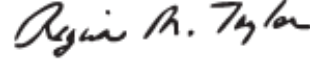THESIS/DISSERTATION APPROVED BY

July 2, 2020
_____
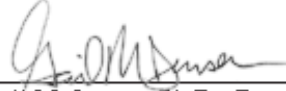Date

_____
Zachary Russell, Ph.D., Dissertation Chair

_____
Regina Taylor, Ph.D., Committee Member

_____
Kristie Briggs, Ph.D., DBA Faculty Director

_____
Gail M. Jensen, Ph.D., Dean

MANNA FROM HEAVEN:

INVESTIGATING THE GIFT OF RESOURCES FROM BUSINESS ANGELS

_____

By

DAWN MARIE TOLONEN

_____

A DISSERTATION

Submitted to the Faculty of the Graduate School of Creighton University in Partial Fulfillment of the Requirements for the Degree of Doctor of Business Administration

_____

Omaha, NE

July 1, 2020

www.manaraa.com

Abstract

Entrepreneurs and small businesses drive the United States economy and angel investors help drive the growth and success of these ventures. The body of research on business angels provides evidence of the importance of both their financial and non-financial resources in connection with monetary investments; however, no research exists on business angels' propensity to provide non-financial resources absent the financial investment. Additionally, prior research has not provided a consistent measure for non-financial resources. In this two-study dissertation, I developed a theoretical model grounded in signaling theory and social exchange theory to investigate this potentially unrecognized entrepreneurial ecosystem benefit. Additional consideration was given to gender homophily in the investment process as female entrepreneurs and female business angels are steadily increasing and affecting the U.S. business landscape.

Study 1 developed a measure of non-financial resources. The measure captures three dimensions of non-financial resources (1) Advice, (2) Hands-On Assistance, and (3) Validation, and demonstrates convergent, discriminant, and criterion-related validity. Study 2 used the newly developed measure to investigate the propensity of angels to provide non-financial resource investment, absent the financial investment, by testing a moderated mediation model of non-financial resource investment's antecedents. Results provided mixed support for the effect of homophily but indicated that angels do value an entrepreneur's passion and coachability in the provision of non-financial resources. The implications of the results are discussed, and directions for future research are proposed.

Dedication

For my family.
Thank you for traveling with me on this wild journey,
I love you the mostest!

Acknowledgments

This piece of work would not have been possible without my choir of angels. To my husband Dale, the patient angel, thank you for your love and support of over 30 years and through three degree programs. To my parents, the guiding angels, who believed in me. To my brothers, the colorful angels, who laughed with me (and at me). And to my children and grandchildren, the future angels, who raised my spirits and gave me hope. I hope you all know I did this as much for you as I did for myself.

For my dissertation committee, the selfless angels, without you I would still be floundering about looking for my doctoral wings. To Dr. Zachary Russell, there is not a more perfect dissertation chair in existence. You challenged my thinking, my methods, and my writing while walking the path beside me. To Dr. Regina Taylor, your experience with experiments, IRB, and gender studies was a priceless gift. "Thank You" is insufficient reward for all your hard work and dedication to helping me finish my dissertation. It has been a pleasure and a privilege. I hope I made you both proud. For the many resources, the unknown angels, my committee roped into helping — Parker Ellen, Kaitlyn DeGhetto, Jeremy Mackey, Charn McAllister, and Alex Scrimpshire you epitomize the collegial nature of academia. Likewise to the faculty and staff of the Creighton University DBA program and to my DBA Cohort 3, thank you for making me a better researcher, a better professor, and a better person.

For the members of Queen City Angels and New Wave Impact, the real-life angels, thank you for sharing your experiences and teaching me about angel investing. A special "Thank You" goes to Sue Baggott, Dr. Dan Geeding, Mike Halloran, and Scott Jacobs for helping to pave the way. And for my colleagues at Xavier University, the unsung angels, you encouraged me, you helped me, and you made each and every day a new adventure. A special "Thank You" goes to Dr. Rashmi Assudani who took a chance on hiring a corporate refugee with limited teaching experience; your mentorship continues to be invaluable.

And finally for my friends, the constant angels, you never abandoned me even when I spent three years hiding in "the high tower." Soon we will be together again. It takes a host of angels to mint a new doctor, thank you all for your love and support!

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

Overview and Statement of the Problem

"The ratio of understanding (of the seed financing market) to its impact on the economy

is lower than just about any other economic contributor."

Baty and Sommer (2002)

Baty and Sommer's 2002 statement still rings true after 18 years. Our empirical

knowledge of business angel investing behavior is still limited but we do know some truths.

Angel investing and entrepreneurship historically have been the purview of men and have been

viewed as intrinsically masculine in nature (Sohl, 2019; Thébaud, 2015). Women are generally

underrepresented on both the entrepreneur demand side and the investor supply side of the

equation (Edelman et al., 2018). We know the majority of business angels are older white males;

in 2018, 70.5% of angels were male, 29.5% were female, and 5.3% of all angels were minorities

(Sohl, 2019). However, the number of female business angels is increasing and will influence

investing dynamics and funding outcomes for entrepreneurs seeking early stage investment. Sohl

(2019) notes that the 2018 percentage of female angels (29.5%) is a 51% increase from 2017

numbers (19.5%).

The increase in female angels has the potential to shift risk capital market dynamics due

to different investment approaches between male and female angels and existing evidence of

significant homophily in the seeking and funding of startup capital (Becker-Blease & Sohl,

2007). The American Angel report by the Angel Capital Association (Huang et al., 2017) found

51% of female angels consider the entrepreneur's gender highly important to their investment

decisions (compared to 6% for male angels) and 33% of female angels consider a startup's social

mission in their investment decision (compared to 16% for male angels). Research on female

1

business angels also indicates they have less confidence in their investing ability (Barber & Odean, 2001), are more risk averse than male business angels (Barsky et al., 1997), invest less capital per deal ($26,500 for women and $37,700 for men), make fewer follow-on investments[1] (27% of the time for women and 32% of the time for men; Huang et al., 2017), and have lower levels of social capital (Burt, 1998). Additionally, as a group, business angel networks fund a lower proportion of ventures when there is a higher proportion of female angel members (Mitteness, Cardon, et al., 2010).

The number of female entrepreneurs also is increasing. From 2007 to 2018, the total number of female-owned businesses in the United States increased by 4.48 million ventures or 57.6%. These female-owned businesses generated $1.75 trillion in annual revenues and employed 9.18 million people in 2018 (*The 2018 State of Women-Owned Businesses Report*, 2019). Unfortunately, female entrepreneurs often face greater challenges in obtaining the venture funding so important for firm growth and success. Female entrepreneurs often start with less capital and smaller social networks (Carter & Rosa, 1998). Additionally, women often enter industries, such as retail and services, that may negatively affect access to capital and deal terms (Alsos et al., 2006). Female entrepreneurs are similar to female business angels in that they are more risk averse than male entrepreneurs, have less confidence in their abilities to run a business (Kelley et al., 2017), and have lower levels of social capital (Eddleston et al., 2016). Despite these hurdles, 25.9% of entrepreneurs seeking angel funding were female with 17.5% of these female capital seekers actually receiving an angel investment in 2018 (Sohl, 2019).

Along with the financial investment, it is common practice for business angels to provide entrepreneurs with additional value-added non-financial resources such as coaching, business

---

[1] A follow-on investment is a subsequent later stage investment made by the initial investor.

advice, hands-on assistance, legitimacy, and access to networks (Freear et al., 1995; Harrison & Mason, 1992; Madill et al., 2005; Mason & Harrison, 1996). What is unknown is whether business angels would be inclined to provide these vital non-financial resources absent an agreement to provide startup capital. Related to this non-financial resource investment question is how the business angel's gender affects this decision of whether to provide the requested assistance.

Purpose and Contribution of the Research

Evidence exists that investment from a business angel improves a firm's performance (Lerner et al., 2018) and can improve an entrepreneur's chances of receiving follow-on investment from venture capital (VC) firms (Madill et al., 2005). Given the important role an angel plays in the entrepreneurial ecosystem, it is critical to understand the interplay of angel and entrepreneur characteristics that affect financial and non-financial resource investment decisions. The rise of both female angels and female entrepreneurs in the United States has a direct bearing on angels' investment decisions and entrepreneurs' access to risk capital. This necessitates an investigation into the role of gender in the allocation of entrepreneurial resources. Additionally, there is sparse research with gender as the focus of investigation rather than just a control variable (Edelman et al., 2018).

Significant research exits on business angels' propensity to provide financial resources; however, there is a paucity of research on the propensity to provide non-financial resources. Despite the recognition of the importance of these value-added non-financial resources, there is limited research investigating which resources, how many resources, and when investors provide these resources to promising entrepreneurs. This research is intended to shed new light on the role of non-financial resources and homophily in the angel investing market. Specifically, I

3

investigated the propensity of business angels to provide non-financial resources to early-stage entrepreneurs absent an agreement to provide financial investment in the startup venture. This study is further motivated by the need to identify important homophilous factors that have the potential to negatively and positively affect an entrepreneur's ability to gain critical non-financial resources from business angels.

Organization of the Research

This dissertation is organized as follows. Chapter Two provides a review of the entrepreneurship and capital investors literature. Chapter Three develops a research model and associated hypotheses related to the business angels' role in providing non-financial resources to entrepreneurs and the effect of gender in the entrepreneurial ecosystem. Chapter Four outlines the research design and data analysis procedures that were utilized to test the research model presented in Chapter Three. Chapter Five presents the study results. Finally, Chapter Six provides a discussion of the study results, the theoretical and practical implications of the dissertation, its strengths, and limitations, as well as directions for further research. Appendices and references complete the document.

Chapter Two: Literature Review

Interest in entrepreneurship and entrepreneurial funding is high. From an economic and social perspective, entrepreneurship is a driving force of the American economy. From a scholarly perspective, definitional ambiguity, lack of theory integration, and a paucity of empirical data (especially experiments) leave gaps yet to be explored.

Entrepreneurship

Entrepreneurship has a long and storied history. We currently view entrepreneurship in terms of its affiliation with the business field, but the idea of an entrepreneur originally comes from the field of economics. Richard Cantillon (1755/1959), a French economist, was the first to use the term as he discussed the risks undertaken by a merchant who purchased goods at a certain price in the present in order to sell them at an uncertain price in the future. Joseph Schumpeter (1942), a twentieth-century economist, further refined entrepreneurship in terms of "creative destruction" (p. 83), in which entrepreneurs are a disruptive force in the economy bringing innovative goods or new production methods to the ecosystem.

The field of entrepreneurship research continues to refine the definitions of entrepreneurs and entrepreneurship. Many definitional variations exist but the three most highly cited are Baumol (1990) at over 6,800 citations; Lumpkin and Dess (1996) at over 11,400 citations; and Shane and Venkataraman (2000) at over 15,800 citations.[2] Baumol defines entrepreneurs as "persons who are ingenious and creative in finding ways to add to their own wealth, powers, and prestige" (p. 897); Lumpkin and Dess define entrepreneurship as:

> The essential act (…) [of] new entry. New entry can be accomplished by entering new or
> established markets with new or existing goods or services. New entry is the act of

---

[2] Citations as per Google Scholar accessed May 18, 2020

launching a new venture, either by a startup firm, through an existing firm, or via

'internal corporate venturing.' (p. 136)

Shane and Venkataraman (2000), building on the above definitions, incorporate the

essential intersection of opportunities and people to provide the definition of entrepreneurship I

used in this paper:

> The field [of entrepreneurship] involves the study of *sources* of opportunities; the *process*
> of discovery, evaluation, and exploitation of opportunities; and the set of *individuals* who
> discover, evaluate, and exploit them. (p. 218, emphasis in original)

Entrepreneurs

Entrepreneurs are significant contributors to the United States economy. According to the

U.S. Small Business Administration Office of Advocacy, there were 30.7 million small

businesses[3] representing 99.9% of U.S. businesses in 2016. These firms employed 59.9 million

employees or 47.3% of U.S. workers. Additionally, small businesses created 1.8 million or 66%

of net new jobs during 2016 (*United States Small Business Profile, 2019*, 2019). Small business

nominal GDP contribution in 2014 amounted to $5.9 trillion or 43.5% of the $13.6 trillion

private non-farm U.S. economy (Kobe & Schwinn, 2018).

Entrepreneurs come from every walk of life. The U.S. Census Bureau Annual Survey of

Entrepreneurs (a supplement to the U.S. Census Bureau Survey of Business Owners)[4] reported

the demographics in Table 1 for calendar year 2016 (*Annual Survey of Entrepreneurs, 2016*,

2018).

---

[3] The Small Business Administration defines small business as independent firms with fewer than 500 employees.
This includes non-employer firms. Non-employer firms are businesses without paid employees.
[4] The Annual Survey of Entrepreneurs is 5,601,758 employer firms (businesses with paid employees) and the
Survey of Business Owners is 27,626,360 employer and non-employer firms.

Table 1

Annual Survey of Entrepreneurs Summary Statistics, U.S. Census Bureau, 2018

Entrepreneur Demographic	Percentage (2016)
Age	
Under 25 years	0.5
25 to 34 years	5.5
35 to 45 years	16.5
45 to 54 years	27.5
55 to 64 years	30.5
65 years or older	19.6
Gender	
Male-owned	61.3
Female-owned	19.9
Equally male- /female-owned	13.9
Race	
White	80.9
Asian	9.9
Hispanic	6.0
Black or African American	2.2
Some other race	2.3
Education	
Less than high school graduate	3.6
High school graduate - diploma or GED	19.2
Technical, trade, or vocational school	5.9
Associate degree	5.5
Bachelor's degree	28.8
Master's, doctorate or professional degree	22.6

Note. $N = 5,601,758$ employer firms.

Female Entrepreneurs

As evidenced by the demographics in Table 1, entrepreneurs in the U.S. are primarily

older, educated, white males. Although not explicitly mentioned in definitions of entrepreneurs

and entrepreneurship, the historical presumption was entrepreneurs were male, and

entrepreneurship was a masculine career choice (Eagly & Karau, 2002; Gupta et al., 2014;

Thébaud, 2015). Women were not seen as entrepreneurs because it violated traditional gendered

norms and role congruity (Bigelow et al., 2014; Brooks et al., 2014; Eagly & Karau, 2002; Thébaud, 2015; Tinkler et al., 2015; Yang & Aldrich, 2014). It wasn't until the passage of HR 5050: Women's Business Ownership Act of 1988 that women even were allowed to sign for a business loan without having a male relative as their co-signer (Sweeney, 2018).

Research into female entrepreneurship is a relatively new endeavor, and initial investigations assumed no significant differences between male and female entrepreneurs (Bruni et al., 2004). The first journal article about female entrepreneurship appeared in 1976 in the *Journal of Contemporary Business* (Schwartz, 1976). The leading entrepreneurship journals, the *Journal of Business Venturing* and *Entrepreneurship Theory and Practice*, published their first articles on female entrepreneurs in 1988 and 1991 respectively; and the first journal dedicated to female entrepreneurship, the *International Journal of Gender and Entrepreneurship*, launched a mere eleven years ago in 2009 (Yadav & Unni, 2016).

The number of female entrepreneurs also is increasing. From 2007 to 2018, the total number of female-owned businesses in the United States increased by 4.48 million ventures or 57.6%. Female entrepreneurs have a significant effect on the U.S. economy. In the U.S. there are estimated to be 12.28 million female-owned businesses[5] employing 9.18 million people and generating $1.75 trillion in annual revenues (*The 2018 State of Women-Owned Businesses Report*, 2019). These numbers account for 37.8% of all U.S. firms (not just small businesses),[6] 8% of the country's private sector workforce, and 4.3% of the country's business revenues (*The 2018 State of Women-Owned Businesses Report*, 2019).

---

[5] Female-owned businesses defined as businesses that are at least 51% owned, operated and controlled by one or more females.
[6] 30.7 million small US businesses per the USSBA, 2016 and 32.5 million total US businesses per the US Census Bureau SBO (2012), extrapolated forward to 2018.

Unfortunately, female entrepreneurs often face more challenges in their entrepreneurial journey than do male entrepreneurs. Women start businesses at lower rates compared to men (Greenberg & Mollick, 2017) and launch with less capital (Carter & Rosa, 1998; Chaganti et al., 1996). Female entrepreneurs also receive fewer angel deals and lower amounts of capital (Knauss et al., 2017); 25.9% of entrepreneurs seeking angel funding were female and 17.5% of these female led ventures received an angel investment in 2018 (Sohl, 2019). Venture capital deals for female founders represent an even smaller percentage. In 2018, firms with all female founders received less than 3% of VC investment. Of the total $130 billion VC investment in 2018, $109.36 billion (76%) went to firms with all male founders, $2.88 billion (2.2%) to all female founders, $12.74 billion (9.8%) to firms with at least one female founder, and $15.6 billion (12%) to firms where the founder's gender was not identified (Hinchliffe, 2019). The average investment size for a female-led company was $5.9 million and the average for a male-led company was $17.3 million (Hinchliffe, 2019).[7] Increasingly, there are more lending platforms formed specifically to match women investors with women entrepreneurs. Golden Seeds,[8] Next Wave Impact,[9] Pipeline Angels,[10] Portfolia,[11] and SheEO,[12] are prime examples.

Some of these male-to-female funding gaps likely exist because female entrepreneurs are less likely than their male counterparts to seek outside funding (Kwapisz & Hechavarria, 2018; Leitch & Hill, 2006; Mijid, 2015). However, when they do, perceived stereotypes of female entrepreneurs often lead male business angels to view the women as less legitimate business leaders (Edelman et al., 2018). Research by Brooks et al. (2014) and Balachandra et al. (2019)

---

[7] The average investment size for male-led companies is skewed by a $12.8 billion investment in Juul.
[8] https://goldenseeds.com/
[9] https://nextwaveimpact.com/
[10] http://pipelineangels.com/
[11] https://www.portfolia.co/
[12] https://sheeo.world/

found that pitches delivered by male entrepreneurs were overwhelmingly preferred by investors despite the fact that the only difference in the pitches was the gender of the entrepreneur. These difficulties with attaining funding are often compounded by the fact that when female entrepreneurs receive investment, it often comes with less favorable financing terms (Alsos et al., 2006; Orser et al., 2006; Riding & Swift, 1990).

An entrepreneur's industry of choice, such as retail and services, may negatively affect access to capital (Alsos et al., 2006). The gap also may exist because female entrepreneurs start more businesses in slower-growth industries (e.g., services and retail) than male entrepreneurs who focus more on higher-growth industries such as manufacturing and technology (Guzman & Kacperczyk, 2019). Services (e.g., salons and pet care) at 23% of all female-owned businesses, healthcare and social assistance (e.g., childcare and home healthcare) at 15%, and professional services (e.g., lawyers and management consultants) at 12% account for half of all female-owned businesses. Administrative support and cleaning services at 11% and retail at 9% round out the top five industries for female-owned businesses (*The 2018 State of Women-Owned Businesses Report*, 2019).

Davidsson and Honig (2003) found social capital to be a critical element of entrepreneurial success. This is problematic for female entrepreneurs, as they often lack access to networks (Ibarra, 1993) and make less effective use of the networks they can access (Chen, Tan, & Tu, 2015; Milanov, Justo, & Bradley, 2015). Social networks are also important in obtaining the venture funding so vital for firm growth and success (Carter & Rosa, 1998). Yet, investors evaluate male and female entrepreneurs differently when they are seeking funding (Greenberg & Mollick, 2017; Kanze, Huang, Conley, & Higgins, 2018), leading to female entrepreneurs facing

10

greater challenges in obtaining venture funding (Brush et al., 2002; Eddleston et al., 2016; Kanze et al., 2018).

Need for Entrepreneurial Funding

The majority of entrepreneurs, between 90% and 95% of employer firms, require some form of financing to start or grow their business (*Annual Survey of Entrepreneurs, 2016*, 2018). The difficulties female entrepreneurs face in accessing financial resources is a major impediment to venture success. Resource-based theory argues a firm's resources and capabilities are critical to a sustained competitive advantage (Barney, 1991; Prahalad & Hamel, 1990). Kotha and George (2012) found that prior entrepreneurial experience enabled startups to mobilize more professional and personal resources. Likewise, an entrepreneur's industry specific experience can help them evaluate the resources that, when combined, will produce greater value than the individual resources (Alvarez & Barney, 2005).

However, it is a challenge for new entrepreneurs to construct this critical resource base on their own (Brush et al., 2001). Without the capital and resources to develop and sustain their competitive advantage, entrepreneurs will not be successful long-term. The startup early survival rate (startups still active after one year of operation) was 79.8% in 2017; about half of those firms survived five years, and approximately a third survived 10 or more years (Fairlie et al., 2019). Entrepreneur success can be facilitated or constrained by the links between entrepreneurs, resources, opportunities, and the ecosystem through which they obtain resources and support (Aldrich & Zimmer, 1986). A lack of funding is a reported top reason for business failure; a startup may fail, particularly when operating capital is depleted. Likewise, consumer credit access matters at every stage of entrepreneurship (Herkenhoff et al., 2016). The availability of and access to different types of capital positively influence the creation, growth, and success of

11

new businesses (Frid et al., 2016) suggesting a possible link between startup survival rates and access to capital (Coad et al., 2016).

Despite the fact that it is difficult to secure investment from a business angel, as global rejection rates range from 75% to 95% (Argerich et al., 2013), there is ample evidence that business angels improve the performance of their investee firms (Kerr et al., 2014; Lerner et al., 2018). Angels help entrepreneurs garner greater returns if the angel's expertise is in the entrepreneur's industry, and when angels interact with their entrepreneurs multiple times per month through mentoring, coaching, providing connections, and performance monitoring (Wiltbank & Boeker, 2007). The early investment from an appropriate angel often leads to the follow-on investment needed for firm growth and success (Madill et al., 2005). The average angel group investment of $349,620 in 2018 supported the creation of 251,200 new jobs in the U.S. (Sohl, 2019). Greater financial returns and new job creation are just some of the ways business angels promote entrepreneurship and economic growth in the U.S. (Mason & Harrison, 2000; Sohl, 2012).

Capital Investors

As previously noted, most entrepreneurs, between 90% and 95% of employer firms, require some form of financing to start or grow their business (*Annual Survey of Entrepreneurs, 2016*, 2018). Entrepreneurs start on the "finance escalator" (Cumming et al., 2019, p. 253) using personal savings and assets, credit cards, and financial assistance from family and friends. Once personal funds and friendly money dry up, entrepreneurs need to look outside their circle of friends and approach risk capital markets. Figure 1 (*Annual Survey of Entrepreneurs, 2016*, 2018) shows that entrepreneurs primarily rely on self-financing and friendly money for funding. Due to informational opacity, a lack of stable cash flows, and a lack of quality collateral,

12

commercial banks are generally unwilling to subsidize the risk associated with the early-stage venture of an unproven entrepreneur (Carpenter & Petersen, 2002). Investors that are willing to absorb the increased level of risk are venture capitalists and business angels.

Figure 1

Sources of Capital Used by Entrepreneurs to Start or Acquire a Business in 2016
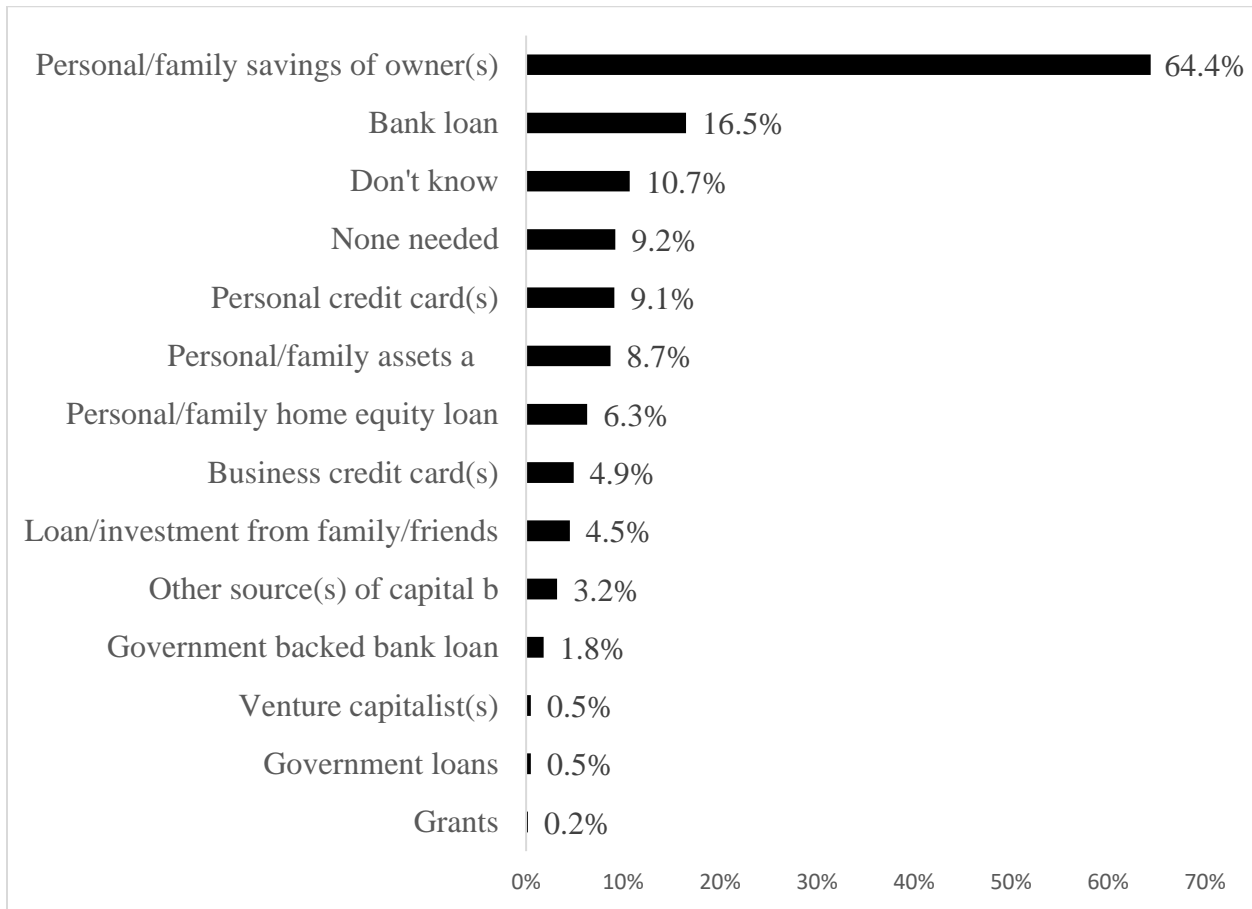
Note. N = 5,601,758 employer firms. Responses are not mutually exclusive.

[a] Assets other than owner(s) savings.

[b] Other sources of capital include business angels, venture debt, incubators, and accelerators.

13

Deal Flow

Astute investors have a significant ability, also known as entrepreneurial alertness, to see opportunities where others do not (Kirzner, 1979). Deal flow is concerned with how often investment opportunities are presented to investors and how investors generate a continuous stream of high-quality investment opportunities (Kenton, 2018). Amis and Stevenson (2001) found that deal flow is a critical concern for angel investors, that deal flow quantity is linked to an angel's visibility and networking, and deal flow quality is linked to an angel's breath of networking. However, given business angels propensity to remain private and to invest locally, deal flow opportunities and quality may be lacking. Venture capitalists generally have higher quality deal flow due to their higher visibility in the market (Kerr et al., 2014; Paul et al., 2007).

Venture Capitalists

Venture capitalists (also known as institutional or formal investors) are professional investors who use other peoples' money to fund later-stage ventures. Typical VCs invest in more mature ventures, at a higher dollar amount, and expect to divest of the venture in three to five years (Cumming & Johan, 2013). The activities of VCs are well known as they are regulated by the U.S. Securities and Exchange Commission (Ross, n.d.); yet despite their public profile, VCs provide less total startup investment than business angels (Wiltbank & Boeker, 2007).

Women are underrepresented in VC markets. Female investors account for 6% of venture capital partners (Brush et al., 2014; Gompers & Wang, 2017) and generally lag their male colleagues in portfolio returns (Gompers et al., 2014). Female-owned businesses also are underrepresented in VC markets. Compared with the 37.8% of female-led U.S. businesses, VC backed firms with female founders represent a paltry 1% to 6% (Greene et al., 2001; Harrison & Mason, 2007). In 2018, female-owned firms raised $2.88 billion (or 2.2%) of the VC market

14

while male-owned firms raised $109.36 billion (or 76%). Interestingly, firms with at least one female owner and a male owner raised $12.74 billion (or 9.8%) of the VC market (almost 8% more than all-female firms) possibly indicating the potential benefit of having a male co-founder when seeking funding (Hinchliffe, 2019).[13]

Business Angels

Wetzel (1981, 1983), in his seminal research on the informal capital market, coined the term "business angels" (1983, p. 23) and initiated the research stream. Business angels (also known as private or informal investors) are individual investors who use their own money to fund startups and early-stage ventures (Van Osnabrugge, 2000; Wetzel, 1983). Business angels invest earlier in a new venture's life, at lower dollar amounts, and have more patient capital[14] than VCs. Business angels invest in firms that are generally pre-revenue and, aside from forecasts, have little financial information to share with potential investors (Bonini et al., 2019; Wiltbank & Boeker, 2007). The Angel Capital Association (Timmins et al., 2018) found angels invest early and often, usually close to home, in a variety of industries, with multiple deal structures, and often working together as a syndicate. Compared to the VC market, the angel market is relatively "invisible" (Mason, 2006; Wetzel, 1983, p. 24, 1987). Venture capitalists are publicly identifiable as investors and easy to find, but business angels are not required to publicly identify themselves as investors thus rendering them "invisible" to entrepreneurs seeking risk capital. It is estimated that U.S. angels provide two-to-five times more risk capital than VCs and, primarily due to a smaller investment size, fund 30 to 40 times the number of firms that VCs fund (Van Osnabrugge, 2000). Despite being the main providers of startup capital in the U.S.

---

[13] The remaining $15.6 billion went to firms where the founder's gender was not identified.
[14] Patient capital (long-term capital) has no expectation of turning a quick profit or of a quick exit from the investment.

(Wiltbank & Boeker, 2007), angels are considered private investors by the Securities and Exchange Commission (SEC) and are not subject to public disclosure of their investing activities.

Business angels suffer from the same definitional imprecision as entrepreneurship. There is no clear standard on when or if to include investors who are family or friends of the entrepreneur (Farrell et al., 2008). As noted in Figure 1, this "love money" (Ashta et al., 2017, p. 1) investment from family and friends can be a significant source of entrepreneurial capital. Farrell, Howorth, and Wright (2008) identified four other potential definitional issues related to particular types of business angels: (1) timing – related to an arbitrary time limit of the angel's last investment (e.g., three years), (2) debt – related to an angel's use of traditional, sophisticated VC debt instruments (e.g., convertible debt), (3) virgin investors – whether to include individuals who have yet to make an investment, and (4) corporate angels – business angels who use their incorporated companies to make the investment. Any of these criteria could lead to including or excluding a particular type of angel from a study, yet there remains no set definition to guide researchers.

From a practical standpoint, the SEC classifies angel investors as an accredited investor. An accredited investor is defined as someone with a net worth in excess of $1 million (excluding their primary residence), an annual income in excess of $200,000 in the last three years, or a combined annual income in excess of $300,000 for the investor and their spouse (Securities Act of 1933, 1933 as amended at 81 FR83553, Nov. 21, 2016). Individuals are not required to be an accredited investor to be an angel but business angel networks (e.g., the Angel Capital Association) do require members meet the SEC criteria. In conjunction with the SEC accredited investor criteria, I used the Mason and Harrison (2008) definition of a business angel:

A high net worth individual, acting alone or in a formal or informal syndicate, who

invests his or her own money directly in an unquoted business in which there is no family

connection and who, after making the investment, generally takes an active involvement

in the business. (p. 309)

Business angels fill the equity gap[15] in risk capital markets by providing seed, startup,

and growth capital to entrepreneurs who do not meet size and growth criteria of VCs (Wetzel,

1983). In the United States, the equity gap exists for entrepreneurs seeking $500,000 or less in

capital (Van Osnabrugge, 2000). Angel investing in 2018 was robust. According to the Center

for Venture Research at the University of New Hampshire, a total of 334,565 active business

angels[16] (a 16% increase from 2017) invested $23.1 billion (a 3.4% decrease from 2017) in

66,110 entrepreneurial ventures (a 7.4% increase from 2017; Sohl, 2019). In 2018, angels

invested 41% of their funds in early-stage ventures, 34% in seed or startup-stage ventures, and

21% in expansion-stage ventures (Sohl, 2019). Top sectors for angel investment in 2018 were

healthcare at 23%, software at 20%, retail at 13%, biotech at 9%, financial services and business

products and services at 8%, and industrial and energy sectors at 6% (Sohl, 2019).

