Marketing Science Institute Working Paper Series 2021

Report No. 21-100

Does Having a Marketing and Sales Co-Founder Increase the Likelihood of a Start-up Firm Obtaining an External Investment?

Ofer Mintz, Peter Lenk, and Yitong Wang

Does Having a Marketing and Sales Co-Founder Increase the Likelihood of a Start-up Firm Obtaining an External Investment?

Ofer Mintz

Peter Lenk

Yitong Wang*

September 2019

***** Ofer Mintz (Ofer.Mintz@uts.edu.au) is Senior Lecturer and Associate Head (External Engagement) of the Marketing Department at the UTS Business School, University of Technology Sydney, Sydney, Australia 2024. Peter Lenk (plenk@umich.edu) is Professor of Technology & Operations and Marketing, Ross School of Business, University of Michigan, Ann Arbor, MI, USA 48109. Yitong Wang (Yitong.Wang@uts.edu.au) is Senior Lecturer, UTS Business School, University of Technology Sydney, Sydney, Australia 2024. The authors are grateful to the UTS Business and Marketing Department Research Grants for their generous financial support.

Does Having a Marketing and Sales Co-Founder Increase the Likelihood of a Start-up Firm Obtaining an External Investment?

Abstract

For start-up firms to survive and grow, obtaining external financing is critical. Prior research identifies start-up firms' founding team backgrounds as a key determining factor of obtaining external financing. However, little is known on whether possessing certain types of functional backgrounds, over other types of functional backgrounds, impacts start-up firms' likelihood of obtaining external financing. In this paper, we take a marketing perspective and propose a conceptual model based on signaling theory to examine whether start-up firms with a co-founder with a marketing and sales functional background are preferred and more likely to gain an external investment over other types of functional backgrounds. Further, we propose that such preferences for founder functional backgrounds differs for entrepreneurs and investors, and based on their amount of experience. To empirically test our conceptual model, we collect data on 8,100 decisions made by 224 investors and 226 entrepreneurs in choice based conjoint decision tasks. Our analysis finds support of the proposed conceptual model and offers important implications for theory and start-up firm practices.

Keywords: *start-up firms; entrepreneurship; new ventures; marketing-finance interface;*

choice based conjoint analysis;

"What do you need to start a business? Three simple things: know your product better than anyone, know your customer, and have a burning desire to succeed." – Dave Thomas, founder, Wendy's

Imagine you are an investor or entrepreneur deciding whether to invest in a number of high-technology start-up firms competing in the same industry. Due to the risky nature of investing in start-up firms, where nearly 90% of all start-up firms end in some type of failure (Patel 2015), the most important attribute of the start-up firm for you is the start-up's likelihood of achieving rapid-growth in the near future (Hand 2005). Further, traditional financial methods used to assess the growth prospects of more mature firms are less effective, as start-up firms have little quantifiable history and possess less reliable information on their financials, customer base, and potential market size and growth (Bernstein, Korteweg, and Laws 2017). Therefore, to make your start-up firm investment decisions, you need to rely on a prominent and easily observable trait of the start-up firms foci and strategic direction: the characteristics of their founding team (e.g., Huang and Pearce 2015; Plummer, Allison, and Connelly 2016).

However, you realize that start-up firms only average around three founders in a founding team (Lerner et al. 2018; Wasserman 2012), and resources for typical start-up firms are often constrained to the firms' primary foci based on their co-founder's backgrounds (Shane and Stuart 2002). Thus, you understand that start-up firms' founding teams cannot contain backgrounds of all important functions to the firm, which leaves distinct, observable foci and gaps in the firms' strategic capabilities. For example, if the three co-founders of a start-up firm have backgrounds comprising of science, engineering, and technology (SET), finance and accounting (FA), and general management and consulting (MC), the start-up firm would not have a co-founder whose background is in marketing and sales (MS).

Consequently, this leads to a natural question about your decision: would the functional background composition of the co-founding team matter to your investment decision? More precisely, would a start-up firm having co-founders with a marketing and sales functional

background make it more or less likely that you would invest in this firm in comparison to comparable start-up firms that have co-founders with different functional backgrounds?

