation $; and CALCULATION: Deal Structure Ratio.

Focusing on the theoretical model in Figure 1, the following variables are discussed further:

Venture Quality Signal – Human Capital (Independent Variable)

Human capital is generally defined as the impactful resources that the entrepreneurial team brings to a new venture based on education and experiences. The greater this resource base, the better equipped the new venture is to compete against existing firms. Having an entrepreneurial team can be a positive signal for investment as venture capitalists look at opportunities with top management teams when evaluating opportunities (Bachher & Guild, 1996; Muzyka, Birley, & Leleux, 1996). Top

management team legitimacy is a signal that has an effect on valuation as investors perceive it as an indicator of economic potential of a company (Cohen & Dean, 2005). Businesses that are run by entrepreneurial teams can bring a more "diversified and skilled resource base" with a larger network of business contacts as well as increased firm legitimacy (Lagazio & Querci, 2018, p. 319; Cooper, Gimeno-Gascon, & Woo, 1994). More diversity in functional and educational backgrounds of top management teams signal quality of an IPO to investors and is shown to result in greater capital raised in an IPO (Zimmerman, 2008). In larger firms, gender and racial diversity signals have been studied. Gender diversity signaled in top management teams in large firms can lead to better performance in IPOs (Welbourne, Cycyota, & Ferrante, 2007). Racial diversity reputation is shown to have a positive effect on book-to-market equity and diversity of leadership is shown to have a U-shaped relationship on book-to-market equity showing that the positive effect comes in at a point after an initial decline (Roberson & Park, 2007).

In addition, team size has been shown to be positively related to company growth (Federico, Rabetino, & Kantis, 2012). More individuals bring greater resources to the new venture. Top management team experience and skills are often used by venture capitalists as a predictor of future performance (Baum & Silverman, 2004). Some of these skills come from the education of the team members. Education level of the founding team can be an important human capital signal predicting performance (Cooper, Gimeno-Gascon, & Woo, 1994) and funding (Hsu, 2007). Benefits of experience can come from several angles. Industry-specific experience is shown to be an important signal to venture capital investment (Tyebjee & Bruno, 1984). Prior industry experience

implies "that founders possess 1) tacit knowledge about customers and industry success factors, 2) experience with understanding opportunities in that industry, and 3) social ties with important stakeholders" which leads to an understanding of marketplace needs (Ko & McKelvie, 2018, p. 441; Kotha & George, 2012). Prior founding experience has also been shown to have a positive signaling effect when trying to obtain financing, especially when individuals were successful in the past (Hsu, 2007). Even if the entrepreneur did not start a business in the past, he or she may have had parents that were entrepreneurs. Having parents who owned a business has shown to increase firm survival, likely due to the fact that the entrepreneur would be more aware of and prepared for challenges related to business ownership (Cooper et al., 1994). Education, experience, and skills are tools that can help build an entrepreneur's reputation. Founding member reputation is a human capital signal that is often used to predict viability (Ebbers & Wijnberg, 2012; Ko & McKelvie, 2018). A dictionary identifying words for these related human capital signals will be created for DICTION and a quantity count will be used to obtain the number of human capital signals used during the business pitch. The text of the entrepreneur's business pitch will be the data source used for DICTION.

Venture Quality Signal – Social Capital (Independent Variable)

Business alliances are important for companies to gain access to needed resources (Ahlers et al., 2015; Baum & Silverman, 2004). "In the context of early-stage financing, third party affiliations (venture development organizations) signal investors in two ways, by (1) endorsing the quality of the startup and founding team, and (2) communicating to investors that the third party will provide key substantive benefits to the startup" (Plummer, Allison, & Connelly, 2016 p. 6; Lee, Pollock, & Jin, 2011). Private firms with

prominent business partners are shown to go to an initial public offering (IPO) faster and have higher valuations at IPO (Stuart, Hoang, & Hybels, 1999).

Through affiliation, prestigious executives and directors are shown to have a positive linear effect on the value of a young firm (Pollock, Chen, Jackson, & Hambrick, 2010). Early stage ventures heading for an IPO attempt to legitimize their company by adding well-known leaders to their boards of directors (Certo, 2003; Filatotchev & Bishop, 2002). A large board structure with prestigious directors sends positive signals to investors in an IPO (Certo, Daily, & Dalton, 2001). In addition, CEO's with "more external directorships may signal greater social capital and thus may be perceived as being more credible and trustworthy" (Zhang & Wiersema, 2009, p. 705). Other signals, like board diversity signal characteristics of social values within the firm (Miller & del Carmen Triana, 2009).

Alliances also have an effect on mortality rates. Relationships are shown to have a positive effect on firm survival when linked with institutions of greater legitimacy (Baum & Oliver, 1991; Baum & Silverman, 2004). Firms that have connections with legitimate firms such as high-profile investors or venture capitalists signal to other stakeholders their acceptance as being considered legitimate (Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Plummer et al. 2016). There are benefits of finding alliance partners early that are well connected and have large networks themselves. These networks also aid in gaining useful information that isn't always available to the public (Ahlers et al., 2015). By aligning with such partners such as prominent investors, new ventures are often able to expand their network to include those additional connections increasing the overall size of their network enabling better access to

resources (Milanov & Fernhaber, 2009). Financial commitments set forth by partners such as venture capitalists signal that the company will have access to resources thus be able to survive longer (Jain & Kini, 2000). A dictionary identifying words for these related social capital signals will be created for DICTION and a quantity count will be used to obtain the number of social capital signals used during the business pitch. The text of the entrepreneur's business pitch will be the data source used for DICTION.

Venture Quality Signal – Intellectual Capital (Independent Variable)

New ventures that create innovations often have difficulty in explaining both the appropriateness or showing the feasibility of their ideas (Audretsch, Bönte, & Mahagaonkar, 2012). In some industries, start-ups with patents and prototypes are more likely to obtain equity financing as it shows feasibility to investors (Audretsch et al., 2012). At times, working prototypes are beneficial to tangibly show a concept to potential investors. Entrepreneurs that can formalize their ideas and designs are better able to explain their ideas that potentially would not be understood by investors (Ahlers et al., 2015; Cohen & Lemley, 2001). By patenting a product or process, entrepreneurs can attempt to obtain a competitive advantage. Entrepreneurs that are able to secure a patent for their innovations in products or processes are able to obtain 20-year monopoly protections (Baum & Silverman, 2004). Firms with patents are shown to be able to obtain other growth resources such as investment capital and partners (Baum & Silverman, 2004). Likewise, a study of biotech firms with patent pending applications were positively correlated with chance of survival (Silverman & Baum, 2002). "Patent ownership can serve somewhat of a deterrent against future market entrants, which could also be interpreted as a positive signal of a company's strength and quality (Ahlers et al.,

2015). A dictionary identifying words for these related intellectual capital signals will be created for DICTION and a quantity count will be used to obtain the number of intellectual capital signals used during the business pitch. The text of the entrepreneur's business pitch will be the data source used for DICTION.

Venture Quality Signal – Financial Capital (Independent Variable)

Firms that can reveal a profitable future in a business pitch sends positive signals to potential investors (Connelly et al., 2011). New ventures pitch investors typically at some point between their formation stage and the early growth stage. A new venture that has generated revenue from selling their product begins to show market adoption removing some of the uncertainty on whether or not customers will buy the product or service. A dictionary identifying words for these related financial capital signals, such as variants of the word *revenue*, will be created for DICTION and a quantity count will be used to obtain the number of financial capital signals used during the business pitch. The text of the entrepreneur's business pitch will be the data source used for DICTION.

Signal Characteristics – Cost (Moderator)

The characteristic of a costly signal is that it prevents imitation by those of lower quality. Costly signals are those that are considered difficult to obtain. As discussed in Chapter 2, this "cost" can be in different forms, not just monetarily. A signaler may exert energy or time towards obtaining a signal. For example, and entrepreneur's education or industry experience, a firm developing meaningful business relationships, or obtaining significant intellectual capital have costs associated to them. A dictionary for related costly signal characteristics related to money, energy, or time will be created for

DICTION and a quantity count will be used to obtain the number of costly signals used during the business pitch. The text of the entrepreneur's business pitch will be the data source used for DICTION.

Signal Characteristics – Honesty (Moderator)

Signal honesty describes the situation in which the signaler is truthful in possessing the attributes of the signal. Busenitz et al. (2005) refers to this honesty as signal veracity. Investors that are putting money at risk when funding new ventures are concerned about the veracity of the entrepreneur during their pitch. As such, when investors question that veracity of the entrepreneur's claims during the business pitch or their intent for investment, the intended positive strength of the signal can be reduced or have a negative effect on the overall business pitch. A dictionary for words related to an investor questioning the veracity of signals from a business pitch will be created for DICTION and a quantity count will be used. Unlike the others, the text of the potential investors will be the data source used for DICTION.

Negotiating Position – Alternatives (Mediator)

One may posit that quality business pitches will drive a higher number of potential investors in an opportunity. With investment opportunities being presented to them regularly, investors generally have available alternatives. However, market conditions, the desire to be active in certain industries, and/or an investor's interest in a specific entrepreneur's business opportunity may dictate investment actions. Promising business opportunities are desirable to investors. "Return on investment is generally considered the primary, if not sole, motivation for (angel) investors" (Morrissette, 2007,

p. 60). There is the potential scarcity of ones that are most desirable and this may lead to increased interest by additional investors. In situations in which there are multiple bidders pursing a business opportunity, investor FoMO may kick-in as one does not want to be on the sidelines while a competing investor wins an investment opportunity that is signaling desirable growth potential. The number of interested investors in a business represent financing alternatives (or lack of financing alternatives if minimal or no interest) for the entrepreneur. Supply and demand dynamics is likely a function of the interest. Fear, specifically FoMO, could be a contributing factor. If fear did not exist, investors would likely place their best offer and not be concerned about losing out to competing offers. In other words, investors would let their offers "speak for themselves" without further justifying the offers. However, in many cases, investors make active efforts, often taking either offensive and/or defensive approaches, in the delivery and positioning of their offers. If the FoMO emotion begins to increase within an investor in a sealed-bid process, an investor may exhibit observable actions which are similar to those observed by the investors on the television show *Shark Tank*. Such observable investor behaviors that may be seen include: (1) Investor converts to "selling" themselves to the entrepreneur, instead of vice versa; (2) Investor criticizes competing investor(s) and their bid(s); (3) Investor attempts to influence entrepreneur by bringing up significant challenges that entrepreneur will face and how it will be more challenging without their involvement; and/or (4) Investor fears a bidding war thus attempts to collude with another investor to team up together versus fighting one another. Though most entrepreneurs are funded through private negotiations, these examples of investor behaviors still occur in private sealed-bid negotiations making *Shark Tank* a reasonable

proxy of what occurs privately between entrepreneurs and investors. These dynamics are examples of how an entrepreneur's BATNA can be strengthened through the characteristics of the business explained during the business pitch. Explained differently, specific content from the business pitch signals a quality investment opportunity and leads to increased interest.

For the purpose of this analysis, the entrepreneur's negotiating position strength (BATNA) will be operationalized by recording the number of interested investors (alternatives). For each *Shark Tank* business pitch, the number of interested investors that present an offer will be recorded. For each business pitch, the number of interested investors will range from 1 to 5 as this is the number of investors listening to the pitch that can make an investment proposal. While the number of offers could be used as the measure, I believe that the number of interested investors is a better measure of strength as investors occasionally team up to provide an offer as a way to strengthen their offer to an entrepreneur. Looking at the extremes, a single offer presented to an entrepreneur with five investors bringing a diverse background of resources is much more valuable than an offer presented by a single investor. The entrepreneur may be able to strike a deal with any one of the five (or combination thereof) – if there is mutual interest in working together. Thus, the BATNA position strength will be measured by the number of investors that are part of formal investment offers after hearing the entrepreneur's business pitch.

Deal Structure (Dependent Variable)

The unit of analysis will be the valuation that the entrepreneur receives from a negotiated deal as a result of a business investment pitch and corresponding negotiation. A calculation will need to be made in order to compute the implied valuation from the entrepreneur and the investor to analyze the bid-ask spread. The bid-ask spread is defined as the difference between the valuation that the entrepreneur "asks" and what the investor "bids." This spread shows the difference of opinion between the entrepreneur and investor related to the company's equity valuation. The implied valuations are the result of dividing the dollar amount proposed (or asked) to be invested by the percentage of the company's equity desired (or offered) for this amount of funding. Specifically, the dependent variable of the valuation will be a ratio with 1.0 representing that the entrepreneur received full valuation. For example, an entrepreneur receiving only half of the desired implied valuation would have a valuation ratio of 0.50. The asking price is designated as the meaningful reference point while calculating the percentage difference between the entrepreneur's asking valuation and the amount received (bid) allows for comparison at different negotiating and operating positions. Only the "ask" and the final negotiated investment dollar amount and percentage will be recorded for the business pitches.

Analysis

After the data is collected from both completing the CATA and entering data into the spreadsheet as a result of watching the *Shark Tank* videos, I will take the consolidated data and analyze it using hierarchical regression. The model in Figure 1 will be analyzed

to see if signals lead to higher valuations (better valuation deal structure). If these hypotheses are confirmed, then an entrepreneur can potentially understand the signals that can drive improved valuation and thus will be able to position their business prior to a negotiation to achieve maximized negotiation performance.

CHAPTER IV

RESULTS

Overview

In this study, video pitch content was transcribed, computer-aided text analysis dictionaries were developed, and observation data was collected to perform a quantitative analysis related to venture quality signals in business pitches, negotiation alternatives, and deal results. In addition, qualitative survey data was collected as an additional source for exploration into the research questions. To present and explain the components of this study in an effective manner, this chapter is presented in five parts. In the first, the steps taken to develop the linguistics word-based dictionaries to operationalize venture quality signals is explained. In addition, details are provided as to how the independent and dependent variables were obtained. In the second, descriptive statistics for the data sample are presented and discussed. In the third section, to answer the research questions of whether or not during an investment pitch, signals of high venture quality as a result of human capital, social capital, intellectual capital, and financial capital positively affect the number of investor alternatives of a new venture, the quantitative analysis using Poisson regression is presented. In the third section, the moderation analysis answers the

research question on whether or not during an investment pitch, if the positive relationship between high venture quality signals of a new venture and the number of investor alternatives is moderated by the signal characteristics of cost and honesty. Finally, in the fifth section, a mediation analysis answers the research question of whether or not during an investment pitch, the positive relationship between high venture quality signals of a new venture and the investment valuation received is mediated by the number of investor alternatives available to the new venture.