Business angels invest for multiple reasons. The majority of business angels have

entrepreneurial experience and can lend professional and personal knowledge to new

entrepreneurs (Aernoudt, 1999; De Clercq et al., 2006; Politis & Landström, 2002). The

American Angel report (Huang et al., 2017) found 55% of business angels were previously

entrepreneurs themselves. Angels with previous entrepreneurial experience still see themselves

as entrepreneurs, not as ex-entrepreneurs, leading to their motivation to invest for the challenge

---

[15] Capital range in which most institutional investors will not fund.
[16] Business angels are considered active if they have invested in the last three years and are currently pursuing or open to new investment opportunities.

of a new project as well as for the financial returns on the project (Aernoudt, 1999). Further, the American Angel report (Huang et al., 2017) found that entrepreneurs who become angels tend to give back to the ecosystem. Entrepreneurial angels invest an average of $38,960 compared to $28,127 for non-entrepreneurial angels and entrepreneurial angels make more investments than non-entrepreneurial angels (Huang et al., 2017). Huang et al. (2017) also found entrepreneurial angels contribute more non-financial resources than angels without an entrepreneurial background; 66% of entrepreneurial angels are informal mentors, 60% of entrepreneurial angels take an advisory role in the new venture and 52% take a board seat (compared to 46%, 38% and 26%, respectively, of angels without entrepreneurial experience).

Additional non-financial motivations for angels include the "psychic income" (Simon, 1959, p. 262) generated from helping fellow entrepreneurs and being involved in an entrepreneurial venture (Benjamin & Margulis, 1999; Freear et al., 1995; Harrison & Mason, 1992; Mason & Harrison, 2002; Van Osnabrugge & Robinson, 2000). Others are motivated by their personal fit with the entrepreneur, the industry, the business, or the product (Mason & Stark, 2004; Paul et al., 2007) and some angels invest in order to give back to society (e.g., job creation, support for minorities, innovations with a social benefit; Wetzel, 1983). An angel's competitive spirit can inspire investment when they simply are "driven by the challenge to win the race with their jockey" (Aernoudt, 1999, p. 191). The "jockey principle" posits that business angels are more interested in the jockey (the entrepreneur) than the horse (the product or market), which is of more interest to VCs (Harrison & Mason, 1999).

Female Business Angels

Angel investing, like entrepreneurship, historically has been the purview of men, and has been viewed as intrinsically masculine in nature. We know the majority of business angels are

older white males. The Center for Venture Research reports for 2018 that women business angels were 29.5% of the angel market. Although still scarce, female business angel density is increasing rapidly (51% increase from 2017 to 2018; Sohl, 2019) and could have an effect on the funding outcomes for entrepreneurs seeking startup and early-stage investment. The increase in female angels has the potential to shift investment dynamics due to differing approaches between men and women investors and evidence of significant homophily in the seeking and funding of startup capital (Becker-Blease & Sohl, 2007). The American Angel report by the Angel Capital Association (Huang et al., 2017) found 51% of female angels consider the entrepreneur's gender highly important to their investment decisions (compared to 6% for male angels) and 33% of female angels consider the social impact of the venture an important criteria in their investment decision (compared to 16% for male angels).

Research on female business angels also indicates they have less confidence in their investing ability (Barber & Odean, 2001), are more risk averse than male business angels (Barsky et al., 1997), and have lower levels of social capital (Burt, 1998). The American Angel report (Huang et al., 2017) also found female angels to be more conservative, investing an average of $26,652 compared to male angels who invest an average of $37,671 in a venture, maintain a smaller portfolio, and make fewer follow-on investments (27% of the time for female angels compared to 32% of the time for male angels). Additionally, as a group, business angel networks fund a lower proportion of ventures when there is a higher proportion of female angel members (Mitteness, Cardon, et al., 2010).

Need for the Present Study

Although research on business angels has progressed steadily, there remain several gaps in the literature. Most notable among these gaps are the role of homophily in angel investing and

19

the accessibility of non-financial resources absent a financial investment. An entrepreneur's primary goal in approaching a business angel is a financial investment, but the non-financial resources an angel brings to the table also are important. Many business angels are successful entrepreneurs in their own right and want to invest their experience in promising new entrepreneurs (Wetzel, 1983). In addition to a financial stake in the new venture, business angels provide the entrepreneur with tangible and intangible non-financial resources such as coaching and advising, financial monitoring, strategic consultation, introductions to expanded network connections, human capital, increased social capital, and increased legitimacy (Freear et al., 1995; Harrison & Mason, 1992; Madill et al., 2005; Mason & Harrison, 1996). Business angels also contribute moral support such as "lifting the spirits, sharing the burden, and providing a broader view" (Mason & Harrison, 1996, p. 117).

Support and guidance are important for new entrepreneurs, yet a survey by the Kauffman Foundation (Guillies et al., 2018) found that first year startups lack an entrepreneurial ecosystem to turn to for information. They found that 21% of new entrepreneurs had only one or fewer business owners in their network (Guillies et al., 2018, p. 18). Additionally, 79% of startups felt unsupported by government programs (Guillies et al., 2018, p. 23). An efficient marketplace would ensure information and capital flow to the most promising new venture ideas; yet prior research found that barriers such as geography, gender, race, and wealth impede the natural flow of resources (Hwang et al., 2019). An entrepreneur lacking connections to the appropriate people and support may find success more difficult, or worse, may fail entirely.

Research demonstrates the long-term importance of a new entrepreneur finding the right early-stage investment (Kerr et al., 2014). Investment from a business angel, can help an entrepreneur raise crucial follow-on investment from venture capital firms (Aernoudt, 2005;

Amatucci & Sohl, 2004; Croce et al., 2018; Madill et al., 2005). Madill et al. (2005) found that 57% of tech-based firms that received an angel investment also received a follow-on investment from VCs, while firms that had not received an angel investment received a VC follow-on investment only 10% of the time. What is unknown is if business angels would be inclined to provide vital non-financial resources absent an agreement to provide a financial investment. Might an angel see early potential in an entrepreneur and be willing to coach them and share invaluable network connections to assist the entrepreneur in becoming investment ready? Cultivating investment ready entrepreneurs might lead to an improved deal flow for the angel in the future. Furthermore, which variables (entrepreneur and angel characteristics) might affect that investment decision? This research is intended to shed new light on the role of business angels in the entrepreneurial ecosystem. Specifically, I investigated the propensity of business angels to provide non-financial resources to early-stage entrepreneurs absent an agreement to provide financial investment in the startup venture. This study was motivated by the need to identify important homophilous factors (i.e., gender) that have the potential to negatively and positively affect an entrepreneur's ability to gain crucial non-financial resource investment from business angels.

Chapter Three: Hypotheses and Research Model

The focus of this study is the supply-side of the entrepreneurial finance equation. Specifically, a business angel's propensity to provide non-financial resources to entrepreneurs absent a financial investment. Related to the investigation is the effect of entrepreneurial passion, entrepreneur coachability, and gender homophily on an angel's decision. Figure 2 illustrates the research model.

Figure 2

Research Model
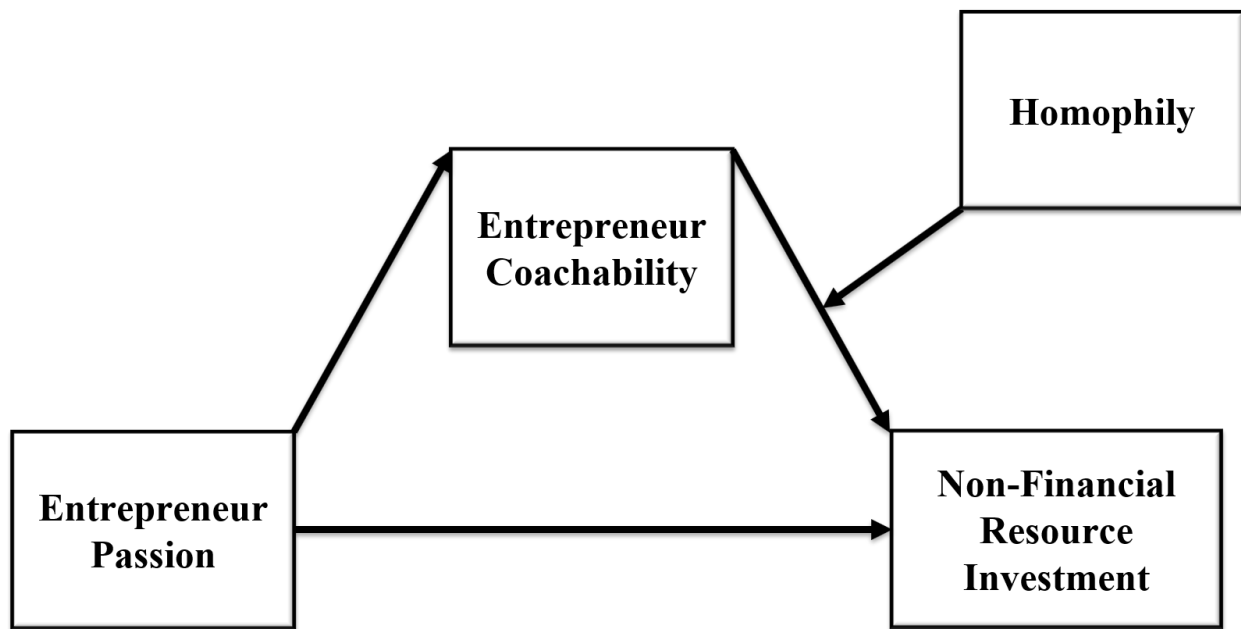
Non-Financial Resources

An entrepreneur's primary goal in approaching a business angel is obtaining a financial investment, but the value-added non-financial resources an angel brings to the table also are important. Many business angels are successful entrepreneurs in their own right and want to

invest their experience in promising new entrepreneurs (Wetzel, 1983). We know business angels provide valuable non-financial resources to entrepreneurs as part of their financial investment (Madill et al., 2005; Mason & Harrison, 1996) and the importance of these non-financial resources to new venture success and growth has been documented (Brown & Mason, 2017; Spigel, 2017; Spigel & Harrison, 2018; Stam, 2015). In addition to a financial stake in the new venture, business angels provide the entrepreneur with tangible and intangible non-financial resources such as coaching and advising, financial monitoring, strategic consultation, introductions to expanded network connections, human capital, increased social capital, and increased legitimacy (Freear et al., 1995; Harrison & Mason, 1992; Madill et al., 2005; Mason & Harrison, 1996; Plagmann & Lutz, 2019). Business angels also contribute moral support such as "lifting the spirits, sharing the burden, and providing a broader view" (Mason & Harrison, 1996, p. 117).

Spigel and Harrison (2018) note that a well-functioning entrepreneurial ecosystem requires more than just financial capital; it also requires knowledge, support, and the social networks that facilitate the flow of these resources to entrepreneurs. Several attempts have been made to quantify and categorize VC and angel non-financial resources, but no consistent measure has been established to date. Proposed categories run the gambit from basic "soft involvement" (people-centered) and "hard involvement" (task-centered; Macht, 2011, p. 275) to more detailed VC systems such as Large and Muegge's (2008, pp. 48–49) eight categories of legitimation, outreach, recruiting, consulting, operating, strategizing, mentoring, and mandating. For this study I used the six-category framework proposed by Madill, Haines, and Riding (2005). The Madill et al. (2005) study collected data from interviews, focus groups and surveys from entrepreneurs and business angels in the Canadian technology industry. Qualitative and

quantitative methods were used to identify the six categories; the QSR NUD*IST[17] program analyzed and categorized the qualitative interviews. Later researchers built on the Madill categories (Hoyos-Iruarrizaga et al., 2017; Large & Muegge, 2008; Macht, 2011; Politis, 2008). The six categories are: (1) Advice such as strategic planning and general business advice, (2) Contacts such as introductions to industry contacts and potential customers, (3) Hands-On Assistance such as help with hiring and recruiting and offering free business services, (4) Boards of Directors and Advisors such as taking a seat on the firm's board of directors or advisors, (5) Market and Business Intelligence such as industry information and assistance with product development, and (6) Credibility/Validation such as the ability to claim an association with a known business angel. It is interesting to note that entrepreneurs who did not have an angel investor had to replace these value-added functions primarily by (1) doing the work themselves, (2) hiring additional staff, or (3) hiring consultants or contractors (Madill et al., 2005). Yet another indication of the value provided by angel non-financial resources.

Signaling Theory

Entrepreneurship is fraught with uncertainty from the viewpoint of both the entrepreneur and potential investors. Market acceptance, exact financial information, and ultimate venture success are unknowable when new ventures meet old money. To dampen the sting of the unknowable and entice investors, entrepreneurs can send important signals to potential investors. Signaling theory (Spence, 1978) helps inform participants' behaviors and intentions in the context of information asymmetry. The sender (in this case the entrepreneur) chooses if and how to communicate the appropriate signals and the receiver (in this case the business angel) must observe the signals and decide how to interpret them. Eventually, the receiver will make a choice

---

[17] Now commonly known as NVIVO by QSR — https://www.qsrinternational.com/

based on the signals received and decoded and then countersignal (in this case the decision to invest or not to invest) to the sender (Connelly et al., 2011).

Entrepreneurs can send positive and negative informational and interpersonal signals as they work to overcome information asymmetry in their quest to convince business angels to invest in the new venture (Ahlers et al., 2015; Connelly et al., 2011; Eddleston et al., 2016). In the context of informational signals, entrepreneurs can provide financial projections and market analysis (Huang & Knight, 2017); show preparedness in their business plan and pitch (X.-P. Chen et al., 2009); and exhibit human, social and intellectual capital (Ahlers et al., 2015; J. A. C. Baum & Silverman, 2004). Human capital such as education and experience, often stand independently as signals of quality (Spence, 1978). In the context of interpersonal signals, entrepreneurs can display their ability to work well with others, their commitment to the venture, their openness to change, their openness to feedback and coaching, and their passion (Audet & Couteret, 2012; Busenitz et al., 2005; Cardon, Sudek, et al., 2009; Cardon & Kirk, 2015; Ciuchta et al., 2018; Huang & Knight, 2017; Kutzhanova et al., 2009; Mitteness, Cardon, et al., 2010; Mitteness et al., 2012). Although previous literature found these signals to be effective, research has not investigated the role of other individual-level characteristics, such as passion, coachability, and homophily in the context of angel investment behavior related to non-financial resources.

Reducing information asymmetry is a central tenant of signaling theory, making it an appropriate theoretical framework through which to investigate the interaction of entrepreneurs and angel investors. Angels use their knowledge, intuition, and prior investing experience to act on the limited information provided by the entrepreneur. Signaling theory provides a framework

to explain the process by which entrepreneurs attempt to convey relevant information to potential angels in the hopes of receiving an investment.

Entrepreneurial Passion

An entrepreneurial interpersonal characteristic of interest is passion. Passion is defined as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 756). Chen et al. (2009, p. 199) defined entrepreneurial passion as "an entrepreneur's intense affective state accompanied by cognitive and behavioral manifestations of high personal value" and Cardon and Stevens (2009, p. 517) defined it as "consciously accessible intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur." Entrepreneurial passion can be expressed in numerous ways. Entrepreneurs might have a passion for their product as well as a passion for the process of entrepreneurship (Warnick et al., 2018). Cardon et al. (2013) determined that entrepreneurial passion for inventing, for founding, and for developing firms are distinct dimensions. Cardon, Glauser, and Murnieks (2017, p. 24) identified six sources of entrepreneurial passion: "passion for growth, passion for people, passion for the product or service, passion for investing, passion for competition, and passion for a social cause." For this study I used the perceived passion measure developed by Chen et al. (2009). Chen and colleagues' scale measures the entrepreneur's level of passion for their business as perceived by others, unlike the Cardon and Stevens (2009) scale that measures entrepreneurial passion as displayed and experienced by the entrepreneur. The measure contains six items. Sample items include "The presenter(s) had rich body language," "The presenter(s) showed animated facial expression," and "The presenter(s) used a lot of gestures" (X.-P. Chen et al., 2009, p. 204).

26

A demonstration of entrepreneurial passion for one's venture can signal a willingness to accept the level of assistance needed to be successful. Displays of entrepreneurial passion have been shown to produce positive outcomes (J. R. Baum et al., 2001). Evidence exists an entrepreneur's passion (Cardon, Sudek, et al., 2009; Sudek, 2006) is positively related to an investor's propensity to provide financial resources. Cardon, Sudek, and Mitteness (2009) found that entrepreneurs' characteristics such as passion, preparedness, and commitment are important signals to business angels in their funding decisions. Warnick et al. (2018) found investors with entrepreneurial experience, such as business angels, placed more value on entrepreneurial passion than experienced investors, such as venture capitalist, who put more emphasis on product passion. Sudek (2006) determined that angels may see an entrepreneur's passion as even more important to their investment decision than venture capitalists. An entrepreneur's passion is even more important given the short timeline and limited personal interaction during an angel group's deliberation process. For example, the Queen City Angels three step process of (1) screening, (2) presentation, and (3) due diligence completes in 12 weeks and affords the entrepreneur one 30-minute opportunity to present themselves and their business. At least five Queen City Angels must express interest after the presentation for the entrepreneur to move on to the due diligence stage.[18] Additionally, since angels invest in the earliest stages of a business (e.g., pre-seed, seed) when the probability of success is most unknown, it is important for an entrepreneur to display a certain level of personal commitment and compatibility. Formally stated:

Hypothesis 1: An entrepreneur's passion positively influences the business angel's propensity to provide non-financial resources absent a financial investment.

---

[18] https://qca.com/entrepreneurs/

The Mediating Role of Coachability

Another entrepreneurial interpersonal signal of interest is coachability. The concept of coachability has been researched extensively in athletics, sales training, and job mentoring, but has limited investigation in the context of entrepreneurship. Prior entrepreneurship research considered terms such as consulting, mentoring, advising, and entrepreneur openness to feedback. For the purposes of this study, I used the Ciuchta et al. (2018, p. 3) definition of a coachable entrepreneur— "the degree to which an entrepreneur seeks, carefully considers, and integrates feedback to improve his/her venture's performance." Lack of entrepreneur coachability can be viewed as a negative signal to investors. Entrepreneurs may be subject to overconfidence in their abilities and thus reject advice (Cassar, 2010) and older founders (presumably with more experience) also may be less likely to take advice (Bryan et al., 2017). The ability to be coachable is important for success because entrepreneurs must make numerous course corrections over the life of their business.

Prior research found the coaching function to be important in successful investor-entrepreneur relationships and the coaching function provided by venture capitalists aids firm performance (J. A. C. Baum & Silverman, 2004; Hellmann, 2000). Research also found that coachable entrepreneurs are preferred by business angels because coachability signals expected higher returns on investor's social resource investment (Huang & Knight, 2017) and on non-financial resource investments (Ciuchta et al., 2018). Entrepreneurs who actively seek and listen to feedback from potential investors are considered more coachable than entrepreneurs who dismiss ideas and criticisms (Mitteness, Sudek, et al., 2010). An entrepreneur's coachability can also provide an indication of possible returns on an investor's financial resource investment (Huang & Knight, 2017) and coachable entrepreneurs are preferred by angels due to expected

28

higher returns on financial resource investments (Ciuchta et al., 2018). Likewise, coachability is an important signal of an entrepreneur's ability to raise capital (MacMillan et al., 1985; Maxwell et al., 2011; Mitteness et al., 2012) and perceptions of an entrepreneur's coachability are associated with a business angel's willingness to advance to due diligence (Mitteness, Sudek, et al., 2010; Sudek, 2006). Mitteness, Sudek, and Baucus (2010) found the perceived coachability of an entrepreneur mediated the relationship between entrepreneurs' personal characteristics and business angels' evaluation of the funding potential.

The ability to coach an entrepreneur helps angels with information asymmetry and helps mitigate the potential financial losses of investing in an untested venture. Additionally, an entrepreneur's passion is a signal to the angel that the entrepreneur cares deeply about their business, is determined to improve and grow their venture, and is willing to work hard to be successful. These characteristics can lead to an entrepreneur who is more open to advice and coaching. Taken together, an entrepreneur's passion will affect the business angel's impression of the entrepreneur's coachability and inform their decision to make a non-financial investment absent a financial investment. Formally stated:

Hypothesis 2: An entrepreneur's coachability partially mediates the relationship between entrepreneur passion and the business angel's propensity to provide non-financial resources absent a financial investment.

The Moderating Role of Homophily

Homophily is the tendency to form strong social bonds with others who share defining characteristics (e.g., age, gender, ethnicity, religion, et cetera; Lazarsfeld & Merton, 1954). Homophily is a predictor of social networks (McPherson et al., 2001) and can exist due to individual choice (I associate with you because you are similar to me) or be induced (the

29

composition of the group forces me to associate with you; McPherson & Smith-Lovin, 1987).

The proverbial expression "birds of a feather flock together" is forever linked with homophily

(McPherson et al., 2001, p. 417).

Research demonstrates that homophily is positively related to an investor's propensity to

provide financial resources (Bengtsson & Hsu, 2015; Greenberg & Mollick, 2017). Homophily

has been shown to be present in the formation of venture capital syndicates (Gompers et al.,

2016) and venture capitalists are more likely to invest in entrepreneurs of the same ethnicity

(Bengtsson & Hsu, 2015). Additionally, networks outside of family (e.g., work, voluntary

associations) are more homophilous than chance would predict (Brass, 1985; McPherson et al.,

2001; McPherson & Smith-Lovin, 1987), potentially related to bounded solidarity against a

common cause (e.g., discrimination due to sexism, racism, ageism; Greenberg & Mollick, 2017).

Related to bounded solidarity, Greenberg and Mollick (2015) introduced the concept of activist

choice homophily. Activist choice homophily describes a relationship based on more than just

similarity; it is based on "perceptions of shared structural barriers stemming from a common

group-level social identity and an underlying desire to help overcome them [the barriers]"

(Greenberg & Mollick, 2017, p. 4). They found evidence of activist choice homophily for female

entrepreneurs in crowdfunding platforms (Greenberg & Mollick, 2017). A recent survey by

Inc.com and Fast Company found that of the women entrepreneurs who raised funds, 38%

actively sought out female investors (Lenz & Aspan, 2018). Drilling down deeper, these women

entrepreneurs reported the following specific reasons for seeking a female investor: (1) 20% felt

a female investor would take them more seriously, (2) 24% said they specifically wanted to

support female investors, and (3) 28% believed female investors would better understand the

entrepreneur's target market (Lenz & Aspan, 2018).

As visible signals, an entrepreneur's characteristics such as age, gender, and ethnicity have the potential to create homophily in an investment situation. Investors will form relationships with entrepreneurs like them because they see their former selves in the new entrepreneur and desire to help the entrepreneurs overcome structural barriers, they themselves overcame as entrepreneurs. Homophily also may lead to increased perceptions of how open an entrepreneur is to coaching and angels prefer a coachable entrepreneur. An angel who actively sought coaching as an entrepreneur may ascribe this same personality trait to new entrepreneurs, especially if the entrepreneur is the same age, gender, or ethnicity as the angel.

Social Exchange Theory

Social exchange theory posits that relationships are started based on each participant's perception of their costs and benefits of entering into the relationship (Blau, 1964; Homans, 1958). This exchange can involve both financial and non-financial resources and a "resource" can be anything that is considered valuable by the recipient (Cropanzano & Mitchell, 2005). The financial exchange involves the angel infusing capital into the venture in exchange for an equity position in the firm. The non-financial exchange might involve the entrepreneur sharing proprietary company information with the angel and the angel then providing advice about potential next steps for the entrepreneur. This exchange can happen pre-investment at events such as Morning Mentoring[19] sessions where entrepreneurs pitch their idea and receive feedback from experienced angels. Spigel and Harrison (2018) note that a well-functioning entrepreneurial ecosystem requires not only financial capital, knowledge, and support but also the social networks that facilitate the exchange of these resources between angels and entrepreneurs. These

---

[19] https://hcdc.com/incubation/morning-mentoring/

pre-investment events are the social networks that support the resource exchange between entrepreneurs and angels.

Unlike financial obligations, social exchange obligations are unspecified and may not be reciprocated as expected (Molm et al., 2000). When social exchange obligations are reciprocated, a long-term trusting relationship can develop (Cropanzano & Mitchell, 2005) leading to both instrumental and affective outcomes (Huang & Knight, 2017). Aernoudt (1999) found that angels are more likely than VCs to consider the affective rewards of investing in an entrepreneurial venture. The bidirectional movement of resources between people is a central tenant of social exchange theory making it an appropriate theoretical framework through which to investigate the transfer of non-financial resources from angels to entrepreneurs. The exchange of non-financial resources provides entrepreneurs with access to vital assets they would have to purchase elsewhere while providing the angel with the chance to mitigate investment losses and improve their deal flow.

As noted previously, homophily is the tendency to form strong social bonds with others who share defining characteristics such as gender (Lazarsfeld & Merton, 1954), interpersonal choice homophily is purposely associating with others similar to yourself (McPherson & Smith-Lovin, 1987), and activist choice homophily describes relationships based on perceptions of shared structural barriers (Greenberg & Mollick, 2017). Related to financial investment, research has found that gender-congruent entrepreneurs drive investment from capital markets (Kuwabara & Thébaud, 2017; Lee & Huang, 2018; Tak et al., 2017). Solal (2019) found gender homophily has a significant effect on offer rates for both genders, increasing the likelihood of a financial offer by 6.3% for male entrepreneurs and 7.5% for female entrepreneurs. Angel groups with a high proportion of men are more likely to receive funding requests from men and to fund

proposals from men (Becker-Blease & Sohl, 2007) and Harrison and Mason (2007) found female business angels slightly more likely to invest in female owned ventures. Brush et al. (2014) found VC firms with women partners are more than twice as likely (34% versus 13%) to invest in ventures with women on the management team and nearly four times as likely (58% versus 15%) to invest in ventures with a woman CEO. This begs the question of the role of homophily in the provision of non-financial resources. Formally stated:

> **Hypothesis 3:** Homophily moderates the relationship between the perception of coachability and the business angel's propensity to provide non-financial resources such that business angels will have a greater propensity to provide non-financial resources (absent financial investment) when higher levels of homophily exist.

I have argued that entrepreneurial passion influences a business angel's decision to provide non-financial resources to entrepreneurs (Hypothesis 1). Additionally, I proposed that the entrepreneur's coachability acts as a mediator between entrepreneurial passion and the angel's propensity to provide non-financial resources (Hypothesis 2). Finally, I proposed that homophily is an important moderator of the relationship between the entrepreneur's coachability and the angel's propensity to provide non-financial resources absent a financial investment (Hypothesis 3). These relationships present a moderated mediation model as shown in Figure 2. To fully capture the moderated mediated model, I posit an additional hypothesis indicating the conditional indirect effect of an entrepreneur's display of passion on the angel's propensity to provide non-financial resources, absent a financial investment, through an entrepreneur's coachability, such that the effect is most pronounced when entrepreneurs and angels share a homophilous relationship. Formally stated:

Hypothesis 4: Entrepreneurial passion is related to a business angel's propensity to provide non-financial resources, absent a financial investment, through indirect effects such that the relationship between entrepreneurial passion and an investment of non-financial resources will be mediated by entrepreneurial coachability and moderated by homophily.

Chapter Four: Methods

The methods for investigating the research model proposed in Chapter Three are presented here. The first section details the methods utilized to develop the non-financial resources measure. The second section details the methods utilized to investigate the research model and associated hypotheses.

Study 1: Non-Financial Resources Measure Development

The first study developed a new measure of non-financial resources that used the Madill et al. (2005) categories as a foundation. The purpose of this study was not to engage in a full measure development process, but to develop a measure reliable and valid enough to answer the research question. The following section details the process for developing and validating the measure for its use in the evaluation of the research model in Study 2.

Item Generation

Generating items that assess the construct of interest is the initial step in measure development. Items were developed through the deductive approach, utilizing the Madill et al. (2005) six non-financial resource categories (Advice, Contacts, Hands-On Assistance, Boards of Directors/Advisors, Market and Business Intelligence, and Credibility and Validation), prior literature, and consultation with current angel investors. Items were written to be short and simple and to avoid double-barreled statements (Hinkin, 1998). Constructs were defined in everyday language (Anderson & Gerbing, 1991) and no negatively worded (reverse-scored) items were developed. The initial list consisted of a total of 43 items across the six categories. One attention check was added to the items. Sample items include "Act as an idea sounding board," "Provide introductions to banking institutions," "Consult for the business," "Help identify potential board members," "Identify potential acquisition targets," and "Allow the

35

entrepreneur to use me as a reference." These sample items represent the Advice, Contacts, Hands-On Assistance, Boards of Directors/Advisors, Market and Business Intelligence, and Credibility and Validation categories respectively (see Appendix A).

Substantive Validity Assessment

After item generation, substantive validity assessment is required to determine how well the generated items reflect the construct of interest. For this study, I assessed substantive validity using the Anderson and Gerbing "item-sort task" (1991, p. 734) and evaluated the proportion of substantive agreement and substantive-validity coefficient for each item. The item-sort task was administered to Sample 1. Participants in Sample 1 were recruited from faculty and staff of the business college at a mid-sized private university in the Midwest region of the United States. As indicated by Anderson and Gerbing, "rather than being experts, judges in the pretest samples should be representative of the main study sample and population of interest" (1991, p. 734). Thus, participants in Sample 1 represented naïve judges with "sufficient intellectual ability to rate the correspondence between items and definitions of various theoretical constructs, and the lack of any pertinent biases" (Hinkin & Tracey, 1999). As such, the use of business college faculty and staff was deemed appropriate.

The item-sort task was administered online via a Qualtrics-based survey and responses were collected anonymously. Participants were asked to review the definitions for the six non-financial resources categories (Advice, Contacts, Hands-On Assistance, Boards of Directors/Advisors, Market and Business Intelligence, and Credibility and Validation) and then select which category best represented each item. Each item could only be assigned to one category and there was not an option to select that an item was not related to any of the categories (Anderson & Gerbing, 1991). Items were randomly sorted and presented to each

36

participant. The definitions for the six non-financial resources categories (see Appendix A) were available at the top of each page of the survey as a reminder to the participants.

Item-Sort Task Data Analysis

For Sample 1, two indices were calculated to assess substantive validity (1) the proportion of substantive agreement (P_{sa}) and (2) the substantive-validity coefficient (C_{sv}) from the Anderson and Gerbing (1991) method. Following Anderson and Gerbing (1991), two indices were evaluated (1) the proportion of participants who matched each non-financial resource with each category and (2) the extent to which each non-financial resource was assigned to one category more than others. Following the substantive validity assessment, exploratory factor analysis was used to further refine the measure items.

Exploratory Factor Analysis

Using the information gained from Sample 1, a second survey was designed for exploratory factor analysis. Responses were anonymous and collected online using a Qualtrics-based survey. The second survey (EFA1) included 41 of the original 43 non-financial resources. Hands-On Assistance 10 (H10) and Market Intelligence 2 (N2) were not included as they were below a P_{SA} of 0.30. The remaining six items below a P_{SA} of 0.50 (H8, N4, H4, H2, H1, and N3) were retained because they were close to the cutoff point and I wanted to further investigate them. Also included in EFA1 were established measures of constructs related to the propensity to provide non-financial resources in order to establish convergent, discriminant, and criterion-related validity.