For stakeholders of start-up firms who are tasked with screening and investing in start-up firms from a very large pool of start-up firms, this is a particularly relevant question to answer. The main reason is that the composition of the founding team's primary functional backgrounds is likely to provide a directly observable signal about which certain functional capabilities and strategic foci start-up firms possess *but also* likely to provide a directly observable signal about which certain functional capabilities and strategic foci their firms do not possess. Thus, for the start-up firm previously mentioned whose co-founders possess SET, FA, and MC functional backgrounds, this should create a signal that the firm has capabilities in creating innovative products (SET capabilities), obtaining external capital and managing internal risk (FA capabilities), and providing internal structures and procedures to help support such innovative products (MC capabilities), but less an understanding of customers wants and needs (MS capabilities).

Despite prior research demonstrating that venture capitalist (VC)-backed start-up firms with top executives with certain job titles like chief marketing officer (CMO) signal to the market the firms' capabilities in this respective functional area (Homburg et al. 2014), less is known on the comparative effects of the composition of the founding team's professional backgrounds. In addition, previous research in entrepreneurship has focused on how the founding team's education levels, diversity in terms of races and genders, and prior start-up and industry experience can affect start-up firms' profitability and likelihood of obtaining funding (e.g., Beckman 2006; Bernstein, Korteweg, and Laws 2017). However, the types of founder functional background more or less preferred by investors and relevant stakeholders over other functional backgrounds is a less addressed topic.

In this research, we address this gap in knowledge by investigating the comparative effects of the composition of the founding team from a marketing perspective, and examine whether having a founding team member with a marketing and sales background improves the likelihood of a start-up firm obtaining external financing. Based on two dozen interviews conducted with founders and investors of start-up firms and an interdisciplinary review of the various business literatures, we develop a conceptual model that provides underlying rationale for our expectations that the composition of backgrounds of the founding team should matter for start-ups' likelihood of obtaining an investment. Our primary expectation, based on signaling theory, and role and resource legitimacy, is start-up firms with a co-founder that have a MS background are more likely to obtain external investments than firms that do not. This is posited because having a co-founder with a MS background can act as a signal that the start-up firm is trying to understand the wants and needs of its customers and that the firm has adopted a growth and sales focused-strategy, which are vital to the firm's likelihood of ability to produce high levels of return for investors. In contrast, while other backgrounds such as FA or MC are certainly valuable and provide important resources and signals, they also provide more general expertise that can be brought in via new hires later in the firm lifecycle and do not currently provide an understanding of customers or signal a growth focused-strategy. However, based on the literature on top management diversity (e.g., Zimmerman 2008), we also expect that stakeholders value heterogeneity in their start-up founders' backgrounds, so they will be less favorable to start-up firms with multiple co-founders with MS backgrounds but potentially more favorable to certain combinations of co-founder backgrounds which involve one co-founder with a marketing background.

In addition, we add to this framework by considering who is making the investment decision, i.e., entrepreneurs or investors. Based on the cognitive processes perspective (e.g., Spence and Brucks 1997) and insights from our entrepreneur and investor interviews, we

expect preferences on the relative importance of having a co-founder with a MS background relative to other types of functional backgrounds to vary depending on whether the person making the decision is an entrepreneur or investor, and based on the amount of experience the decision maker possess. For example, more experienced professional investors should value MS greater due to direct observations of its importance to the firm in comparison to less experienced professional investors who would be less acquainted with the potential benefits of marketing.

Our empirical approach to test this work's main research questions is to employ a dual-response choice-based conjoint (CBC) analysis series of tasks (e.g., Brazell et al. 2006). In these CBC tasks, we, first, ask respondents to select start-ups they would most prefer to invest in from choice sets of hypothetical firms. Then, we ask respondents to make a binary choice about whether they would actually fund the selected option. Overall, we obtain responses from 226 entrepreneurs and 224 investors (450 overall) who made a total of 8,100 choice decisions. We find MS is the most overall preferred type of start-up co-founder background, but having multiple co-founders with a MS background is detrimental to start-up firms' likelihood of obtaining an investment. In addition, we find that more experienced investors value co-founders with a MS background greater than entrepreneurs. Further, we identify combinations of co-founder backgrounds, such as a founding team comprising of MS, SET, and FA functional backgrounds, which are more or less preferred by our respondents.