Part I: Development of Word-based Dictionaries and Data Preparation

As part of the computer-aided text analysis (CATA) process (Short et al., 2010), to operationalization the venture quality signals (human capital, social capital, intellectual capital, and financial capital), linguistic word-based dictionaries were created so that the computer software program, DICTION, could generate frequency counts specific to each venture quality type. As mentioned previously in this paper, using the CATA methodology, verbal pitches must be converted to text so that DICTION can process content and generate word count quantities to be used in further quantitative analysis. The creation of the dictionaries involved a number of steps.

The first step required the acquisition of the *Shark Tank* videos that had been used previously in a related analysis of business pitches. These videos consist of segments of entrepreneur business pitches that were cut prior to the *Shark Tank* panel investment decisions. By using these segments versus the entire pitches, the dataset is standardized as the entrepreneurs have relative control of the business pitch presentation and discussion. This dataset consists of 294 videos pitches that were individually saved as

video (.wmv) files. Initially, a transcription service by Amazon was evaluated but rejected as the transcription results were poor with incorrect translation and spelling errors. In addition, labels were not placed for who was communicating specific words, an important requirement to accurately run the analysis within DICTION to isolated analysis to the entrepreneur's spoken words and not investors or television narrator within the video clips. Another company, TranscriptionStar (iSource Solutions Inc.), that specializes in transcribing video clips to text was evaluated through a similar trial. The results were excellent with word-for-word match and correct spelling in the transcription. In addition, the desired label of the communicating individual present. All 294 videos were transcribed by this service provider with each transcription returned in an individual Microsoft Word document labeled by pitch number.

A project was created within DICTION to where all the Microsoft Word pitch documents could be analyzed in a single processing. Within DICTION, the heading information was removed leaving just the spoken text along with the speaker's name next to each line of communication. DICTION has a feature that allows for Internal Author Analysis, meaning that specific words can be highlighted so that the analysis will be isolated to the highlighted words. The transcribed text that is highlighted using the Internal Author Analysis feature within DICTION allows for analysis that can differentiate between different speakers. An Internal Author Analysis code was created for "Entrepreneur" meaning that within each pitch only the spoken (highlighted) words of the entrepreneur would be analyzed. Each line of an entrepreneur's spoken text was reviewed and highlighted in all of the 294 business pitch Word documents.

To formulate the user specific dictionaries that are run against content, the method requires a series of steps involving both deductive and inductive processes. As part of the deductive content validity process, working definitions were created for each of the venture quality signals based on literature. These definitions are shown in Table 3 below.

Table 3. Working Definitions of Venture Quality Signals and Related Keywords

ID	Capital Signal Type	Characteristic	Description /	Article Examples	Core Keywords
HC1	Human Capital	Top management team legitimacy and reputation	Involvement of high quality individuals indicates economic potential of a company	e.g., Cohen & Dean, 2005; Ebbers & Wijnberg, 2012; Ko & McKelvie, 2018	prestige / prestigious, reputable / reputation, success / successful, prominence / prominent, legitimate
HC2	Human Capital	Entrepreneurial team make-up	Team size brings diversified and skilled resource base with larger network of business contacts	e.g., Baum & Silverman, 2004; Lagazio & Querci, 2018; Cooper, Gimeno-Gascon, & Woo, 1994; Zimmerman, 2008; Federico, Rabetino, & Kantis, 2012	team, partner / partnership, organization
HC3	Human Capital	Gender and racial diversity	Provides multiple viewpoints for startegy and decision making	e.g., Welbourne, Cycyota, & Ferrante, 2007; Roberson & Park, 2007	gender, race, diversity
HC4	Human Capital	Industry knowledge and experience	Provides specific customer and industry success factor knowledge, ability to see opportunities within industry, and may provide social ties to important stakeholders	e.g., Tyebjee & Bruno, 1984; Ko & McKelvie, 2018,; Kotha & George, 2012	knowledge / knowledgeable, skill / skillful, expert
HC5	Human Capital	Prior Founding Experience	Shows that there is experience in growing a firm in the context of a start-up	e.g., Hsu, 2007	experience / experienced, entrepreneur, found / founder

HC6	Human Capital	Education	Level of education can help predict performance based on acquired knowledge/skills	e.g., Cooper, Gimeno-Gascon, & Woo, 1994; Hsu, 2007	educated / education, training, academic
SC1	Social Capital	New ventures with third-party alliances or affiliations	Endorse the quality of the start-up and founding team along with shows investors that resources will be available to assist in growth	e.g., Plummer, Allison, & Connelly, 2016; Lee, Pollock, & Jin, 2011; Stuart, Hoang, & Hybels, 1999	affiliate / affiliation, alliance / allied, related / relation
SC2	Social Capital	Large board diversity	Shows that there is a wider amount of social capital available to start-up	e.g., Miller & del Carmen Triana, 2009	board, advise / advisor, director
SC3	Social Capital	Existing high-profile investors or venture capitalists	Provides legitimacy to the opportunity thus provides better access to resources	e.g., Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Plummer et al. 2016	invest / investment, fund
IC1	Intellectual Capital	Patents and prototypes	Prototypes shows concept and feasibility to investors and patents reveal protections and potential competitive advantages	e.g., Audretsch, Bönte, & Mahagaonkar, 2012; Baum & Silverman, 2004	patent, license, prototype, innovation
IC2	Intellectual Capital	Business plans	Shows strategy and the preparedness of the entrepreneur in growing the business	e.g., Mason & Stark, 2004	strategy, plan, system / systematic, process / procedure
FC1	Financial Capital	Meaningful company financial projections	Potential existing revenue and growth trends showing market acceptance	e.g., Ahlers et al., 2015	forecast, projections, revenue, earnings
FC2	Financial Capital	Management's certification of financial statements	Provides trustworthiness in financial information provided to investors	e.g., Zhang & Wiersema, 2009	certify, authenticate / authentication, validate
FC3	Financial Capital	Positive industry growth rate projections	Provides general customer trends within the industry	e.g., MacMillan, Siegel, & Narasimha, 1985; McDougall, Covin, Robinson, & Herron, 1994	growth, trend

A list of keywords that correspond to these definitions were developed including one to three closely related words in which synonyms would be gathered to formulate each dictionary (McKenny, Short, & Payne, 2012). Previously validated scales provided

insight for word suggestions of several of the qualities (Short et al., 2010). Rodale's (1978) *The Synonym Finder* was suggested and used to create a comprehensive list of related words (Short et al., 2010). This process was similarly completed for all fourteen venture quality signals.

The fourteen individual venture signal lists were reviewed by three expert coders where each coder was asked to mark words that should be excluded if the specific word did not reflect the meaning of the related venture quality signal. The selection process then involved combining the results of each coder. Since each word required that the three coders to "vote" on words to be excluded if believed the word did not reflect the meaning of the related venture quality signal, each word had between zero and three marks for exclusion. If a word received two or more marks for exclusion (representing a majority vote for exclusion), the word was removed from the dictionary. Across the fourteen dictionaries, the interrater reliability coefficient for the deductive list was found to be 0.73.

Next, an inductive content analysis was completed. A linguistic software tool known as AntConc was used for this process step. All the content that was highlighted for Internal Author Analysis within DICTION was copied into a single Microsoft Word document for processing. This represented all the spoken words of the entrepreneurs throughout the 294 business pitches. Within AntConc, an analysis was completed by creating a master wordlist ranking the usage of words while providing a quantity count. The list was reviewed for words to be considered for inclusion in the dictionaries which were not part of the initial deductive list. DICTION does not use wildcards for truncated words. In order to make sure that related words would be captured in the analysis, the

inductive list was combined and sorted with the deductive list so that related words could be reviewed by the coders to decide if they should be added to the dictionaries. The three coders similarly marked words as done in the deductive process step, to be excluded if the coder felt that the meaning did not reflect the venture quality signal.

Specific to the inductive list, across the fourteen dictionaries, the interrater reliability coefficient was found to be 0.88. Finally, the deductive and inductive lists were combined for each of the fourteen venture quality signal dictionaries. Across all fourteen dictionaries, the combined list interrater reliability coefficient was found to be 0.83. Each of the fourteen dictionaries were separately uploaded into DICTION to enable raw word quantity counts for each venture quality signal.

In order to operationalize BATNA, I manually recorded negotiation details from the *Shark Tank* videos. BATNA was operationalized by recording the number of active investors presenting offers after an entrepreneur's pitch. These offers represent financing alternatives for the entrepreneur. A total of 294 business pitches across six *Shark Tank* seasons were coded for deal term and negotiation specifics. The information gathered for each pitch included the season and episode identification, the business description, the amount of money that the entrepreneur was asking and the equity percentage being offered in exchange for the investment, the agreed upon amount of money that the entrepreneur was receiving and the equity percentage being received in exchange for the investment if a deal was accepted, the number of investors involved in making offers on the business (funding alternatives), a yes/no on whether or not a deal was agreed upon, and the names of the specific investors involved in hearing the pitch and whether or not they presented an offer to the entrepreneur. Revenue details were attempted to be

collected but since entrepreneurs were not required to present revenue details as part of their pitches, the information was not present or in a format that could not be used in the analysis thus it was not collected beyond the fourth season to be used in the analysis. Each business pitch was presented to five investors, thus the number of investor alternatives ranged from zero to five. As part of the show's format, *Shark Tank* uses different investors on their investor panel. In the dataset used, there was a total of eleven different investors with seven of them being considered "regulars" and the balance being special guests with minimal appearances. For season one through four, a summary containing all the deal term and negotiation specifics was available on the ABC television network website. For seasons five and six, I watched the full episodes to record the deal term and negotiation specifics. Several calculations were completed from the obtained data. The first reflects the asking implied valuation which was calculated by taking the amount of money the entrepreneur was seeking divided by the percentage of equity in the company that the investor would receive for the investment. The second calculation represents the deal valuation. Similarly, the deal valuation was calculated by the amount of money the entrepreneur received divided by the percentage of equity in the company that the investor received for the investment when the deal was agreed upon. A third calculation was made which divided the deal valuation by the asking implied valuation. This represents the ratio of valuation the entrepreneur received after investment compared to what they initial requested. This ratio serves as a proxy of the negotiation success with a higher ratio being considered being more successful.

A third data source was needed for the analysis to evaluate signal strengths. To understand the effects of the hypothesized moderators of signal cost and signal honesty, a

survey was conducted. IRB approval was granted for the study. To obtain signal cost and signal honesty weights, a survey was created on Qualtrics and sent to five individuals experienced in business pitches. Four survey responses were received, representing an 80% response rate. Using a Likert scale (1-7), respondents were asked to provide their opinion of signal cost (1 = Low Cost; 7 = High Cost) and signal honesty (1 = Low Honesty; 7 = High Honesty) for each of the 14 signal types. The mean of the four respondents were used for the weights that used in the interaction calculations. The mean score for a signal cost variable was 4.6, ranging between 2.75 and 5.5. The mean score for a signal honesty variable was 5.0, ranging between 3.75 and 6.25. The interclass correlation coefficient was only 0.304 thus there was low interrater reliability between the four individuals completing the survey.

A master spreadsheet was created combining the *Shark Tank* deal terms and negotiation specifics, the results of the DICTION word counts for each of the fourteen venture quality signals, and the mean scores from the 14-signal cost and 14-signal honesty survey questions. Five pitches were excluded from the dataset as the negotiated deals were not direct investments for equity which would create incomplete or inaccurate calculations. To standardize the signals across pitches, the raw scores were divided by the total word count within each pitch. In addition, composite venture quality signals (human capital, social capital, intellectual capital, and financial capital) were created for evaluating the research questions. These composites were created by adding all the human capital signal raw scores, all the social capital signal raw scores, all the intellectual capital signal raw scores, and all the financial capital signal raw scores and dividing each by the total word count for standardization. There was a range of 0.041 to

0.185 for the ratio of Human Capital signals, a range of 0.007 to 0.076 for the ratio of Social Capital signals, a range of 0.006 to 0.081 for the ratio of Intellectual Capital, and a range of 0.012 to 0.083 for the ratio of Financial Capital signals. Similarly, for use in evaluating the effects of moderation of signal strength, weighted composites were developed by multiply each of the fourteen venture signal qualities by their corresponding mean survey strength for the cost characteristic (and honesty completed separately) and dividing each by the total word count which represent the interactions to evaluate moderation.

Finally, three control variables were added to the spreadsheet. These variables include the 2-digit SIC (Standard Industrial Classification) codes, a variable describing the visual human capital signal of entrepreneurial team size (1 = one entrepreneur, 2 = two entrepreneurs, 3 = more than two entrepreneurs), and a variable describing the visual human capital signal of gender diversity (1 = single male entrepreneur, 2 = single female entrepreneur, 3 = greater than one entrepreneur and all male, 4 = greater than one entrepreneur and all female, and 5 = greater than one entrepreneur and mixed genders). The spreadsheet was uploaded into SPSS.

Part II: Sample Descriptive Statistics

The descriptive statistics are associated with the deal particulars and venture quality signals of human capital, social capital, intellectual capital, and financial capital. Composites were created by adding all the human capital signal raw scores, all the social capital signal raw scores, all the intellectual capital signal raw scores, and all the financial capital signal raw scores and dividing each by the total word count. For the human

capital composite, the six components of human capital serving as proxies consisting of 1] Top management team legitimacy and reputation (e.g., Cohen & Dean, 2005; Ebbers & Wijnberg, 2012; Ko & McKelvie, 2018), 2] Entrepreneurial team make-up (e.g., Baum & Silverman, 2004; Lagazio & Querci, 2018; Cooper, Gimeno-Gascon, & Woo, 1994; Zimmerman, 2008; Federico, Rabetino, & Kantis, 2012), 3] Gender and racial diversity (e.g., Welbourne, Cycyota, & Ferrante, 2007; Roberson & Park, 2007), 4] Industry knowledge and experience (e.g., Tyebjee & Bruno, 1984; Ko & McKelvie, 2018,; Kotha & George, 2012), 5] Prior Founding Experience (e.g., Hsu, 2007), and 6] Education (e.g., Cooper, Gimeno-Gascon, & Woo, 1994; Hsu, 2007) raw scores were added and divided by the total word count for standardization. For the social capital composite, the three components of social capital serving as proxies consisting of 1] New ventures with third-party alliances or affiliations (e.g., Plummer, Allison, & Connelly, 2016; Lee, Pollock, & Jin, 2011; Stuart, Hoang, & Hybels, 1999), 2] Large board diversity (e.g., Miller & del Carmen Triana, 2009), and 3] Existing high-profile investors or venture capitalists (e.g., Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Plummer et al. 2016) raw scores were added and divided by the total word count for standardization. For the intellectual capital composite, the two components of intellectual capital serving as proxies consisting of 1] Patents and prototypes (e.g., Audretsch, Bönte, & Mahagaonkar, 2012; Baum & Silverman, 2004) and 2] Business plans (e.g., Mason & Stark, 2004) raw scores were added and divided by the total word count for standardization. Finally, for the financial capital composite, the three components of financial capital serving as proxies consisting of 1] Meaningful company financial projections (e.g., Ahlers et al., 2015), 2] Management's certification of financial statements (e.g., Zhang & Wiersema, 2009), and

3] Positive industry growth rate projections (e.g., MacMillan, Siegel, & Narasimha, 1985; McDougall, Covin, Robinson, & Herron, 1994) raw scores were added and divided by the total word count for standardization.