Convergent validity was measured using the Baron et al. (2006) Willingness to Invest scale. A willingness to invest financially is a construct similar to the willingness to invest non-financial resources and they often are provided simultaneously by angels. Discriminant validity

37

was measured using the Dahling et al. (2009) Machiavellianism Personality Scale (MPS). People high on the MPS are more focused on their own interest and will be less likely to provide non-financial resources absent an assurance of a return on their efforts. Criterion-related validity was measured using the Wayne and Ferris (1990) Liking for Subordinates scale, the Evans and Revelle (2008) Propensity to Trust Survey (PTS), and the Podsakoff et al. (1990) Organizational Citizenship Behavior (OCB) Altruism subscale (see Appendix B for complete measures). Liking and Propensity to Trust are antecedent constructs as angels should like and trust entrepreneurs, to some extent, before they agree to provide valuable non-financial resources. The Altruism subscale of the OCB scale measures a person's selfless willingness to help others. Providing non-financial resources without a formal reciprocation agreement in place is a selfless act of angel investors. Participants were asked to indicate their level of agreement with each statement on a 7-point Likert scale 1 = *strongly disagree* to 7 = *strongly agree.*

Sample 2 was recruited via an Amazon Mechanical Turk (MTurk) Human Intelligence Task (HIT). To qualify for the task, potential respondents had to live in the U.S., speak English, be over 18 years of age, and meet the definition of an amateur investor per Johnson et al. (2018). An amateur investor "had to (a) have prior investment experience in stocks, bonds, private investments, or other securities, (b) not be a current student at any institution, and (c) not be employed as a full-time professional investor" (Johnson et al., 2018, p. 822). MTurk worker qualification requirements included a HIT approval rate greater than 95%, physical location in the U.S., and number of HITs approved greater than 5,000. Respondents who completed the survey were compensated with 50 cents ($0.50).

Principle factor analysis with oblique rotation (Promax with Kaiser Normalization) was used. The eigenvalues indicated six factors over Kaiser's criterion of 1 and the scree plot showed

an inflexion at six factors as well as a possible bend at three factors. Further analysis of the factor

loadings resulted in three factors remaining instead of the six proposed by Madill et al (2005).

See Appendix C. After reviewing the item descriptions, I considered the possibility that item

description confusion occurred due to the use of redundant words (i.e., provide, help, and

identify). Item descriptions were revised with appropriate synonyms and new item-sort task and

EFA surveys (with the original 43 items; see Appendix D), were launched. Sample 3 was

recruited from MTurk and personal networks and followed the same procedures as Sample 1.

The Sample 3 item-sort task resulted in 14 items with a P_{SA} below 0.50 (eight items were

the same as the Sample 1 results). Sample 4 was recruited from MTurk for a second EFA survey

(EFA2). Using the new item descriptions, EFA2 included the original 43 items and followed the

same procedure as EFA1. I retained all original 43 items for EFA2 because I wanted to further

investigate them and some of the items were recommended for inclusion by angel investors (e.g.,

H4, V4, and N4). EFA2 also included the Organizational Justice Distributive Justice subscale

(Colquitt, 2001) as an additional criterion-related measure. Distributive Justice measures a

person's feelings about the fairness of outcomes given their contribution to the effort.

Distributive Justice was added as a consequent construct as angels who provide non-financial

resources should feel their efforts result in fair outcomes for themselves. Principle factor analysis

with oblique rotation (Promax with Kaiser Normalization) was used. The eigenvalues indicated

five factors over Kaiser's criterion of 1 and the scree plot showed an inflexion at five factors as

well as a possible bend at three factors. Further analysis of the factor loadings again resulted in

three factors remaining instead of the six proposed by Madill et al (2005). The three factors

loaded on (1) Advice and Market Intelligence, (2) Hands-On Assistance and Board of Directors,

and (3) Validation and Contacts. See Appendix E.

Study 2: Evaluation of the Research Model

Study 2 was conducted to investigate the proposed research model and associated

hypotheses. Study 2 used the non-financial resources measure developed in Study 1 along with a

2 x 2 factorial experiment.

Procedure

Study 2 involved a 2 (entrepreneur gender) x 2 (entrepreneur passion) factorial design

experiment with gender and passion manipulations. Participants were randomly presented one of

four possible scenarios about an entrepreneur seeking early-stage funding from an angel investor.

The gender manipulation was the name of the entrepreneur and a picture of the entrepreneur. The

pictures of the male and female entrepreneurs were matched on age, race, level of attractiveness,

and attire (see Table F1). Matched pictures from the validated database Chicago Face Database

(Ma et al., 2015) were used. The passion manipulation involved the pictures and text of each

scenario. There were two versions of the male and the female pictures; one smiling and one with

a neutral expression (see Appendix F). Following is the scenario with manipulations indicated in

bold.

Imagine you are evaluating a technology[20] startup founded by **Michael [Jessica]** Smith

who has extensive knowledge and entrepreneurial experience in the information

technology field. **Michael [Jessica]** presents in a **reserved [passionate]** manner, with

minimal [animated] facial expressions and hand gestures. **His [Her]** presentation

materials are complete and present a compelling case for investment. The venture fulfills

all your criteria for an early-stage investment, and you have the money, resources, and

---

[20] In 2018 (per the Angel Capital Association), the top industry for angel investments was technology industries at 38%.

40

time to invest. **Michael [Jessica]** is asking you for a $25,000 seed investment in the new venture.

The scenarios were pilot-tested for the gender and passion manipulations using MTurk workers. To qualify for the task, potential respondents had to live in the U.S., speak English, be over 18 years of age, and meet the definition of an amateur investor per Johnson et al. (2018). An amateur investor "had to (a) have prior investment experience in stocks, bonds, private investments, or other securities, (b) not be a current student at any institution, and (c) not be employed as a full-time professional investor" (Johnson et al., 2018, p. 822). MTurk worker qualification requirements included a HIT approval rate greater than 95%, physical location in the U.S., and number of HITs approved greater than 5,000. Respondents who completed the survey were compensated with 50 cents ($0.50).

Forty-three workers attempted the survey. Thirty-two workers did not meet the respondent qualifications and were automatically stopped from completing the survey. This resulted in 11 valid responses. Respondents who completed the survey were compensated with 50 cents ($0.50). The manipulation check question asking participants to recall the gender of the entrepreneur in the scenario was answered correctly 100% of the time (11/11 respondents). Three statements were randomly presented to test the passion manipulation, (1) This entrepreneur is passionate about their business, (2) This entrepreneur is not passionate about their business, (3) This entrepreneur is too passionate about their business. Participants evaluated the statements using a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The passionate scenarios (6 respondents) were judged to be relatively high on the scale while the neutral scenarios (5 respondents) were judged to be relatively average on the scale thus providing support for the passion manipulations in the scenarios (see Table 2 for average ratings). Since the pilot-test

41

validated the gender and passion manipulations, I proceeded with the pictures and scenarios for the main survey. The main survey assigned one of the four scenarios to each participant using a randomized between-participant experimental design. Each scenario was presented equally across participants. After reading the scenario, participants answered the survey questions. Responses were anonymous and collected online using a Qualtrics-based survey.

Table 2

Respondent Ratings for the Scenario Passion Manipulations

	Scenario	
Statement	Passionate	Neutral
Entrepreneur Is Passionate	5.83	4.8
Entrepreneur Is Not Passionate	2.33	3.6
Entrepreneur Is Too Passionate	4.67	3.8

Note. $N = 11$. Ratings are on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Participants

The unit of analysis was an individual business angel. The population for the experiment was United States business angels who are active in the market. Per the Security and Exchange Commission's standards, a business angel is an accredited investor with a net worth of at least $1 million (excluding their primary residence), annual salary of $200,000 for the last three years, or a combined $300,000 salary between the angel and his or her spouse (Securities Act of 1933, 1933 as amended at 81 FR83553, Nov. 21, 2016; Wiltbank & Boeker, 2007). Angels are considered active if they have invested in the last three years and are currently pursuing or open to new investment opportunities. The angel could be a solo investor or a member of a business angel network.

42

Given the invisible nature of business angels, we cannot know nor identify the entire population; therefore, the sampling frame for this study was members of Queen City Angels ($n = 110$)[21] and Next Wave Impact ($n = 99$).[22] Membership in Queen City Angels and Next Wave Impact require an investor to be an accredited investor per the SEC definition (this is self-reported). Participants were recruited via the snowball method utilizing my personal contacts in the business angel industry. An e-mail request invited them to participate and provided a direct link to the Qualtrics-based survey (see Appendix G for the recruitment email). A blind email request also went to the Angel Capital Association. The Angel Capital Association is the world's largest angel professional development organization consisting of 250 angel groups with over 14,000 accredited angel investors.[23]

The angel survey request resulted in only 18 responses. A new sample of amateur investors (Johnson et al., 2018) was recruited for a MTurk HIT after it became evident the angel sample would not be large enough. MTurk worker qualifications stayed consistent with the EFA2 HIT (e.g., live in the U.S., qualify as an amateur investor, HIT approval rate greater than 95%). An additional stipulation excluded workers who participated previously in the EFA1 and EFA2 surveys. Respondents who completed the survey were compensated with 50 cents ($0.50). The use of MTurk was found to be effective in previous studies involving entrepreneurial funding decisions (Brooks et al., 2014; Younkin & Kuppuswamy, 2019) and studies show that data from MTurk workers is comparable in quality to data collected from professional/commercial panels despite MTurk workers being more socio-economically and

---

[21] https://qca.com/
[22] https://nextwaveimpact.com/
[23] https://www.angelcapitalassociation.org/about-aca/

ethnically diverse that participants recruit by other methods (Casler et al., 2013; Kees et al., 2017).

Measures

Participants assessed the entrepreneur's passion and coachability and indicated if they would invest financial and non-financial resources in the entrepreneur. All measures, except where noted, were on a 7-point Likert scale of 1 = *strongly disagree* to 7 = *strongly agree*. There were three attention checks embedded in the survey. The first attention check was an instructed response question (Meade & Craig, 2012) which asked the respondent to select "Agree: 6" for the statement. The second attention check was another instructed response question which asked respondents to select "Disagree: 2" for the statement. The final attention check was a manipulation check question asking participants to recall the gender of the entrepreneur in the scenario. Participants also were asked to rate the attractiveness of the entrepreneur in the scenario. See Appendix B for all the complete measures.

Passion. Perceived entrepreneurial passion was assessed with the items from the measure developed by Chen et al. (2009). The measure contains six items. Sample items include "The presenter(s) had rich body language," "The presenter(s) showed animated facial expression," and "The presenter(s) used a lot of gestures." The statements were slightly modified to change the term "presenter" to "entrepreneur." (α = .98)

Coachability. Entrepreneur *c*oachability was assessed with the items from the measure developed by Ciuchta et al. (2018). The measure contains nine items. Sample items include "Genuinely considers feedback," "Wants to learn," and "Exhibits a genuine respect for the investors." (α = .92)

Homophily. Four measures of Homophily were collected. Activist Choice Homophily, Interpersonal Choice Homophily, a total measure of Homophily (Activist Choice + Interpersonal Choice), and Respondent-Entrepreneur gender match.

Activist Choice Homophily. Activist choice homophily was assessed with the items from the measure developed by Greenberg and Mollick (2017). The statements were slightly modified to change the term "person/people" to "entrepreneur(s)." The measure contains three items. The items are "This person is representative of my gender," "This person has to deal with some of the same gender stereotypes I face," and "It is important for society to see people like this one succeed." ($\alpha = .73$)

Interpersonal Choice Homophily. Homophilous relationships can be based on any number of defining shared characteristic (e.g., age, ethnicity, religion) in addition to gender. Therefore, in addition to the Activist Choice Homophily measure, interpersonal choice homophily was assessed from the measure developed by McCroskey, McCroskey and Richmond (2006). The three-item measure is a subset of the Attitude Homophily scale and includes "This person is like me," "This person thinks like me," and "This person is different than me." This measure was slightly modified to change the term "person" to "entrepreneur." ($\alpha = .75$)

Total Homophily. Activist Choice Homophily and Interpersonal Choice Homophily were combined for a complete measure of homophily. ($\alpha = .79$)

Gender. Traditional gender homophily was evaluated with separate analysis of the research model for male respondents and female respondents.

Willingness to Invest Financial Resources. Willingness to invest financial resources was assessed with modified items from the measure developed by Baron et al. (2006). The measure contains three items. The items are "Would you personally invest in this entrepreneur's

45

venture," "Would you recommend to other persons that they make an investment in this entrepreneur's venture," and "If you had $25,000[24] to invest, how would you allocate that money between the business in the scenario and a safe investment, such as a money market mutual fund?" The statements were modified slightly to read "I would personally invest in this entrepreneur's venture," "I would recommend to other people that they make an investment in this entrepreneur's venture," and "I would invest the entire $25,000 requested." The first two items measure propensity to fund and the third item measures the willingness to fund in monetary value. ($\alpha = .93$)

Willingness to Invest Non-Financial Resources. Willingness to invest non-financial resources was assessed with the items developed in Study 1 (see Table D1). Participants reviewed a future investment scenario to determine which non-financial resources they would provide to the entrepreneur absent a financial investment. The scenario read:

> Next, imagine you decided **NOT** to invest your money in the entrepreneur at this time; however, you see promise in the entrepreneur and their business. Which value-added non-financial resources would you be willing to give to this entrepreneur to help them become investment ready in the future? Think of the future investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate how likely you are to provide the non-financial resources listed.

Cronbach's Alpha for Non-Financial Resource Investment in total (34 items) was .98. The alpha for the three Non-Financial Resource Investment subscales were .95 for Advice/Market Intelligence (13 items), .95 for Hands-On Assistance/Board of Directors (11 items), and .95 for Validation/Contacts (10 items).

---

[24] Per the Angel Capital Association, $25,000 was the median angel investment across the U.S. in 2017

Control Variables. Multiple characteristics of the business angels could influence their propensity to invest in an entrepreneurial venture and are therefore controlled for using participant data collected during the survey.

Risk Tolerance. Risk tolerance was assessed with one question adapted from Hanna and Lindamood (2004, p. 37) — "Which of the statements below comes closest to the level of financial risk you are willing to take when you make early-stage investments?" Available responses were (1) I am not willing to take any financial risks, (2) Average risk expecting to earn average returns, (3) Above average risk expecting to earn above average returns, and (4) Substantial risk expecting to earn substantial returns.

Personality Characteristics. Prior research found that a person's positive affect may increase their willingness to provide support (Jones & George, 1998) and to cooperate with others (Dimotakis et al., 2012); thus, the International Positive and Negative Affect Schedule Short Form (I-PANAS-SF; Thompson, 2007) was utilized. The Positive Affect Cronbach's α was .80 and the Negative Affect Cronbach's α was .91. Likewise, the Big Five Personality Traits (Digman, 1990) of Openness (α = .55), Conscientiousness (α = .56), Extraversion (α = .69), Agreeableness (α = .43), and Neuroticism (α = .69) have been linked to angel investor decision making. Mitteness et al. (2012) determined angels with high openness had a higher propensity to fund and angels with high extraversion had a lower propensity to fund entrepreneurs. Therefore, the Big Five Inventory 10-Item Short Version (Rammstedt & John, 2007) was used.

Investor Profile. The study also collected the following investor profile information from each participant (see Appendix G). Entrepreneurial experience related to the number of businesses an angel has started. Investing experience such as the length of time as an angel, number of investments, reasons for investing, reasons for not investing, deal referral sources,

typical investment industries, business stages for investment, and investment instruments were collected.

Demographics. Standard demographics (see Appendix G) such as gender, age, ethnicity, state of residence, education, current employment status, income, and area of expertise were collected.

Data Analysis

Data were analyzed using Microsoft Excel and SPSS Statistics 26. For Study 1, substantive validity was assessed by determining the proportion of substantive agreement (P_{SA}) and the substantive-validity coefficient (C_{SV}) for each non-financial resource item (Anderson & Gerbing, 1991). Microsoft Excel was used to calculate the P_{SA} (number of total responses divided by the number of correct responses) and the C_{SV} (number of correct responses minus the number of incorrect responses, divided by the number of total responses).[25] SPSS Statistics 26 was used for descriptive statistics; bivariate relationships; alpha reliabilities; to perform the exploratory factor analysis; and to establish convergent, discriminant, and criterion-related validity. Prior to running the SPSS analysis, participants' average scores across items were calculated. This was done for all measures discussed above. Principle factor analysis with oblique rotation (Promax with Kaiser Normalization) was used for the exploratory factor analysis.

For Study 2, SPSS Statistics 26 was used for descriptive statistics, correlations, and alpha reliabilities. The moderated mediation model in Study 2 was analyzed using the Hayes (2017) PROCESS macro Model 14 (version 3.5). PROCESS allows analysis of the full moderated mediation model at one time. This approach utilizes bootstrapping and an ordinary least squares regression-based path analysis to estimate the direct and indirect effects of the model. Model 14

---

[25] A correct response indicates the participant matched an item with its posited category.

also evaluates the conditional effects of the focal predictor at values of the moderator (-1 *SD*, *Mean*, +1 *SD*) which can be used for simple slope analysis. A 95% confidence interval and 5,000 bootstrap samples were used and Risk Tolerance, Positive Affect, Negative Affect, and the Big Five Personality Traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism were controlled. PROCESS is recommended over the Baron and Kenny (1986) method because PROCESS does not assume normal distribution of indirect effects and provides confidence intervals that can be used for hypothesis testing (Hayes, 2009). Additional post hoc analysis related to homophily was completed with SPSS and PROCESS.

Chapter Five: Results

Study 1: Non-Financial Resources Measure Development

The purpose of Study 1 was not to engage in a full measure development process, but to develop a measure reliable and valid enough to answer the research question. Four independent samples and methods were used to assess the proposed non-financial resource measure items. Items were assessed for the proportion of substantive agreement, the substantive-validity coefficient, factor loading, Cronbach's alpha reliability, and convergent, discriminant, and criterion-related validity. The following section details the results of the analysis.

Sample 1

A total of 56 individuals attempted the item-sort task1 survey. Two respondents were deemed "non-qualifiers" since they worked less than 20 hours per week, two respondents did not complete the survey, and four respondents failed the attention check, resulting in 48 valid responses. Respondents were 50% female, 48% male, and 2% preferred not to answer. The mean age was 47 years. The sample was 88% Caucasian. Seventy-five percent of respondents were academics and 52% had doctoral degrees. See Table A1 for complete sample frequencies.

Respondents were asked to match the non-financial resources to one of the six pre-defined categories (Advice, Contacts, Hands-On Assistance, Board of Directors/Advisors, Market and Business Intelligence, and Credibility and Validation). Each non-financial resource could be assigned to only one category and there was not an option to select "none of the above." For Sample 1, two indices were calculated to assess substantive validity - the proportion of substantive agreement (P_{sa}) and the substantive-validity coefficient (C_{sv}) from the Anderson and Gerbing (1991) method. The proportion of substantive agreement (P_{sa}) is the proportion of respondents who match a non-financial resource with its intended category. Values range from

50

0.0 to 1.0, with a larger value signifying greater substantive validity. The substantive-validity coefficient (C_{sv}) "reflects the extent to which respondents assign an item to its posited construct more than any other construct" (Anderson & Gerbing, 1991, p. 734). Values range from -1.0 to 1.0, with a larger value signifying greater substantive validity.

Table A2 presents both indices for the non-financial resource items. The Hands-On Assistance 1, Hands-On Assistance 2, Hands-On Assistance 4, Hands-On Assistance 8, Hands-On Assistance 10, Market Intelligence 2, Market Intelligence 3, and Market Intelligence 4 items failed to achieve the 0.50 cutoff probability of being matched to the correct category. Additionally, Hands-On Assistance 9 failed to achieve the substantive-validity coefficient cutoff but did meet the cutoff for the proportion of substantive agreement. The remaining 34 items were above the cutoffs for both indices.

Sample 2

Using the information from Sample 1, a second survey was designed for exploratory factor analysis. The second survey (EFA1) included 41 of the original 43 non-financial resources. Hands-On Assistance 10 (H10) and Market Intelligence 2 (N2) were not included as they were below a P_{SA} of 0.30. The remaining six items below a P_{SA} of 0.50 (H8, N4, H4, H2, H1, and N3) were retained because they were close to the cutoff point and I wanted to further investigate them. Also included were established measures of constructs related to the propensity to provide non-financial resources in order to establish convergent, discriminant, and criterion-related validity. Convergent validity was measured using the Baron et al. (2006) Willingness to Invest scale. Discriminant validity was measured using the Dahling et al. (2009) Machiavellianism Personality Scale (MPS). Criterion-related validity was measured using the Wayne and Ferris (1990) Liking for Subordinates scale, the Evans and Revelle (2008) Propensity

51

to Trust Survey (PTS), and the Podsakoff et al. (1990) Organizational Citizenship Behavior (OCB) Altruism subscale (see Appendix B for complete measures).

Sample 2 was recruited via a MTurk Human Intelligence Task (HIT). To qualify for the task, potential respondents had to live in the U.S., speak English, be over 18 years of age, and meet the definition of an amateur investor per Johnson et al. (2018).[26] MTurk worker qualification requirements included a HIT approval rate greater than 95%, physical location in the U.S., and number of HITs approved greater than 5,000. Respondents who completed the survey were compensated with 50 cents ($0.50). Accepted participants were asked to indicate their level of agreement with each statement on a 7-point Likert scale 1 = *strongly disagree* to 7 = *strongly agree.* A total of 742 MTurk workers attempted the EFA1 survey. Four hundred and twenty-six workers did not meet the amateur investor criteria and were automatically stopped from continuing the survey. Four workers failed the attention check and 32 workers appeared to be responding blindly, resulting in 280 valid responses. Respondents were 51% male, 47% female, 1% non-binary, and 1% preferred not to answer. The mean age was 43 years. The sample was 75% Caucasian. Forty-Seven percent of respondents held bachelor's degrees and 69% reported being an employee for a company (not their own business). See Table C1 for complete sample frequencies.

A principle axis factor analysis with oblique rotation (Promax with Kaiser Normalization) was conducted in SPSS on the 35 items with a P_{sa} greater than 0.50. Oblique rotation is appropriate as the underlying dimensions of the measure (e.g., advice, hands-on assistance, and contacts) should correlate to some degree. The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis (KMO = .95). Bartlett's Test of

---

[26] Amateur investor criteria: not currently a student, not currently a professional investor, and prior investing experience.

Sphericity was significant ($p < .001$) indicating that factor analysis may be useful with the data.

An initial analysis was run to obtain eigenvalues for each factor. Six factors had eigenvalues over

Kaiser's criterion of 1 and in combination explained 66.94% of the variance (see Table C2). The

scree plot (Figure 3) showed an inflexion at six factors as well as a possible bend at three factors.

Figure 3

EFA1 Scree Plot Sample 2
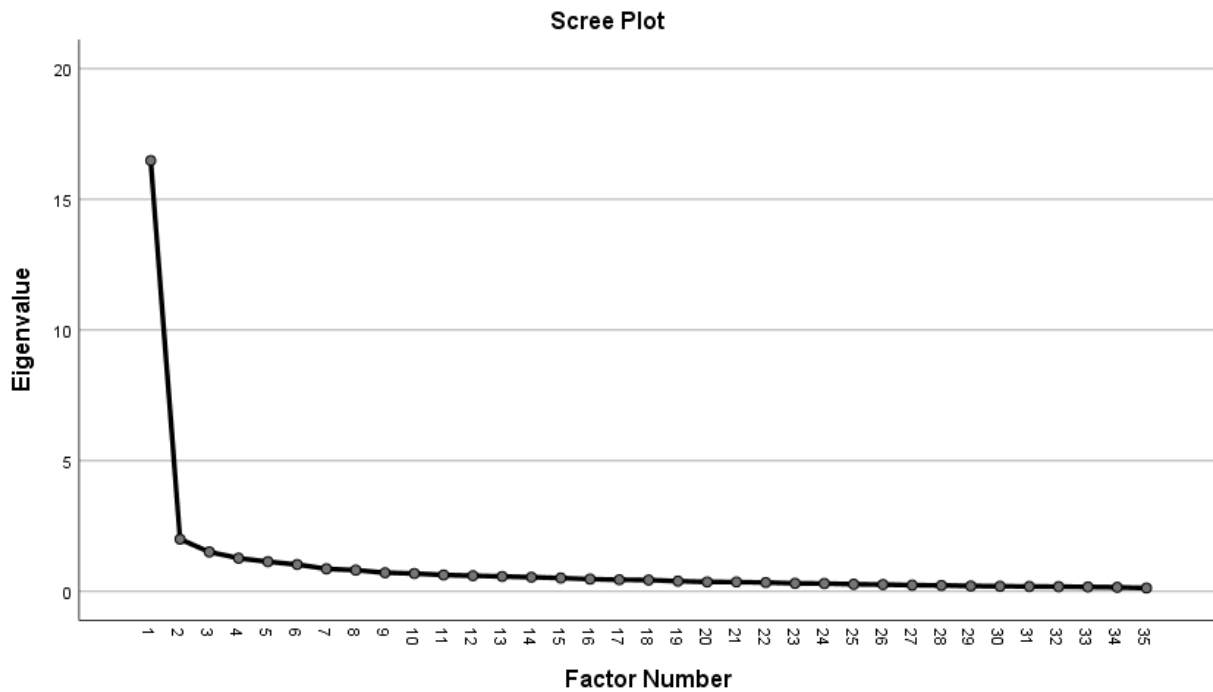
It was expected that six factors would be retained because Madill et al. (2005) described

six categories of non-financial resources; however, after removing items with loadings less than

.40 and items loading on more than one factor at .40 (Ford et al., 1986), only 21 items across

three factors remained (see Table C3). Items loaded on combined factors of (1) Advice and

Market Intelligence ($\alpha = .92$), (2) Hands-On and Board of Directors ($\alpha = .90$), and (3) Validation

53

(α = .80). Contacts initially loaded with Validation but eventually fell out after evaluating the factor loadings. After reviewing the item descriptions, I considered the possibility that items were not loading as expected due to item description confusion. The 43 original item descriptions included 18 items that started with "Provide…," 11 that started with "Help…," and four that started with "Identify…" Item descriptions were clarified to replace redundant words with appropriate synonyms. In no way was the essential meaning or content of the item descriptions changed; changes either eliminated unnecessary words or used synonyms to improve clarity. See Table D1 for a direct item comparison from EFA1 to EFA2.

Sample 3

The 43 items with their revised descriptions were tested in a second item-sort task survey (item-sort task2). Sample 3 was recruited from MTurk and personal networks and followed the same procedures as the item-sort task in Sample 1. Forty-eight respondents completed the survey. Ten respondents missed the attention check, four respondents did not meet all the inclusion criteria, and one respondent appeared to be responding blindly resulting in a total of 33 valid responses. MTurk respondents who completed the survey were compensated with 50 cents ($0.50). Respondents were 58% male and 42% female. The mean age was 35 years. The sample was 68% Caucasian. Forty-six percent of respondents were full-time employees for a company (not their own business) and 30% had doctoral degrees. See Table D2 for complete sample frequencies. The Sample 3 item-sort task resulted in 14 items with a P_{SA} below 0.50 (eight items were the same as the Sample 1 results) and 14 items with a negative C_{SV} (see Table D3). Following the substantive validity assessment, a second exploratory factor analysis was used to further refine the measure items.

Sample 4

Sample 4 was recruited from MTurk for a second EFA survey (EFA2). Using the new item descriptions, EFA2 included the original 43 items along with the same established measures as EFA1 (e.g., Machiavellianism, Trust) and followed the same procedure as EFA1. I retained the original 43 items for EFA2 because I wanted to further investigate them and some of the items not meeting the cutoff P_{SA} of .50 were specifically recommended for inclusion by angel investors (e.g., H4, V4, and N4). EFA2 also included the Organizational Justice Distributive Justice subscale (Colquitt, 2001) as an additional consequent criterion-related measure.

The worker qualification requirements stayed consistent with the EFA1 HIT (e.g., live in U.S., qualify as an amateur investor, HIT approval rate greater than 95%). An additional stipulation excluded workers who participated in the EFA1 survey. Respondents who completed the survey were compensated with 50 cents ($0.50). Accepted participants were asked to indicate their level of agreement with each statement on a 7-point Likert scale 1 = *strongly disagree* to 7 = *strongly agree.* A total of 1,031 MTurk workers attempted the EFA2 survey. Five hundred and sixty-six workers did not meet the amateur investor criteria and were automatically stopped from completing the survey. Eight workers failed the attention check and 37 workers appeared to be responding blindly, resulting in 420 valid responses. Respondents were 53% female, 45% male, 1% non-binary, and 1% preferred not to answer. The mean age was 44 years. The sample was 80% Caucasian. Forty-Seven percent of respondents held bachelor's degrees and 64% reported being an employee for a company (not their own business). See Table E1 for complete sample frequencies.

A principle axis factor analysis with oblique rotation (Promax with Kaiser Normalization) was conducted in SPSS on the 43 items. The Kaiser-Meyer-Olkin measure

verified the sampling adequacy for the analysis (KMO = .97). Bartlett's Test of Sphericity was significant ($p < .001$) indicating that factor analysis may be useful with the data. An initial analysis was run to obtain eigenvalues for each factor. Five factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 62.94% of the variance (see Table E2). The scree plot (Figure 4) showed an inflexion at five factors as well as a possible bend at three factors.

Figure 4

EFA2 Scree Plot Sample 4
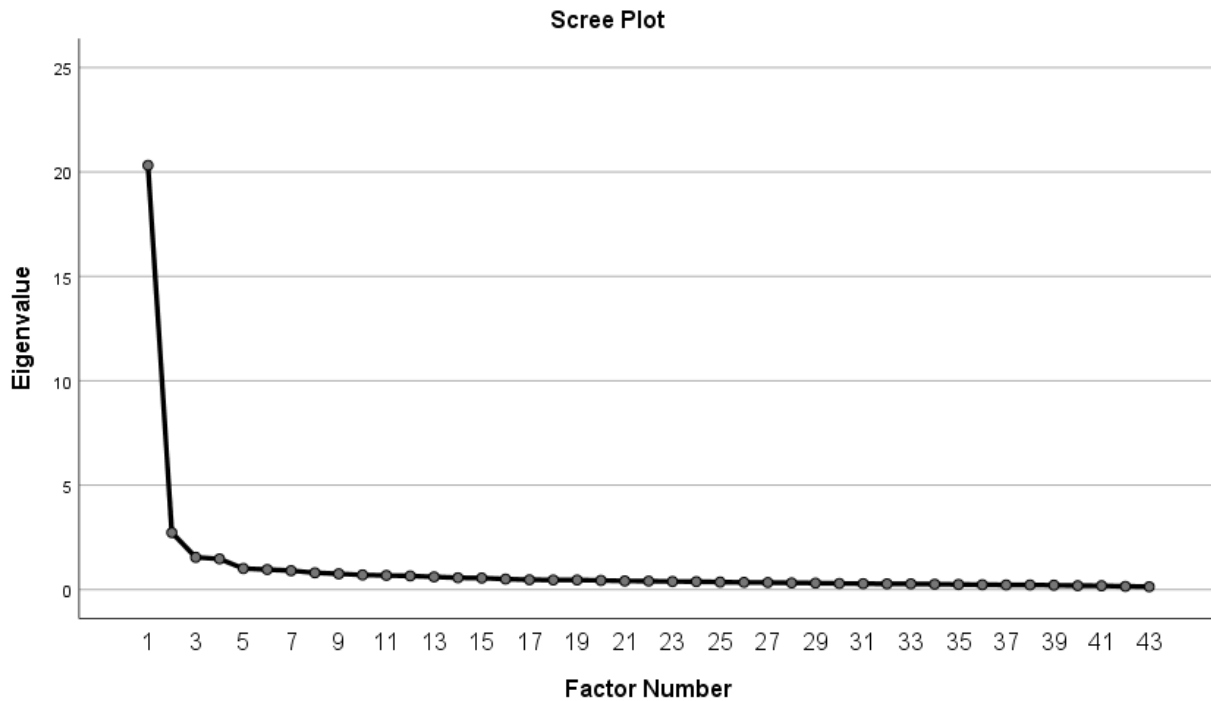
After removing items with loadings less than .40 and items loading on more than one factor at .40 (Ford et al., 1986), only 24 items across three factors remained. As in EFA1, items loaded on the same combined factors of (1) Advice and Market Intelligence, (2) Hands-On and Board of Directors, and (3) Validation and Contacts (see Table E3). The Advice and Market

Intelligence, Hands-On and Board of Directors, and Validation and Contacts subscales of the Non-Financial Resource Investment measure all had high reliabilities with Cronbach's $\alpha = .92$, .91, and .90 respectively (see Table 3). Given the similar results on EFA1 and EFA2, I believe the original six categories proposed by Madill et al., (2005) are more likely to be three categories.