For all 289[1] pitches, the means and standard deviations for the four proxies of venture quality signals of human capital (M = 0.1008, SD = 0.0225), social capital (M = 0.0351, SD = 0.0120), intellectual capital (M = 0.0307, SD = 0.0116), and financial capital (M = 0.0336, SD = 0.0118), were calculated. Spearman's correlation was used to identify significant correlations and are shown in Table 4. One noticeable relationship is that deal alternatives are significantly correlated with deal ratio. Human capital signals are significantly correlated with social, intellectual, and financial capital signals. Social and intellectual capital are significantly correlated and intellectual and financial capital are significantly correlated with one another.

Table 4: Means, Standard Deviations, and Correlations (All pitches)

Variable	Mean	SD	1	2	3	4	5	6
1. Deal Ratio	0.3237	0.4386	1.000					
2. Alternatives	1.2800	1.3490	0.723**	1.000				
3. Human Capital Signals	0.1008	0.0225	-0.028	0.021	1.000			
4. Social Capital Signals	0.0351	0.0120	-0.071	-0.040	0.308**	1.000		
5. Intellectual Capital Signals	0.0307	0.0116	-0.016	-0.019	0.265**	0.273**	1.000	
6. Financial Capital Signals	0.0336	0.0118	-0.077	0.015	0.274**	0.081	0.202**	1.000

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

N = 289

Similarly, the means, standard deviations and correlations were explored specifically for the pitches that received deals (Deal = 1) and are shown in Table 5. For these cases (N = 140), the means and standard deviations for the four proxies of venture quality signals of human capital (M = 0.1008, SD = 0.0207), social capital (M = 0.0343,

[1] The quantity of initial business pitches reviewed before exclusions was 294.

SD = 0.0116), intellectual capital (M = 0.0304, SD = 0.0110), and financial capital (M = 0.0328, SD = 0.0108), were calculated. Again, Spearman's correlation was used to identify significant correlations for the two-tailed test and are shown in Table 5. Human capital signals have a significant negative correlation with deal ratio. Human capital signals continue to be significantly correlated with social, intellectual, and financial capital signals. Similarly, social and intellectual capital are significantly correlated and intellectual and financial capital are significantly correlated with one another.

Table 5: Means, Standard Deviations, and Correlations (*Deal* = 1)

Variable	Mean	SD	1	2	3	4	5	6
1. Deal Ratio	0.6682	0.4082	1.000					
2. Alternatives	2.2500	1.1320	0.064	1.000				
3. Human Capital Signals	0.1008	0.0207	-0.179*	-0.065	1.000			
4. Social Capital Signals	0.0343	0.0116	-0.055	-0.122	0.207*	1.000		
5. Intellectual Capital Signals	0.0304	0.0110	-0.060	-0.157	0.172*	0.253**	1.000	
6. Financial Capital Signals	0.0328	0.0108	-0.086	0.007	0.227**	0.032	0.228**	1.000

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

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

N = 140

Part III: Regression Analysis of Signals and Alternatives

To identify which of the independent variables impact the dependent variable (alternatives), the Poisson multiple regression model was utilized. This method of regression models the log of the expected alternative count as a function of the signal predictor variables. IBM SPSS Statistics Version 25 was used for the statistical analysis.

In the first analysis, all 289 pitches were evaluated. To evaluate whether all the independent variables improve the model over the intercept-only model which would consist of no independent variables, the Omnibus Test is utilized as part of the Poisson regression analysis. Table 6 shows that when comparing the fitted model against the

intercept-only model, the model is significant (p = 0.008), meaning that the model improves with the independent variables as it generates a statistically significant model.

Table 6. Omnibus test of Poisson multiple regression
(Seven independent variables - All pitches, N= 289)

Likelihood Ratio Chi-Square	df	Sig.
61.062	37	0.008

Table 7 shows the statistical significance for each of the independent variables, including the overall effect of categorical variables. Variables which have high Wald Chi-Square values suggest that the coefficients describe the log(Alternatives) model well. Taking the results of the regression, the regression equation for our analysis can be written using the ß coefficients. The independent variables of Human Capital Signals [Verbal] (ß = -3.084), Social Capital Signals [Verbal] (ß = -8.671), Intellectual Capital Signals [Verbal] (ß = -1.524), and Financial Capital Signals [Verbal] (ß = 6.054) are shown not to be statistically significant. Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual] are independent control variables and are statistically significant in the model.

Table 7. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables - All pitches N=289)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	df	Sig.	
(Intercept)	0.993	0.5309	3.499	1	0.061	2.700
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	-0.151	0.3605	0.175	1	0.676	0.860
SIC=22 Textile Mill Products	-0.375	0.4872	0.593	1	0.441	0.687
SIC=23 Apparel & Other Textile Products	-0.117	0.3612	0.104	1	0.747	0.890
SIC=24 Lumber & Wood Products	-27.227	778,433	0.000	1	1.000	0.000
SIC=25 Furniture & Fixtures	0.400	0.4970	0.648	1	0.421	1.492
SIC=26 Paper & Allied Products	0.103	0.6003	0.029	1	0.864	1.109
SIC=27 Printing & Publishing	0.872	0.6798	1.644	1	0.200	2.391
SIC=28 Chemical & Allied Products	-0.055	0.3800	0.021	1	0.885	0.946
SIC=30 Rubber & Miscellaneous Plastics Products	0.422	0.4170	1.023	1	0.312	1.525
SIC=31 Leather & Leather Products	0.563	0.4879	1.333	1	0.248	1.756
SIC=32 Stone, Clay, & Glass Products	0.401	0.5308	0.572	1	0.450	1.494
SIC=34 Fabricated Metal Products	0.547	0.6160	0.788	1	0.375	1.728
SIC=35 Industrial Machinery & Equipment	-27.221	855,026	0.000	1	1.000	0.000
SIC=36 Electronic & Other Electric Equipment	0.057	0.3807	0.023	1	0.881	1.059
SIC=37 Transportation Equipment	0.019	0.4692	0.002	1	0.967	1.020
SIC=38 Instruments & Related Products	1.770	0.5688	9.682	1	0.002	5.870
SIC=39 Miscellaneous Manufacturing Industries	0.277	0.3426	0.655	1	0.418	1.320
SIC=54 Food Stores	-0.385	0.5618	0.469	1	0.494	0.681
SIC=56 Apparel & Accessory Stores	-27.096	645,117	0.000	1	1.000	0.000
SIC=58 Eating & Drinking Places	0.461	0.5647	0.666	1	0.414	1.586
SIC=59 Miscellaneous Retail	0.029	0.7793	0.001	1	0.970	1.030
SIC=72 Personal Services	-0.567	0.5038	1.267	1	0.260	0.567
SIC=73 Business Services	0.095	0.6060	0.025	1	0.875	1.100
SIC=76 Miscellaneous Repair Services	0.727	0.7887	0.850	1	0.357	2.069
SIC=79 Amusement & Recreation Services	0.067	0.3868	0.030	1	0.862	1.070
SIC=80 Health Services	-0.098	0.6709	0.021	1	0.884	0.907
SIC=81 Legal Services	-27.454b	.	.	.	.	0.000
SIC=82 Educational Services	0.723	0.4463	2.624	1	0.105	2.060
SIC=89 Services, Not Elsewhere Classified	0c	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.223	0.2933	0.580	1	0.446	0.800
Number of Pitching Entrepreneurs = 2	-0.551	0.2630	4.381	1	0.036	0.577
Number of Pitching Entrepreneurs > 2	0c	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	-0.356	0.1557	5.233	1	0.022	0.700
Gender of Pitching Entrepreneur = Female	0c	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	0.424	0.2066	4.217	1	0.040	1.528
Gender of Pitching Entrepreneurs = All Female	0.284	0.2522	1.272	1	0.259	1.329
Gender of Pitching Entrepreneurs = Mixed	0c	.	.	.	.	1.000
Independent variables						
Human Capital Signals	-3.084	2.9219	1.114	1	0.291	0.046
Social Capital Signals	-8.671	5.5242	2.464	1	0.116	0.000
Intellectual Capital Signals	-1.524	5.3998	0.080	1	0.778	0.218
Financial Capital Signals	6.054	5.1645	1.374	1	0.241	425.960
(Scale)	1d					

Notes: [a] Set to system missing due to overflow

[b] Hessian matrix singularity is caused by this parameter. The parameter estimate at the last iteration is displayed.

[c] Set to zero because this parameter is redundant.

[d] Fixed at the displayed value.

Based on the analysis (N = 289), the results show that the four independent variables, Human Capital Signals [Verbal], Social Capital Signals [Verbal], Intellectual Capital Signals [Verbal], and Financial Capital Signals [Verbal], do not show a significant impact on deal alternatives thus we did not find support for any of these four hypotheses:

> Hypothesis 1a: During an investment pitch, signals of high venture quality as a result of human capital positively affect the number of investor alternatives of a new venture.
>
> Hypothesis 1b: During an investment pitch, signals of high venture quality as a result of social capital positively affect the number of investor alternatives of a new venture.
>
> Hypothesis 1c: During an investment pitch, signals of high venture quality as a result of intellectual capital positively affect the number of investor alternatives of a new venture.
>
> Hypothesis 1d: During an investment pitch, signals of high venture quality as a result of financial capital positively affect the number of investor alternatives of a new venture.

An additional analysis was conducted to see if the venture quality signals in the pitches that resulted in a deal (DEAL = 1, N = 140) were significant. The Omnibus Test was similarly utilized as part of this Poisson regression analysis. Table 8 shows that when comparing the fitted model against the intercept-only model, the model is not significant

(p = 0.955), meaning that the model does not improve with the independent variables as it does not generate a statistically significant model.

Table 8. Omnibus test of Poisson multiple regression

(Seven independent variables – Only pitches with deals, N = 140)

Likelihood Ratio Chi-Square	df	Sig.
19.806	32	0.955

Similarly, Table 9 shows the statistical significance for each of the independent variables, including the overall effect of categorical variables. The independent variables of Human Capital Signals [Verbal] (ß = -3.533), Social Capital Signals [Verbal] (ß = -3.576), Intellectual Capital Signals [Verbal] (ß = -8.788), and Financial Capital Signals [Verbal] (ß = 9.972) are shown not to be statistically significant as are the control variables of Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual].

Table 9. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables – Only pitches with deals, N= 140)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	d	Sig.	
(Intercept)	1.143	0.6321	3.270	1	0.071	3.136
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	0.079	0.421	0.035	1	0.851	1.082
SIC=22 Textile Mill Products	-0.208	0.641	0.105	1	0.745	0.812
SIC=23 Apparel & Other Textile Products	0.260	0.423	0.378	1	0.539	1.296
SIC=25 Furniture & Fixtures	0.229	0.635	0.13	1	0.718	1.258
SIC=26 Paper & Allied Products	-0.215	0.686	0.098	1	0.754	0.807
SIC=27 Printing & Publishing	0.648	0.720	0.808	1	0.369	1.911
SIC=28 Chemical & Allied Products	0.303	0.439	0.475	1	0.491	1.354
SIC=30 Rubber & Miscellaneous Plastics Products	0.290	0.459	0.401	1	0.526	1.337
SIC=31 Leather & Leather Products	0.483	0.534	0.82	1	0.365	1.622
SIC=32 Stone, Clay, & Glass Products	0.196	0.561	0.122	1	0.727	1.216
SIC=34 Fabricated Metal Products	0.878	0.678	1.677	1	0.195	2.405
SIC=36 Electronic & Other Electric Equipment	0.614	0.455	1.817	1	0.178	1.847
SIC=37 Transportation Equipment	-0.022	0.569	0.001	1	0.969	0.978
SIC=38 Instruments & Related Products	1.054	0.606	3.025	1	0.082	2.868
SIC=39 Miscellaneous Manufacturing Industries	0.245	0.388	0.398	1	0.528	1.277
SIC=54 Food Stores	-0.131	0.595	0.048	1	0.826	0.878
SIC=58 Eating & Drinking Places	0.407	0.606	0.452	1	0.502	1.502
SIC=59 Miscellaneous Retail	0.105	0.789	0.018	1	0.894	1.111
SIC=72 Personal Services	0.240	0.571	0.177	1	0.674	1.272
SIC=73 Business Services	0.244	0.630	0.15	1	0.698	1.277
SIC=79 Amusement & Recreation Services	0.469	0.465	1.02	1	0.312	1.599
SIC=80 Health Services	0.680	0.726	0.878	1	0.349	1.974
SIC=82 Educational Services	0.835	0.516	2.619	1	0.106	2.304
SIC=89 Services, Not Elsewhere Classified	0a	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.186	0.307	0.368	1	0.544	0.830
Number of Pitching Entrepreneurs = 2	-0.333	0.291	1.308	1	0.253	0.717
Number of Pitching Entrepreneurs > 2	0a	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	0.034	0.180	0.035	1	0.851	1.034
Gender of Pitching Entrepreneur = Female	0a	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	0.004	0.251	0	1	0.987	1.004
Gender of Pitching Entrepreneurs = All Female	0.246	0.274	0.803	1	0.370	1.278
Gender of Pitching Entrepreneurs = Mixed	0a	.	.	.	.	1.000
Independent variables						
Human Capital Signals	-3.533	3.304	1.143	1	0.285	0.029
Social Capital Signals	-3.576	6.162	0.337	1	0.562	0.028
Intellectual Capital Signals	-8.788	6.218	1.997	1	0.158	0.000
Financial Capital Signals	9.972	6.333	2.479	1	0.115	21,418
(Scale)	1b					

Notes: [a] Set to zero because this parameter is redundant.

[b] Fixed at the displayed value.

Based on the analysis of just the pitches that received accepted deals (N = 140), the results show that the four independent variables, Human Capital Signals [Verbal], Social Capital Signals [Verbal], Intellectual Capital Signals [Verbal], and Financial

Capital Signals [Verbal], do not show a significant impact on deal alternatives thus we again did not find support for hypotheses 1a, 1b, 1c, and 1d.