The three-category measure is supported by the scree plots, eigenvalues, item factor loadings, and the alpha reliabilities. The scree plots for EFA1 and EFA2 indicated six and five factors respectively but both also indicated a possible bend at three factors. Examining the initial eigenvalues, Factor 1 accounts for 47.10% of the variance for EFA1 and 47.25% of the variance for EFA2 followed by a precipitous drop-off in percentage of variance for the remaining factors. Retaining more than three factors resulted in lower alpha reliabilities and a less parsimonious measure. The initial EFA1 pattern matrix of six factors reduced to three factors after three EFA rounds and rotation converged in five iterations. The initial EFA2 pattern matrix of five factors reduced to three factors after five EFA rounds and rotation converged in six iterations. Likewise, the three-factor measure exhibited high Cronbach's alphas for the subscale items of Advice ($\alpha = .92$), Hands-On Assistance ($\alpha = .91$), Validation ($\alpha = .90$), and for the complete Non-Financial Resources measure ($\alpha = .95$) exceeding Nunally's (1978) recommended level of .70 for newly developed measures.

It is also very reasonable to imagine that people might perceive providing market intelligence to be an aspect of providing advice, that working with or being part of the board of directors might amount to hands-on assistance, and providing introductions to your network contacts could be seen as a validation of the entrepreneur and their business. It is possible the fine distinction between the original six categories is not as high in face validity as Madill et al.

(2005) expected. Additionally, at only 33 entrepreneurs, Madill's original sample was small.

Future research is needed to both strengthen theoretical development and to further validate the

non-financial resources items and dimensions.

Convergent Validity

Convergent validity is supported when the new measure correlates strongly and

positively with similar constructs (Hinkin, 1998). This was assessed by comparing the new

measure of propensity to provide non-financial resources with the Baron et al. (2006)

Willingness to Invest measure. As expected, the willingness to invest in a venture financially was

significantly and positively related to providing non-financial resources, $r = .57$, $p < .01$. Table 3

presents the descriptive statistics and bivariate relationships.

Discriminant Validity

Discriminant validity is supported when the new measure does not correlate or is

negatively related with dissimilar constructs (Hinkin, 1998). This was assessed by comparing the

new measure of propensity to provide non-financial resources with the Dahling et al. (2009)

Machiavellianism Personality Scale. As expected, Machiavellianism was not significantly

correlated with providing non-financial resources, $r = .02$, $p > .05$ (see Table 3).

Criterion-Related Validity

Criterion-related validity is supported when the focal measure properly correlates with

constructs within the focal construct's nomological network (Hinkin, 1995). This was assessed

by comparing the focal measure of propensity to provide non-financial resources with the

antecedent constructs of Liking (Wayne & Ferris, 1990), Trust (Evans & Revelle, 2008), and

Organizational Citizenship Behavior (Podsakoff et al., 1990), and the consequent construct of

Distributive Justice (Colquitt, 2001). As expected, providing non-financial resources correlates

58

significantly and positively with Liking, $r = .59$, $p < .01$; Trust, $r = .49$, $p < .01$; Organizational

Citizenship Behavior, $r = .52$, $p < .01$; and Distributive Justice, $r = .44$, $p < .01$ (see Table 3).

Table 3

EFA2 Descriptive Statistics and Bivariate Relationships Sample 4

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1 Non-Financial Resources	4.97	1.03	(.95)[a]									
2 Advice Subset	5.41	1.04	.89	(.92)								
3 Hands-On Subset	4.41	1.25	.90	.65	(.91)							
4 Validation Subset	5.23	1.14	.89	.80	.68	(.90)						
5 Willingness to Invest	4.46	1.24	.57	.42	.57	.53	(.81)					
6 Machiavellianism	3.50	1.34	.02	-.06	.09	-.01	.07	(.85)				
7 Liking	5.35	0.94	.59	.57	.47	.57	.52	-.10	(.91)			
8 Trust	5.36	0.95	.49	.48	.41	.43	.34	-.33	.50	(.75)		
9 OCB	5.48	0.98	.52	.53	.43	.47	.31	-.27	.51	.73	(.88)	
10 Justice	5.42	1.06	.44	.45	.37	.38	.33	-.14	.39	.53	.44	(.93)

Note. $N = 420$.

[a] Values in parentheses are alpha reliabilities.

Correlations with an absolute value of 0.10 and correlations > 0.10 are statistically significant at the .05 and .01 levels, respectively.

60

Study 2: Evaluation of the Research Model

      The research model data were analyzed using SPSS Statistics 26 in conjunction with the

Hayes (2017) PROCESS macro version 3.5. Descriptive statistics and bivariate correlations were

calculated, and regression-based analyses were used to test the hypotheses of the research model

presented in Chapter Three. Table 4 provides a summary overview of the results for the research

model. Results supported Hypotheses H1 and H2 but did not support Hypotheses H3 and H4.

Table 4

Summary of Study 2 Hypotheses Results

Hypothesis	Results
H1: An entrepreneur's passion positively influences the business angel's propensity to provide non-financial resources absent a financial investment.	Supported
H2: An entrepreneur's coachability partially mediates the relationship between entrepreneur passion and the business angel's propensity to provide non-financial resources absent a financial investment.	Supported
H3: Homophily moderates the relationship between the perception of coachability and the business angel's propensity to provide non-financial resources such that business angels will have a greater propensity to provide non-financial resources (absent financial investment) when higher levels of homophily exist.	Not Supported
H4: Entrepreneurial passion is related to a business angel's propensity to provide non-financial resources, absent a financial investment, through indirect effects such that the relationship between entrepreneurial passion and an investment of non-financial resources will be moderated by homophily and mediated by entrepreneurial coachability.	Not Supported

Sample

      The original sampling frame was Queen City Angels and Next Wave Impact members.

Angels were invited to participate in the study via an email request and through word of mouth.

Unfortunately, insufficient angel responses resulted in only 18 completed surveys. A new sample of amateur investors was recruited for a MTurk HIT. The MTurk worker qualification requirements stayed consistent with the EFA2 HIT (e.g., live in U.S., qualify as an amateur investor, HIT approval rate greater than 95%). An additional stipulation excluded workers who participated previously in the EFA1 and EFA2 surveys. Respondents who completed the survey were compensated with 50 cents ($0.50). Accepted participants were asked to indicate their level of agreement with each statement on a 7-point Likert scale 1 = *strongly disagree* to 7 = *strongly agree.*

After completing initial qualifier questions, 427 respondents attempted the Study 2 survey. Two hundred and forty-one MTurk workers who missed the first attention check were automatically stopped from continuing the survey. Analysis of completed surveys resulted in the removal of 10 additional surveys due to missing the gender manipulation check and the appearance of responding blindly. The final data set was 176 valid responses. Respondents were 55% male and 45% female. The mean age was 43 years. The sample was 76% Caucasian. Sixty-five percent of respondents were employed full-time for a company (not their own business) and 33% had an annual income over $100,000. Most respondents (51%) held a bachelor's degree and information technology, healthcare, and sales were the top three areas of expertise at 14%, 9%, and 8% respectively. See Table H1 for complete demographic frequencies. Investors noted their mean years of investment experience was 10 years, 43% previously started their own business, the top reason for investment was "I like the product/service" at 18%, and the top reason for not investing was "I do not like the product/service" at 10%. The top industry for investment was information technology at 12% and most invested as a solo investor (54%) using cash/check as their investment instrument (38%). See Table H2 for complete investor profile frequencies.

Bivariate Relationships

Table 5 presents the descriptive statistics and bivariate correlations of the variable measures. All variables correlated in the expected direction. Non-Financial Resource Investment was significantly related at the $p < .01$ to Passion ($r = .20$), Coachability ($r = .52$), Total Homophily ($r = .50$), Activists Choice Homophily ($r = .46$), Interpersonal Choice Homophily ($r = .42$), Willingness to Invest ($r = .54$), Liking ($r = .57$), Trust ($r = .29$), Positive Affect ($r = .29$), and Conscientiousness ($r = .21$), and significantly related at the $p < .05$ to Agreeableness ($r = .16$). Risk Tolerance ($r = .08$, $p > .05$) was not significantly related to Non-Financial Resource Investment. Also as expected, Non-Financial Resource Investment was negatively correlated to Negative Affect ($r = -.11$, $p > .05$) and Neuroticism ($r = -.26$, $p < .01$). Openness ($r = .14$, $p > .05$) and Extraversion ($r = .02$, $p > .05$) were not significantly related to Non-Financial Resource Investment. It should be noted the Cronbach's alphas for the Big Five Personality Traits had relatively low reliabilities (Openness $\alpha = .55$, Conscientiousness $\alpha = .56$, Extraversion $\alpha = .69$, Agreeableness $\alpha = .43$, and Neuroticism $\alpha = .69$). Due to survey length concerns, the Big Five Inventory 10-item Short Version (Rammstedt & John, 2007) was used instead of a longer version which may have contributed to the low reliabilities.

Table 5

Means, Standard Deviations, Correlations, and Reliabilities for Study 2

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1 Non-Financial Resources	4.82	1.14	(.98)[a]									
2 Advice Subset	5.08	1.12	.94	(.95)								
3 Hands-On Subset	4.38	1.30	.93	.79	(.95)							
4 Validation Subset	5.02	1.37	.90	.82	.78	(.95)						
5 Passion	4.32	1.98	.20	.19	.16	.20	(.98)					
6 Coachability	5.14	0.92	.52	.48	.40	.51	.25	(.92)				
7 Total Homophily	4.23	1.20	.50	.45	.47	.46	.15	.65	(.79)			
8 Activists Choice Homophily	4.33	1.58	.46	.41	.44	.39	.12	.50	.91	(.73)		
9 Interpersonal Choice Homophily	4.14	1.17	.42	.36	.37	.41	.14	.66	.83	.51	(.75)	
10 Willingness to Invest	4.70	1.42	.54	.50	.45	.53	.26	.74	.67	.52	.68	(.93)

Note. N = 176.

[a] Values in parentheses are alpha reliabilities.

Correlations with an absolute value of 0.15 to 0.19 and correlations ≥ 0.20 are statistically significant at the .05 and .01

levels, respectively.

Table 5 (cont.)

Means, Standard Deviations, Correlations, and Reliabilities for Study 2

Variable	M	SD	11	12	13	14	15	16	17	18	19	20
11 Liking	5.00	1.25	(.95)[a]									
12 Trust	5.28	1.05	.23	(.82)								
13 Risk Tolerance	2.55	0.79	.06	-.15	—[b]							
14 Positive Affect	5.23	0.93	.31	.34	.06	(.80)						
15 Negative Affect	2.31	1.14	-.10	-.09	.10	-.09	(.91)					
16 Openness	5.20	1.37	.24	.12	-.01	.35	-.12	(.55)				
17 Conscientiousness	5.65	1.14	.17	.14	-.06	.49	-.39	.33	(.56)			
18 Extraversion	4.07	1.52	.07	.12	.17	.22	-.08	.14	.05	(.69)		
19 Agreeableness	4.77	1.33	.04	.59	-.10	.22	-.33	.00	.29	.03	(.43)	
20 Neuroticism	2.94	1.43	-.23	-.14	-.13	-.35	.53	-.24	-.52	-.19	-.34	(.69)

Note. $N = 176$.

[a] Values in parentheses are alpha reliabilities.

[b] Risk Tolerance is a single-item measure, thus there is no alpha reliability to report.

Correlations with an absolute value of 0.15 to 0.19 and correlations ≥ 0.20 are statistically significant at the .05 and .01 levels, respectively.

65

www.manaraa.com

Regression Results

Hypothesis 1 predicted an entrepreneur's passion positively influences the business angel's propensity to provide non-financial resources absent a financial investment. Results indicate that when controlling for Risk Tolerance, Positive Affect, Negative Affect, and the Big Five Personality Traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, Entrepreneur Passion was positively and significantly related to Non-Financial Resource Investment ($b = .10$, $p <.05$), thus providing support for Hypothesis 1 (see Table 6).

Table 6

Regression Results for Study 2

H	Variable	R^2	F	*b*	*SE*	*p*	95% CI LL	95% CI UL
							LL	UL
	Dependent variable model: Passion to Non-Financial Resource Investment							
1	Entrepreneur Passion	0.15	3.27	0.10	0.04	.020	0.02	0.19
	Mediator model: Passion to Coachability to Non-Financial Resource Investment							
2	Entrepreneur Passion	0.18	4.04	0.10	0.03	.003	0.04	0.17
	Entrepreneur Coachability			0.32	0.11	.005	0.10	0.55
	Direct effect (X on Y)			0.05	0.04	.168	-0.02	0.13
	Indirect effect (X on Y)			0.06	0.02		0.01	0.11
	Moderated Mediation model: Homophily as moderator							
3, 4	Entrepreneur Passion	0.37	7.89	0.10	0.03	.003	0.04	0.17
	Entrepreneur Coachability			0.32	0.11	.005	0.10	0.55
	Homophily			0.30	0.08	.000	0.14	0.47
	Homophily			0.06	0.05	.300	-0.05	0.16
	Conditional indirect effects at various levels of Homophily							
	-1SD			0.26	0.11	.024	0.03	0.48
	Mean			0.32	0.11	.005	0.10	0.55
	+1 SD			0.39	0.15	.008	0.10	0.68
	Index of moderated mediation			0.01	0.01		-0.005	0.02

Note. $N = 176$.

Mediation

Hypothesis 2 predicted that an entrepreneur's coachability partially mediates the relationship between entrepreneur passion and the business angel's propensity to provide non-financial resources absent a financial investment. To test this hypothesis, the Hayes (2017) PROCESS macro Model 14 was used. This approach utilizes bootstrapping and an ordinary least squares regression-based path analysis to estimate the direct and indirect effects of the model. A 95% confidence interval and 5,000 bootstrap samples were used. Results indicate that the indirect effect of Entrepreneur Passion on Non-Financial Resource Investment through Entrepreneur Coachability was significant, with a 95% confidence interval that did not include zero (ab = .06, SE .02, 95% CI [.01, .11]), thus providing support for Hypothesis 2 (see Table 6). Risk Tolerance, Positive Affect, Negative Affect, and the Big Five Personality Traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism were controlled in this model. Table 6 and Figure 5 present the results of the analysis. Figure 5 shows that in the mediation model, Entrepreneur Passion was positively and significantly related to Entrepreneur Coachability (a path, $b = .10$, $p < .01$), Entrepreneur Passion was positively and significantly related to Non-Financial Resource Investment (b_2 path, $b = .30$, $p < .001$), and the direct effect of Entrepreneur Passion on Non-Financial Resource Investment was not significant (c' path, $b = .05$, $p = .17$). According to Hayes (2009) and Zhao et al. (2010), a significant direct effect path (Entrepreneur Passion on Non-Financial Resource Investment) is not necessary for mediation, and the significance of the indirect effect is sufficient.

Moderated Mediation

Hypotheses 3 and 4 predicted that Entrepreneur Coachability will mediate the relationship between Entrepreneur Passion and Non-Financial Resource Investment, based on the

level of homophily between the entrepreneur and the angel. These hypotheses were tested with the Hayes (2017) PROCESS macro Model 14 which allows analysis of the full moderated mediation model at one time. This approach utilizes bootstrapping and an ordinary least squares regression-based path analysis to estimate the direct and indirect effects of the model. Model 14 also evaluates the conditional effects of the focal predictor at values of the moderator (-1 *SD*, *Mean*, +1 *SD*) which can be used for simple slope analysis. A 95% confidence interval and 5,000 bootstrap samples were used and Risk Tolerance, Positive Affect, Negative Affect, and the Big Five Personality Traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism were controlled.

Hypothesis 3 predicted homophily moderates the relationship between the perception of coachability and the business angel's propensity to provide non-financial resources such that business angels will have a greater propensity to provide non-financial resources when higher levels of homophily exist. Results did not support the hypothesis. Table 6 and Figure 5 present the results of the analysis.

Figure 5

Research Model Results

$ab = .06$, SE .02, 95% CI [.01, .11]

Homophily

$b_2 = .30^{***}$

Entrepreneur
Coachability

$a = .10^{**}$

$b_3 = .06$

$b_1 = .32^{**}$

$c = .10^*$

Entrepreneur
Passion

Non-Financial
Resource
Investment

$c' = .05$

Note. $N = 176$. Path a indicates the effect of Passion on Coachability. Path b_1 indicates the effect

of Coachability on Non-Financial Resource Investment. Path b_2 indicates the indirect effect of

Passion on Non-Financial Resource Investment when Homophily is present. Path b_3 indicates the

interaction between Coachability and Homophily. Path c indicates the direct effect of Passion on

Non-Financial Resource Investment. Path c' indicates the direct effect of Passion on Non-

Financial Resource Investment when Coachability is included. Path ab indicates the indirect

effect of Passion on Non-Financial Resource Investment through Coachability.

$^* p < .05,$ $^{**} p < .01,$ $^{***} p < .001.$

It is interesting to note that neither the direct effect (c' path, $b = .05$, $p = .17$) nor the

interaction (b_3 path, $b = .06$, $p = .30$) were significant but the simple slope analysis indicated

there was a significant positive relationship between Entrepreneur Coachability and Non-

69

Financial Resource Investment at low, average, and high levels of Total Homophily (see Figure 6). Prior research found evidence of significant gender homophily in investing scenarios (e.g., Greenberg & Mollick, 2017; Solal, 2019) and I expected similar results. Despite the lack of support for Hypothesis 3, the simple slope analysis led me to believe there was an aspect of gender homophily that was not accurately captured in the main model.

Figure 6

Simple Slope Analysis of Non-Financial Resource Investment at Various Levels of Total Homophily
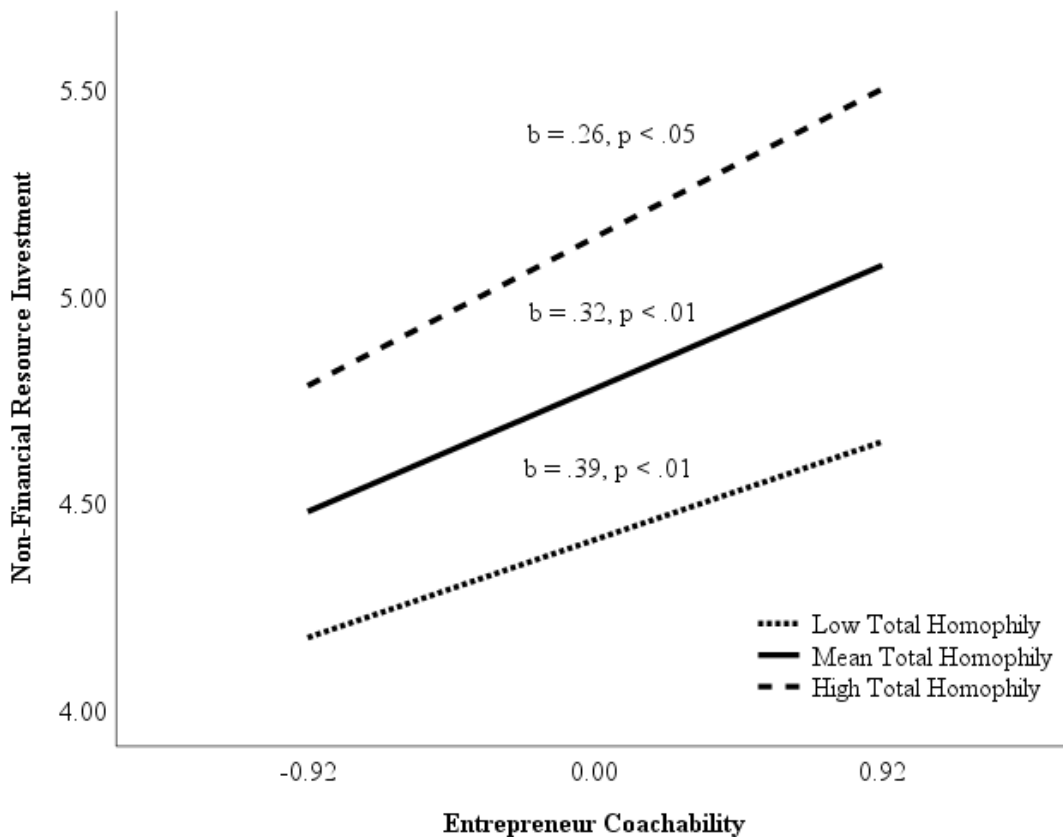
Note. $N = 176$. Total Homophily is Activists Choice Homophily and Interpersonal Choice Homophily.

Lastly, Hypothesis 4 predicted entrepreneurial passion is related to a business angel's propensity to provide non-financial resources, absent a financial investment, through indirect effects such that the relationship between entrepreneurial passion and an investment of non-financial resources will be moderated by homophily and mediated by entrepreneurial coachability. Results did not support the hypothesis. As noted for Hypothesis 1, Entrepreneur Passion and Non-Financial Resource Investment were positively related, and for Hypothesis 2, Entrepreneur Coachability partially mediated the relationship between E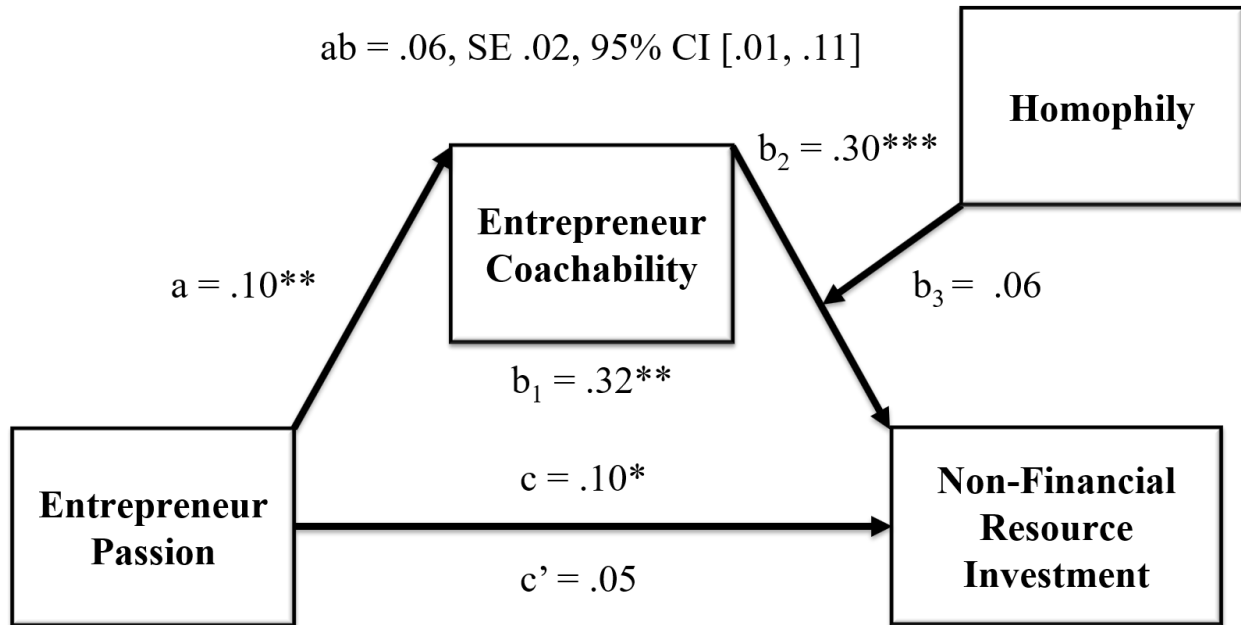ntrepreneur Passion and Non-Financial Resource Investment. However, for Hypothesis 3, despite a significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment at low, average, and high levels of Total Homophily, moderated mediation was not supported. Thus Hypothesis 4 was not supported (see Table 6 and Figure 5).

Post Hoc Subgroup Analysis

The lack of support for homophily as a moderator was unexpected given prior research findings (e.g., Balachandra et al., 2019; Brooks et al., 2014; Brush et al., 2014) so consideration of additional subgroup analysis was warranted. Post hoc subgroup analysis investigates smaller subsets in the data to determine the patterns within and between the subgroups and allows for the assessment of differences in effects for the distinct respondent clusters (i.e., male and female). Evaluation of the main model did not support gender homophily as a moderator; however, simple slope analysis indicated there was a significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment at low, average, and high levels of Total Homophily (see Figure 6). Given that the main model grouped male and female respondents together, it was prudent to separate respondents into gender subgroups for analysis. Post hoc analysis of the model by respondent gender subgroup (i.e., male, female) did indicate a

significant interaction ($b = .34$, $p < .05$). As evidenced in Figure 7, the effect was more

pronounced for male respondents than for female respondents indicating male investors would be

more likely to provide non-financial resources to coachable entrepreneurs than female investors.

Figure 7

Simple Slope Analysis of Non-Financial Resource Investment by Gender
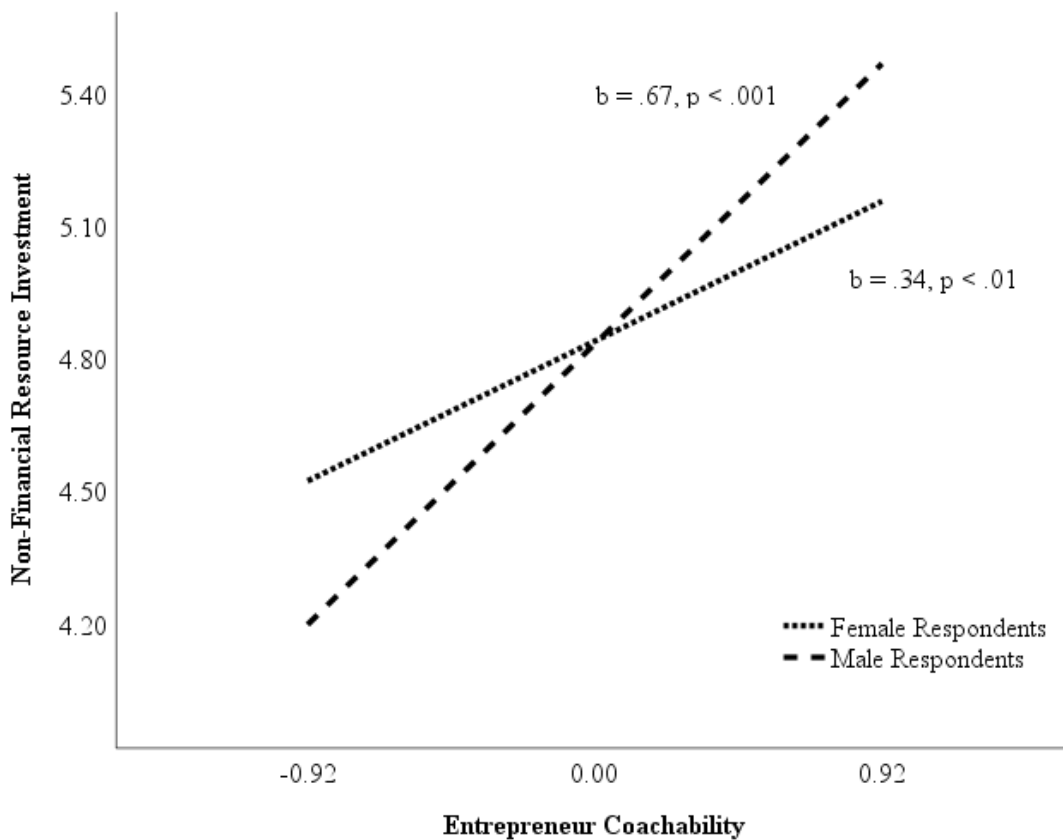
Note. $N = 176$. Male respondents $n = 96$, female respondents $n = 80$.

The significant interaction indicated by the gender subgroup analysis justified examination of male and female respondents as separate subgroups. Further investigating the gender subgroups individually, results indicated that moderated mediation was evident when only male respondents were examined ($n = 96$, $b_3 = .34$, $p < .01$) but not present when only female respondents were examined ($n = 80$, $b_3 = .01$, $p = .94$). The simple slope analysis for male respondents (Figure 8) indicated a non-significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment when Total Homophily was low ($b = .10$, 95% CI [-.20, .39], $t(83) = .67$, $p = .51$), a significant positive relationship when Total Homophily was average ($b = .42$, 95% CI [.09, .75], $t(83) = 2.52$, $p < .05$), and a significant positive relationship when Total Homophily was high ($b = .73$, 95% CI [.25, 1.22], $t(83) = 3.02$, $p < .01$). The results indicated male investors would be more likely to provide non-financial resources to coachable entrepreneurs when there is average and high gender homophily but not when there is low gender homophily. This finding indicates the possibility that male investors would be less likely to invest non-financial resources in female entrepreneurs than in male entrepreneurs.

73

Figure 8

Simple Slope Analysis of Non-Financial Resource Investment by Male Respondents at Various

Levels of Total Homophily
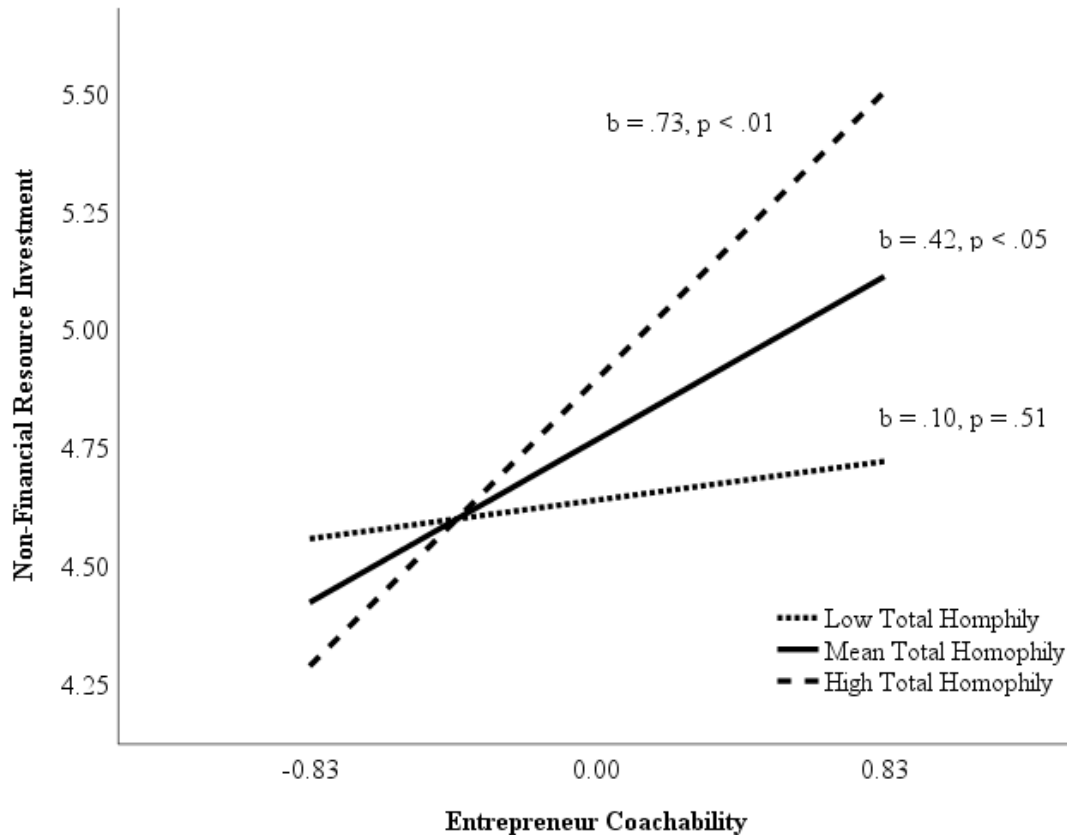
Note. n = 96. Male respondents only. Total Homophily is Activists Choice Homophily and

Interpersonal Choice Homophily.

Continuing with the subgroup analysis, the simple slope analysis for female respondents

(Figure 9) indicated a significant positive relationship between Entrepreneur Coachability and

Non-Financial Resource Investment when Total Homophily was low (b = .36, 95% CI [.00, .72],

t(67) = 2.01, p < .05), a significant positive relationship when Total Homophily was average (b =

.37, 95% CI [.02, .71], t(67) = 2.12, p < .05), and a non-significant positive relationship when

74

Total Homophily was high (b = .37, 95% CI [-.06, .80], t(67) = 1.74, p = .09). There was not a significant interaction effect. The results indicated female investors would be more likely to provide non-financial resources to coachable entrepreneurs when there is low and average gender homophily but not when there is high gender homophily. This finding is contrary to findings by Solal (2019) and Greenberg and Mollick (2017) who found female investors were more likely to fund female entrepreneurs. Given that Total Homophily is a composite of Activists Choice Homophily and Interpersonal Choice Homophily, it was reasonable to further analyze the two elements separately.

Figure 9

Simple Slope Analysis of Non-Financial Resource Investment by Female Respondents at Various Levels of Total Homophily
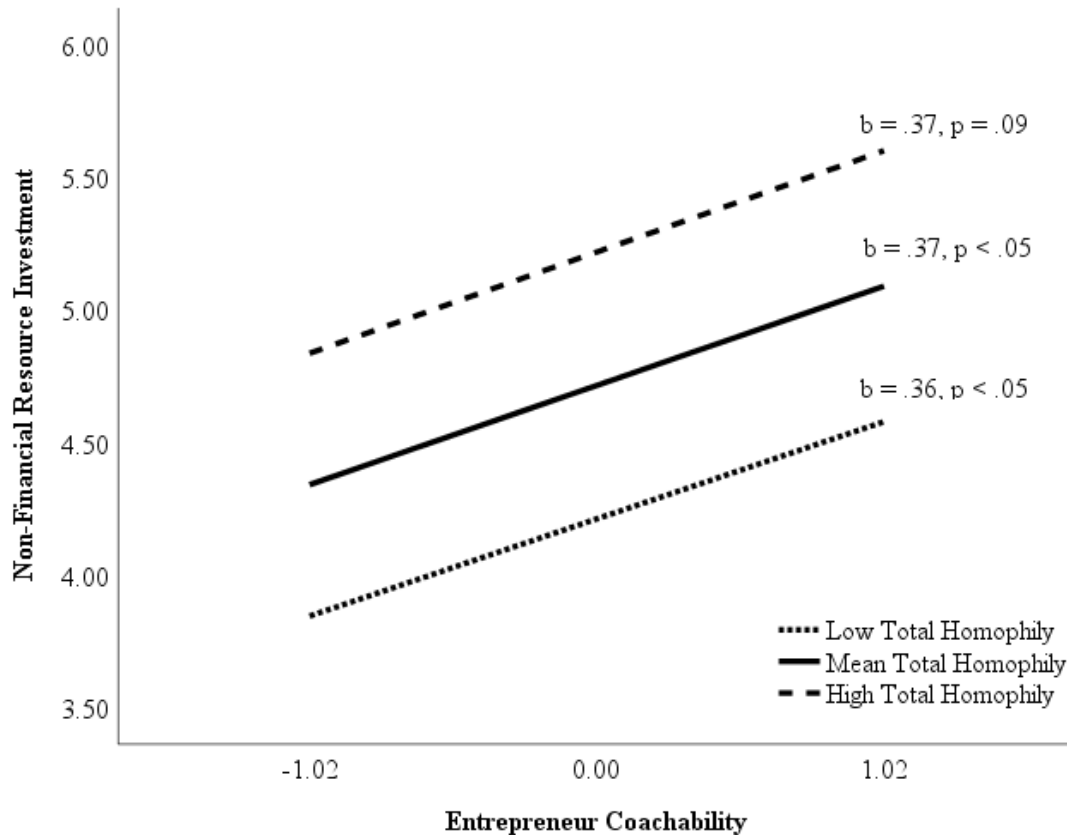
Note. *n* = 80. Female respondents only. Total Homophily is Activists Choice Homophily and Interpersonal Choice Homophily.

Breaking-down Total Homophily into its subscales of Activists Choice Homophily and Interpersonal Choice Homophily, a similar gender pattern exists. The simple slope analysis for male respondents (Figure 10a) indicated a non-significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment when Activists Choice Homophily was low and a significant positive relationship when Activists Choice Homophily

was average and high. The simple slope analysis for Interpersonal Choice Homophily and male respondents (Figure 10b) indicated a non-significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment when Interpersonal Choice Homophily was low and a significant positive relationship when Interpersonal Choice Homophily was average and high (see Table 7).

Table 7

Activists Choice and Interpersonal Choice Homophily by Gender

Gender	Homophily Measure	Level	b	SE	p	95% CI	
						LL	UL
Male	Activists Choice	Low	0.04	0.14	.798	-0.25	0.32
		Mean	0.37	0.14	.010	0.09	0.66
		High	0.71	0.22	.002	0.27	1.15
	Interpersonal Choice	Low	0.28	0.16	.080	-0.03	0.58
		Mean	0.42	0.17	.017	0.08	0.77
		High	0.57	0.26	.031	0.05	1.09
Female	Activists Choice	Low	0.45	0.16	.006	0.13	0.77
		Mean	0.43	0.15	.006	0.13	0.73
		High	0.41	0.21	.052	-0.003	0.82
	Interpersonal Choice	Low	0.52	0.19	.010	0.13	0.91
		Mean	0.55	0.18	.004	0.18	0.91
		High	0.58	0.22	.011	0.14	1.02

Note. Male $n = 96$ and female $n = 80$.

Likewise, female respondents exhibited a similar pattern for the Homophily subscales as they did for Total Homophily. The simple slope analysis for female respondents (Figure 11a)

77

indicated a significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment when Activist Choice Homophily was low and average and a non-significant positive relationship when Activists Choice Homophily was high. The simple slope analysis for Interpersonal Choice Homophily and female respondents (Figure 11b) indicated a significant positive relationship between Entrepreneur Coachability and Non-Financial Resource Investment when Interpersonal Choice Homophily was low, average, and high (see Table 7).

Figure 10

Simple Slope Analysis for Non-Financial Resource Investment by Male Respondents at Various Levels of Activist Choice and Interpersonal Choice Homophily
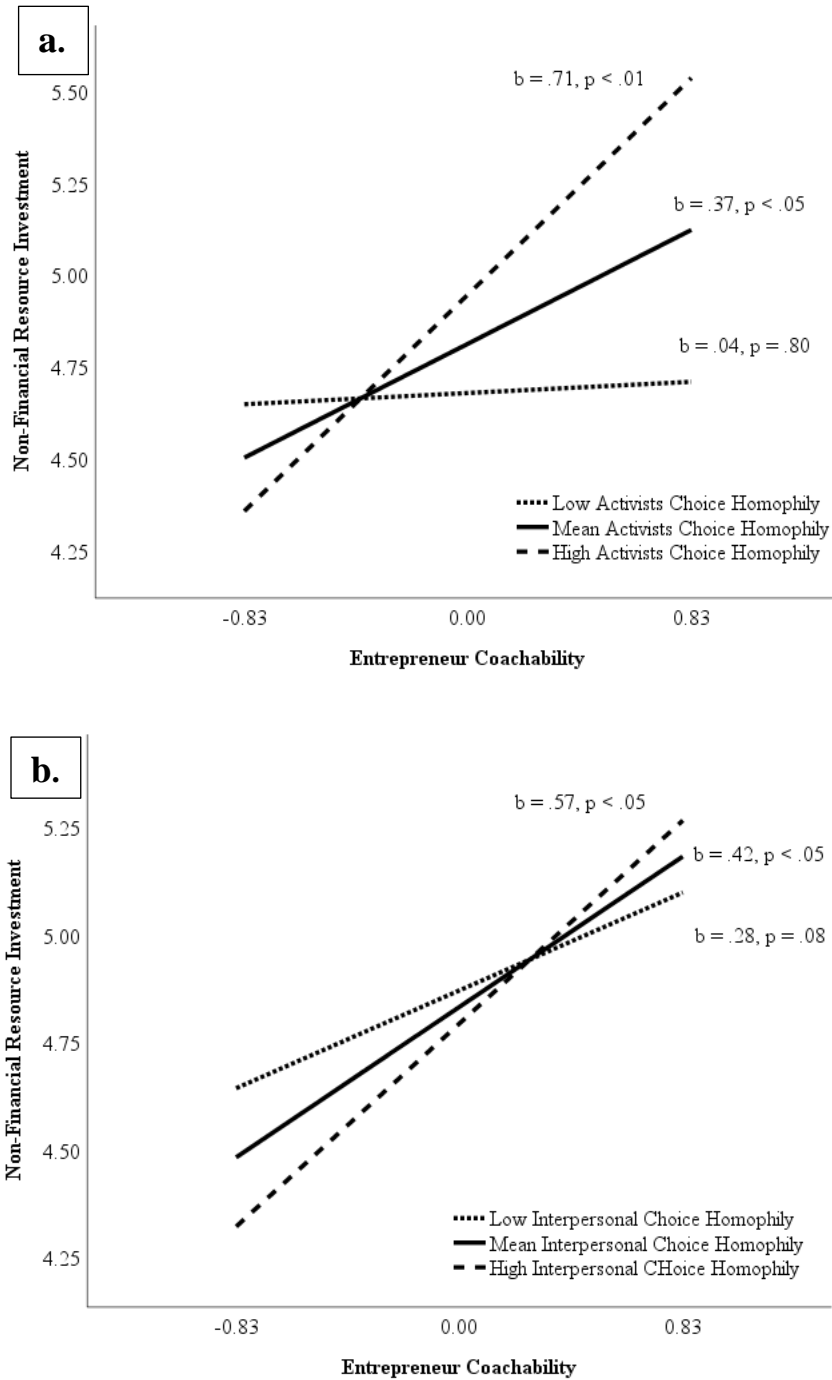
Note. *n* = 96. Male respondents only.

Figure 11

Simple Slope Analysis for Non-Financial Resource Investment by Female Respondents at Various Levels of Activist Choice and Interpersonal Choice Homophily

Note. *n* = 80. Female respondents only.

www.manaraa.com
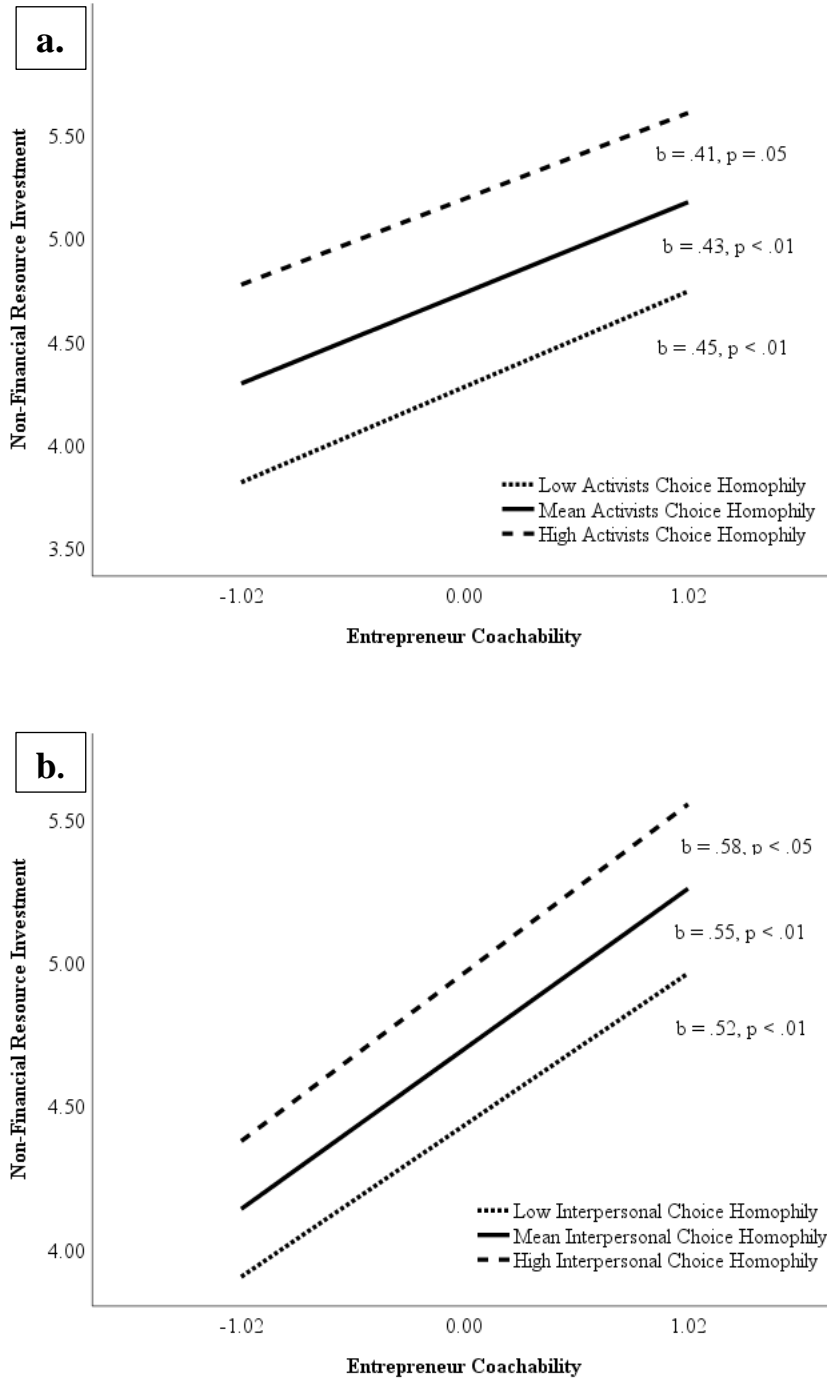
Chapter Six: Discussion

My dissertation contributes to our understanding of the non-financial resources angel investors provide entrepreneurs. Specifically I investigated the propensity of angels to provide value added non-financial resources absent their traditional financial investment. Additionally, it contributes to our understanding of the role of gender homophily in angel funding situations. To accomplish this, I conducted two separate but related studies. Study 1 sought to clarify the ambiguous dimensions of non-financial resources angels provide to entrepreneurs and to develop a measure of non-financial resources to use in Study 2 and future research. Study 2 tested a research model that focused on the roles of entrepreneur passion, entrepreneur coachability, and gender homophily related to an angel's decision to provide valuable non-financial resources absent the financial investment. Chapter Six provides a discussion of both studies' contributions to theory and research, strengths and limitations, directions for future research, and practical implications.

Contributions to Theory and Research

Entrepreneurs and small businesses drive the United States economy and angel investors help drive the growth and success of these ventures. The body of research on business angels provides evidence of the importance of their financial and non-financial contributions in connection with monetary investments; however, no research exists on business angels' propensity to provide non-financial resources absent the financial investment. Prior research also has not provided a consistent measure for non-financial resources to guide research efforts. Another important factor to consider is the rise of female entrepreneurs and female angel investors. As these groups become more prevalent in the entrepreneurial ecosystem, it becomes increasingly important to understand the effect of gender in the seeking and funding of risk

81

capital. To investigate these relationships, I developed a new measure of Non-Financial Resources that was then used in an experiment to investigate the propensity of angel investors to provide non-financial resources to entrepreneurs absent the financial commitment.

Study 1 involved the development of a new measure of non-financial resources. Despite efforts by noted researchers such as Harrison and Mason (1992), Madill et al. (2005), Large and Muegge (2008), and Macht (2011) no consistent measure of non-financial resources exists to guide researchers in their efforts. Following the guidelines of Hinkin (1998) and the methodological approach of Anderson and Gerbing (1991), I developed a new measure of non-financial resources for use in Study 2 and future research. Initial item generation followed by item-sort tasks and exploratory factor analysis were the methods used to establish the new measure. Four independent samples assessed the proportion of substantive agreement, the substantive-validity coefficient, factor loading, Cronbach's alpha reliability, and convergent, discriminant, and criterion-related validity of the initial 43 non-financial resource items. The final product of the analysis was a measure with 34 items across three subscales (i.e., Advice, Hands-On Assistance, and Validation). The measure and associated subscales demonstrated strong support for validity and reliability.

The new measure was strongly and positively related to the Baron et al. (2006) Willingness to Invest measure providing strong support for the convergent validity of the measure. The new measure also did not correlate with the Dahling et al. (2009) Machiavellianism Personality Scale providing strong support for the new measure's discriminant validity. Criterion-related validity was assessed with the antecedent constructs of Liking (Wayne & Ferris, 1990), Trust (Evans & Revelle, 2008), and OCB (Podsakoff et al., 1990) as well as the consequent construct of Distributive Justice (Colquitt, 2001). As expected, providing non-

financial resources correlated significantly and positively with all four nomologically related constructs providing strong support for the criterion-related validity of the new measure. Likewise, reliabilities for the Non-Financial Resources measure and the three subscales were relatively high. All four Cronbach's alphas were .90 or above indicating relatively high internal consistency and exceeding Nunally's (1978) recommended level of .70 for newly developed measures. The complete measure is composed of 13 items in the Advice subscale (α = .92), 11 items in the Hands-On Assistance subscale (α = .91), and 10 items in the Validation subscale (α = .90) resulting in a 34-item measure (α = .95). Thus, in its current form, the complete measure may be too long to use in combination with multiple other measures in a survey; however, the shorter subscales could be used independently. Further refinement may be necessary to reduce the number of items for a more parsimonious measure.

The new measure can be used in future research to further validate the importance of an angel investor's non-financial resource investment both in the absence of a financial investment as well as in combination with a financial investment. Additionally, the three subscales could be used independently for a deeper evaluation of the non-financial resource dimensions of Advice, Hands-On Assistance, and Validation. A valid and reliable measure of non-financial resources indicates a measure relatively free of systematic and random errors; plus, it allows researchers to better evaluate findings across studies. The new Non-Financial Resources measure not only provides the opportunity to expand our knowledge base about angel investing and entrepreneurs, but also enables future research comparing the behavior of angel investors to venture capitalists regarding non-financial resource investment. As the angel investing industry matures, it continues to adopt methods from the venture capital market (e.g., traditional VC debt instruments

83

such as convertible debt, corporate angels) [27] adding to the importance of having a validated scale to measure non-financial resource investment. Longitudinal studies could indicate the trajectory of angels' gifts of non-financial resources in relation to VCs' use of non-financial resources. How might this unique aspect of angel investing change as angels and entrepreneurs change, or could it even disappear over time? Future research using my measure could help answer this question.

Study 2 provided additional support for the new Non-Financial Resources measure. A unique sample (participants in Study 1 were excluded from participating in Study 2) provided positive significant correlations as expected and relatively high alpha reliabilities for the new measure (see Table 5). The Advice subset had a Cronbach's $\alpha = .95$, Hands-On Assistance subset was $\alpha = .95$, Validation subset was $\alpha = .95$, and the complete Non-Financial Resources measure was $\alpha = .98$. The Cronbach alphas for Study 2 improved upon the alphas in Study 1 of .92, .91, .90, and .95 respectively. Study 2 participants were angels and amateur investors providing additional ecological validity for the new measure.

Research on business angels and entrepreneurship has been more qualitative than quantitative (Tenca et al., 2018), and scholars have noted the paucity of experimental methods in entrepreneurship research (Hsu et al., 2017; Short et al., 2010; Williams et al., 2019). Therefore, Study 2 used a 2 (entrepreneur gender) x 2 (entrepreneur passion) factorial design experiment to test hypotheses related to the propensity of angel investors to provide non-financial resource investments to entrepreneurs absent the traditional financial investment. Specifically, I predicted an entrepreneur's passion positively influences an angel's propensity to provide non-financial resources absent a financial investment, that the relationship between passion and non-financial

---

[27] Corporate angels are business angels who use their incorporated companies to make the investment.

resources would be mediated by the entrepreneur's coachability, and finally that homophily would moderate the relationship between coachability and non-financial resource provision such that angels will have a greater propensity to provide non-financial resources when higher levels of homophily exist between the entrepreneur and the angel.

My results indicated that the entrepreneur's passion does positively influence the angel's decision to provide non-financial resources just as it influences the decision to provide financial resources (i.e., Cardon, Sudek, et al., 2009; Sudek, 2006). Results also indicated the entrepreneur's coachability is a partial mediating factor in the relationship between entrepreneur passion and non-financial resource investment similar to the findings of Mitteness, Sudek, and Baucus (2010) related to coachability and financial resource investment. Initial results for homophily were mixed. Despite a significant positive relationship between entrepreneur coachability and non-financial resources investment at low, average, and high levels of Total Homophily, moderated mediation was not supported for the research model. The lack of support for homophily as a moderator was unexpected given prior research findings (e.g., Balachandra et al., 2019; Brooks et al., 2014; Brush et al., 2014) so consideration of additional post hoc subgroup analysis was warranted.

Post hoc subgroup analysis did provide some compelling results related to gender homophily. The simple slope analysis for Total Homophily did not indicate a significant interaction but it did indicate a significant positive relationship between coachability and non-financial resource investment. This simple slope analysis led me to believe an element of gender homophily was not accurately captured in the main model. Because the main model aggregated male and female respondents, I deemed it prudent to separate respondents into gender subgroups for further analysis. Analysis of the model by respondent gender (i.e., male, female) did indicate

85

a significant interaction with a more pronounced effect for male respondents ($n = 96$, $p < .001$) than for female respondents ($n = 80$, $p < .01$). The results indicated the possibility that male investors might be more likely to provide non-financial resources to coachable entrepreneurs than female investors. As previously noted, there are fewer female angels and entrepreneurs than males in the ecosystem; so even though the gender subgroup results were interesting, they only tell part of the story.

The significant interaction indicated by the gender subgroup analysis justified examination of male and female respondents independently. Additional analysis of Total Homophily by each gender indicated moderated mediation is evident for male respondents ($n = 96$, $p < .01$) but not for female respondents ($n = 80$, $p = .94$). Investigating the Total Homophily subscales of Activists Choice Homophily and Interpersonal Choice Homophily by each gender also indicated positive significant interactions for male respondents but no interaction for female respondents. Evidence that gender homophily does moderate the relationship for male investors but not for female investors. This finding is important as it indicates the possibility that male investors might be less likely to invest non-financial resources in female entrepreneurs than in male entrepreneurs.

The simple slope analysis by gender subgroup provided additional interesting insights. Male respondents had a significant positive relationship when Activists Choice and Interpersonal Choice Homophily were average and high but not at low levels for either. Further indication that male investors might be less likely to invest in female entrepreneurs or, stated another way, male investors might have a higher propensity to back male entrepreneurs over female entrepreneurs. Female respondents had a significant positive relationship when Activist Choice Homophily was low and average but not at high levels. This is contrary to the findings of Greenberg and Mollick

86

(2017) where high levels of Activists Choice Homophily led to female investors investing in female entrepreneurs. Their use of a crowdfunding setting, rather than an early-stage investment, undergraduate participants, and their larger sample size may be contributing factors in the different results. Repeating my experiment with a larger sample of angels could prove enlightening. Also interesting for female respondents was the positive significant relationship between coachability and non-financial resource investment at all levels of Interpersonal Choice Homophily (i.e., low, average, high). Taking into consideration that male entrepreneurs are more prevalent in the ecosystem, this relationship is likely driven by induced homophily (the composition of the group forces me to associate with you). The limited availability of female entrepreneurs may force constraints on female investors to strategically place their limited resources with the most promising ventures regardless of gender. Deeper analysis of past angel investment decisions might help uncover if female investors are more egalitarian in their investment decisions or simply working with the opportunities available. The increase in female angels and entrepreneurs may change this dynamic; longitudinal studies are needed to assess trends in gender homophily and angel investing.

Strengths and Limitations

There are several strengths of my dissertation. Scholars have recognized the important role of angels' non-financial resource investment in an early-stage venture in combination with their financial investment (Mason & Harrison, 1996) but limited research investigates the propensity of angels to provide those valuable non-financial resources absent the financial investment. Relatedly, no consistent measure of non-financial resources exists to guide researchers. Following the guidelines of Hinkin (1998) and methodological approach of Anderson and Gerbing (1991), I developed a new measure of non-financial resources in Study 1

87

to use in Study 2 and in future research. Four samples including a large and diverse respondent base resulted in a measure with 34 items across three subscales (i.e., Advice, Hands-On Assistance, and Validation). The measure demonstrated strong support for validity and reliability. Although further refinement may be necessary to reduce the number of items for a more parsimonious measure, the new non-financial resources measure was confidently used in Study 2 and could be used in future research in its current state.

Heeding the call for more experimental research in entrepreneurship (Williams et al., 2019), I conducted a randomized 2 (entrepreneur gender) x 2 (entrepreneur passion) factorial design experiment. The strengths of an experimental approach include high internal validity, suitability for studying mediation effects, and a strong ability to establish causality (Shadish et al., 2002; Singleton et al., 1988; Spencer et al., 2005). Likewise, the scenario that accurately depicts relevant and realistic funding decisions provides ecological validity. In this instance, the use of a preliminary investment pitch on paper, rather than in person, mimics the first screening step of angel networks.[28] An additional benefit of an experiment for this study is the ability to isolate gender homophily as a factor in non-financial resource investment; given the increasing number of women angels and entrepreneurs, it is important to understand this dynamic.

Long considered the gold standard for testing causality, experiments are limited in their external validity and do not always represent real-life situations; concerns such as reactive measurement effects, social desirability effects, and other motives of participants can negatively affect the experiment results (Shadish et al., 2002; Singleton et al., 1988). One limitation of my experiment was the use of a paper people scenario instead of a video scenario. A video scenario

---

[28] https://qca.com/entrepreneurs/

using live actors would be preferred for evaluating entrepreneur passion and is an area for future research.

Common limitations of survey studies are survey length and respondent sample size. Based on conversations with angels, it was suggested the angel survey take no longer than 10 minutes to complete. This request necessitated the use of short form established measures (e.g., PANAS, Big Five Personality Traits) and the elimination of additional investor profile and demographic questions. Even with adjustments to survey questions, the mean time to complete the survey was 12.55 minutes. Additionally, the limited responses from angel investors required the use of MTurk workers to test the research model. A larger sample size of active angel investors could prove enlightening. It was also evident that surveys conducted for Study 2 were affected by the Covid-19 lockdown. Study 1 surveys were conducted before the lockdown and completed quickly. Study 2 was launched during the lockdown and required additional time to complete.

A final limitation is the non-financial resources measure was not completely developed for this study. The purpose of this study was not to develop a full measure, but to develop a scale reliable and valid enough to answer the research question. The Study 2 survey included 35 of the original 43 non-financial resources which could have led to survey fatigue. Developing a more parsimonious measure is an area for future research.

Directions for Future Research

Entrepreneurship has a long and storied history (Cantillon, 1959; Schumpeter, 1942) yet most entrepreneurship research has focused on white males and has used primarily qualitative over quantitative methods (Hsu et al., 2017). Scholars often note the paucity of experimental methods in entrepreneurship compared to other fields of research (e.g., organizational behavior,

89

strategy; Williams et al., 2019). This deficit provides opportunities for continuing research into entrepreneurship and angel investing.

It would be beneficial to continue the investigation of the non-financial resources provided by angel investors. Study 1, using exploratory factor analysis, showed initial strong evidence of three dimensions of non-financial resources (1) Advice, (2) Hands-On Assistance, and (3) Validation. The Advice category included 13 items, the Hands-On Assistance category included 11 items, and the Validation category included 10 items for a total of 34 items in the complete Non-Financial Resources measure. Additional data collection, especially from angel investors, and confirmatory factor analysis can further validate this important measure. The use of confirmatory factor analysis is an important tool in measure development used to confirm or reject the measurement theory. The major strength of confirmatory factor analysis is its dis-confirmatory nature (model or theories can be rejected) but it also might uncover potential modifications for further investigation. Confirmatory factor analysis assesses the fit between observed data and an *a priori* conceptualized, theoretically grounded model and can point to potential weakness of specific items in the measure (Mueller & Hancock, 2001). My next study will investigate the non-financial resource measure by assessing the Model Chi-Square (X^2), the Tucker Lewis Index (TLI), the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). This future investigation can refine and purify the items associated with each dimension to present a more parsimonious measure.

The need for more experiments in entrepreneurship research is evident and this study provides fertile grounds for future experimental studies. The original experiment used in this dissertation can be replicated and improved in two specific ways. Using paper people and a text

scenario emulates the initial screening step used by angel networks; however, it was a challenge to measure entrepreneur passion without video scenarios. Further use of videos can emulate the second step in the angel process, an in-person pitch, and would require multiple video scenarios. The second improvement requires a larger sample of active angel investors to participate in the survey. Amateur investors provide a reasonable proxy for angels, but it is possible some of the survey terminology (e.g., deal flow, due diligence, and SAFE notes) was foreign enough to confuse respondents.

The original experiment with Caucasian men and women can be replicated and new experiments with different entrepreneur characteristics (e.g., age, ethnicity) can be evaluated. Asian, Hispanic, and Black entrepreneurs account for 11%, 5%, and 2% respectively of U.S. small employer firms (*Small Business Credit Survey: Report on Employer Firms 2019*, 2019). Digging deeper, it can be noted that Black women-owned, Latina-owned, and Asian American women-owned business grew by 9%, 7%, and 7% respectively between 2017 and 2018 with continued growth expected (*The 2018 State of Women-Owned Businesses Report*, 2019). As the proportion of minority entrepreneurs increases, it becomes more important to investigate this dynamic. Likewise, the increase in minority and female angels opens the door to future experiments investigating the possibility of different approaches to angel investing. Black angel groups (e.g., Black Angel Tech Fund, Collab Capital, Fearless Fund, Lightship Capital)[29] are increasing and could provide valuable insight into minority angel investing and minority entrepreneurship.

The investigation of cross-cultural differences also might produce interesting insights. Entrepreneurship is increasing across the globe. The Global Entrepreneurship Monitor (GEM)

---

[29] https://www.blackangeltechfund.com/; https://collab.capital/; https://www.fearless.fund/; https://www.lightship.capital/

reports global increases in entrepreneurship over the past two decades as measured by either total early-stage entrepreneurial activity (TEA) or established business owners (EBO) counts for the 50 economies participating (Bosma et al., 2020). GEM (2020) also notes the declining gender gap for female TEAs in the Latin America and Caribbean region as well as in some Middle East and African countries such as South Africa, Qatar, Madagascar, and Saudi Arabia. This is an interesting finding considering the more traditional cultural role of women in these countries. Additionally, GEM (2020) found informal investing to also be higher (as a percentage of adults in each economy) in the regions mentioned previously; although, the most common investment was in a close relative or friend not in an unknown entrepreneur. An interesting comparison would be the role of angel investors and the gift of non-financial resources in economically diverse regions. What are the similarities and the differences among angels' actions in low-income, middle-income, and high-income regions of the globe? Are angels more or less likely to give non-financial resources and does the measure I developed capture the types of non-financial resources provided in different countries? Continuing the investigation of gender homophily in these cross-cultural studies will remain important, too.