Part IV: Moderation Analysis of Signals Characteristics

Cost and honesty are potential moderating variables that could alter alternatives based on their strengths. Strengths of cost and honesty signals were obtained through surveys as described earlier in this report. The mean of the four respondents were used for the weights that used in the interaction calculations. The first moderating characteristic that was analyzed was cost. Interaction variables were created for Human Capital Signals [Verbal] = HC_WC, Social Capital Signals [Verbal] = SC_WC, Intellectual Capital Signals [Verbal] = IC_WC, and Financial Capital Signals [Verbal] = FC_WC by taking each variable and multiplying it by their corresponding mean cost weight from the survey.

As in Part III, to identify which of these variables impact the dependent variable (alternatives) when cost is added as a moderator, the Poisson multiple regression model was utilized. In the first analysis, all 289 pitches were evaluated. The Omnibus Test was utilized as part of the Poisson regression analysis and yielded similar results as in Part III. Table 10 shows that when comparing the fitted model against the intercept-only model, the model is significant ($p = 0.008$), meaning that the model improves with the independent variables as it generates a statistically significant model.

Table 10. Omnibus test of Poisson multiple regression

(Seven independent variables - All pitches with cost moderation, N = 289)

Likelihood Ratio Chi-Square	df	Sig.
60.939	37	0.008

Similar to Part III, variables which have high Wald Chi-Square values suggest that the coefficients describe the log(Alternatives) model well. Likewise, taking the results of the regression, the regression equation for our analysis can be written using the ß coefficients. Table 11 shows that the independent variables of Human Capital Signals [Verbal] x Cost (ß = -0.641), Social Capital Signals [Verbal] x Cost (ß = -1.889), Intellectual Capital Signals [Verbal] x Cost (ß = -0.308), and Financial Capital Signals [Verbal] x Cost (ß = 1.719) are shown not to be statistically significant. Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual] are independent control variables and are statistically significant in the model.

Table 11. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables - All pitches, N= 289 with cost moderation)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	df	Sig.	
(Intercept)	0.977	0.5257	3.452	1	0.063	2.656
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	-0.138	0.3605	0.146	1	0.702	0.871
SIC=22 Textile Mill Products	-0.369	0.4871	0.573	1	0.449	0.692
SIC=23 Apparel & Other Textile Products	-0.109	0.3625	0.091	1	0.763	0.897
SIC=24 Lumber & Wood Products	-27.226	791,317	0.000	1	1.000	0.000
SIC=25 Furniture & Fixtures	0.419	0.4975	0.710	1	0.399	1.521
SIC=26 Paper & Allied Products	0.119	0.6004	0.039	1	0.843	1.126
SIC=27 Printing & Publishing	0.880	0.6811	1.668	1	0.197	2.410
SIC=28 Chemical & Allied Products	-0.048	0.3797	0.016	1	0.899	0.953
SIC=30 Rubber & Miscellaneous Plastics Products	0.431	0.4171	1.066	1	0.302	1.538
SIC=31 Leather & Leather Products	0.560	0.4878	1.317	1	0.251	1.750
SIC=32 Stone, Clay, & Glass Products	0.417	0.5318	0.615	1	0.433	1.518
SIC=34 Fabricated Metal Products	0.553	0.6164	0.805	1	0.370	1.739
SIC=35 Industrial Machinery & Equipment	-27.194	848,849	0.000	1	1.000	0.000
SIC=36 Electronic & Other Electric Equipment	0.077	0.3818	0.040	1	0.841	1.080
SIC=37 Transportation Equipment	0.045	0.4710	0.009	1	0.924	1.046
SIC=38 Instruments & Related Products	1.778	0.5675	9.815	1	0.002	5.918
SIC=39 Miscellaneous Manufacturing Industries	0.292	0.3431	0.722	1	0.395	1.338
SIC=54 Food Stores	-0.377	0.5621	0.449	1	0.503	0.686
SIC=56 Apparel & Accessory Stores	-27.085	639,750	0.000	1	1.000	0.000
SIC=58 Eating & Drinking Places	0.493	0.5657	0.761	1	0.383	1.638
SIC=59 Miscellaneous Retail	0.029	0.7792	0.001	1	0.970	1.030
SIC=72 Personal Services	-0.582	0.5030	1.338	1	0.247	0.559
SIC=73 Business Services	0.097	0.6064	0.026	1	0.872	1.102
SIC=76 Miscellaneous Repair Services	0.701	0.7892	0.788	1	0.375	2.015
SIC=79 Amusement & Recreation Services	0.069	0.3868	0.032	1	0.858	1.072
SIC=80 Health Services	-0.079	0.6718	0.014	1	0.906	0.924
SIC=81 Legal Services	-27.466b	.	.	.	.	0.000
SIC=82 Educational Services	0.725	0.4463	2.642	1	0.104	2.066
SIC=89 Services, Not Elsewhere Classified	0c	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.212	0.2922	0.526	1	0.468	0.809
Number of Pitching Entrepreneurs = 2	-0.538	0.2619	4.220	1	0.040	0.584
Number of Pitching Entrepreneurs > 2	0c	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	-0.357	0.1554	5.275	1	0.022	0.700
Gender of Pitching Entrepreneur = Female	0c	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	0.415	0.2072	4.008	1	0.045	1.514
Gender of Pitching Entrepreneurs = All Female	0.285	0.2526	1.277	1	0.258	1.330
Gender of Pitching Entrepreneurs = Mixed	0c	.	.	.	.	1.000
Independent variables						
Human Capital Signals x Cost	-0.641	0.5785	1.226	1	0.268	0.527
Social Capital Signals x Cost	-1.889	1.2238	2.382	1	0.123	0.151
Intellectual Capital Signals x Cost	-0.308	1.1717	0.069	1	0.792	0.735
Financial Capital Signals x Cost	1.719	1.4094	1.488	1	0.222	5.581
(Scale)	1d					

Notes: [a] Set to system missing due to overflow

[b] Hessian matrix singularity is caused by this parameter. The parameter estimate at the last iteration is displayed.

[c] Set to zero because this parameter is redundant.

[d] Fixed at the displayed value.

Repeating the previous steps when honesty is added as a moderator, when evaluating all 289 pitches the Omnibus Test yielded similar results. Table 12 shows that when comparing the fitted model against the intercept-only model, the model is significant (p = 0.007), meaning that the model improves with the independent variables as it generates a statistically significant model.

Table 12. Omnibus test of Poisson multiple regression

(Seven independent variables - All pitches with honesty moderation, N = 289)

Likelihood Ratio Chi-Square	df	Sig.
61.191	37	0.007

Table 13 shows that the independent variables of Human Capital Signals [Verbal] x Honesty (ß = -0.701), Social Capital Signals [Verbal] x Honesty (ß = -1.517), Intellectual Capital Signals [Verbal] x Honesty (ß = -0.244), and Financial Capital Signals [Verbal] x Honesty (ß = 1.225) are shown not to be statistically significant. Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual] are independent control variables and are again statistically significant in the model.

Table 13. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables - All pitches N= 289 with honesty moderation)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	df	Sig.	
(Intercept)	1.033	0.5283	3.826	1	0.050	2.811
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	-0.159	0.3595	0.197	1	0.657	0.853
SIC=22 Textile Mill Products	-0.377	0.4869	0.598	1	0.439	0.686
SIC=23 Apparel & Other Textile Products	-0.128	0.3604	0.125	1	0.723	0.880
SIC=24 Lumber & Wood Products	-27.225	778,204	0.000	1	1.000	0.000
SIC=25 Furniture & Fixtures	0.394	0.4969	0.629	1	0.428	1.483
SIC=26 Paper & Allied Products	0.093	0.6002	0.024	1	0.877	1.098
SIC=27 Printing & Publishing	0.870	0.6796	1.638	1	0.201	2.386
SIC=28 Chemical & Allied Products	-0.067	0.3793	0.031	1	0.861	0.936
SIC=30 Rubber & Miscellaneous Plastics Products	0.412	0.4170	0.978	1	0.323	1.510
SIC=31 Leather & Leather Products	0.554	0.4872	1.294	1	0.255	1.740
SIC=32 Stone, Clay, & Glass Products	0.398	0.5306	0.562	1	0.453	1.489
SIC=34 Fabricated Metal Products	0.528	0.6151	0.737	1	0.391	1.695
SIC=35 Industrial Machinery & Equipment	-27.250	855,862	0.000	1	1.000	0.000
SIC=36 Electronic & Other Electric Equipment	0.039	0.3802	0.010	1	0.919	1.040
SIC=37 Transportation Equipment	0.019	0.4685	0.002	1	0.968	1.019
SIC=38 Instruments & Related Products	1.763	0.5661	9.695	1	0.002	5.828
SIC=39 Miscellaneous Manufacturing Industries	0.270	0.3417	0.626	1	0.429	1.310
SIC=54 Food Stores	-0.397	0.5612	0.501	1	0.479	0.672
SIC=56 Apparel & Accessory Stores	-27.141	654,598	0.000	1	1.000	0.000
SIC=58 Eating & Drinking Places	0.451	0.5639	0.638	1	0.424	1.569
SIC=59 Miscellaneous Retail	0.032	0.7788	0.002	1	0.967	1.032
SIC=72 Personal Services	-0.572	0.5036	1.288	1	0.256	0.565
SIC=73 Business Services	0.098	0.6058	0.026	1	0.871	1.103
SIC=76 Miscellaneous Repair Services	0.722	0.7898	0.836	1	0.360	2.059
SIC=79 Amusement & Recreation Services	0.069	0.3867	0.032	1	0.859	1.071
SIC=80 Health Services	-0.096	0.6706	0.021	1	0.886	0.908
SIC=81 Legal Services	-27.455b	.	.	.	.	0.000
SIC=82 Educational Services	0.722	0.4466	2.617	1	0.106	2.059
SIC=89 Services, Not Elsewhere Classified	0c	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.214	0.2933	0.535	1	0.465	0.807
Number of Pitching Entrepreneurs = 2	-0.544	0.2629	4.284	1	0.038	0.580
Number of Pitching Entrepreneurs > 2	0c	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	-0.363	0.1562	5.400	1	0.020	0.696
Gender of Pitching Entrepreneur = Female	0c	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	0.427	0.2063	4.279	1	0.039	1.532
Gender of Pitching Entrepreneurs = All Female	0.283	0.2522	1.262	1	0.261	1.328
Gender of Pitching Entrepreneurs = Mixed	0c	.	.	.	.	1.000
Independent variables						
Human Capital Signals x Honesty	-0.701	0.5819	1.450	1	0.229	0.496
Social Capital Signals x Honesty	-1.517	0.9807	2.392	1	0.122	0.219
Intellectual Capital Signals x Honesty	-0.244	1.1998	0.041	1	0.839	0.783
Financial Capital Signals x Honesty	1.225	1.1098	1.218	1	0.270	3.404
(Scale)	1d					

Notes: [a] Set to system missing due to overflow

[b] Hessian matrix singularity is caused by this parameter. The parameter estimate at the last iteration is displayed.

[c] Set to zero because this parameter is redundant.

[d] Fixed at the displayed value.

Based on the analysis (N = 289), the results showed minimal change when each cost and honesty were added as moderators. The proposed moderators do not show a significant impact on deal alternatives thus we do not find support for the following hypothesis:

> Hypothesis 2: During an investment pitch, the positive relationship between high venture quality signals of a new venture and the number of investor alternatives is moderated by the signal characteristics of cost and honesty.

As in Part III, an additional analysis was conducted to see if the results differ when just the successful pitches were analyzed (DEAL = 1, N = 140). The Omnibus Test was utilized and Table 14 shows that when comparing the fitted model against the intercept-only model, the model again is not significant (p = 0.959), meaning that the model does not improve with the independent variables as it does not generate a statistically significant model.

Table 14. Omnibus test of Poisson multiple regression

(Seven independent variables - Only pitches with deals with cost moderation, N = 140)

Likelihood Ratio Chi-Square	df	Sig.
19.542	32	0.959

Table 15 shows that the independent variables of Human Capital Signals [Verbal] x Cost (ß = -0.694), Social Capital Signals [Verbal] x Cost (ß = -0.930), Intellectual Capital Signals [Verbal] x Cost (ß = -1.850), and Financial Capital Signals [Verbal] x Cost (ß = 2.697) are shown not to be statistically significant as are the control variables of

Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual].

Table 15. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables - Only pitches with deals N= 140 with cost moderation)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	df	Sig.	
(Intercept)	1.142	0.6219	3.370	1	0.066	3.132
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	0.101	0.4226	0.057	1	0.811	1.106
SIC=22 Textile Mill Products	-0.183	0.6433	0.081	1	0.776	0.833
SIC=23 Apparel & Other Textile Products	0.276	0.4259	0.419	1	0.518	1.317
SIC=25 Furniture & Fixtures	0.259	0.6394	0.164	1	0.685	1.296
SIC=26 Paper & Allied Products	-0.171	0.6912	0.061	1	0.805	0.843
SIC=27 Printing & Publishing	0.655	0.7227	0.820	1	0.365	1.924
SIC=28 Chemical & Allied Products	0.323	0.4396	0.539	1	0.463	1.381
SIC=30 Rubber & Miscellaneous Plastics Products	0.304	0.4604	0.435	1	0.510	1.355
SIC=31 Leather & Leather Products	0.486	0.5330	0.832	1	0.362	1.626
SIC=32 Stone, Clay, & Glass Products	0.209	0.5635	0.138	1	0.710	1.233
SIC=34 Fabricated Metal Products	0.902	0.6813	1.753	1	0.185	2.465
SIC=36 Electronic & Other Electric Equipment	0.641	0.4601	1.938	1	0.164	1.898
SIC=37 Transportation Equipment	0.025	0.5762	0.002	1	0.965	1.026
SIC=38 Instruments & Related Products	1.086	0.6055	3.215	1	0.073	2.962
SIC=39 Miscellaneous Manufacturing Industries	0.265	0.3901	0.460	1	0.498	1.303
SIC=54 Food Stores	-0.121	0.5958	0.041	1	0.839	0.886
SIC=58 Eating & Drinking Places	0.466	0.6120	0.580	1	0.446	1.594
SIC=59 Miscellaneous Retail	0.124	0.7897	0.025	1	0.875	1.132
SIC=72 Personal Services	0.259	0.5768	0.202	1	0.653	1.296
SIC=73 Business Services	0.272	0.6329	0.185	1	0.667	1.313
SIC=79 Amusement & Recreation Services	0.490	0.4681	1.097	1	0.295	1.633
SIC=80 Health Services	0.689	0.7294	0.893	1	0.345	1.992
SIC=82 Educational Services	0.855	0.5195	2.709	1	0.100	2.351
SIC=89 Services, Not Elsewhere Classified	0a	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.182	0.3067	0.351	1	0.553	0.834
Number of Pitching Entrepreneurs = 2	-0.323	0.2901	1.243	1	0.265	0.724
Number of Pitching Entrepreneurs > 2	0a	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	0.031	0.1802	0.031	1	0.861	1.032
Gender of Pitching Entrepreneur = Female	0a	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	-0.016	0.2509	0.004	1	0.949	0.984
Gender of Pitching Entrepreneurs = All Female	0.240	0.2737	0.769	1	0.381	1.271
Gender of Pitching Entrepreneurs = Mixed	0a	.	.	.	.	1.000
Interactions						
Human Capital Signals x Cost	-0.694	0.6623	1.098	1	0.295	0.500
Social Capital Signals x Cost	-0.930	1.3712	0.460	1	0.498	0.394
Intellectual Capital Signals x Cost	-1.850	1.3604	1.849	1	0.174	0.157
Financial Capital Signals x Cost	2.697	1.7234	2.448	1	0.118	14.830
(Scale)	1b					

Notes: [a] Set to zero because this parameter is redundant.

[b] Fixed at the displayed value.

Repeating the previous steps when honesty is added as a moderator to evaluate the 140 pitches, the Omnibus Test yielded similar results in that the model again is not significant (p = 0.960), meaning that the model does not improve with the independent variables as it does not generate a statistically significant model (see Table 16).

Table 16. Omnibus test of Poisson multiple regression

(Seven independent variables - Only pitches with deals with honesty moderation, N = 140)

Likelihood Ratio Chi-Square	df	Sig.
19.479	32	0.960

Table 17 shows that the independent variables of Human Capital Signals [Verbal] x Honesty (ß = -0.694), Social Capital Signals [Verbal] x Honesty (ß = -0.639), Intellectual Capital Signals [Verbal] x Honesty (ß = -1.936), and Financial Capital Signals [Verbal] x Honesty (ß = 2.027) are shown not to be statistically significant as are the control variables of Standard Industrial Classification [SIC], Human Capital - Team Size [Visual], and Human Capital - Gender Diversity [Visual].

Table 17. Poisson multiple regression results for seven independent variables and Alternatives as dependent variable

(Seven independent variables - Only pitches with deals, N= 140
with honesty moderation)

Parameters	β	Std. Error	Hypothesis Test			Exp(β)
			Wald Chi-Square	df	Sig.	
(Intercept)	1.166	0.6308	3.418	1	0.064	3.210
Control variables						
Standard Industrial Classification [SIC]						
SIC=20 Food & Kindred Products	0.061	0.4181	0.022	1	0.883	1.063
SIC=22 Textile Mill Products	-0.210	0.6405	0.108	1	0.742	0.810
SIC=23 Apparel & Other Textile Products	0.236	0.4194	0.317	1	0.573	1.266
SIC=25 Furniture & Fixtures	0.205	0.6333	0.105	1	0.746	1.228
SIC=26 Paper & Allied Products	-0.246	0.6832	0.130	1	0.718	0.782
SIC=27 Printing & Publishing	0.616	0.7173	0.738	1	0.390	1.852
SIC=28 Chemical & Allied Products	0.289	0.4364	0.437	1	0.509	1.334
SIC=30 Rubber & Miscellaneous Plastics Products	0.281	0.4583	0.376	1	0.540	1.324
SIC=31 Leather & Leather Products	0.468	0.5316	0.773	1	0.379	1.596
SIC=32 Stone, Clay, & Glass Products	0.188	0.5611	0.112	1	0.738	1.207
SIC=34 Fabricated Metal Products	0.838	0.6715	1.557	1	0.212	2.311
SIC=36 Electronic & Other Electric Equipment	0.586	0.4515	1.683	1	0.195	1.796
SIC=37 Transportation Equipment	-0.035	0.5657	0.004	1	0.950	0.965
SIC=38 Instruments & Related Products	1.033	0.5991	2.975	1	0.085	2.811
SIC=39 Miscellaneous Manufacturing Industries	0.232	0.3854	0.363	1	0.547	1.261
SIC=54 Food Stores	-0.141	0.5948	0.056	1	0.813	0.869
SIC=58 Eating & Drinking Places	0.381	0.6018	0.400	1	0.527	1.463
SIC=59 Miscellaneous Retail	0.086	0.7877	0.012	1	0.914	1.089
SIC=72 Personal Services	0.208	0.5691	0.134	1	0.714	1.232
SIC=73 Business Services	0.250	0.6294	0.158	1	0.691	1.285
SIC=79 Amusement & Recreation Services	0.456	0.4628	0.972	1	0.324	1.578
SIC=80 Health Services	0.667	0.7266	0.843	1	0.359	1.948
SIC=82 Educational Services	0.810	0.5117	2.507	1	0.113	2.248
SIC=89 Services, Not Elsewhere Classified	0a	.	.	.	.	1.000
Human Capital - Team Size						
Number of Pitching Entrepreneurs = 1	-0.183	0.3074	0.356	1	0.551	0.832
Number of Pitching Entrepreneurs = 2	-0.323	0.2910	1.236	1	0.266	0.724
Number of Pitching Entrepreneurs > 2	0a	.	.	.	.	1.000
Human Capital - Gender Diversity						
Gender of Pitching Entrepreneur = Male	0.026	0.1804	0.021	1	0.885	1.026
Gender of Pitching Entrepreneur = Female	0a	.	.	.	.	1.000
Gender of Pitching Entrepreneurs = All Male	0.003	0.2506	0.000	1	0.991	1.003
Gender of Pitching Entrepreneurs = All Female	0.240	0.2741	0.768	1	0.381	1.272
Gender of Pitching Entrepreneurs = Mixed	0a	.	.	.	.	1.000
Interactions						
Human Capital Signals x Honesty	-0.694	0.6525	1.130	1	0.288	0.500
Social Capital Signals x Honesty	-0.639	1.0946	0.341	1	0.559	0.528
Intellectual Capital Signals x Honesty	-1.936	1.3978	1.918	1	0.166	0.144
Financial Capital Signals x Honesty	2.027	1.3675	2.197	1	0.138	7.589
(Scale)	1b					

Notes: [a] Set to zero because this parameter is redundant.

[b] Fixed at the displayed value.

Based on the analysis (N = 140), the results showed minimal change when each cost and honesty were added as moderators, which was similar to the results of the full data set, thus again no support for the hypothesis.

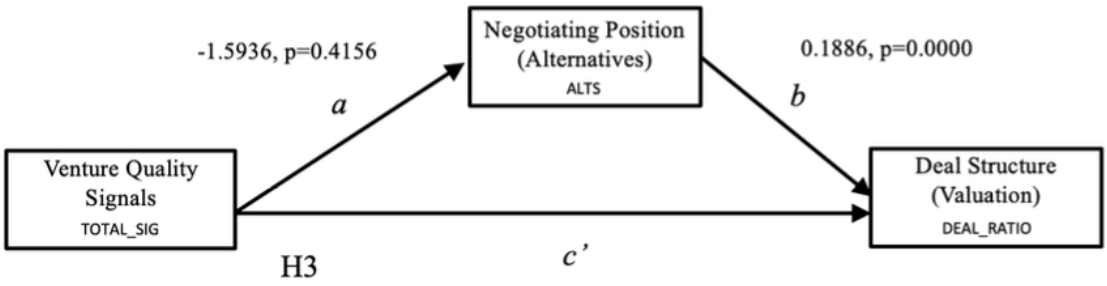
Part V: Mediation Analysis

In order to run the mediation tests to see if during an investment pitch the number of investor alternatives available to the new venture mediates the relationship between venture quality signals and the investment valuation received by the entrepreneur, I downloaded and installed Andrew F. Hayes' PROCESS Macro version 3.3 from www.processmacro.org/download.html for mediation analysis using SPSS. Appendix A of Hayes' (2018) Introduction to Mediation, Moderation, and Conditional Process Analysis confirmed that Model 4 resembles the mediation model shown in Figure 2.

Evaluating mediation using the model in Figure 2, there is not a significant relationship between venture quality signals and deal structure (ß = -0.8612) or negotiating position (ß = -1.5936). The analysis does show that there is a significant positive relationship between negotiating position (alternatives) and the deal structure (ß = 0.1886). The analysis also shows the presence of alternatives does reduce the effect of venture quality signals on deal structure (ß = -0.8612 without ALTS present and ß= -0.5606 with ALTS present). The indirect effect of venture quality signals on deal structure is ß = -0.3005, C.I. -0.9618, 0.4415. In summary, there is not support for the hypothesis that investor alternatives available to the new venture mediates the relationship between venture quality signals and the investment valuation received by the entrepreneur when all the pitches are analyzed together (N = 289).

Figure 2. Theoretical Framework of Mediation (All pitches)

N = 289



-0.8612, p=0.1755 (without ALTS)

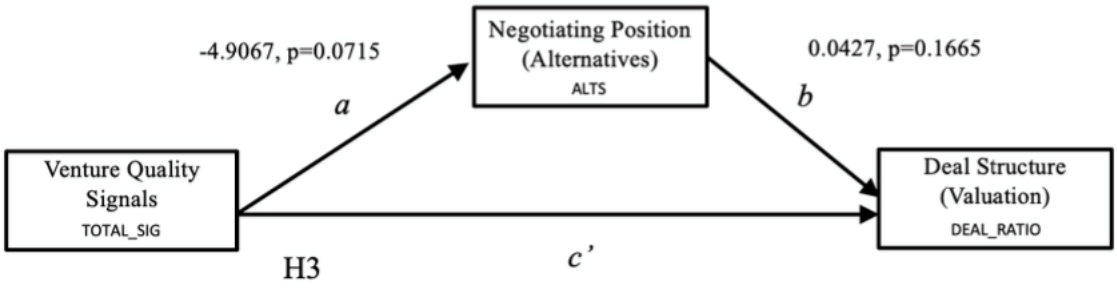
-0.5606, p=0.2794 (with ALTS)

-0.3005 CI [-0.9618, 0.4415]

As in the previous parts, I separately looked at cases which resulted in deals (N = 140). Figure 3 shows the model and results. There is not a significant relationship between venture quality signals and deal structure (ß = -1.3551) or negotiating position (ß = -4.9067). When looking at this subgroup, the analysis does not show that there is a significant relationship between negotiating position (alternatives) and the deal structure (ß = 0.0427). The analysis does show a slight reduction of the effect of venture quality signals on deal structure (ß = -1.3551 without ALTS present and ß = -1.1454 with ALTS present). The indirect effect of venture quality signals on deal structure is ß = -0.2097, C.I. -0.6938, 0.1379. Again, there is not support for the hypothesis that investor alternatives available to the new venture mediates the relationship between venture quality signals and the investment valuation received by the entrepreneur when looking at the subset (N = 140).

Figure 3. Theoretical Framework of Mediation (*Deal* = 1)

N = 140



-1.3551, p=0.1684 (without ALTS)
-1.1454, p=0.2478 (with ALTS)

-0.2097 CI [-0.6938, 0.1379]

CHAPTER V

DISCUSSION

Overview

The underlying objectives of this research study are to (1) understand how signals of high venture quality as a result of human capital, social capital, intellectual capital, and financial capital affect the number of investor alternatives a new venture receives based on the content of an entrepreneur's investment pitch, (2) understand how the signal characteristics of cost and honesty moderate the relationship between these capital signals and investor alternatives, and (3) understand if the number of investor alternatives of a new venture mediates the relationship between the signals and the investment valuation received. To address these questions, a thorough literature review was performed on signaling theory discussing the signaling environment to include senders, signals, receivers, and feedback. Signal history in the context of evolutionary biology and anthropology was investigated in addition to the role of signals in the modern-day communications of firms. Specifically, signals of new ventures were examined in the context of the business pitch. A review of negotiation literature, specifically looking at *power* and *BATNA*, was completed to explain deal dynamics and how positions affect

negotiating results. A theoretical model was proposed to answer the research questions and was operationalized for empirical evidence of conclusions. In this chapter, the results are discussed along with their implications on theory and practice. Limitations and future research directions are also included in this chapter.

Results

Prior research has shown that the business pitch plays a critical role in new ventures obtaining investment. When the entrepreneur displays preparedness and cognitive legitimacy exists in the minds of investors, confidence in the future success of the firm is signaled leading to increased funding (Pollack et al., 2012). Studies have indicated that entrepreneurs and new ventures communicate signals about their opportunities (e.g., Nagy et al., 2012), but what has not been explored is how these signals lead to increasing financing alternatives for the firm, and whether or not these alternatives result in a more favorable deal for the firm. Further, the entrepreneurship community has not explored how the perceived cost and honesty of specific signal types affect the decision-making of investors. To address these questions, this study draws from prior signaling theory and power-dependence theory research to formulate a model which explores how specific signals may lead to alternatives and a better deal for the entrepreneur. Conceptually, the central hypothesis is that new ventures which communicate a greater quantity of high-quality signals in a business pitch should signal more attractiveness as an investment opportunity to investors thus more investors should be interested in investing in the opportunity. Further, with more investor alternatives for the new venture, negotiating power should shift away from investors to entrepreneurs, leading to a better deal for the entrepreneurs.

Research Question 1

The first research question was analyzed in four variations to see the effects of signals on alternatives for each signal type – human capital, social capital, intellectual capital, and financial capital. The premise for all four is the same: The greater the number of signals of the capital type, the greater the number of investor alternatives for the new venture. As positive signals communicate attractive characteristics, this study argued that sending more of these signals during the business pitch would increase investor interest. The study was operationalized using *Shark Tank* business pitches for a consistent pitch format and for a standardized range of investor alternatives (zero to five potential investors in an opportunity).

For each research question, the data was analyzed in two ways, first looking at all 289 business pitches which include both funded and unfunded opportunities, and second, looking at just the funded opportunities (N = 140). By looking at just the funded opportunities, the analysis removes any potential bias related to pitches not receiving funding as a majority of these have zero alternatives. Poisson regression was used to analyze the data with the target variable being the quantity of alternatives. Under both scenarios and for all four signal types, the findings empirically show that there is not support for the hypothesis that signals lead to more investor alternatives. While one may look at these results and conclude that there is no relationship, there could be more to the story that was not captured from the analyzed pitch segments. One thought is that other factors come into play such as the full story or sensegiving (Lounsbury & Glynn, 2001) of the business pitch which causes an investor to connect with the new venture beyond just the verbal signals. These additional factors could weigh in the decision-making

either instead of or in combination with the verbal communication. Another potential reason for the insignificant findings may be due to the study design. Since only the initial business pitch was analyzed, meaning the portion of the pitch that was planned by the entrepreneur, investors decisions may come during the detailed question and answer dialogue which follows the entrepreneur's planned pitch. These topics are discussed in further detail in the limitations and future research directions section of this chapter.