Homophily requires more in-depth research. My study found evidence of moderated mediation for gender homophily for male respondents but not female respondents. The unanswered question is why the disparity between genders exists. Are female angels more open to mentoring entrepreneurs of any gender or more open to different entrepreneurial opportunities than male angels? Do female angels invest in male entrepreneurs to improve their network connections with the dominant group? Additional considerations include the long-term effect of a traditionally male dominated industry (e.g., the Good Old Boy's network), long ingrained implicit bias, the more recent effect of the MeToo Movement (i.e., men are uncomfortable with

92

close mentoring relationships with women),[30] or simply the limited number of minorities and women currently in entrepreneurship and angel investing circles. Given the lack of female and minority entrepreneurs compared to white male entrepreneurs, there are constraints on female and minority angels' network choices. These constraints require female and minority angels to be "active agents who make strategic choices among structurally limited alternatives" (Ibarra, 1993, p. 56). The luxury of giving limited resources to a preferred group of entrepreneurs may not be feasible. Further investigation of potential factors and longitudinal studies of women and minorities in entrepreneurship and angel investing could prove fruitful.

Practical Implications

The results of my dissertation have several practical implications for entrepreneurs and for the angel investors who fund them. For entrepreneurs, the findings about non-financial resources from angels are vitally important. Entrepreneurs need to recognize that angel investors are willing to give them valuable non-financial resources even without a financial commitment and with no expectation of a defined payback. Additionally, entrepreneurs must remember that passion for their venture and openness to coaching are important characteristics to display to receive those non-financial resources from angels. Female and minority entrepreneurs might consider seeking funding from angel groups started by and for women and minorities (e.g., Next Wave Impact, Black Angel Tech Fund). Given my findings, they would likely be more successful obtaining funding from such angel groups. Finally, entrepreneurs should not be reluctant to approach angels and seek assistance even if their business is not yet ready for a financial investment. The gift of non-financial resources from an angel can improve an entrepreneur's chances of gaining a valuable financial investment.

---

[30] https://metoomvmt.org/

Although the role of homophily as a moderator was only supported for male respondents, angel investors (male and female) should be cognizant of the potential for implicit bias in their investing decisions. An investment of non-financial resources in the wrong entrepreneur, especially for the wrong reasons, harms all stakeholders. Angels are advised to examine the rationale behind their selection of entrepreneurs for investment. How much of their decision is based on a gut feeling versus specific indicators of potential entrepreneurial success? Are angels overlooking a diamond in the rough due to long-held and potentially outdated heuristics? Angels also are advised to carefully track their investments in entrepreneurial ventures. Unlike VCs, angels are not required to disclose their investments and often invest for reasons other than financial gain (e.g., give back to the entrepreneurial ecosystem, mentor entrepreneurs) which could lead to the use of less stringent investment metric tracking. Associating with a local angel group that collects and tracks metrics set forth by the Angel Capital Association will help angels make better investment decisions and improve their access to quality deal flow. The ever-evolving face of entrepreneurs and angels (e.g., more women and minorities) requires new insights into decision making in the entrepreneurial ecosystem and better data collection is a way to achieve that end.

Conclusion

Entrepreneurs and their businesses are the economic engine of the United States and angel investors are the fuel that help start and run that engine. An essential element of that fuel mixture is the value-added non-financial resources angels provide to entrepreneurs. We know business angels provide valuable non-financial resources to entrepreneurs as part of their financial investment (Madill et al., 2005; Mason & Harrison, 1996) and the importance of these non-financial resources to new venture success and growth has been documented (Brown &

94

Mason, 2017; Spigel & Harrison, 2018). However, research in this area only examined the role of non-financial resources in conjunction with a monetary investment. Examination of the important role of non-financial resources absent a monetary investment has been neglected in research. Likewise, the rise of female entrepreneurs and female angel investors in traditionally older white male professions (Sohl, 2019) necessitates an increase in the research about gender homophily and investment of valuable non-financial resources.

My dissertation improves our understanding of the entrepreneur and angel investor dynamic by examining the role of gender homophily in the context of angel investors' gifts of value-added non-financial resources, absent the financial investment. My investigation started by refining the ambiguous definition of non-financial resources categories. Initial results demonstrate strong support (convergent, discriminant, and criterion-related validation) for the three dimensions of Advice, Hands-On Assistance, and Validation. Future research on non-financial resources can proceed based on my initial findings. The research model in Study 2 established support for the importance of an entrepreneur's passion and coachability related to an angel's decision to provide valuable non-financial resources absent an initial financial investment. It also provided limited support for the effect of gender homophily in the investment process. These findings should enable scholars to continue the valuable work related to angel investors and their propensity to provide non-financial resources and help inform entrepreneurs and angels of the role of gender homophily in investment decisions. Better understanding of these dynamics will improve the functioning of our country's economic engine.

Appendices

Appendix A

Item-Sort Task1

Item-Sort Task1 Survey

Instructions: This is an item matching task. The left column contains examples of actions that an angel investor may undertake to assist an entrepreneur. The right columns list six categories to describe types of non-financial resources that an angel investor might provide to an entrepreneur. Please select which **Category** each **Action** best represents. Please assign all actions to a category. Each action can only be assigned to one category. This task will take approximately 5-10 minutes to complete.

Please review the definitions for the six non-financial resource categories:
1. **Advice:** guidance or recommendations with respect to the management of the business.
2. **Board of Directors:** acting as or recruiting for an executive or non-executive board position of the firm.
3. **Contacts:** introductions and opportunities to network with other business professionals and clients.
4. **Credibility and Validation:** providing recognition or affirmation of the business and/or the entrepreneur.
5. **Hands-On Assistance:** taking an active role in day-to-day business operations.
6. **Market and Business Intelligence:** providing valuable information about the industry.

List of Non-Financial Resource Actions:
- Act as an idea sounding board (A1)
- Allow the entrepreneur to use me as a reference (V1)
- Coach the entrepreneur (A2)
- Consult for the business (H1)
- Help identify potential board members (B1)
- Help recruit members for the board of directors (B2)
- Help the entrepreneur establish good business practices (H2)
- Help with interviewing potential hires (H3)
- Help with knowledge management (H4)
- Help with business negotiations (H5)
- Help with preparing sales pitches (H6)
- Help with product development (H7)
- Help with research (H8)
- Help with reviewing pitch decks (H9)
- Help with talent identification (H10)
- Identify potential acquisition targets (N1)
- Identify potential business partners (N2)

96

- Identify potential customers (N3)
- Identify potential exit opportunities (N4)
- Join the management team (H11)
- Mentor the entrepreneur (A3)
- Offer to join their board of directors (B3)
- Personally recommend the business to others (V2)
- Personally recommend the entrepreneur to others (V3)
- Provide advice on professional service providers (accountants, lawyer, etc.) (A4)
- Provide competitor information (N5)
- Provide financial advice (A5)
- Provide free business equipment and/or supplies (H12)
- Provide free business services (H13)
- Provide general business advice (A6)
- Provide guidance on how to communicate with investors (A7)
- Provide guidance on work/life balance (A8)
- Provide industry information (N6)
- Provide introductions to banking institutions (C1)
- Provide introductions to industry contacts (C2)
- Provide introductions to other coaches/mentors (C3)
- Provide introductions to other investors (C4)
- Provide introductions to potential customers (C5)
- Provide introductions to professional service providers (accountants, lawyers, etc.) (C6)
- Provide marketing advice (A9)
- Provide moral support (A10)
- Provide strategic advice (A11)
- Share due diligence with other potential investors (V4)

Note. The item ID in parenthesis refers to the posited category for each item. (A) indicates an

Advice item, (B) indicates a Board of Directors item, (C) indicates a Contacts item, (H) indicates

a Hands-On Assistance item, (N) indicates a Market Intelligence item, and (V) indicates a

Credibility and Validation item. Item IDs were not visible to participants.

Table A1

Item-Sort Task1 Frequencies Sample 1

Demographic	n	%
Gender		
Female	24	50
Male	23	48
Prefer not to answer	1	2
Ethnicity		
Asian	3	6
Black or African American	2	4
Hispanic American or Latino/a	1	2
White or European American	42	88
Education		
Associate degree	1	2
Bachelor's degree	3	6
Master's degree	18	38
Doctorate degree	25	52
Professional degree (JD, MD)	1	2
Profession		
An academic (professor, teacher, researcher)	36	75
An employee for a company	11	23
An entrepreneur (self-employed)	1	2
Area of Expertise		
Accounting	11	23
Consulting	2	4
Education	7	15
Engineering	2	4
Finance	3	6
Human Resources	2	4
Management	10	21
Market Research	4	8
Marketing	4	8
Other	3	6

Note. $N = 48$. Participants were on average 46.9 years old ($SD = 10.62$).

Table A2

Item-Sort Task1 Substantive Validity Assessment Sample 1

ID	Item	P_{SA}	C_{SV}
XX	To verify data is being recorded properly, please select the "Contacts" category for this action	1.00	1.00
N5	Provide competitor information	0.98	0.96
N6	Provide industry information	0.98	0.96
B2	Help recruit members for the board of directors	0.92	0.83
A6	Provide general business advice	0.96	0.92
C2	Provide introductions to industry contacts	0.94	0.88
B3	Offer to join their board of directors	0.92	0.83
C1	Provide introductions to banking institutions	0.85	0.71
H12	Provide free business equipment and/or supplies	0.85	0.71
A8	Provide guidance on work/life balance	0.85	0.71
C3	Provide introductions to other coaches/mentors	0.88	0.75
A1	Act as an idea sounding board	0.83	0.67
A5	Provide financial advice	0.90	0.79
C4	Provide introductions to other investors	0.85	0.71
B1	Help identify potential board members	0.85	0.71
C5	Provide introductions to potential customers	0.81	0.63
C6	Provide introductions to professional service providers (accountants, lawyers, etc.)	0.81	0.63
A11	Provide strategic advice	0.77	0.54
V1	Allow the entrepreneur to use me as a reference	0.71	0.42
A2	Coach the entrepreneur	0.77	0.54
H7	Help with product development	0.73	0.46
A3	Mentor the entrepreneur	0.71	0.42
H3	Help with interviewing potential hires	0.65	0.29
A7	Provide guidance on how to communicate with investors	0.67	0.33
H11	Join the management team	0.65	0.29
H13	Provide free business services	0.67	0.33
A10	Provide moral support	0.63	0.25
V4	Share due diligence with other potential investors	0.56	0.13
V3	Personally recommend the entrepreneur to others	0.60	0.21

ID	Item	P_{SA}	C_{SV}
A4	Provide advice on professional service providers (accountants, lawyers, etc.)	0.56	0.13
H5	Help with business negotiations	0.54	0.08
H6	Help with preparing sales pitches	0.56	0.13
N1	Identify potential acquisition targets	0.54	0.08
A9	Provide marketing advice	0.54	0.08
V2	Personally recommend the business to others	0.58	0.17
H9	Help with reviewing pitch decks	0.52	0.04
N3	Identify potential customers	0.46	-0.08
H1	Consult for the business	0.44	-0.13
H2	Help the entrepreneur establish good business practices	0.42	-0.17
H4	Help with knowledge management	0.40	-0.21
N4	Identify potential exit opportunities	0.31	-0.38
H8	Help with research	0.33	-0.33
H10	Help with talent identification	0.27	-0.46
N2	Identify potential business partners	0.17	-0.67

NOTE. $N = 48$. The Item ID column refers to the posited category for each item. (A) indicates an

Advice item, (B) indicates a Board of Directors item, (C) indicates a Contacts item, (H) indicates

a Hands-On Assistance item, (N) indicates a Market Intelligence item, and (V) indicates a

Credibility and Validation item.

Appendix B

Validated Measures Used in Study

Convergent Validity

Willingness to Invest (R. A. Baron et al., 2006)

Next, think of the same entrepreneur and investment scenario (the entrepreneur is asking you for a $25,000 seed investment in the new technology venture). Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- I would personally invest in this entrepreneur's venture.
- I would recommend to other people that they make an investment in this entrepreneur's venture.
- I would invest the entire $25,000 requested.

Discriminant Validity

Machiavellianism Personality Scale (Dahling et al., 2009)

Now, think about your **personal** actions and beliefs. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- People are only motivated by personal gain.
- I dislike committing to groups because I don't trust others.
- Team members backstab each other all the time to get ahead.
- If I show any weakness at work, other people will take advantage of it.
- Other people are always planning ways to take advantage of the situation at my expense.

Criterion-Related Validity

Liking for Subordinates (Wayne & Ferris, 1990)

Next, think of the same entrepreneur and investment scenario (the entrepreneur is asking you for a $25,000 seed investment in the new technology venture). Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- I like this entrepreneur.
- I could get along well with this entrepreneur.
- Working with this entrepreneur would be a pleasure.
- I think this entrepreneur would make a good friend.

Propensity to Trust Survey (Evans & Revelle, 2008)

Now, think about your **personal** actions and beliefs. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- I can get along with most people.
- I have a good word for everyone.
- I value cooperation over competition.
- I believe that people are basically moral.

Organizational Citizenship Behavior (Podsakoff et al., 1990)

Now, think about your **personal** actions and beliefs. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- I help others who have been absent from work.
- I help others who have heavy workloads.
- I help orient new people even though it is not required.
- I willingly help others who have work related problems.
- I am always ready to lend a helping hand to those around me.

Distributive Justice (Colquitt, 2001)

Think of the same entrepreneur and investment scenario. Consider your likely contribution of non-financial resources and your anticipated outcome from those contributions. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements. To what extent...

- Does your outcome reflect the effort you have put into your work?
- Is your outcome appropriate for the work you have completed?
- Does your outcome reflect what you have contributed to the organization?
- Is your outcome justified, given your performance?

Main Model Measures

Entrepreneur Perceived Passion (X.-P. Chen et al., 2009)

Continue thinking of the entrepreneur and their presentation from the investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- This entrepreneur had energetic body movements
- This entrepreneur had rich body language
- This entrepreneur showed animated facial expressions.
- This entrepreneur used a lot of gestures.
- This entrepreneur's face lit up when they talked.
- This entrepreneur talked with varied tone and pitch.

Entrepreneur Coachability (Ciuchta et al., 2018)

Continue thinking of the entrepreneur and their presentation from the investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- This entrepreneur would trust my expertise.
- This entrepreneur would genuinely consider feedback.
- This entrepreneur wants to learn.
- This entrepreneur exhibits a genuine respect for the investors.
- This entrepreneur would be attentive when receiving feedback.
- This entrepreneur would proactively seek help and advice.
- This entrepreneur is genuinely committed to improving the venture.
- This entrepreneur understands the challenges of the venture.
- This entrepreneur would not get upset or angry when given corrective feedback.

Interpersonal Choice Homophily (McCroskey et al., 2006)

Continue thinking of the entrepreneur and their presentation from the investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.
- This entrepreneur is like me.
- This entrepreneur thinks like me.
- This entrepreneur is different than me.

Activist Choice Homophily (Greenberg & Mollick, 2017)

Continue thinking of the entrepreneur and their presentation from the investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- This entrepreneur is representative of my gender.
- This entrepreneur has to deal with some of the same gender stereotypes I face.
- It is important for society to see entrepreneurs like this one succeed.

Control Measures

Risk Tolerance (Hanna & Lindamood, 2004)

Which of the statements below comes closest to the level of financial risk you are willing to take when you make early-stage investments?

- Substantial risk expecting to earn substantial returns.
- Above average risk expecting to earn above average returns.
- Average risk expecting to earn average returns.
- I am not willing to take any financial risks.

Big Five Inventory-10 (BFI-10) (Rammstedt & John, 2007)

Continue thinking about **yourself**. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate how well the following statements describe your personality.
I see myself as someone who...

- ...is reserved.
- ...is generally trusting.
- ...tends to be lazy.
- ...is relaxed, handles stress well.
- ...has few artistic interests.
- ...tends to find fault with others.
- ...does a thorough job.
- ...is outgoing, sociable.
- ...gets nervous easily.
- ...has an active imagination.

International Positive and Negative Affect Schedule Short Form (I-PANAS-SF) (Thompson, 2007)

Think about **yourself** and how you normally feel. Using a scale from 1 (Never) to 7 (Always), please indicate to what extent you generally feel this way, that is, how you feel on average.
Generally, I feel...

- ...alert.
- ...ashamed.
- ...inspired.
- ...nervous.
- ...determined.
- ...attentive.
- ...upset.
- ...active.
- ...afraid.
- ...hostile.

www.manaraa.com

Appendix C

Exploratory Factor Analysis1

Table C1

EFA1 Frequencies Sample 2

Demographic	*n*	%
Gender		
Female	131	47
Male	144	51
Non-binary	2	1
Prefer not to answer	3	1
Ethnicity		
American Indian	2	1
Asian	22	8
Black or African American	29	10
Hispanic American or Latino/a	10	4
Prefer not to answer	6	2
White or European American	211	75
Education		
Some high school but no degree	1	0
High school graduate	13	5
Some college but no degree	31	11
Associate degree	34	12
Bachelor's degree	132	47
Master's degree	57	20
Doctoral degree	8	3
Professional degree (JD, MD)	4	1
Profession		
An academic (professor, teacher, researcher)	20	7
An angel investor	8	3
An employee for a company	194	69
An entrepreneur (self-employed)	40	14
Retired	11	4
Other	7	3
Area of Expertise		
Accounting	13	5
Consulting	8	3
Education	31	11

Demographic	*n*	%
Engineering	13	5
Finance	33	12
Human Resources	9	3
Information Technology (IT)	45	16
Innovation	2	1
Legal	5	2
Management	30	11
Market Research	2	1
Marketing	10	4
Public Service (government, military)	10	4
Research and Development (R&D)	5	2
Sales	28	10
Scientist	8	3
Other	28	10

Note. $N = 280$. Participants were on average 43.5 years old ($SD = 12.28$).

Table C2

EFA1 Eigenvalues and Total Variance Explained Sample 2

Factor	Initial Eigenvalues			Extraction SS			Rotation SS[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	16.49	47.10	47.10	16.10	45.99	45.99	14.13
2	2.00	5.71	52.81	1.61	4.61	50.60	12.01
3	1.51	4.31	57.12	1.11	3.17	53.78	10.85
4	1.27	3.63	60.75	0.86	2.44	56.22	8.04
5	1.14	3.25	64.01	0.76	2.18	58.40	10.02
6	1.03	2.94	66.94	0.62	1.77	60.18	4.42
7	0.86	2.47	69.41				
8	0.81	2.33	71.74				
9	0.71	2.04	73.78				
10	0.69	1.96	75.73				
11	0.63	1.79	77.53				
12	0.60	1.71	79.24				
13	0.57	1.64	80.88				
14	0.54	1.55	82.42				
15	0.51	1.46	83.89				
16	0.47	1.34	85.23				
17	0.44	1.27	86.50				
18	0.43	1.24	87.74				
19	0.39	1.12	88.86				
20	0.36	1.04	89.89				
21	0.36	1.02	90.92				
22	0.34	0.97	91.89				
23	0.31	0.88	92.77				
24	0.30	0.86	93.63				
25	0.27	0.78	94.41				
26	0.26	0.75	95.16				
27	0.24	0.68	95.84				
28	0.23	0.66	96.49				
29	0.21	0.59	97.08				
30	0.20	0.56	97.64				
31	0.19	0.54	98.18				
32	0.18	0.52	98.70				
33	0.17	0.49	99.19				

Factor	Initial Eigenvalues			Extraction SS			Rotation SS[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
34	0.16	0.44	99.63				
35	0.13	0.37	100.00				

Note. $N = 280$. Extraction Method: Principal Axis Factoring.

[a] When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table C3

EFA1 Pattern Matrix Sample 2

	Factor		
ID	1	2	3
A11	0.82		
A6	0.79		
A3	0.75		
A5	0.74		
A7	0.72		
A4	0.71		
N6	0.64		
A9	0.63		
A2	0.53		
H3		0.90	
B2		0.83	
H6		0.68	
H5		0.65	
B1		0.62	
B3		0.61	
H11		0.59	
H9		0.57	
H7		0.50	
V3			0.81
V1			0.70
V2			0.61

Note. *N* = 280. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with

Kaiser Normalization. Rotation converged in 5 iterations.

Appendix D

Item-Sort Task2

Table D1

Original Item Descriptions vs. New Item Descriptions

ID	Original Item Descriptions EFA1	ID	New Item Descriptions EFA2
A1	Act as an idea sounding board	A1	Act as an idea sounding board
V1	Allow the entrepreneur to use me as a reference	V1	Allow the entrepreneur to use me as a reference
A2	Coach the entrepreneur	A2	Coach the entrepreneur
H1	Consult for the business	H1	Consult for the business
B1	Help identify potential board members	B1	Identify potential board members
B2	Help recruit members for the board of directors	B2	Recruit members for their board of directors
H2	Help the entrepreneur establish good business practices	H2	Help the entrepreneur establish good business practices
H5	Help with business negotiations	H5	Assist with business negotiations
H3	Help with interviewing potential hires	H3	Interview potential hires
H4	Help with knowledge management	H4	Create knowledge management processes for the business
H6	Help with preparing sales pitches	H6	Help prepare sales pitches
H7	Help with product development	H7	Aid with product development
H8	Help with research	H8	Help with research
H9	Help with reviewing pitch decks	H9	Review pitch decks
H10	Help with talent identification	H10	Help by identifying possible employees
N1	Identify potential acquisition targets	N1	Identify possible acquisition targets
N2	Identify potential business partners	N2	Suggest potential business partners
N3	Identify potential customers	N3	Identify promising customers
N4	Identify potential exit opportunities	N4	Propose potential exit opportunities
H11	Join the management team	H11	Join their management team
A3	Mentor the entrepreneur	A3	Mentor the entrepreneur
B3	Offer to join their board of directors	B3	Join their board of directors
V2	Personally recommend the business to others	V2	Recommend the business to others
V3	Personally recommend the entrepreneur to others	V3	Personally recommend the entrepreneur to others
A4	Provide advice on professional service providers (accountants, lawyers, etc.)	A4	Advise them on professional service providers (accountants, lawyers, etc.)

ID	Original Item Descriptions EFA1	ID	New Item Descriptions EFA2
N5	Provide competitor information	N5	Supply competitor information
A5	Provide financial advice	A5	Give them financial advice
H12	Provide free business equipment and/or supplies	H12	Contribute free business equipment and/or supplies
H13	Provide free business services	H13	Provide free business services
A6	Provide general business advice	A6	Share general business advice
A7	Provide guidance on how to communicate with investors	A7	Guide them on how to communicate with investors
A8	Provide guidance on work/life balance	A8	Counsel them on work/life balance
N6	Provide industry information	N6	Provide industry information
C1	Provide introductions to banking institutions	C1	Provide introductions to banking institutions
C2	Provide introductions to industry contacts	C2	Facilitate introductions to industry contacts
C3	Provide introductions to other coaches/mentors	C3	Introduce them to other coaches/mentors
C4	Provide introductions to other investors	C4	Connect them to other investors
C5	Provide introductions to potential customers	C5	Introduce them to potential customers
C6	Provide introductions to professional service providers (accountants, lawyers, etc.)	C6	Connect them to professional service providers (accountants, lawyers, etc.)
A9	Provide marketing advice	A9	Offer marketing advice
A10	Provide moral support	A10	Be moral support
A11	Provide strategic advice	A11	Offer strategic advice
V4	Share due diligence with other potential investors	V4	Share due diligence with other potential investors

NOTE. The Item ID column refers to the posited category for each item. (A) indicates an Advice

item, (B) indicates a Board of Directors item, (C) indicates a Contacts item, (H) indicates a

Hands-On Assistance item, (N) indicates a Market Intelligence item, and (V) indicates a

Credibility and Validation item.

Table D2

Item-Sort Task2 Frequencies Sample 3

Demographic	*n*	%
Gender		
Female	14	42
Male	19	58
Ethnicity		
Asian	2	6
Black or African American	5	15
Hispanic American or Latino/a	2	6
White or European American	22	67
Prefer not to answer	2	6
Education		
Some high school but no degree	1	3
High school graduate	2	6
Some college but no degree	2	6
Associate degree	2	6
Bachelor's degree	8	24
Master's degree	7	21
Doctoral degree	10	30
Professional degree (JD, MD)	1	3
Profession		
An academic (professor, teacher, researcher)	10	30
An employee for a company	17	52
An entrepreneur (self-employed)	2	6
Student	3	9
Retired	1	3
Area of Expertise		
Consulting	1	3
Data Analytics	2	6
Education	3	9
Engineering	1	3
Human Resources	1	3
Information Technology (IT)	2	6
Insurance	1	3
Logistics	2	6
Management	8	24
Marketing	2	6
Operations	2	6

113

Demographic	n	%
Public Relations	1	3
Research and Development (R&D)	1	3
Sales	4	12
Scientist	1	3
Other	1	3

Note. $N = 33$. Participants were on average 34.9 years old ($SD = 9.63$).

Table D3

Item-Sort Task2 Substantive Validity Assessment Sample 3

ID	Item	P_{SA}	C_{SV}
XX	To verify data is being recorded properly, please select the "Contacts" category for this action	1.00	1.00
B3	Join their board of directors	0.82	0.64
C6	Connect them to professional service providers (accountants, lawyers)	0.82	0.64
B1	Identify potential board members	0.79	0.58
C2	Facilitate introductions to industry contacts	0.79	0.58
B2	Recruit members for their board of directors	0.76	0.52
C3	Introduce them to other coaches/mentors	0.76	0.52
C4	Connect them to other investors	0.76	0.52
N6	Provide industry information	0.76	0.52
A11	Offer strategic advice	0.73	0.45
N5	Supply competitor information	0.73	0.45
C5	Introduce them to potential customers	0.70	0.39
H5	Assist with business negotiations	0.70	0.39
H6	Help prepare sales pitches	0.67	0.33
H7	Aid with product development	0.67	0.33
A5	Give them financial advice	0.64	0.27
A8	Counsel them on work/life balance	0.64	0.27
H12	Contribute free business equipment and/or supplies	0.64	0.27
A10	Be moral support	0.61	0.21
A6	Share general business advice	0.61	0.21
A7	Guide them on how to communicate with investors	0.61	0.21
C1	Provide introductions to banking institutions	0.61	0.21
V1	Allow the entrepreneur to use me as a reference	0.58	0.15
A2	Coach the entrepreneur	0.55	0.09
A3	Mentor the entrepreneur	0.55	0.09
A4	Advise on professional service providers (accountants, lawyers)	0.55	0.09
A9	Offer marketing advice	0.55	0.09
H11	Join their management team	0.55	0.09
H13	Provide free business services	0.55	0.09
V3	Personally recommend the entrepreneur to others	0.55	0.09
A1	Act as an idea sounding board	0.48	-0.03
H3	Interview potential hires	0.48	-0.03
H4	Create knowledge management processes for the business	0.48	-0.03
H8	Help with research	0.48	-0.03
N1	Identify possible acquisition targets	0.48	-0.03

115

ID	Item	P_{SA}	C_{SV}
H1	Consult for the business	0.36	-0.27
V2	Recommend the business to others	0.36	-0.27
V4	Share due diligence with other potential investors	0.36	-0.27
H9	Review pitch decks	0.33	-0.33
N4	Propose potential exit opportunities	0.27	-0.45
H10	Help by identifying possible employees	0.21	-0.58
H2	Help the entrepreneur establish good business practices	0.21	-0.58
N3	Identify promising customers	0.21	-0.58
N2	Suggest potential business partners	0.18	-0.64

NOTE. $N = 33$. The Item ID column refers to the posited category for each item. (A) indicates an

Advice item, (B) indicates a Board of Directors item, (C) indicates a Contacts item, (H) indicates

a Hands-On Assistance item, (N) indicates a Market Intelligence item, and (V) indicates a

Credibility and Validation item.

Appendix E

Exploratory Factor Analysis2

Table E1

EFA2 Frequencies Sample 4

Demographic	*n*	%
Gender		
Female	225	53
Male	190	45
Non-binary	2	1
Prefer not to answer	3	1
Ethnicity		
Asian	34	8
Black or African American	32	8
Hispanic American or Latino/a	9	2
Native Hawaiian or Pacific Islander	1	0
Prefer not to answer	9	2
White or European American	335	80
Education		
Some high school but no degree	2	1
High school graduate	18	4
Some college but no degree	54	13
Associate degree	51	12
Bachelor's degree	199	47
Master's degree	78	19
Doctoral degree	8	2
Professional degree (JD, MD)	10	2
Profession		
An academic (professor, teacher, researcher)	29	7
An angel investor	13	3
An employee for a company	270	64
An entrepreneur (self-employed)	63	15
Retired	33	8
Other	12	3
Area of Expertise		
Accounting	15	4
Consulting	17	4
Data Analytics	8	2

117

Demographic	*n*	%
Economics	5	1
Education	43	10
Engineering	13	3
Finance	33	8
Healthcare	39	9
Human Resources	13	3
Information Technology (IT)	51	12
Innovation	2	1
Insurance	7	2
Journalism (writers, editors)	8	2
Legal	13	3
Logistics	5	1
Management	29	7
Marketing	8	2
Operations	12	3
Public Service (government, military, first responders)	16	4
Research and Development (R&D)	5	1
Sales	32	8
Scientist	5	1
Sustainability	1	0
Other	40	10

Note. $N = 420$. Participants were on average 44.1 years old ($SD = 12.59$).

118

Table E2

EFA2 Eigenvalues and Total Variance Explained Sample 4

Factor	Initial Eigenvalues			Extraction SS			Rotation SS[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	20.32	47.25	47.25	19.91	46.31	46.31	14.79
2	2.73	6.34	53.59	2.32	5.39	51.70	15.94
3	1.55	3.59	57.18	1.15	2.66	54.37	15.53
4	1.47	3.42	60.60	1.03	2.39	56.76	5.19
5	1.01	2.34	62.94	0.59	1.36	58.12	8.06
6	0.96	2.23	65.18				
7	0.90	2.10	67.28				
8	0.81	1.87	69.15				
9	0.75	1.75	70.90				
10	0.70	1.63	72.53				
11	0.68	1.57	74.11				
12	0.65	1.52	75.63				
13	0.61	1.41	77.04				
14	0.57	1.32	78.36				
15	0.55	1.28	79.64				
16	0.50	1.17	80.80				
17	0.47	1.09	81.90				
18	0.46	1.07	82.97				
19	0.46	1.07	84.04				
20	0.44	1.02	85.05				
21	0.41	0.96	86.01				
22	0.40	0.94	86.95				
23	0.39	0.90	87.85				
24	0.38	0.89	88.74				
25	0.36	0.83	89.57				
26	0.35	0.81	90.38				
27	0.34	0.78	91.16				
28	0.32	0.75	91.91				
29	0.31	0.72	92.63				
30	0.29	0.68	93.31				
31	0.28	0.66	93.97				
32	0.28	0.64	94.61				

119

	Initial Eigenvalues			Extraction SS			Rotation SS[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
33	0.27	0.64	95.24				
34	0.26	0.60	95.85				
35	0.24	0.57	96.41				
36	0.23	0.54	96.96				
37	0.22	0.52	97.47				
38	0.22	0.51	97.98				
39	0.21	0.49	98.47				
40	0.19	0.43	98.90				
41	0.18	0.43	99.33				
42	0.15	0.36	99.68				
43	0.14	0.32	100.00				

Note. $N = 420$. Extraction Method: Principal Axis Factoring.

[a] When factors are correlated, sums of squared loadings cannot be added to obtain a total

variance.

Table E3

EFA2 Pattern Matrix Sample 4

	Factor		
ID	1	2	3
A2	0.92		
A3	0.82		
A11	0.71		
A5	0.70		
A7	0.64		
A1	0.63		
N6	0.57		
A10	0.55		
A8	0.53		
H3		0.83	
H6		0.74	
H8		0.73	
H13		0.72	
H7		0.71	
B2		0.69	
H5		0.61	
H12		0.61	
B3		0.55	
V2			0.72
V3			0.69
C5			0.69
C6			0.66
C2			0.63
C3	0.36		0.47

Note. $N = 420$. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with

Kaiser Normalization. Rotation converged in 6 iterations.