Research Question 2

The second research question explores signal strength characteristics of *cost* and *honesty* to see if they moderate the relationship between signals and alternatives. As in Research Question 1, the data was analyzed in two ways, first looking at all business pitches which include both funded and unfunded opportunities, and second looking at just the funded opportunities. The analysis of both populations was completed twice, once for the signal characteristic of *cost* followed by *honesty*. Conceptually, the argument was that signals perceived to be stronger than others would have an effect on the investor interest. Interaction terms were calculated and analyzed using Poisson regression analysis as in Research Question 1. For both *cost* and *honesty* characteristics, and for both populations that were analyzed, the interaction factors were also found not to be significant. As with Research Question 1, the results for Research Question 2 could be due to similar issues. The empirical results suggest that the characteristic strengths do not change the outcomes. By extending the content that is analyzed to include the question and answer period of the negotiations, the results could differ. Again, this is discussed in further detail in the limitations and future research directions section of this chapter.

Research Question 3

The third research question seeks to understand if investor alternatives is a mediating factor between high-quality signals and deal terms. Conceptually, as signals should drive investment interest, negotiation leverage should favor the entrepreneur and lead to a better deal. Similar to the first two research questions, the data was analyzed in two ways, first looking at all business pitches which include both funded and unfunded opportunities, and second looking at just the funded opportunities.

When looking at the entire population of funded and unfunded deals, there is a significant relationship between alternatives and deal terms, but there is not support for the hypothesis as there is not a significant relationship between signals and deal structure.

In addition, this significant relationship between alternatives and deal structure is likely due to the bias that is created when no alternatives exist. Thus, to accurately analyze the effects of the mediation, emphasis should be placed on the analysis that looks only at funded opportunities as the bias is removed.

Looking at the results of the scenario that removes the unfunded pitches, there is not support for the hypothesis as there are no significant relationships between the independent, dependent, or proposed mediating variables. Though results did not support the hypotheses, what this study has accomplished is establish a framework to explore other business pitch format variations. For example, signals communicated throughout the entire business pitch which would include post-pitch questions and answers between the entrepreneur and investors could be analyzed using the same model and process.

External Validity of Theoretical Model

In conjunction with the quantitative analysis, this study assessed the external validity of the core research question on whether or not entrepreneurs attempt to communicate positive messages of signal capital types during business pitches to improve financing success. The goal of this supplemental qualitative analysis was to obtain direct insight from entrepreneurs to understand decisions of pitch content. As part of this study's respondent selection criteria, only entrepreneurs who have pitched their opportunities for investment were selected. Molina-Azorín et al.'s article titled *Mixed methods studies in entrepreneurship research: Applications and contributions* (2012) highlights various mixed method approaches to research. This process used what the authors consider the Group III approach in which quantitative analysis is the dominant method of the analysis while qualitative research is used to shed more light on the findings. In order to acquire feedback from a broad spectrum of entrepreneurs, a five open-ended question survey was sent out to entrepreneurs with pitching experience. Through the Youngstown Business Incubator's network of early stage ventures, 31 entrepreneurs with history of giving one or more business pitches, were sent the survey to complete. A total of 17 surveys were completed through Qualtrics representing a response rate of 55%. The intent of the survey was to gain an understanding of what entrepreneurs feel is important to convey to potential investors. Instead of asking about whether or not specific venture quality signal types as described in the entrepreneurship literature were communicated, this study took the approach of having no preconceived notions of what types of "capital" (human capital, social capital, intellectual capital, and/or financial capital) were communicated thus allowing the respondents to describe

their content in their own words. In addition, the study intended to understand the effects of other investment alternatives available to the entrepreneur at the time of their pitch. As these entrepreneurs could be at various stages in their company's development, all were asked to reflect on their initial pitch experience and their thoughts before and after this event. The goal was to look for generalizability and patterns. The five questions asked were as follows:

> Question 1: *Please detail specifics related to your FIRST business pitch experience. Include 1] the investor type that you pitched (a general answer such as angel investor, venture capitalist, business owner in the same industry, etc. is fine), 2] the venue or environment that you gave the pitch, and 3] any specific time limit or format that you were given by the potential investor prior to your pitch (if any).*
>
> Question 2: *For this FIRST business pitch, did you have a formal presentation prepared such as a PowerPoint or pitch deck? Please explain what you prepared. In preparing for your pitch, what specific information did you feel was most important to communicate to the potential investor(s) and why? Please detail.*
>
> Question 3: *When you pitched your opportunity, how much money were you seeking and how much equity were you offering for the funding? At this time, did you have other funding (or investor) alternatives and did you convey this in your pitch to this potential investor? Please detail.*

Question 4: *Do you feel you had prepared and presented exactly the information that the investor would want to know about your opportunity to evaluate it? Why or why not? What was the result of the pitch? [If successful, were the terms different from what you were initially seeking? In what ways?]*

Question 5: *In hindsight, is there anything that you think that you should have communicated in your pitch that would have improved your results? If so, what specific information did you add or delete in your presentation before your next pitch? Please detail.*

The first survey question was used to gain an understanding of the venues in which the surveyed entrepreneurs first presented their businesses for investment. The survey results showed that of the 17 respondents, there were two types of pitch types, (1) a business pitch as a part of a competition featuring prize money, or (2) a business pitch given directly to specific angel investors, venture capital firms, or business accelerators involving a transfer of equity for capital or resources. Business pitches given as part of competitions had varying time lengths, however most formats resembled the *Shark Tank* design in that the entrepreneurs would first present their prepared pitched followed by a question and answer period between the entrepreneurs and potential investors. These competitions occurred mainly at universities or at organizations established to assist entrepreneurs such as business accelerators and incubators. The business pitches directly to specific investors did not have a standard format, time length, or common meeting place. These meetings occurred in various venues including conference rooms, coffee shops, or even virtually via video chats.

Survey Question 2 was used to gain a better understanding of the preparation that occurred prior to the pitch. For the most part, entrepreneurs prepared PowerPoint presentations or pitch decks prior to the business pitch. As for the specific content that was emphasized by the entrepreneurs, most wanted to accentuate the problem and solution as they felt this was the most important information investors would want to know about the opportunity. The entrepreneurs did respond with numerous venture quality signals outlined in the theoretical portion of this study as information they wanted to communicate to investors. For example, Respondent #1 said "We mostly focused on the problem and our solution, as well as our team" which describes a Human Capital signal. This respondent continued to explain the reason for conveying this information was "to show that our team was able to execute our solution ourselves." Additional support for theory appearing in practice was from Respondent #5 when the entrepreneur stated that they wanted to show their "prototype and Excel spreadsheet projection of the costs and earnings" as they felt they were "most important to express the solution" which shows support for both the Intellectual Capital and Financial Capital signals. The completed responses are shown in the Appendix.

Survey Question 3 was developed to get an understanding of the entrepreneur's goals and investment alternatives at the time of the pitch. There was a clear difference in responses as those pitching in a competition were focused on the prize. These businesses appeared to be at an earlier stage of development while the businesses pitching specific to investment had more precise (and larger) investment requests in exchange for equity. From responses received, it appeared that other financing alternatives were mostly unavailable, and if available, were not used to enhance negotiation positions. The lack of

other alternatives at this stage is not unexpected as the respondents were asked to reflect on their *initial* pitch experience. However, the value of alternatives is something that at least one entrepreneur recognized as valuable as Respondent #3 eloquently stated "If I would have had previous funding I would have conveyed this because it gives my idea credibility seeing that others were willing to invest in me as well."

Survey Question 4 was a reflection on how the entrepreneur felt that the information was presented as the potential investors would want to see it. This question received mixed answers as a number of entrepreneurs felt like they did not present what the investors expected. For example, Respondent #5 described it as "a valuable lesson in growth" and Respondent #8 stated "after this pitch and 20-30 other preparation pitches, the objective was to get feedback to improve the deck through many iterations." In other words, the entrepreneurs were realizing that the business pitch is an evolution. There were several respondents that felt like their pitch experience was a success. The common theme amongst those respondents was that their success was due either to the fact that those that the pitch audience was "very specific about what topics should be covered in the pitch" as described by Respondent #14 or that there was proper preparation as "we had worked with multiple advisors and mentors that really helped us craft an amazing pitch" as Respondent #9 revealed. Interestingly, Respondent #12 highlighted a point that was discussed in Chapter 2 as a factor in negotiation success, the phenomenon of the fear-of-missing-out (FoMO). This respondent stated that "the best pitches for money should have investors feeling FoMO, or a feeling of its too good to be true (leading them to ask more questions to dig for the missing red flag)." Though this respondent explains

an important point that is highlighted in this study, unfortunately the entrepreneur revealed that they "did not instill FoMO" in their first pitch thus were unsuccessful.

Finally, Survey Question 5 asked what entrepreneurs could have added to their pitch to improve success. The responses received to this question showed that entrepreneurs see the importance of signaling specific information to investors. In addition, the responses of information they plan to communicate align with the venture quality signal types discussed in the theoretical portion of this study. Example responses include "we should have focused more on the financial opportunity" (Respondent #1) describing Financial Capital signals and "we should have communicated our ability to program the MVP (minimum viable product) ourselves" (Respondent #7) describing Human Capital signals. A number of respondents spoke about their need to communicate their go-to-market strategy and defensible positions which relate to the Intellectual Capital signals. Other themes that came from the responses were that their business models needed improvement, that they needed to be clearer of their "needs," and that they needed to improve their presentation skills. Respondents #2 and #12 both thought it would be important to have more business experience by the time the initial pitch occurred and that validation is important within the pitch, highlighting an issue that many entrepreneurs face – the timing on when to seek financing. Surprisingly, very few responses discussed Social Capital signals. This is potentially due to the life cycle stage of the companies in that the affiliations with other companies or individuals have not been established or that it was too early to foresee such relationships. The responses to all five questions for each respondent are included in the Appendix.

Research Implications

New ventures are challenged with the task of educating and enticing potential investors within a short window of time to draw interest and investment. This research study provides several implications for entrepreneurship and negotiation research and practice. The following looks at how this study affects these areas.

Entrepreneurship Research

While the new venture body of research is rich, this study is the first to examine the role of power-dependence theory within entrepreneurship. More specifically, this study adds to the entrepreneurship literature by providing a thorough review of research related to BATNA (see Table 2). New ventures are at a disadvantage to established firms when attempting to obtain financial growth capital as they are typically limited to equity financing from private investors as debt financing is unobtainable from financiers. Equity financing requires that entrepreneurs and investors negotiate terms of the financing. Having better knowledge of negotiation dynamics is useful for entrepreneurs and thus this is an area for entrepreneurship researchers to focus efforts. Similarly, this study adds to the entrepreneurship literature by providing a thorough review of business pitch research (see Table 1).

A significant contribution to entrepreneurship research that evolved from this study was the creation of fourteen CATA dictionaries that can be used for further content analyses related to entrepreneurial signals. Since these dictionaries were created separately for each capital signal characteristic of human capital, social capital, intellectual capital, and financial capital, studies that intend to look at specific

components of these signals can utilize focused dictionaries. These dictionaries were constructed by industry experts using the accepted methodology outlined in prior entrepreneurship research (Short et al., 2010). There were six CATA dictionaries related to human capital signals: (1) Top management team legitimacy and reputation, (2) Entrepreneurial team make-up, (3) Gender and racial diversity, (4) Industry knowledge and experience, (5) Prior Founding Experience, and (6) Education. There were three CATA dictionaries related to social capital signals: (1) New ventures with third-party alliances or affiliations, (2) Large board diversity, and (3) Existing high-profile investors or venture capitalists. Two CATA dictionaries were created related to intellectual capital signals: (1) Patents and prototypes, and (2) Business plans. Finally, there were three CATA dictionaries created related to financial capital signals: (1) Meaningful company financial projections, (2) Management's certification of financial statements, and (3) Positive industry growth rate projections.

Finally, a thorough review of signals and signaling theory in the context of the entrepreneurial pitch was conducted as part of this study. As part of this review, this study explored the origin of signals from the perspective of evolutionary biology and anthropology. In addition, this review looked at the individual components of the signaling environment which includes the components of senders, signals, receivers, and feedback. A systematic review of signals was completed to develop the list of potential signals that entrepreneurs can communicate to investors which went into the development of the theoretical model.

Negotiation Research

In addition to the review of the BATNA research (Table 2), the most significant contribution to negotiation literature was the testing of theory with real world negotiation data, not experimental data. As discussed, though there are potential issues with the data set selected for analysis, this study puts together a framework that can be applied to future studies in which negotiation interactions in their entirety can be analyzed using content analysis to evaluate alternatives and negotiation success.

Entrepreneurs and Investors

Entrepreneurs that understand the attributes that strengthen leverage in an equity financing negotiation may potentially be able to attract the desired amount of growth capital while minimizing the amount of equity needed to complete the transaction when addressing the challenges of financing. Though this study did not conclude that specific signals will improve the number of investor alternatives, this study does provide entrepreneurs with an outline of the types of signals to convey to investors. As suggested in this paper, further analysis should be completed using other data sources and as such, entrepreneurs may want to stay tuned for potential revelations as a result of these studies. With additional research on this topic, entrepreneurs may be able to understand the signals that trigger investor interest. This knowledge could lead to better pitch design or pitch modifications to shift negotiation power and improve results.

Angel investors and venture capitalists can use this research in developing an outline for evaluating opportunity strengths. These investors can use the fourteen venture

quality signals as a scorecard to evaluate attributes that are communicated during investment pitches and use the results for basis of investment.

Limitations and Directions for Future Research

There are several limitations of the study related to the data source and measurements that must be acknowledged when interpreting the results of the study.

First, there are limitations that exist by using the televised episodes of *Shark Tank* as the data source. Though there are several positive characteristics which provide a negotiation context that is favorable for analysis, there are multiple limitations that may be the driving force behind the results.

One positive characteristic of *Shark Tank* is that the content from the show is not scripted. This has been confirmed through prior research using the data set (Pollack et al., 2012). Another positive is that the *Shark Tank* investors risk their own money making their choice on whether or not to invest authentic. The negotiations are not experimental and the investment decisions have real implications. Another positive at the time of study design was that the data allowed for a standardized comparison as the pitches were all limited to the initial presentation from the entrepreneur. By analyzing only this segment, the content was constrained to the entrepreneur's intended presentation. The fact that the *Shark Tank* pitches always had five potential investors also provided consistency.