Appendix F

Chicago Face Database

Table F1

Chicago Face Database Norming Data

Target ID (Picture)	WM-014N	WF-033N
Race	W	W
Gender	M	F
Age Estimation (years)	33.71	32.04
Number of Raters	84	99
Afraid	2.08	1.96
Angry	2.29	2.21
Attractive	3.48	3.39
Babyface	2.46	2.36
Disgusted	2.18	2.00
Dominant	3.40	2.50
Feminine	1.94	4.52
Happy	3.25	2.80
Masculine	4.87	2.24
Prototypic	3.63	3.91
Sad	2.42	2.32
Suitability	4.35	4.54
Surprised	1.83	1.99
Threatening	2.33	1.83
Trustworthy	3.81	3.86
Unusual	1.88	1.80

Note. Chicago Face Database Version 2.0.3 Norming Data remain unchanged from 2.0.2 (1-7

Likert, 1 = *Not at all*; 7 = *Extremely*). Select norming data for the models selected (neutral

picture). See Ma, Correll, and Wittenbrink (2015) for further details.

Entrepreneur Scenarios

Please take a few minutes to carefully read the following early-stage investment scenario.

Imagine you are evaluating a technology startup founded by **Michael [Jessica]** Smith who has extensive knowledge and entrepreneurial experience in the information technology field. **Michael [Jessica]** presents in a **reserved [passionate]** manner, with **minimal [animated]** facial expressions and hand gestures. **His [Her]** presentation materials are complete and present a compelling case for investment. The venture fulfills all your criteria for an early-stage investment, and you have the money, resources, and time to invest. **Michael [Jessica]** is asking you for a $25,000 seed investment in the new venture. Please proceed to questions related to this entrepreneur.

Passionate Michael Smith (WM-014HO)   Neutral Michael Smith (WM-014N)

Michael Smith

Michael Smith

Passionate Jessica Smith (WF-033HO)   Neutral Jessica Smith (WF-033N)

Jessica Smith

Jessica Smith

www.manaraa.com

Appendix G

Study 2 Survey

Sample E-Mail Request for Survey Participation

Subject: Queen City Angels Research Project - Participation Request

Dear Angel Investors,

I hope this finds you healthy and safe! The Covid-19 outbreak has caused an unprecedented time for entrepreneurs and small businesses. You, more than most, understand that small business is the economic engine of the United States, and angel investors are the fuel for that engine.

As an angel investor and a successful member of the business community, you are being given the opportunity to participate in a research project conducted through Xavier University. Your valuable insights will assist the larger business community in better understanding the investment considerations and actions of angels, and the benefits of an angel to entrepreneurs.

In consideration of your time, you are invited to enter a drawing for a chance to win a $100 gift card that you can use to support your favorite local entrepreneur. One angel who completes the survey by April 30, 2020 will receive the gift card. You also are invited to receive the final study results to share with your colleagues.

I hope you will join me in this important endeavor and continue to support our entrepreneurs during these challenging times. Please use the below link to take the survey. As we move past this pandemic, your expertise and support of entrepreneurs will be even more critical.
https://xavier.co1.qualtrics.com/jfe/form/SV_bENIe4yAfw5yD1b
The survey is anonymous and will take approximately 10 to15 minutes of your time. Thank you in advance for your participation in this important research study.
Sincerely,

Dawn M. Tolonen
Teaching Professor
Xavier University
tolonend@xavier.edu
513-667-4288

Study 2 Survey

[Qualtrics Survey Introduction]

My name is Dawn M. Tolonen, thank you for agreeing to take part in this survey. Your responses will assist the larger business community in better understanding the investment considerations and actions of angel investors. Please review the Informed Consent page before moving on to the survey. If you wish to withdraw from the study, please exit your browser at any time.

Informed Consent

You are being given the opportunity to participate in a research project conducted through Xavier University. The purpose of this study is to assist the larger business community in better understanding non-financial resources provided by angel investors. Participants in this study will be asked to read a short scenario and answer questions related to the scenario. The survey should take 10-15 minutes for you to complete. There are no anticipated risks related to participation. Benefits to taking part include an appreciation into how research is conducted, otherwise, there are no benefits for taking part of this study.

Nature and Purpose of This Study

The purpose of this study is to assist the larger business community in better understanding the investment considerations and actions of angel investors.

Why You Were Invited to Take Part in This Study

You are invited to participate in this study because you have been identified as an angel investor and a successful member of the business community.

Study Requirements

Participants in this study will read a short scenario, answer questions about the scenario, and answer demographic questions. The survey will take approximately 10-15 minutes to complete.

Anticipated Discomforts/Risks

There are no known discomforts or risks associated with participating in this survey.

Benefits

There are no direct benefits to you for participating in this study. However, your experiences will

125

inform the larger business community about angel investing and will help inform future research on the topic.

Anonymity

All your responses will be collected anonymously through the Qualtrics website; therefore, your answers can never be linked to you. Information gathered during this study will be combined with the responses of others for research purposes only. The results of the research may be published.

Compensation

There is no monetary compensation for participating in this study; however, in consideration of your time, you are invited to enter a drawing for a chance to win a $100 gift card that you can use to support your favorite local entrepreneur. One angel who completes the survey by April 30, 2020 will receive the gift card. You are also invited to receive the final study results. If you elect to enter the drawing or receive the final study results, you can provide your contact information. When you finish this survey, you will be redirected to a separate survey where you can enter your contact information. Because your name and contact information will be collected in a separate survey, there will be no way for me to ever connect your identity to your responses.

Questions

If you have any questions at any time concerning this research study, please feel free to contact me at tolonend@xavier.edu or (513) 667-4288 or the research supervisor, Dr. Zachary A. Russell at russellz1@xavier.edu or (513) 745-2021. Questions about your rights as a research participant should be directed to Xavier University's Institutional Review Board at (513) 745-2870, or irb@xavier.edu.

You may print a copy of this form or contact Dawn M. Tolonen at tolonend@xavier.edu or (513) 667-4288 to request a copy be sent to you.

Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. You are free to withdraw from the study at any time without penalty.

I have been given information about this research study and its risks and benefits and have had the opportunity to contact the researcher with any questions, and to have those questions answered to my satisfaction. By completing the elements of the study as previously described to me, I understand that I am giving my informed consent to participate in this research study.

By moving to the next page, you are agreeing to the above information.

MANNA FROM HEAVEN

[Qualification Questions Section]

You are invited to participate in this study because you have been identified as an angel investor and a successful member of the business community. This survey is investigating the behavior of angel investors. As you know, an angel investor invests his or her own money directly in an entrepreneurial venture and, after making the investment, generally takes an active involvement in the business. Please answer the following questions to determine your eligibility to participate in this study.

Do you live in the United States?

- Yes
- No

Do you speak English?

- Yes
- No

Are you 18 years of age or older?

- Yes
- No

What is your gender identity?

- Male
- Female
- Non-binary
- Prefer not to answer

Please select the statement that best describes you.

- I have a net worth of at least $1 million (excluding my primary residence).
- My annual income for each of the last three years was at least $200,000.
- My spouse and I combined had at least $300,000 in annual income for each of the last three years.
- None of these statements describes me.

Please select the statement that best describes you.

- I currently have my money invested in an entrepreneurial venture(s).
- I expect to invest my money in an entrepreneurial venture(s) within the next 3 years.
- I have not yet invested my money in any entrepreneurial venture.

127

[Scenario and Associated Questions Section]

Please take a few minutes to carefully read the following early-stage investment scenario.

Imagine you are evaluating a technology startup founded by **Michael [Jessica]** Smith who has extensive knowledge and entrepreneurial experience in the information technology field. **Michael [Jessica]** presents in a **reserved [passionate]** manner, with **minimal [animated]** facial expressions and hand gestures. **His [Her]** presentation materials are complete and present a compelling case for investment. The venture fulfills all your criteria for an early-stage investment, and you have the money, resources, and time to invest. **Michael [Jessica]** is asking you for a $25,000 seed investment in the new venture. Please proceed to questions related to this entrepreneur.

Directions:

Continue thinking of the entrepreneur and their presentation from the investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- This entrepreneur is like me.
- This entrepreneur is representative of my gender.
- This entrepreneur had rich body language.
- This entrepreneur is not passionate about their business.
- This entrepreneur would trust my expertise.
- This entrepreneur would not get upset or angry when given corrective feedback.
- This entrepreneur thinks like me.
- This entrepreneur had energetic body movements.
- This entrepreneur is passionate about their business.
- This entrepreneur would genuinely consider feedback.
- This entrepreneur understands the challenges of the venture.
- This entrepreneur is genuinely committed to improving the venture.
- This entrepreneur is different than me.
- This entrepreneur has to deal with some of the same gender stereotypes I face.
- This entrepreneur showed animated facial expressions.
- This entrepreneur is too passionate about their business.
- This entrepreneur wants to learn.
- This entrepreneur exhibits a genuine respect for the investors.
- It is important for society to see entrepreneurs like this one succeed.
- This entrepreneur used a lot of gestures.
- This entrepreneur's face lit up when they talked.
- This entrepreneur would be attentive when receiving feedback.
- This entrepreneur would proactively seek help and advice.

128

- This entrepreneur talked with varied tone and pitch.
- To ensure data is being recorded properly, please select "Agree:6" for this statement.

Think about your impression of the entrepreneur and their presentation. Remember that the entrepreneur is asking you for a $25,000 seed investment in the new technology venture. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- I like this entrepreneur.
- I could get along well with this entrepreneur.
- Working with this entrepreneur would be a pleasure.
- I think this entrepreneur would make a good friend.
- I would personally invest in this entrepreneur's venture.
- I would recommend to other people that they make an investment in this entrepreneur's venture.
- I would invest the entire $25,000 requested.

Which of the statements below comes closest to the level of financial risk you are willing to take when you make early-stage investments?

- Substantial risk expecting to earn substantial returns.
- Above average risk expecting to earn above average returns.
- Average risk expecting to earn average returns.
- I am not willing to take any financial risks.

How long, on average, do you expect to hold your early-stage investments before exiting?

- Under 2 years.
- Between 2 to 5 years.
- Between 6 to 8 years.
- Between 8 to 10 years.
- Over 10 years.

Generally, upon exiting, my early-stage investments provide...

- Significant returns (IRR over 20%).
- Moderate returns (IRR less than 20%).
- Break-even.
- Partial loss.
- Full loss.

Next, imagine you decided NOT to invest your money in the entrepreneur at this time; however, you see promise in the entrepreneur and their business. Which value-added non-financial resources would you be willing to give to this entrepreneur to help them become investment ready in the future?

Think of the future investment scenario. Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate how likely you are to provide the non-financial resources listed.

I would be willing to...

- Share general business advice.
- Offer marketing advice.
- Connect them to other investors.
- Join their management team.
- Supply competitor information.
- Allow the entrepreneur to use me as a reference.
- Mentor the entrepreneur.
- Coach the entrepreneur.
- Counsel them on work/life balance.
- Provide introductions to banking institutions.
- Contribute free business equipment and/or supplies.
- Identify possible acquisition targets.
- Share due diligence with other potential investors.
- Be moral support.
- Give them financial advice.
- Guide them on how to communicate with investors.
- Introduce them to other coaches/mentors.
- Interview potential hires.
- Assist with business negotiations.
- Provide industry information.
- Recruit members for their board of directors.
- Advise them on professional service providers (accountants, lawyers, etc.).
- Identify potential board members.
- Introduce them to potential customers.
- Help prepare sales pitches.
- Aid with product development.
- Review pitch decks.
- Recommend the business to others.
- Act as an idea sounding board.
- Offer strategic advice.
- Join their board of directors.
- Facilitate introductions to industry contacts.

- Provide free business services.
- Personally recommend the entrepreneur to others.
- Connect them to professional service providers (accountants, lawyers, etc.).

Continue thinking of the entrepreneur.

The entrepreneur in the investment scenario was...
- Male
- Female

Using the scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statement.
- The entrepreneur in the investment scenario was attractive.

[Personal Characteristics Section]

Now, think about your personal actions and beliefs. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate the degree to which you agree or disagree with the following statements.

- I can get along with most people.
- I have a good word for everyone.
- I value cooperation over competition.
- I believe that people are basically moral.

Continue thinking about **yourself**. Using a scale from 1 (Strongly Disagree) to 7 (Strongly Agree), please indicate how well the following statements describe your personality.

I see myself as someone who...

- ...is reserved.
- ...is generally trusting.
- ...tends to be lazy.
- ...is relaxed, handles stress well.
- ...has few artistic interests.
- ...tends to find fault with others.
- ...does a thorough job.
- ...is outgoing, sociable.
- ...gets nervous easily.
- ...has an active imagination.

Think about **yourself** and how you normally feel. Using a scale from 1 (Never) to 7 (Always), please indicate to what extent you generally feel this way, that is, how you feel on average.

Generally, I feel...
- ...alert.
- ...ashamed.
- ...inspired.
- ...nervous.
- ...determined.
- ...attentive.
- ...upset.
- ...active.
- ...afraid.
- ...hostile.

[Investor Profile Section]

Please provide some information about your investment activities for this study. These questions are for statistical purposes only. I assure you that you will not be identified using this data. The purpose of this data is to look for patterns that can be compared to the general investor population.

Have you ever started your own business (either by yourself or with a partner)?
- Yes
- No

How many businesses have you personally started (either by yourself or with a partner)?
- One
- Two
- Three
- Four
- Five
- More than five, but less than 10
- 10 or more

The reason(s) I invest as an angel include *(select all that apply)*...
- I like the entrepreneur.
- I like the product/service.
- I like the industry.
- I enjoy coaching/mentoring new entrepreneurs.
- I enjoy giving back to the entrepreneurial ecosystem.
- The opportunity to make a difference for the broader society.

- I want to make use of my previous business experience.
- The opportunity for capital gain.
- I enjoy the excitement of a new venture.
- I enjoy the competition.
- I want to help a friend.
- To improve my deal flow.
- To help underrepresented entrepreneurs.
- The opportunity to make a difference in my local community.
- Other *(please specify)*

The reason(s) I may **NOT** invest as an angel include *(select all that apply)*...
- I do not see a personal fit with the entrepreneur.
- I do not like the product/service.
- I do not like the industry.
- I do not have expertise in the entrepreneur's industry.
- I do not like the business plan presented.
- I do not like the financial plan presented.
- I do not think I can add value to the business.
- The venture is not yet investment ready.
- The amount of capital required is too large.
- Too much work required relative to the size of the investment.
- My funds are invested elsewhere.
- The entrepreneur is not coachable.
- The entrepreneur lacks sufficient entrepreneurial experience.
- The entrepreneur lacks sufficient passion for their business.
- Other *(please specify)*

As an angel investor, in which industry(s) do you typically invest? *(select all that apply)*
- Construction
- E-Commerce
- Energy
- Finance
- Healthcare/Medical
- High-tech
- Information Technology
- Insurance
- Life science/Health-tech
- Lifestyle
- Manufacturing
- Real Estate
- Retail

- Services
- Software as a service (SaaS)
- Telecommunications
- Other *(please specify)*

As an angel investor, which deal referral sources do you use? *(select all that apply)*

- Accountants
- Bankers
- Contacted directly by entrepreneurs
- Entrepreneurs I already invest in
- Family
- Friends
- Investment networks
- Lawyers
- My own search
- Online sources (i.e. AngelList, Kickstarter, PitchBook)
- Other angels
- Stockbrokers
- Venture capitalists
- Other *(please specify)*

Which business stage(s) do you generally invest in? *(select all that apply)*

- Pre-Seed
- Seed
- Series A
- Series B
- Series C and later

Which types of investment instruments do you use? *(select all that apply)*

- Cash/Check
- Convertible Notes
- Convertible Preferred Shares
- Simple Agreement for Future Equity (SAFE) Notes
- Crowd SAFE
- New Equity
- Replacement Equity
- Common Shares
- Preferred Shares
- Standard Loan
- Subordinated Loan
- Revenue Based Financing
- Warrants
- Other *(please specify)*

How many years have you been an angel investor?

- Please enter a whole number.

As an angel investor, do you *(select all that apply)*...

- Invest as a solo investor.
- Invest as part of an angel fund.
- Invest as part of an organized angel group or network.
- Invest along with venture capitalists

How many ventures are you currently invested in?

- Please enter a whole number.

How many total angel investments have you made?

- Please enter a whole number.

MANNA FROM HEAVEN

[Demographics Section]

Finally, please provide some demographic information for this study. These questions are for statistical purposes only. I assure you that you will not be identified using this data. The purpose of this data is to look for patterns that can be compared to the general U.S. population.

Please select your age *(in years).*
My Age

▼ Under 18 ... Over 100

What is your ethnicity?

- American Indian
- Asian
- Black or African American
- Hispanic American or Latino/a
- Native Hawaiian or Pacific Islander
- White or European American
- Prefer not to answer

In which state do you currently reside?

▼ Alabama ... I do not reside in the United States

Please provide some demographic information about your education and employment.

What is the highest level of school you have completed or the highest degree you have received?

- Some high school but no degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (JD, MD)

136

What is your current employment status?

- Full-time for a company.
- Full-time in my own business.
- Part-time for a company.
- Part-time in my own business.
- I work for a company and I own my own business.
- Retired.

Information about income is very important to understand. Please select the answer that best indicates your entire household income in 2019 before taxes.

- Less than $20,000
- $20,000 to $29,999
- $30,000 to $39,999
- $40,000 to $49,999
- $50,000 to $59,999
- $60,000 to $69,999
- $70,000 to $79,999
- $80,000 to $89,999
- $90,000 to $99,999
- $100,000 to $149,999
- $150,000 or more
- Prefer not to answer

Which of the following **best** describes your profession or area of expertise? (*please select one*)
- Accounting
- Consulting
- Data Analytics
- Economics
- Education
- Engineering
- Finance
- Full-Time Parent, Caretaker or Guardian
- Healthcare
- Human Resources
- Information Technology (IT)
- Innovation
- Insurance
- Journalism (reporters, writers, editors, etc.)
- Legal

137

- Logistics
- Management
- Market Research
- Marketing
- Operations
- Public Relations
- Public Service (government, military, first responders)
- Research and Development (R&D)
- Sales
- Scientist
- Social Work
- Sustainability
- Other (*please specify*)

[End of Survey]

138

Appendix H

Study 2 Demographics

Table H1

Study 2 Demographic Frequencies Sample 5

Demographic	n	%
Gender		
Female	80	46
Male	96	55
Ethnicity		
American Indian	2	1
Asian	16	9
Black or African American	12	7
Hispanic American or Latino/a	10	6
White or European American	134	76
Prefer not to answer	2	1
Education		
Some high school but no degree	1	1
High school graduate	4	2
Some college but no degree	20	11
Associate degree	14	8
Bachelor's degree	89	51
Master's degree	39	22
Doctoral degree	3	2
Professional degree (JD, MD)	6	3
Profession		
Full-time for a company	115	65
Full-time in my own business	16	9
I work for a company and I own my own business	5	3
Part-time for a company	8	5
Part-time in my own business	16	9
Retired	16	9
Area of Expertise		
Accounting	7	4
Consulting	6	3
Data Analytics	4	2
Economics	3	2
Education	12	7

139

Demographic	n	%
Engineering	7	4
Finance	10	6
Full-Time Parent, Caretaker or Guardian	3	2
Healthcare	16	9
Human Resources	5	3
Information Technology (IT)	25	14
Innovation	4	2
Insurance	1	1
Journalism (reporters, writers, editors, etc.)	4	2
Legal	3	2
Logistics	2	1
Management	12	7
Market Research	1	1
Marketing	8	5
Operations	7	4
Public Relations	1	1
Public Service (government, military, first responders)	3	2
Research and Development (R&D)	4	2
Sales	14	8
Scientist	4	2
Social Work	2	1
Other (please specify)	8	5
Income		
Less than $20,000	5	3
$20,000 to $29,999	7	4
$30,000 to $39,999	17	10
$40,000 to $49,999	16	9
$50,000 to $59,999	17	10
$60,000 to $69,999	8	5
$70,000 to $79,999	18	10
$80,000 to $89,999	7	4
$90,000 to $99,999	11	6
$100,000 to $149,999	30	17
$150,000 or more	28	16
Prefer not to answer	12	7

Note. $N = 176$. Participants were on average 42.6 years old ($SD = 13.30$).

Table H2

Study 2 Investor Profile Frequencies Sample 5

Investor Profile	*n*	%
Previously Started a Business		
Yes	76	43
No	100	57
How Many Businesses Started		
One	38	22
Two	22	13
Three	7	4
Four	5	3
Five	2	1
More than five, but less than 10	2	1
None	100	57
Reasons for Investing [a]		
I like the product/service.	141	18
The opportunity for capital gain.	117	15
I like the entrepreneur.	102	13
I like the industry.	87	11
I enjoy the excitement of a new venture.	56	7
I want to help a friend.	45	6
The opportunity to make a difference for the broader society.	41	5
The opportunity to make a difference in my local community.	35	5
I want to make use of my previous business experience.	34	4
To help underrepresented entrepreneurs.	32	4
I enjoy giving back to the entrepreneurial ecosystem.	29	4
I enjoy coaching/mentoring new entrepreneurs.	26	3
To improve my deal flow.	18	2
I enjoy the competition.	16	2
Sense of purpose in sharing my knowledge to help others.	1	0
To bring more diversity & inclusion into angel investing.	1	0
Reasons for Not Investing [a]		
I do not like the product/service.	125	10
I do not like the industry.	113	9
The amount of capital required is too large.	109	9
I do not see a personal fit with the entrepreneur.	104	8
I do not like the financial plan presented.	100	8
I do not like the business plan presented.	95	8
The venture is not yet investment ready.	91	7

141

Investor Profile	*n*	%
The entrepreneur lacks sufficient passion for their business.	82	7
My funds are invested elsewhere.	81	7
I do not have expertise in the entrepreneur's industry.	73	6
The entrepreneur is not coachable.	70	6
The entrepreneur lacks sufficient entrepreneurial experience.	69	6
Too much work required relative to the size of the investment.	68	6
I do not think I can add value to the business.	66	5
Do not like the other investors involved in the business	1	0
Industries Invested In [a]		
Information Technology	65	12
High-tech	52	9
Healthcare/Medical	48	9
Finance	46	8
Services	46	8
E-Commerce	42	8
Energy	38	7
Real Estate	37	7
Retail	33	6
Life science/Health-tech	30	5
Software as a service (SaaS)	27	5
Lifestyle	23	4
Manufacturing	22	4
Telecommunications	18	3
Insurance	11	2
Construction	9	2
Entertainment	2	0
Environment/sustainability	2	0
Wholesale distribution	1	0
I don't limit the industry	1	0
Deal Referral Sources [a]		
My own search	77	16
Friends	75	15
Investment networks	59	12
Family	55	11
Online sources (i.e. AngelList, Kickstarter, PitchBook)	42	9
Entrepreneurs I already invest in	32	7
Bankers	30	6
Accountants	29	6
Stockbrokers	28	6
Angel investors	21	4

Investor Profile	n	%
Contacted directly by entrepreneurs	21	4
Venture capitalists	12	2
Lawyers	9	2
Accelerators	1	0
Investment Advisors and Their Staff	1	0
Business Stage of Investment [a]		
Pre-Seed	42	17
Seed	93	37
Series A	46	18
Series B	29	12
Series C and Later	40	16
Investment Instrument [a]		
Cash/Check	123	38
Common Shares	55	17
Preferred Shares	36	11
Standard Loan	29	9
New Equity	19	6
Convertible Notes	18	6
Simple Agreement for Future Equity (SAFE) Notes	12	4
Convertible Preferred Shares	11	3
Crowd SAFE	6	2
Revenue Based Financing	6	2
Replacement Equity	4	1
Warrants	2	1
Subordinated Loan	1	0
Options	1	0
ETF's and Index Funds	1	0
Investment Style [a]		
Invest as a solo investor	129	54
Invest as part of an investment fund	70	29
Invest as part of an organized group or network	35	15
Invest along with venture capitalists	5	2

Note. $N = 176$. Participants had on average 9.8 years of investing experience ($SD = 9.10$).

[a] Choices are not mutually exclusive; therefore, totals are higher than 176.

143

Appendix I

IRB Approval Letters

[Xavier University IRB]

January 7, 2020

Dawn Tolonen
Xavier University
ML 1215

Re: Protocol #19-073, *Scale Development for Non-Financial Resources*

Dear Ms. Tolonen:

The IRB has reviewed the materials regarding your study, referenced above, and has determined that it meets the criteria for the Exempt from Review category under Federal Regulation 45CFR46. Your protocol is approved as exempt research, and therefore requires no further oversight by the IRB. We appreciate your thorough treatment of the issues raised and your timely response.

If you wish to modify your study, including the addition of data collection sites, it will be necessary to obtain IRB approval prior to implementing the modification. If any adverse events occur, please notify the IRB immediately.

Please contact our office if you have any questions. We wish you success with your project!

Sincerely,

Morrie Mullins, Ph.D.
Chair, Institutional Review Board
Xavier University

MEM/sb

[Creighton University IRB]

DATE:	28-Jan-2020
TO:	Tolonen, Dawn M
FROM:	Social / Behavioral IRB Board
PROJECT TITLE:	Scale Development for Non-Financial Resources
REFERENCE #:	2000787
SUBMISSION TYPE:	Initial Application
REVIEW TYPE:	External Review
ACTION:	APPROVED
EFFECTIVE DATE:	28-Jan-2020

Thank you for your submission of the Initial Application materials for this project. All items attached to this submission have been reviewed.

- Creighton University HS eForm~

It has determined that as per policy, Creighton University may rely on Xavier University IRB for ethical oversight of this project.

You have satisfied all the conditions required by the Creighton University Institutional External Review policy and therefore you may proceed with this study without Creighton University IRB oversight. It is noted that this is an Exempt study that, per policy, does not require a reliance agreement with Xavier University IRB.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the IRB Office at 402-280-2126 or email at irb@creighton.edu. Please include your project title and number in all correspondence with this committee.

Institutional Review Board
т 402.280.2126 | т 402.280.3200
Dr. C.C. and Mabel L. Criss Health Sciences Complex I
2500 California Plaza Omaha, NE 68178

creighton.edu
creighton.edu/researchservices/rcocommittees/irb

Appendix J

Queen City Angels Permission to Recruit Approval Letter

February 6, 2020

Dawn M. Tolonen
Xavier University
3718 Saint Francis Xavier Way
338 Smith Hall
Cincinnati, OH 45207

Dear Dawn M. Tolonen:

I have reviewed your research proposal and grant permission for you to recruit angel investor members of Queen City Angels for the purpose of completing an online survey for your research, Manna from Heaven: Investigating the Gift of Resources from Business Angels.

We look forward to hearing the results of your study.

Thank you!

Best regards,

Scott Jacobs
Executive Director
Queen City Angels
sjacobs@qca.com
+1.513.373.6972

References

Aernoudt, R. (1999). Business angels: Should they fly on their own wings? *Venture Capital*, *1*(2), 187–195. https://doi.org/10.1080/136910699295965

Aernoudt, R. (2005). Executive forum: Seven ways to stimulate business angels' investments. *Venture Capital*, *7*(4), 359–371. https://doi.org/10.1080/13691060500120853

Ahlers, G. K. C., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, *39*(4), 955–980. https://doi.org/10.1111/etap.12157

Aldrich, H. E., & Zimmer, C. (1986). Entrepreneurship through social networks. In *The art and science of entrepreneurship* (pp. 3–23). Ballinger.

Alsos, G. A., Isaksen, E. J., & Ljunggren, E. (2006). New venture financing and subsequent business growth in men- and women-led businesses. *Entrepreneurship Theory and Practice*, *30*(5), 667–686. https://doi.org/10.1111/j.1540-6520.2006.00141.x

Alvarez, S. A., & Barney, J. B. (2005). How do entrepreneurs organize firms under conditions of uncertainty? *Journal of Management*, *31*(5), 776–793. https://doi.org/10.1177/0149206305279486

Amatucci, F. M., & Sohl, J. E. (2004). Women entrepreneurs securing business angel financing: Tales from the field. *Venture Capital*, *6*(2/3), 181–196. https://doi.org/10.1080/1369106042000223579

Amis, D., & Stevenson, H. H. (2001). *Winning angels: The seven fundamentals of early-stage investing*. Pearson Education.

Anderson, J. C., & Gerbing, D. W. (1991). Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology*, *76*(5), 732.

Annual survey of entrepreneurs, 2016. (2018). [Data set]. U.S. Census Bureau. https://www.census.gov/programs-surveys/ase.html

Argerich, J., Hormiga, E., & Valls-Pasola, J. (2013). Financial services support for entrepreneurial projects: Key issues in the business angels investment decision process. *Service Industries Journal*, *33*(9–10), 806–819. https://doi.org/10.1080/02642069.2013.719891

Ashta, A., Cabraal, A., & Dayson, K. (2017). Love money. In *Encyclopedia of creativity, invention, innovation and entrepreneurship* (pp. 1–5). Springer New York. https://doi.org/10.1007/978-1-4614-6616-1_230-2

Audet, J., & Couteret, P. (2012). Coaching the entrepreneur: Features and success factors. *Journal of Small Business and Enterprise Development*, *19*(3), 515–531. https://doi.org/10.1108/14626001211250207

Balachandra, L., Briggs, T., Eddleston, K., & Brush, C. G. (2019). Don't pitch like a girl!: How gender stereotypes influence investor decisions. *Entrepreneurship Theory and Practice*, *43*(1), 116–137. https://doi.org/10.1177/1042258717728028

Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 32.

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

Baron, R. A., Markman, G. D., & Bollinger, M. (2006). Exporting social psychology: Effects of attractiveness on perceptions of entrepreneurs, their ideas for new products, and their financial success. *Journal of Applied Social Psychology*, *36*(2), 467–492. https://doi.org/10.1111/j.0021-9029.2006.00015.x

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. *Quarterly Journal of Economics*, *112*(2), 537–579.

Baty, G., & Sommer, B. (2002). True then, true now: A 40-year perspective on the early stage investment market. *Venture Capital*, *4*(4), 289–293. https://doi.org/10.1080/1369106022000024914

Baum, J. A. C., & Silverman, B. S. (2004). Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups. *Journal of Business Venturing*, *19*(3), 411–436. https://doi.org/10.1016/S0883-9026(03)00038-7

Baum, J. R., Locke, E. A., & Smith, K. G. (2001). A multidimensional model of venture growth. *The Academy of Management Journal*, *44*(2), 292.

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, *98*(5), 893–921. https://doi.org/10.1086/261712

Becker-Blease, J. R., & Sohl, J. E. (2007). Do women-owned businesses have equal access to

angel capital? *Journal of Business Venturing*, *22*(4), 503–521.

https://doi.org/10.1016/j.jbusvent.2006.06.003

Bengtsson, O., & Hsu, D. H. (2015). Ethnic matching in the U.S. venture capital market. *Journal*

of Business Venturing, *30*(2), 338–354. https://doi.org/10.1016/j.jbusvent.2014.09.001

Benjamin, G. A., & Margulis, J. B. (1999). *Angel financing: How to find and invest in private*

equity (Vol. 75). John Wiley & Sons.

Bigelow, L., Lundmark, L., McLean Parks, J., & Wuebker, R. (2014). Skirting the issues:

Experimental evidence of gender bias in IPO prospectus evaluations. *Journal of*

Management, *40*(6), 1732–1759. https://doi.org/10.1177/0149206312441624

Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.

Bonini, S., Capizzi, V., & Zocchi, P. (2019). The performance of angel-backed companies.

Journal of Banking & Finance, *100*, 328–345.

https://doi.org/10.1016/j.jbankfin.2018.12.006

Bosma, N., Hill, S., Ionescu-Somers, A., Kelly, D., Levie, J., & Tarnawa, A. (2020). *GEM*

global entrepreneurship monitor: 2019/2020 global report. Global Entrepreneurship

Monitor. https://www.gemconsortium.org/report/gem-2019-2020-global-report

Brass, D. J. (1985). Men's and women's networks: A study of interaction patterns and influence

in an organization. *The Academy of Management Journal*, *28*(2), 327.

Brooks, A. W., Huang, L., Kearney, S. W., & Murray, F. E. (2014). Investors prefer

entrepreneurial ventures pitched by attractive men. *Proceedings of the National Academy*

of Sciences, *111*(12), 4427–4431. https://doi.org/10.1073/pnas.1321202111

Brown, R., & Mason, C. M. (2017). Looking inside the spiky bits: A critical review and conceptualisation of entrepreneurial ecosystems. *Small Business Economics*, *49*(1), 11–30. https://doi.org/10.1007/s11187-017-9865-7

Bruni, A., Gherardi, S., & Poggio, B. (2004). *Gender and entrepreneurship: An ethnographic approach*. Routledge.