As for potential negatives of the data set, there are several. First, since the potential investor pool is always limited to five specific investors on *Shark Tank*, there is a possibility that one or more of the investors have relationships with other companies

with similar products or services. This can be a positive or negative for the company presenting a pitch which can factor into the alternative count from a specific pitch. It is possible that an investor would identify synergies with one of their portfolio companies causing them to view the opportunity through a different lens than other investors. For example, there may be cross-selling or economies of scale opportunities by connecting the two organizations, both of which would be positive reasons for investment. On the other hand, an investor may have a relationship with another company which could prevent further investment within a specific industry due to potential conflicts of interest thus removing them from the pool of investors. Similarly, investors have specific backgrounds and interests that may encourage or discourage investment in a specific industry. For example, one investor on *Shark Tank*, Robert Herjavec, has experience in the software security industry, while another investor, Damon John, has a background in fashion industry, which are unrelated. Though an investor's background does not exclude investment in an industry, their expertise and knowledge about opportunities outside their areas of familiarity may cause a difference in how an opportunity is viewed and acted upon. While this is definitely a limitation due to the small number of investor alternatives available during a *Shark Tank* pitch, these differences resemble the advantages and disadvantages an entrepreneur may experience when pitching to angel investors outside of *Shark Tank*. At the new venture stage, resources are often scarce and thus entrepreneurs handle most facets of the business operations meaning they cannot devote full-time to fundraising activities. This lack of time to devote to fundraising likely leads to lower quantities of potential angel investor discussions. Less discussions with investors likely mean a higher variance in the backgrounds and thus the *Shark Tank*

experience is reasonably reflective of what entrepreneurs will face outside of *Shark Tank* at this life cycle stage. Since backgrounds and relationships could factor into decision-making, future research could examine investor traits such as knowledge, experience, and business affiliations to see how these attributes affect their investment decisions.

Another potential limitation relates to investor willingness to fund a company within a specific industry, not on the basis of the pitch signals communicated. Though industry growth is a component of the financial capital signal composite variable, industry growth could be the driving factor for investment. There is a saying that "a rising tide lifts all boats" meaning that even with a subpar business pitch, an entrepreneur may receive investment interest due to its industry affiliation, not necessary based on the strengths related to other communicated qualities. Future research could examine higher quantities of business opportunities within specific industry sectors to remove this potential bias.

One additional limitation is that this analysis assumes that a high-quality pitch would likely result in investor interest. While this typically is true, there are occasions in which investors may be interested in the business opportunity but only if separated from the entrepreneur. In situations like this, the investor may offer to buy out the company in its entirety to remove the entrepreneur from the operations. Where the investment pitch may have been poor warranting zero alternatives, one or more alternatives may be presented to purchase the company in its entirety. This could alter the results of the deal as the terms are different than the initial asking terms presented by the entrepreneur. On the other hand, investors may decline offering a funding alternative as they feel the entrepreneur does not need their assistance. In these instances, the investor may

encourage the entrepreneur to stay their existing course as a way to maintain control and preserve equity as the investor sees that the entrepreneur as being capable of success without outside assistance. This study does not separate these instances as reasons for or against investment are not always disclosed. Future research could involve an active involvement with the investors during the decision-making process so that their choices can be documented explaining rational for their actions.

Another limitation in the study is that investors assume that information presented is factual. During due diligence, there is a possibility that the funding may not come to fruition or that the deal terms are renegotiated. This is no different than what happens in other funding or merger and acquisition transactions outside of *Shark Tank*. Information is initially presented about the opportunity and once a letter of intent is presented and deal terms agreed upon, a due diligence period begins in which advisors perform an analysis to confirm that the presented information is accurate. If found to be inaccurate, potential buyers may terminate the deal or renegotiate reflecting the uncovered information. Since this study analyzes the alternatives based on presented information during the business pitch, whether or not the deals actually were funded or the terms of the deal renegotiated is irrelevant. Though irrelevant in this study, future research could look at the success and failure of firms at various time checkpoints after the pitch and investment to see if specific signals sent lead to higher success or failure rates.

A limitation also exists based on the unit of measure of deal valuation ratio. Entrepreneurs enter *Shark Tank* requesting a specific amount of funding in exchange for a specific amount of equity. This amount translates into a valuation that the entrepreneur places on the business. If a deal is consummated, an agreed upon amount of funding is

provided to the business in exchange for a percentage of equity which represents a valuation for the investment. This difference between these two valuations represents the deal ratio which reflects the deal term success for the entrepreneur. If the entrepreneur receives what is asked for, the ratio would be 1.0. In comparison, if the entrepreneur receives half of the desired amount or must give up twice the amount of equity for the requested amount, the ratio would be 0.50. While this ratio serves as a decent proxy to display the success of the negotiated deal terms related to alternatives, it has a limitation since it anchors off an initial asking valuation that is established by the entrepreneur. This asking amount is often developed by an entrepreneur without much support as many of the opportunities are pre-revenue or pre-earnings. An entrepreneur that has an asking valuation that is realistic and aligns with the valuation of investors is more likely to have a ratio closer to one another. Valuations that are further apart could either reflect the differences in alternatives (less alternatives means more negotiating leverage for the investor which is the basis of this study) or may reflect that the entrepreneur started at an unrealistic asking price. Disconnects in asking prices could be the result of an entrepreneur (1) having unrealistic valuation expectations, (2) lacking business valuation knowledge, or (3) building a buffer for negotiations. Future research could look at the education and experience signals of the entrepreneurs to evaluate how well they correlate with their initial valuation expectations.

Finally, and potentially the most significant limitation of the study, relates to the content that was coded for the analysis. As mentioned previously, for consistency parameter purposes, business pitch content prior to the question and answer period in which investors decide whether or not to invest was analyzed. While this has its positives

in that the signals presented are those selected by the entrepreneur, there is useful information about the opportunity that gets disclosed after the pitch which may alter investor decision-making. The average pitch time for the cases transcribed in this study was 4.5 minutes. The average televised *Shark Tank* pitch which includes the additional questions, answers, and negotiations, lasts 10 minutes (Smith & Viceisza, 2018). The 10 minutes of airing is the result of an edited pitch for television. The average unedited *Shark Tank* pitch lasts an hour, ranging from 30 minutes to 2.5 hours (Smith & Viceisza, 2018). While the show editors explain that all important details remain in the edited version, there is an extreme amount of time between the initial pitch and the time that investors decide whether or not to invest for positive or negative signals to be presented by the entrepreneur which could affect investor decision-making. While any of the listed limitations could be the root cause of insignificant results, it is my belief that this is the most contributing factor. Future research could involve the analysis of the full unedited entrepreneurial pitches. Though it may be difficult to obtain full unedited transcripts from the producers of *Shark Tank*, local business pitch competitions could be recorded and analyzed using a similar format but the process enhanced with investors completing surveys in regards to their opinions of the entrepreneur, their pitch, and the overall opportunity.

The Constraint on Generality (Simon, Shoda, & Lindsay, 2017) in this study is limited to prepared business pitches that do not involved additional fact finding questions by investors. In addition, this constraint is limited to similar type investment scenarios in which sizable equity is exchanged for capital. There is no reason to believe that evaluating a similar data set from *Shark Tank*, *Dragon's Den*, or another similarly

constrained pitch would yield different results if the study is replicated. However, as noted in the previous paragraph, we cannot conclude that venture quality signals do not affect alternatives as analyzing an entire pitch (which includes investor questions and answers) may yield different results as investors may decide whether or not to participate in a negotiation based on the entire opportunity presentation, not just the initial pitch.

In conclusion, this study has established a framework for studying venture quality signals and how they may lead to investor alternatives. Though the results of the empirical portion of the study did not reveal a significant relationship between signals and investor alternatives, the qualitative responses obtained by entrepreneurs and the limitations that came to light when analyzing the data, creates more questions than answers and thus the need for further research on this topic.

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APPENDICES

Unedited Responses to Survey Questions

Survey Question 1

Respondent #	QUESTION 1 of 5: Please detail specifics related to your FIRST business pitch experience. Please include: 1] The investor type that you pitched (a general answer such as angel investor, venture capitalist, business owner in the same industry, etc. is fine) 2] The venue or environment that you gave the pitch 3] Any specific time limit or format that you were given by the potential investor prior to your pitch (if any).
Respondent 1	1] Angel investors / entrepreneurship community organization 2] TechPint 3] 5 minutes - no other limits or formatting
Respondent 2	1. business owners at a business plan competition on a university campus 2. a large lecture hall, stadium seating 3. roughly 20 minutes to pitch the business
Respondent 3	My very first pitch was an idea pitch competition in front of judges who were venture capitalist and entrepreneurs themselves. I gave a pitch on a stage in front of Kent State University's College of Business Administration. My time limit was 90 seconds with a 5 minute QA given by the coordinator of the pitch.
Respondent 4	A group of angel investors in a conference room at the YBI. The conversation was very open and consisted of about 12 people. Conversation went along for about an hour before we were asked to give them some time to discuss amongst themselves.
Respondent 5	1. Angel investor 2. Coffee Shop 3. None
Respondent 6	The first time I formally pitched hChoices was to an investment fund of a incubator. We were give 15 minutes to present and then asked a series of questions by the group. The venue was a group of ~30 people at a local community college. The group recommended a specific outline and financial deck to use for the presentation. It was extra challenging because the room didn't have a clock and many members of the audience were not familiar at all with our business.
Respondent 7	We first pitched to an accelerator company. It was a panel of three in a conference room. The pitch had to be ~7 minutes.

Respondent 8	1- VC but with with a warm introduction 2- coffee shop 3- 30min conversation. As it was more informal, to get some feedback and not a "real" pitch, there was no pre-set structure
Respondent 9	1.) The investor type I pitched to was a panel of investors (angel investors) plus a room full of audience members and students. 2.) The venue was a large ballroom with circle tables - around 100 people. I pitched at a podium with two large screens behind me. It was at Case Western Reserve University. 3.) The time limit was 10 minutes with 10 minute Q&A and a pitch deck was required
Respondent 10	Angle investor. Informal meeting in a conference room. Probably a half hour conversation. No format or criteria provided by investor prior to the meeting.
Respondent 11	Venture Capitalist, web video chat, 10 minutes to pitch.
Respondent 12	'- Venture Capital - The VC firm's office - 15 min to pitch, 5 mins for Q&A, 10 for them to meet amongst themselves and provide feedback.
Respondent 13	First pitch was during FlashStart's (Local Accelerator) Demo Day. The venue was at The House of Blues in Cleveland 5 min pitch
Respondent 14	Our first business pitch was to an innovation fund that was comprised of several investors from the area. We were competing for a $25,000 grant. We had a 15-minute time limit. The pitch was done at a local college. Approximately 20-25 investors/members of the innovation fund were present for the pitch. We were required to cover certain topics: problem, impact, solution, go-to-market strategy, market size, financial projections, etc.
Respondent 15	1) Glide Competition 2) Committee from different areas (YBI, Jump Start, LCCC) 3) The time limit was 15 minutes (10 minutes pitch plus 5 minutes for Q&A) The format was a PPT presentation with about 15 slides (the format was mainly given by the Innovation Fund committee)
Respondent 16	For VC's in a contest for TiE. It was a public final with 5 other competiting companies. There was a 4-minute time limit and 10-minutes of questions.
Respondent 17	Our first pitch was to the Youngstown Business Incubator during their AMP3D competition. The audience included experienced entrepreneurs who judged and scored the pitches. The competition was located at YBI in their conference room. We were given 20 minutes which included Q&A. We ended up placing third in the competition and were awarded $15,000.

Survey Question 2

Respondent #	QUESTION 2 of 5: For this FIRST business pitch, did you have a formal presentation prepared such as a PowerPoint or pitch deck? Please explain what you prepared. In preparing for your pitch, what specific information did you feel was most important to communicate to the potential investor(s) and why? Please detail.
Respondent 1	We had a pitch deck we prepared ourselves. We mostly focused on the problem and our solution, as well as our team. We focused on those points because they were our strongest - we had personal experience with the problem we were trying to solve, we were actively building the solution ourselves (we have software developers on our team), and we wanted to show that our team was able to execute our solution ourselves.
Respondent 2	Yes, I had a formal powerpoint presentation prepared. It was for a business plan competition and we had to present the basics of the business as well as what awards and or recognition the product / service received in the past to showcase viability. The most important information was the profitability and how I would be able to scale the business. The marketing was important, too. But, it is important to emphasize the numbers, facts and figures of profitability and scaling when asking for a grant or investment as the "main purpose" of the pitch.
Respondent 3	I did not have a formal PowerPoint presentation prepared because it was only 90 seconds. I did however do take 5-10 hours practicing and preparing for the Q/A and validating my idea before presenting it in front of judges. During this pitch I made sure to include: the problem I was solving, the solution I was proposing, who was going to buy this solution, and why should the audience/venture capitalist/judges should care about this problem. I focused on creating a story and emphasizing impact.
Respondent 4	No; we were very early on and did not have a formal pitch ready for review. The investor group did not specify one, either.
Respondent 5	Our first pitch we have a prototype and a excel spreadsheet projection of the costs and earnings. We felt it was most important to express the solution our company provides.