Brush, C. G., Carter, N. M., Greene, P. G., Hart, M. M., & Gatewood, E. (2002). The role of social capital and gender in linking financial suppliers and entrepreneurial firms: A framework for future research. *Venture Capital*, *4*(4), 305–323. https://doi.org/10.1080/1369106022000024897

Brush, C. G., Greene, P. G., Balachandra, L., & Davis, A. E. (2014). *Diana report women entrepreneurs 2014: Bridging the gender gap in venture capital*. Arthur M. Blank Center for Entrepreneurship at Babson College.

Brush, C. G., Greene, P. G., & Hart, M. M. (2001). From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. *Academy of Management Perspectives*, *15*(1), 64–78. https://doi.org/10.5465/AME.2001.4251394

Bryan, K. A., Tilcsik, A., & Zhu, B. (2017). Which entrepreneurs are coachable and why? *American Economic Review*, *107*(5), 312–316. https://doi.org/10.1257/aer.p20171010

Burt, R. S. (1998). The gender of social capital. *Rationality and Society*, *10*(1), 5–46.

Busenitz, L. W., Fiet, J. O., & Moesel, D. D. (2005). Signaling in venture capitalist—New venture team funding decisions: Does it indicate long-term venture outcomes? *Entrepreneurship Theory and Practice*, 12.

Cantillon, R. (1959). *Essay on the nature of general commerce (Reprinted from essai sur la nature du commerce en général, 1755)* (H. Higgs, Trans.). Frank Cass and Company LTD.

Cardon, M. S., Glauser, M., & Murnieks, C. Y. (2017). Passion for what? Expanding the domains of entrepreneurial passion. *Journal of Business Venturing Insights*, *8*, 24–32. https://doi.org/10.1016/j.jbvi.2017.05.004

Cardon, M. S., Gregoire, D. A., Stevens, C. E., & Patel, P. C. (2013). Measuring entrepreneurial passion: Conceptual foundations and scale validation. *Journal of Business Venturing*, *28*(3), 373–396. https://doi.org/10.1016/j.jbusvent.2012.03.003

Cardon, M. S., & Kirk, C. P. (2015). Entrepreneurial passion as mediator of the self-efficacy to persistence relationship. *Entrepreneurship Theory and Practice*, *39*(5), 1027–1050. https://doi.org/10.1111/etap.12089

Cardon, M. S., & Stevens, C. E. (2009). The discriminant validity of entrepreneurial passion. *Academy of Management Annual Meeting Proceedings*, *2009*(1), 1–6. https://doi.org/10.5465/AMBPP.2009.44244277

Cardon, M. S., Sudek, R., & Mitteness, C. R. (2009). The impact of perceived entrepreneurial passion on angel investing. *Frontiers of Entrepreneurship Research*, *29*(2), 16.

Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. (2009). The nature and experience of entrepreneurial passion. *The Academy of Management Review*, *34*(3), 511–532. https://doi.org/10.2307/27760017

Carpenter, R. E., & Petersen, B. C. (2002). Is the growth of small firms constrained by internal finance? *Review of Economics and Statistics*, *84*(2), 298–309. https://doi.org/10.1162/003465302317411541

Carter, S., & Rosa, P. (1998). The financing of male– and female–owned businesses. *Entrepreneurship and Regional Development*, *10*(3), 225–242. https://doi.org/10.1080/08985629800000013

Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior*, *29*(6), 2156–2160. https://doi.org/10.1016/j.chb.2013.05.009

Cassar, G. (2010). Are individuals entering self-employment overly optimistic? An empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal*, *31*(8), 822–840. https://doi.org/10.1002/smj.833

Chaganti, R., DeCarolis, D., & Deeds, D. (1996). Predictors of capital structure in small ventures. *Entrepreneurship Theory and Practice*, *20*(2), 7–18. https://doi.org/10.1177/104225879602000202

Chen, W., Tan, J., & Tu, F. (2015). Minding the gender gap: Social network and internet correlates of business performance among Chinese immigrant entrepreneurs. *American Behavioral Scientist*, *59*(8), 977–991. https://doi.org/10.1177/0002764215580609

Chen, X.-P., Yao, X., & Kotha, S. (2009). Entrepreneur passion and preparedness in business plan presentations: A persuasion analysis of venture capitalists' funding decisions. *Academy of Management Journal*, *52*(1), 199–214. https://doi.org/10.5465/amj.2009.36462018

Ciuchta, M. P., Letwin, C., Stevenson, R., McMahon, S., & Huvaj, M. N. (2018). Betting on the coachable entrepreneur: Signaling and social exchange in entrepreneurial pitches.

Entrepreneurship Theory and Practice.

https://doi.org/doi.org/10.1177/1042258717725520

Coad, A., Frankish, J. S., Roberts, R. G., & Storey, D. J. (2016). Predicting new venture survival

and growth: Does the fog lift? *Small Business Economics*, *47*(1), 217–241.

https://doi.org/10.1007/s11187-016-9713-1

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of

a measure. *Journal of Applied Psychology*, *86*(3), 386.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review

and assessment. *Journal of Management*, *37*(1), 39–67.

https://doi.org/10.1177/0149206310388419

Croce, A., Guerini, M., & Ughetto, E. (2018). Angel financing and the performance of high-tech

start-ups. *Journal of Small Business Management*, *56*(2), 208–228.

https://doi.org/10.1111/jsbm.12250

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review.

Journal of Management, *31*(6), 874–900. https://doi.org/10.1177/0149206305279602

Cumming, D., Deloof, M., Manigart, S., & Wright, M. (2019). New directions in entrepreneurial

finance. *Journal of Banking & Finance*, *100*, 252–260.

https://doi.org/10.1016/j.jbankfin.2019.02.008

Cumming, D., & Johan, S. A. (2013). *Venture capital and private equity contracting: An

international perspective*. Academic Press.

Dahling, J. J., Whitaker, B. G., & Levy, P. E. (2009). The development and validation of a new

Machiavellianism scale. *Journal of Management*, *35*(2), 219–257.

https://doi.org/10.1177/0149206308318618

154

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent

    entrepreneurs. *Journal of Business Venturing*, *18*(3), 301–331.

    https://doi.org/10.1016/S0883-9026(02)00097-6

De Clercq, D., Fried, V. H., Lehtonen, O., & Sapienza, H. J. (2006). An entrepreneur's guide to

    the venture capital galaxy. *Academy of Management Perspectives*, *20*(3), 90–112.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review*

    of Psychology, *41*(1), 417. https://doi.org/10.1146/annurev.ps.41.020190.002221

Dimotakis, N., Conlon, D. E., & Ilies, R. (2012). The mind and heart (literally) of the negotiator:

    Personality and contextual determinants of experiential reactions and economic outcomes

    in negotiation. *Journal of Applied Psychology*, *97*(1), 183–193.

    https://doi.org/10.1037/a0025706

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders.

    Psychological Review, *109*(3), 573–98. https://doi.org/10.1037//0033-295X.109.3.573

Eddleston, K. A., Ladge, J. J., Mitteness, C. R., & Balachandra, L. (2016). Do you see what I

    see? Signaling effects of gender and firm characteristics on financing entrepreneurial

    ventures. *Entrepreneurship Theory and Practice*, *40*(3), 489–514.

    https://doi.org/10.1111/etap.12117

Edelman, L. F., Donnelly, R., Manolova, T., & Brush, C. G. (2018). Gender stereotypes in the

    angel investment process. *International Journal of Gender and Entrepreneurship*, *10*(2),

    134–157. http://dx.doi.org/10.1108/IJGE-12-2017-0078

Evans, A. M., & Revelle, W. (2008). Survey and behavioral measurements of interpersonal trust.

    Journal of Research in Personality, *42*(6), 1585–1593.

    https://doi.org/10.1016/j.jrp.2008.07.011

155

Fairlie, R., Desai, S., & Hermann, A. J. (2019). *2017 National report on early-stage entrepreneurship* (Kauffman Indicators of Entrepreneurship). Ewing Marion Kauffman Foundation.

Farrell, E., Howorth, C., & Wright, M. (2008). A review of sampling and definitional issues in informal venture capital research. *Venture Capital*, *10*(4), 331–353. https://doi.org/10.1080/13691060802151986

Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology*, *39*(2), 291–314. https://doi.org/10.1111/j.1744-6570.1986.tb00583.x

Freear, J., Sohl, J. E., & Wetzel Jr., W. E. (1995). Angels: Personal investors in the venture capital market. *Entrepreneurship & Regional Development*, *7*(1), 85–94.

Frid, C. J., Wyman, D. M., & Coffey, B. (2016). Effects of wealth inequality on entrepreneurship. *Small Business Economics*, *47*(4), 895–920. https://doi.org/10.1007/s11187-016-9742-9

Gompers, P. A., Mukharlyamov, V., Weisburst, E., & Xuan, Y. (2014). Gender effects in venture capital. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2445497

Gompers, P. A., Mukharlyamov, V., & Xuan, Y. (2016). The cost of friendship. *Journal of Financial Economics*, *119*(3), 626–644. https://doi.org/10.1016/j.jfineco.2016.01.013

Gompers, P. A., & Wang, S. (2017). *Diversity in innovation* (No. w23082). National Bureau of Economic Research. https://doi.org/10.3386/w23082

Greenberg, J., & Mollick, E. (2015). Leaning in or leaning on? Gender, homophily, and activism in crowdfunding. *Academy of Management Proceedings*, *2015*(1), 18365. https://doi.org/10.5465/ambpp.2015.18365abstract

Greenberg, J., & Mollick, E. (2017). Activist choice homophily and the crowdfunding of female founders. *Administrative Science Quarterly*, *62*(2), 341–374. https://doi.org/10.1177/0001839216678847

Greene, P. G., Brush, C. G., Hart, M. M., & Saparito, P. (2001). Patterns of venture capital funding: Is gender a factor? *Venture Capital*, *3*(1), 63–83. https://doi.org/10.1080/136910601300050357

Guillies, W., Hwang, V., & Omadeke, J. (2018, February 28). *Breaking barriers: The voice of entrepreneurs*. 2018 State of Entrepreneurship Address, Ewing Marion Kauffman Foundation. https://www.kauffman.org/-/media/kauffman_org/entrepreneurship-landing-page/kauffmanfoundationnationalpolicysurveyofentrepreneursd22618.pdf?la=en

Gupta, V. K., Goktan, A. B., & Gunay, G. (2014). Gender differences in evaluation of new business opportunity: A stereotype threat perspective. *Journal of Business Venturing*, *29*(2), 273–288. https://doi.org/10.1016/j.jbusvent.2013.02.002

Guzman, J., & Kacperczyk, A. O. (2019). Gender gap in entrepreneurship. *Research Policy*, *48*(7), 1666–1680. https://doi.org/10.1016/j.respol.2019.03.012

Hanna, S. D., & Lindamood, S. (2004). An improved measure of risk aversion. *Journal of Financial Counseling and Planning*, *15*(2), 27–45.

Harrison, R. T., & Mason, C. M. (1992). *The role of investors in entrepreneurial companies: A comparison of informal investors and venture capitalists*. University of Southampton, Urban Policy Research Unit.

Harrison, R. T., & Mason, C. M. (1999). Backing the horse or the jockey? Information and the evaluation of risk by business angels. *Venture Finance Working Paper*, *18*.

Harrison, R. T., & Mason, C. M. (2007). Does gender matter? Women business angels and the supply of entrepreneurial finance. *Entrepreneurship Theory and Practice*, 28.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*(4), 408–420. https://doi.org/10.1080/03637750903310360

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis, second edition: A regression-based approach*. Guilford Publications.

Hellmann, T. (2000). Venture capitalists: The coaches of Silicon Valley. In *The Silicon Valley Edge* (Vol. 113, pp. 276–294). http://www.tandfonline.com/doi/abs/10.1080/00036840802600079

Herkenhoff, K., Phillips, G., & Cohen-Cole, E. (2016). *The impact of consumer credit access on employment, earnings and entrepreneurship* (No. w22846). National Bureau of Economic Research. https://doi.org/10.3386/w22846

Hinchliffe, E. (2019, January 28). *Funding for female founders stalled at 2.2% of VC dollars in 2018*. Fortune.Com. https://fortune.com/2019/01/28/funding-female-founders-2018/

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967–988. https://doi.org/10.1177/014920639502100509

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104–121. https://doi.org/10.1177/109442819800100106

Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods*, *2*(2), 175–186. https://doi.org/10.1177/109442819922004

Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, *63*(6), 597–606. https://doi.org/10.1086/222355

Hoyos-Iruarrizaga, J., Fernández-Sainz, A., & Saiz-Santos, M. (2017). High value-added business angels at post-investment stages: Key predictors. *International Small Business Journal: Researching Entrepreneurship*, *35*(8), 949–968. https://doi.org/10.1177/0266242616686401

Hsu, D. K., Simmons, S. A., & Wieland, A. M. (2017). Designing entrepreneurship experiments. *Organizational Research Methods*, *20*(3), 379–412. https://doi.org/10.1177/1094428116685613

Huang, L., & Knight, A. P. (2017). Resources and relationships in entrepreneurship: An exchange theory of the development and effects of the entrepreneur-investor relationship. *Academy of Management Review*, *42*(1), 80–102. https://doi.org/10.5465/amr.2014.0397

Huang, L., Wu, A., Lee, M. J., & Bao, J. (2017). *The American angel* (No. 1). Angel Capital Association. https://www.theamericanangel.org/

Hwang, V., Desai, S., & Baird, R. (2019). *Access to capital for entrepreneurs: Removing barriers*. Ewing Marion Kauffman Foundation. https://www.kauffman.org/-/media/kauffman_org/entrepreneurship-landing-page/capital-access/capitalreport_042519.pdf

Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *The Academy of Management Review*, *18*(1).

Johnson, M. A., Stevenson, R. M., & Letwin, C. R. (2018). A woman's place is in the... Startup! Crowdfunder judgments, implicit bias, and the stereotype content model. *Journal of Business Venturing*, *33*(6), 813–831. https://doi.org/10.1016/j.jbusvent.2018.04.003

Jones, G. R., & George, J. M. (1998). The experience and evolution of trust: Implications for

    cooperation and teamwork. *The Academy of Management Review*, *23*(3), 531–546.

Kanze, D., Huang, L., Conley, M. A., & Higgins, E. T. (2018). We ask men to win and women

    not to lose: Closing the gender gap in startup funding. *Academy of Management Journal*,

    61(2), 586–614. https://doi.org/10.5465/amj.2016.1215

Kees, J., Berry, C., Burton, S., & Sheehan, K. (2017). An analysis of data quality: Professional

    panels, student subject pools, and Amazon's Mechanical Turk. *Journal of Advertising*,

    46(1), 141–155. https://doi.org/10.1080/00913367.2016.1269304

Kelley, D. J., Baumer, B. S., Brush, C. G., Greene, P. G., Mahdavi, M., Majbouri, M., Cole, M.,

    Dean, M., & Heavlow, R. (2017). *Global Entrepreneurship Monitor woman's*

    entrepreneurship 2016/2017 report. Babson College.

Kenton, W. (2018, March 23). *Introduction to deal flow*. Investopedia.

    https://www.investopedia.com/terms/d/dealflow.asp

Kerr, W. R., Lerner, J., & Schoar, A. (2014). The consequences of entrepreneurial finance:

    Evidence from angel financings. *Review of Financial Studies*, *27*(1), 20–55.

    https://doi.org/10.1093/rfs/hhr098

Kirzner, I. M. (1979). *Perception, opportunity, and profit: Studies in the theory of*

    entrepreneurship. University of Chicago press.

Knauss, D. T., Edwards, G., & Williams, R. (2017). *Halo report annual report on angel*

    investments. Angel Resource Institute.

Kobe, K., & Schwinn, R. (2018). *Small business GDP, 1998–2014*.

    https://cdn.advocacy.sba.gov/wp-content/uploads/2018/12/21060437/Small-Business-

    GDP-1998-2014.pdf

160

Kotha, R., & George, G. (2012). Friends, family, or fools: Entrepreneur experience and its implications for equity distribution and resource mobilization. *Journal of Business Venturing*, *27*(5), 525–543. https://doi.org/10.1016/j.jbusvent.2012.02.001

Kutzhanova, N., Lyons, T. S., & Lichtenstein, G. A. (2009). Skill-based development of entrepreneurs and the role of personal and peer group coaching in enterprise development. *Economic Development Quarterly*, *23*(3), 193–210. https://doi.org/10.1177/0891242409336547

Kuwabara, K., & Thébaud, S. (2017). When beauty doesn't pay: Gender and beauty biases in a peer-to-peer loan market. *Social Forces*, *95*(4), 1371–1398. https://doi.org/10.1093/sf/sox020

Kwapisz, A., & Hechavarria, D. M. (2018). Women don't ask: An investigation of start-up financing and gender. *Venture Capital*, *20*(2), 159–190.

Large, D., & Muegge, S. (2008). Venture capitalists' non-financial value-added: An evaluation of the evidence and implications for research. *Venture Capital*, *10*(1), 21–53. https://doi.org/10.1080/13691060701605488

Lazarsfeld, P. F., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. *Freedom and Control in Modern Society*, *18*(1), 18–66.

Lee, M., & Huang, L. (2018). Gender bias, social impact framing, and evaluation of entrepreneurial ventures. *Organization Science*, *29*(1), 1–16. https://doi.org/10.1287/orsc.2017.1172

Leitch, C. M., & Hill, F. M. (2006). Women and the financing of entrepreneurial ventures: More pieces for the jigsaw (Guest editorial). *Venture Capital*, *8*(2), 89–92.

161

Lenz, K., & Aspan, M. (2018). *Exclusive report: Hundreds of female founders speak out on ambition, politics, and #MeToo*. Inc.com and Fast Company. https://www.inc.com/women-entrepreneurship-report/index.html

Lerner, J., Schoar, A., Sokolinski, S., & Wilson, K. (2018). The globalization of angel investments: Evidence across countries. *Journal of Financial Economics*, *127*(1), 1–20. https://doi.org/10.1016/j.jfineco.2017.05.012

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135–172.

Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior Research Methods*, *47*(4), 1122–1135. https://doi.org/10.3758/s13428-014-0532-5

Macht, S. A. (2011). Inexpert business angels: How even investors with 'nothing to add' can add value. *Strategic Change*, *20*(7–8), 269–278. https://doi.org/10.1002/jsc.900

MacMillan, I. C., Siegel, R., & Narasimha, P. N. S. (1985). Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business Venturing*, *1*(1), 119–128. https://doi.org/10.1016/0883-9026(85)90011-4

Madill, J. J., Haines, J., George H., & Riding, A. L. (2005). The role of angels in technology SMEs: A link to venture capital. *Venture Capital*, *7*(2), 107–129. https://doi.org/10.1080/1369106042000316341

Mason, C. M. (2006). Informal sources of venture finance. In S. Parker (Ed.), *The life cycle of entrepreneurial ventures* (Vol. 3, pp. 259–299). Springer US. https://doi.org/10.1007/978-0-387-32313-8_10

Mason, C. M., & Harrison, R. T. (1996). Informal venture capital: A study of the investment

process, the post-investment experience and investment performance. *Entrepreneurship*

& Regional Development, *8*(2), 105–126. https://doi.org/10.1080/08985629600000007

Mason, C. M., & Harrison, R. T. (2000). The size of the informal venture capital market in the

United Kingdom. *Small Business Economics*, *15*(2), 137–148.

https://doi.org/10.1023/A:1008143713722

Mason, C. M., & Harrison, R. T. (2002). Barriers to investment in the informal venture capital

sector. *Entrepreneurship & Regional Development*, *14*(3), 271–287.

https://doi.org/10.1080/08985620210142011

Mason, C. M., & Harrison, R. T. (2008). Measuring business angel investment activity in the

United Kingdom: A review of potential data sources. *Venture Capital*, *10*(4), 309–330.

Mason, C. M., & Stark, M. (2004). What do investors look for in a business plan?: A comparison

of the investment criteria of bankers, venture capitalists and business angels.

International Small Business Journal: Researching Entrepreneurship, *22*(3), 227–248.

https://doi.org/10.1177/0266242604042377

Maxwell, A. L., Jeffrey, S. A., & Lévesque, M. (2011). Business angel early stage decision

making. *Journal of Business Venturing*, *26*(2), 212–225.

https://doi.org/10.1016/j.jbusvent.2009.09.002

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of

the measurement of interpersonal attraction and homophily. *Communication Quarterly*,

54(1), 1–31.

McPherson, J. M., & Smith-Lovin, L. (1987). Homophily in voluntary organizations: Status distance and the composition of face-to-face groups. *American Sociological Review*, *52*(3), 370.

McPherson, J. M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415. https://doi.org/10.1146/annurev.soc.27.1.415

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437–455. https://doi.org/10.1037/a0028085

Mijid, N. (2015). Why are female small business owners in the United States less likely to apply for bank loans than their male counterparts? *Journal of Small Business and Entrepreneurship*, *27*(2), 229–249.

Milanov, H., Justo, R., & Bradley, S. W. (2015). Making the most of group relationships: The role of gender and boundary effects in microcredit groups. *Journal of Business Venturing*, *30*(6), 822–838. https://doi.org/10.1016/j.jbusvent.2015.04.001

Mitteness, C. R., Cardon, M. S., & Sudek, R. (2010). The importance angels place on passion when making investment decisions: Why does it matter to some and not all angels? *Frontiers of Entrepreneurship Research*, *30*(2), 2.

Mitteness, C. R., Sudek, R., & Baucus, M. S. (2010). Entrepreneurs as authentic transformational leaders: Critical behaviors for gaining angel capital. *Frontiers of Entrepreneurship Research*, *30*(5), 17.

Mitteness, C. R., Sudek, R., & Cardon, M. S. (2012). Angel investor characteristics that determine whether perceived passion leads to higher evaluations of funding potential.

Journal of Business Venturing, *27*(5), 592–606.

https://doi.org/10.1016/j.jbusvent.2011.11.003

Molm, L. D., Takahashi, N., & Peterson, G. (2000). Risk and trust in social exchange: An

experimental test of a classical proposition. *American Journal of Sociology*, *105*(5), 1396.

Mueller, R. O., & Hancock, G. R. (2001). Factor analysis and latent structure, confirmatory. In

N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social &

Behavioral Sciences* (pp. 5239–5244). Pergamon. https://doi.org/10.1016/B0-08-043076-

7/00426-5

Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). McGraw-Hill.

Orser, B. J., Riding, A. L., & Manley, K. (2006). Women entrepreneurs and financial capital.

Entrepreneurship Theory and Practice, 23.

Paul, S., Whittam, G., & Wyper, J. (2007). Towards a model of the business angel investment

process. *Venture Capital*, *9*(2), 107–125. https://doi.org/10.1080/13691060601185425

Plagmann, C., & Lutz, E. (2019). Beggars or choosers? Lead venture capitalists and the impact

of reputation on syndicate partner selection in international settings. *Journal of Banking

& Finance*, *100*, 359–378. https://doi.org/10.1016/j.jbankfin.2019.01.007

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational

leader behaviors and their effects on followers' trust in leader, satisfaction, and

organizational citizenship behaviors. *Leadership Quarterly*, *1*(2), 107–142.

Politis, D. (2008). Business angels and value added: What do we know and where do we go?

Venture Capital, *10*(2), 127–147. https://doi.org/10.1080/13691060801946147

Politis, D., & Landström, H. (2002). Informal investors as entrepreneurs—The development of an entrepreneurial career. *Venture Capital*, *4*(2), 78–101. https://doi.org/10.1080/13691060210816

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, *68*(3), 79–91.

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, *41*(1), 203–212.

Riding, A. L., & Swift, C. S. (1990). Women business owners and terms of credit: Some empirical findings of the Canadian experience. *Journal of Business Venturing*, *5*(5), 327–340. https://doi.org/10.1016/0883-9026(90)90009-I

Ross, S. (n.d.). *How is venture capital regulated by the government?* Investopedia. Retrieved July 2, 2019, from https://www.investopedia.com/ask/answers/013015/how-venture-capital-regulated-government.asp

Schumpeter, J. A. (1942). Capitalism, socialism, and democracy. In *Capitalism, socialism, and democracy* (Vol. 3). Harper. https://doi.org/10.4324/9780203202050

Schwartz, E. B. (1976). Entrepreneurship-new female frontier. *Journal of Contemporary Business*, *5*(1), 47–76.

Securities Act of 1933, 17 Electronic Code of Federal Regulations § 230.501 (1933). https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=8edfd12967d69c024485029d968ee737&r=SECTION&n=17y3.0.1.1.12.0.46.176

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Wadsworth/Cengage Learning.

Shane, S. and Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, *25*(1), 217–226. https://doi.org/10.5465/AMR.2000.2791611

Short, J. C., Ketchen, D. J., Jr., Combs, J. G., & Ireland, R. D. (2010). Research methods in entrepreneurship opportunities and challenges. *Organizational Research Methods*, *13*(1), 6–15. https://doi.org/10.1177/1094428109342448

Simon, H. A. (1959). Theories of decision-making in economics and behavioral science. *The American Economic Review*, *49*(3), 32.

Singleton, R., Straits, B. C., Straits, M. M., & McAllister, R. J. (1988). *Approaches to social research*. Oxford University Press.

Small business credit survey: Report on employer firms 2019. (2019). Federal Reserve Bank. https://www.fedsmallbusiness.org/medialibrary/fedsmallbusiness/files/2019/sbcs-employer-firms-report.pdf

Sohl, J. E. (2012). The changing nature of the angel market. In *The handbook of research on venture capital* (pp. 17–41).

Sohl, J. E. (2019). *The angel market in 2018: More angels investing in more deals at lower valuations*. Center for Venture Research.

Solal, I. (2019). *The gender of money: How gender structures the market for entrepreneurial capital* (SSRN Scholarly Paper ID 3374926). Social Science Research Network. https://papers.ssrn.com/abstract=3374926

167

Spence, M. (1978). Job market signaling. In *Uncertainty in economics* (Vol. 355, pp. 281–306).
Academic Press.

Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why
experiments are often more effective than mediational analyses in examining
psychological processes. *Journal of Personality and Social Psychology*, *89*(6), 845–851.
https://doi.org/10.1037/0022-3514.89.6.845

Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship
Theory and Practice*, *41*(1), 49–72. https://doi.org/10.1111/etap.12167

Spigel, B., & Harrison, R. (2018). Toward a process theory of entrepreneurial ecosystems.
Strategic Entrepreneurship Journal, *12*(1), 151–168. https://doi.org/10.1002/sej.1268

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique.
European Planning Studies, *23*(9), 1759–1769.
https://doi.org/10.1080/09654313.2015.1061484

Sudek, R. (2006). Angel investment criteria. *Journal of Small Business Strategy*, *17*(2), 89–104.

Sweeney, D. (2018, August 21). *How HR 5050 changed entrepreneurship for women*. Forbes.
https://www.forbes.com/sites/deborahsweeney/2018/08/21/how-hr-5050-changed-
entrepreneurship-for-women/

Tak, E., Correll, S., & Soule, S. A. (2017). Gender inequality in product markets: When and how
status beliefs transfer to products. *Academy of Management Proceedings*, *2017*(1),
10114. https://doi.org/10.5465/AMBPP.2017.10114abstract

Tenca, F., Croce, A., & Ughetto, E. (2018). Business angels research in entrepreneurial finance:
A literature review and a research agenda. *Journal of Economic Surveys*, *32*(5), 1384–
1413. https://doi.org/10.1111/joes.12224

168

The 2018 state of women-owned businesses report. (2019). American Express.

https://about.americanexpress.com/files/doc_library/file/2018-state-of-women-owned-

businesses-report.pdf

Thébaud, S. (2015). Status beliefs and the spirit of capitalism: Accounting for gender biases in

entrepreneurship and innovation. *Social Forces*, *94*(1), 61–86.

https://doi.org/10.1093/sf/sov042

Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of

the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural

Psychology*, *38*(2), 227–242. https://doi.org/10.1177/0022022106297301

Timmins, R., Flaim, S., Shipley, T., Bolle, E., Angold, E., & Hudson, M. (2018). *ACA angel

funders report*. Angel Capital Association.

Tinkler, J. E., Bunker Whittington, K., Ku, M. C., & Davies, A. R. (2015). Gender and venture

capital decision-making: The effects of technical background and social capital on

entrepreneurial evaluations. *Social Science Research*, *51*, 1–16.

https://doi.org/10.1016/j.ssresearch.2014.12.008

United States small business profile, 2019. (2019). U.S. Small Business Administration Office of

Advocacy. https://cdn.advocacy.sba.gov/wp-content/uploads/2019/04/23142610/2019-

Small-Business-Profiles-States-Territories.pdf

Vallerand, R. J., Blanchard, C., Mageau, G. A., Koestner, R., Ratelle, C., Léonard, M., Gagné,

M., & Marsolais, J. (2003). Les passions de l'âme: On obsessive and harmonious passion.

Journal of Personality and Social Psychology, *85*(4), 756–767.

https://doi.org/10.1037/0022-3514.85.4.756

Van Osnabrugge, M. (2000). A comparison of business angel and venture capitalist investment procedures: An agency theory-based analysis. *Venture Capital*, *2*(2), 91–109. https://doi.org/10.1080/136910600295729

Van Osnabrugge, M., & Robinson, R. J. (2000). *Angel investing: Matching startup funds with startup companies--the guide for entrepreneurs and individual investors*. John Wiley & Sons.

Warnick, B. J., Murnieks, C. Y., McMullen, J. S., & Brooks, W. T. (2018). Passion for entrepreneurship or passion for the product? A conjoint analysis of angel and VC decision-making. *Journal of Business Venturing*, *33*(3), 315–332. https://doi.org/10.1016/j.jbusvent.2018.01.002

Wayne, S. J., & Ferris, G. R. (1990). Influence tactics, affect, and exchange quality in supervisor-subordinate interactions: A laboratory experiment and field study. *Journal of Applied Psychology*, *75*(5), 487–499.

Wetzel, W. E. (1983). Angels and informal risk capital. *Sloan Management Review; Cambridge, Mass.*, *24*(4), 23–34.

Wetzel, W. E. (1987). The informal venture capital market: Aspects of scale and market efficiency. *Journal of Business Venturing*, *2*(4), 299–313. https://doi.org/10.1016/0883-9026(87)90023-1

Wetzel, W. E. (1981). Informal risk capital in New England. In K. H. Vesper (Ed.), *Frontiers of Entrepreneurship Research* (pp. 217–245). Babson College. https://www.babson.edu/academics/centers-and-institutes/the-arthur-m-blank-center-for-entrepreneurship/thought-leadership/babson-college-entrepreneurship-research-conference/frontiers-of-entrepreneurship-research-fer/#

Williams, D. W., Wood, M. S., Mitchell, J. R., & Urbig, D. (2019). Applying experimental methods to advance entrepreneurship research: On the need for and publication of experiments. *Journal of Business Venturing*, *34*(2), 215–223. https://doi.org/10.1016/j.jbusvent.2018.12.003

Wiltbank, R., & Boeker, W. (2007). *Returns to angel investors in groups* (SSRN Scholarly Paper ID 1028592). Social Science Research Network. https://doi.org/10.2139/ssrn.1028592

Yadav, V., & Unni, J. (2016). Women entrepreneurship: Research review and future directions. *Journal of Global Entrepreneurship Research*, *6*(1). https://doi.org/10.1186/s40497-016-0055-x

Yang, T., & Aldrich, H. E. (2014). Who's the boss? Explaining gender inequality in entrepreneurial teams. *American Sociological Review*, *79*(2), 303.

Younkin, P., & Kuppuswamy, V. (2019). Discounted: The effect of founder race on the price of new products. *Journal of Business Venturing*, *34*(2), 389–412.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*(2), 197–206. https://doi.org/10.1086/651257

171