Respondent 6	The first presentation included a powerpoint that helped walk the audience through various aspects of the business. The following items were recommended for the presentation and we were encouraged to follow it. Your presentation should be structured as follows: Business description a. Type of product or service/ market served b. Distinguishing characteristics of the business or service that makes it unique c. Stage of Product development d. Technological or product/service advantage e. Is there IP? Provide an IP status Entrepreneur(s) and/or partner(s) qualifications f. Current business structure, ownership, management Market characteristics and dynamics g. Market plan â€“ how do you go to market/ market size? h. Competitive landscape/ how is need being filled today? Financial view of business i. Sales growth j. Cash flow k. Capital/time needed to enter market l. Number of jobs being created Describe in detail how you will use the funding m. How has the product/ service been funded to date? I think the most important aspect was to make the pitch an easy to follow story that hits the audience hard with problem. From there it was solution, scalability, IP, and financial track record. You need to capture the attention of the audience and pull them away from their phones and computers so they are truly listening to the remainder of the pitch. Even early stage it is all about runway and making a big hit, quick without being too unrealistic.
Respondent 7	We had a formal powerpoint presentation prepared. We felt what made us unique and the impact our product could have on society.
Respondent 8	Pitch deck was prepared in PWT and addressed the following: - problem - solution (overview, "how it works" and value proposition) - market (market size & evolution, target market, go-to-market strategy) - Team (core teams and strategic partnerships) - Projections - Funding needs - Road map for future - Appendix with more details

Respondent 9	The most important information to communicate was what our product was, the financials, and the opportunity. We had spent a lot of time creating a detailed pitch deck prior to our pitch but making sure we could explain how large of a problem we were solving was extremely important and we felt financials were also very important.
Respondent 10	Yes. I had a formal presentation (PPT) prepared. I felt the most important thing to communicate was my subject matter expertise (why me), knowledge of the market and business model.
Respondent 11	Yes, we prepared a pitch deck. Most important was problem, clear solution, market size, and business model.
Respondent 12	for the first pitch deck, a very ROUGH powerpoint. (did not yield much success) however we learned what investors look for from a deck because of this. - ROI - Time Frame - Why we are poised to have success - IP/ protection? if applicable - what has been validated
Respondent 13	The first pitch I did have a formal power point prepared. I broke it down by intro, story, demo, opportunity, team, closing.
Respondent 14	Yes, we had a formal pitch deck prepared. It was approximately 20 Google slides, covering the topics mentioned previously: problem, impact, solution, go-to-market strategy, market size, financial projections, competition, etc. I believe the most important information to convey for this particular grant was the idea, the problem, the impact, and the solution. Since we were at such an early stage, information beyond that was all guesswork. If we couldn't clearly convey the problem we were trying to solve and why our solution would work, then we wouldn't have received the grant.
Respondent 15	Yes, I had prepared a PPT presentation with about 10-15 slides. The most important information that I felt was important to investors were market description and size, the problem that was solved, and financials.
Respondent 16	Yes formal presentation with specific deck structure. I think there were 10-slides aloud including a title slide.

Respondent 17	Yes, we used a formal presentation created with PowerPoint. To create the deck, we took advice from YBI's entrepreneurs in residence. Included in the pitch was identifying a problem/market opportunity, proposed solution, market size, target audience, management team, and financials. The most specific information was our solution to the proposed problem as well as highlighting our experiences management team.

Survey Question 3

Respondent #	**QUESTION 3 of 5: When you pitched your opportunity, how much money were you seeking and how much equity were you offering for the funding? At this time, did you have other funding (or investor) alternatives and did you convey this in your pitch to this potential investor? Please detail.**
Respondent 1	$1,000 We were just testing our pitch and gathering feedback. We had no alternative investors or funding in the works at the time.
Respondent 2	1. The business plan competition offered a one-time equity free grant of $5,000. I did not have other funding lined up at the moment of the pitch. It was my first time pitching for a cash investment. I did not convey this information to the group of judges.
Respondent 3	I was seeking to win the prize money offered which was $600 dollars but more importantly I wanted to make a connection with a certain judge who was a venture capitalist. It was more important for me to obtain guidance than money because of how early stage my business was at during the time of this particular pitch. At this time, I did not have any other offers or funding. This pitch was an idea based pitch so I did not even have a final product to show. This pitch was more about conveying my passion and the possible validity to an idea if it did become an actual business. If I would have had previous funding I would have conveyed this because it gives my idea credibility seeing that others were willing to invest in me as well.
Respondent 4	$45,000 on a convertible note that would trigger upon our next round of significant invesment. We had other funding alternatives in mind, not locked-in, and because this was our first discussion we did not have enough reason to convey this in our discussion.

Respondent 5	We asked for $500,000 for 25% equity. No other funding was present.
Respondent 6	The first pitch was for $100k with a required $100k match. It was going to be in a low interest loan. The subsequent pitches where for a minimum of $250k, but the response was you need to ask for between $750k-$1.5m to even get people or organizations outside the incubator space to listen. They also expressed interest in being one of a small group of investors to ensure runway. At $250k we were offering 10% equity stake. At the time of the first pitch all investment to date was from family and friends and this was conveyed during the pitch.
Respondent 7	We were seeking $15,000 (which was offered in the competition), in exchange for 3-4% equity. We had no other funding at that time.
Respondent 8	Needed funding is $2-3M for 20%-30% of equity
Respondent 9	At the time we had no other funding or investors that we conveyed in our pitch. We were students and this was when we were first starting out. We were seeking $25,000 convertible note and no specific equity % was stated in our pitch as it would have been hashed out after the fact if we made it to that point.
Respondent 10	We were seeking $250k as a convertible note. No equity or valuation. Given this was my FIRST pitch, we did not have other funding alternatives aside from bootstrapping.
Respondent 11	$500,000 for 5% equity. Yes, we had other investors. We did not specifically discuss our previous funding.
Respondent 12	For our first pitch we had no validation or really any solid understanding of what we were asking or how to properly valuate. We asked for $500,000 at 20% convertible stake, at a $2.5m valuation.
Respondent 13	It was a general demo day pitch, so I was not looking to raise any amount. But I was hoping to gather interest from potential angel investors or local VC firms (Nothing came from the pitch).
Respondent 14	This was a $25,000 grant; no equity required. We had no other funding alternatives at the time, other than what the founders had invested themselves. This was conveyed during the pitch.

Respondent 15	I was seeking $25k with matching of $25k so all together it would come to $50K. No at that time I did not have any initial funding but alternative was a very initial investment help from YBI for about $5k. Yes, it was disclosed it the pitch since it was a requirement of the pitch presentation.
Respondent 16	I was seeking to win the $25,000 prize.
Respondent 17	We we're seeking up to $100,000 and ended up receiving $15,000. The nature of the competition didn't involve giving up any equity in the company. We did not have other funding or investor during that time.

Survey Question 4

Respondent #	**QUESTION 4 of 5: Do you feel you had prepared and presented exactly the information that the investor would want to know about your opportunity to evaluate it? Why or why not? What was the result of the pitch? [If successful, were the terms different from what you were initially seeking? In what ways?]**
Respondent 1	I do not feel like we prepared or presented exactly the information the investor was looking for. I feel that it was mostly because of ignorance, we focused on what we knew - problem, solution, and team. The results of the pitch, besides being embarrassed, was a couple conversations with other people in a similar space and also from our home town. We have kept some of those contacts to this day.
Respondent 2	Yes, I do believe so. My business was at a very early stage (I only have product sold at around 20 stores at the time) and I did my absolute best to showcase viability of the business and my goals. I did not win the grant money, but I learned a lot about my business and gained great public speaking experience.

Respondent 3	I felt I did not have everything prepared exactly how the investor wanted. When pitching in front of real people like venture capitalists, they tend to inject their own opinions or ideas on how they think the business should carry on. I think for a 90 second pitch the investor wanted to know more which was really my main goal because then there was something they wanted to ask or talk about during a follow-up phone call. Because I am the one that understands the business in it's entirety I know the holes that investors might pock at during Q/A or hold them back from investing in me in general until I get it ironed out and fit their specific criteria for investment. I ended up winning the pitch competition being rewarded $600 dollars and after I reached out to that venture capitalist I talked about in the previous questions and he has become one of my business advisers as I continue with this venture.
Respondent 4	No, because we honestly didn't know enough about our market, the technology, or our unique value proposition. This, along with a more efficient and effective way to pitch (like having a preset agenda and pitch deck) is something we had learned after.
Respondent 5	It was our first pitch and we learned to have the proper information and the importance of a pitch deck. The pitch was unsuccessful yet still a valuable lesson in growth.
Respondent 6	During the first pitch I believe we presented the information required, but in a different sequence at the guidance of an Entrepreneur in Residence who was guiding us. The biggest issue was by not using the exact financial deck it made it more difficult on the investor group to compare financial between companies. The format also did not lend itself to telling a story which makes the presentation dry. We were not successful in securing the investment, mainly because of previous industry bias which was shared during the Q&A session and the goal of seeing a longer sales track record. We were encouraged and invited to pitch again at a future date.
Respondent 7	Considering the pitch was for early stage companies, I believe it went well because it was clear we had a lot to learn. For example, we were not clear on our ask, nor did our evaluation or market plan have much weight. As a result, we were accepted into a product development lab (.5% equity), but did not receive the money. It was said that if we complete the 4 month lab, then we can discuss the funding for an additional exchange in equity.

Respondent 8	All the information was there, but after this pitch and 20-30 other preparation pitches, the objective was to get feedback to improve the deck through many iterations. Now, after all these iterations, the deck should be good enough to start "real" pitches. The result of the pitch, as well as 90% of others is that people want to see the pitch again when the company will have an MVP product, so we can proceed with the "real" pitch.
Respondent 9	I feel that we had prepared and presented exactly the information that the investor would want to know about the opportunity. We had worked with multiple advisors and mentors that really helped us craft an amazing pitch. The result was that we did not get funded but it was not because of the quality of the pitch it was because we were too young and not far along enough. We have used that same pitch with a few variations over the past 3 years and have raised thousands of dollars becuase of it.
Respondent 10	Yes. The first pitch did not successfully result in an investment.
Respondent 11	Yes, the pitch was clear and concise. We did not end up getting the funding
Respondent 12	No, at the time we did not have enough validation to support our claims to the investors. As an entrepreneur it is your role to reduce the risk for investment as much as possible. The best pitches for money should have investors feeling FOMO, or a feeling of its too good to be true (leading them to ask more questions to dig for the missing red flag). We did not instill fomo in our first pitch therefore we were not successful first time around.
Respondent 13	For that pitch, I do feel that I was prepared for the setting. I did do follow up pitches for local grant money. These pitches received good feedback; however, most of the investor didn't believe in the market/opportunity.
Respondent 14	I do believe we conveyed exactly the information the investor wanted to know, largely in part because the innovation fund was very specific about what topics should be covered in the pitch. We were successful in being awarded the grant. The terms were as we understood them to be.
Respondent 15	I feel like I was prepared but not enough and some of the information were not clear to the investors. I really don't know why or why not because the end evaluations were not shared with the competitors. The result of the pitch was not successful or not what I wanted it to be since the finding was not offered to the company at the end.

Respondent 16	I won the contest and received $5000 in cash and free incubator space for a year and about $10,000 in services I could use including from Cohen and Company.
Respondent 17	Yes, I feel confident we presented information that the investor wanted to see and evaluate because we knew ahead of time what to include in the pitch. The result of the pitch was successfull overall and we were awarded $15,000. We were not surprised by any changes in the terms once we were awarded the prize.

Survey Question 5

Respondent #	**QUESTION 5 of 5: In hindsight, is there anything that you think that you should have communicated in your pitch that would have improved your results?** **If so, what specific information did you add or delete in your presentation before your next pitch? Please detail.**
Respondent 1	Yes. We should have focused more on the financial opportunity and business model rather than just presenting a technical "solution". Also, at the time our presentation skills were awful, and we didn't keep to the time limit. We ended up adding financial information and a go-to-market strategy next pitch.
Respondent 2	I wish I had more experience with my business at the time. If I did, I would have done much better and would have had a better chance winning the prize. For example, if I were in more stores or had more experience marketing, I would have been able to make a stronger case, or show a stronger viability for the product. I make a product in a commodity business so it is easy to get people to doubt you at the beginning. Now we are in over 400 stores and started selling in two additional states. I would like to have added more details about the success, progress and plans on expansion. (If I waited a year or two to pitch) I would not have deleted any information originally presented. I am happy with the effort I made at the pitch.
Respondent 3	I think I should have included the price I was planning to offer the product as well as a more detailed information on the technology. Since the time was so short, I had to cut out certain pieces but after that pitch competition I sought out validity of the technology I presented and different demonetization strategies. This have given me a clearer understanding of expenses and revenue I can estimate so investors can make a sound decision knowing that my company will make money and they will get their return.

Respondent 4	Yes, specifically about our unique and defensible position and the value that brought to our industry. In addition, we would have been much better off had we been able to speak to the go-to-market strategy as we can today.
Respondent 5	To educate with high energy and focus on the main points, not providing information unless specifically asked. We removed our plans to have brick and mortar shops that users can visit to get their NUFloss same day.
Respondent 6	In hindsight, we need to remove the complexity of the problem we are fixing and use a hard hitting story to engage the emotional side of the group. We should of also addressed the "No one has solved this issue" bias right out of the gate. For the next pitch, we tried to change the message based on the areas of interest of the audience, but that was a mistake because it didn't fully reflect our whole business model or strategy. We are currently preparing for another round and will stay true to ourselves and use a story to drive home the impact we are/can have on our customers. We will also follow the financial deck to the tee to limit anything that would detract from the message. It really all boils down to a simple rememberable message with clear path to achieve success.
Respondent 7	We should have communicated our ability to program the MVP ourselves, rather than state we wanted to put funding towards development support. We have since made clear our strengths, and where we want support.
Respondent 8	Each pitch as been an improvement and each time some changes have been made: e.g. explain better the solution, be more direct on the problem, give detail on the first 12-18m goals after go-live, explain better positioning and uniqueness of solution....
Respondent 9	I think if we would have communicated that we knew our age was young and that we were in such a complex industry but we were seeking out more advisors, mentors, etc then we would have had a better chance but in the end I dont think anything could have gotten us funded for that first pitch. We did take the Q&A questions we were asked and made sure to answer those questions the next time we pitched to ensure we were answering those questions and they didnt have to ask in the future.
Respondent 10	Constant refinement to the pitch. The biggest emphasis was how do you grab attention in the first 10-15 seconds.
Respondent 11	I would have conveyed a clearer go to market strategy. I removed the milestone timeframe from our deck because I thought it was to long. It would have done a better job explaining our plans.

Respondent 12	'- VALIDATION is the key to a successful pitch. Presenting anything that you can that supports how you KNOW you are onto something helps tremendously. This can be in the form of a pilot or MVP or something as small as a phone survey of 100 of your potential clients asking them if they would like your services.
Respondent 13	We can always communicate better. Looking back I wish we tested and demonstrated the value proposition more effectively.
Respondent 14	For that initial pitch, no. Going forward, I think it is important to demonstrate an understanding of the target audience, as well as a well thought-out marketing/sales strategy. We have continued to refine our pitch to include more accurate financials and more details about our target market and sales/marketing strategy.
Respondent 15	Emphasize and depict the problem in a way that the investors would get a better grasp of the problem and find an answer to a question: Why would the customers buy your product if there is so many other options. Not really sure I would need to discuss that with YBI.
Respondent 16	We have pivoted several times since then. Moving from an app-only approach to an IoT device, app, and cloud model.
Respondent 17	I think we could have presented the market opportunity better as well as having more research about the target audience. We have yet to have another pitch after the AMP3D competition, but I would have added the changes mentioned above.

VITA

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