The broadest implications of our research to marketing theory and practice is that it enables an assessment of the value of MS relative to other functions such as SET, FA, and MC. Most importantly, by finding that having a co-founder with a MS background is the most preferred functional background for start-up firms, our research provides some evidence demonstrating the value relevance of marketing and sales, even early on for firms who

represent the very beginning or birth of an organization, and whose initial base of knowledge and focus is likely to imprint the start-up's long-term strategic direction. Further, for start-up firms, either their co-founders possess or do not possess certain functional backgrounds. Thus, their co-founder functional backgrounds provide a cleaner signal of the firms' functional competencies or liabilities in comparison to the larger and more mature firms that have a variety of confounding factors which can influence the signal of a firm's functional competency. Consequently, this work provides unique contributions over prior research in the marketing-finance and marketing strategy literature on large and mature firms that investigate the financial consequences of marketing efforts (e.g., Hanssens 2015), marketing's influence in the firm (e.g., Verhoef and Leeflang 2009), and marketing personnel (e.g., Germann, Ebbes, and Grewal 2015).

For practice, our results provide evidence documenting the importance of marketing to start-up firms. This is particularly important because conducting marketing or emphasizing marketing competencies is an afterthought for many start-up firms (Mintz and Lilien 2019) and previous analysis has identified a lack of marketing as a major reason founders believed their start-ups did not survive (Griffith 2014). Consequently, our research adds to the marketing-finance literature on the financial value relevance of marketing, which although has examined marketing for firms in IPO settings (Kurt and Hulland 2013; Luo 2008; Saboo, Chakravarty, and Grewal 2016; Saboo and Grewal 2013; Saboo, Kumar, and Anand 2017; Xiong and Bharadwaj 2011), has focused less on the role of marketing in start-up firms, who almost all operate before such an offering (e.g., U.S. Census Bureau 2017b). Further, our research adds more specifically to the nascent literature on marketing's role in start-up firms that includes Anderson, Chandy, and Zia (2018), who find that providing South African entrepreneurs training in marketing is associated with better financial outcomes than providing them training in finance, and Homburg et al. (2014), who identify conditions in

which having a CMO helps later-stage and much greater resourced venture capitalist backed start-up firms.

Theory

Background

Start-up firms typically compete in high-technology industries like information technology or life sciences (Wasserman 2012), and in order for start-up firms to match their objective of achieving rapid and sustainable growth (Center for American Entrepreneurship 2018), such firms must develop innovative advancements to current product or service offerings (Tzabbar and Margolis 2017). Given the financial capital required to develop innovative advancements to enable associated desired growth, start-up firms in high-technology industries often must seek external financing from investors and other relevant stakeholders (Plummer, Allison, and Connelly 2016).

However, start-up firms typically have a limited or short history for potential investors and stakeholders to assess their quality and value (Gompers 1995). Further, start-up firms have limited assets in place so their financial statements are less relevant and predictive of future success (Huang and Pearce 2015). Consequently, absent traditional track records of success, the value of start-up firms' is generally based on their predicted or expected growth instead of traditional methods used to assess mature firms based on financials (Hand 2005), which results in stakeholders making their investment decisions under significant uncertainty (Huang and Pearce 2015). In addition, potential investors and stakeholders of start-up firms are faced with substantial information asymmetry as start-up firms can choose to disclose or not disclose important unobservable features of their firm (Plummer, Allison, and Connelly 2016). Thus, to reduce their level of uncertainty and information asymmetry, investors and stakeholders of start-up firms typically rely on observable signals associated with start-ups' expected long-term growth (Kirsch, Goldfarb, and Gera 2009).

In Spence's (1973) classical signaling framework, signals are considered valuable when they provide observable cues of quality in order to reduce the decision makers' uncertainty and information asymmetry. As the potential value of start-up firms is typically based on the ideas and capabilities of the start-up firms' founding team members (Hand 2005), an easily observed signal investors and stakeholders rely upon are the characteristics of the start-up firms' founding team (e.g., Plummer, Allison, and Connelly 2016). The underlying reason for this is that the founding teams' experience, roles, and technical expertise each provide indicators of the firms' human capital and capabilities (Homburg et al. 2014). Further, the founding teams organize their firms' structures, processes, and strategic foci based on their own expertise and knowledge, with these initial decisions often creating an imprinting effect that steers the direction of these firms in the future (Beckman and Burton 2008). Consequently, prior research has suggested that the characteristics of the founding team provide signals of both resource and role legitimacy, in that the functional backgrounds of the founding team founding team can signal that the start-up firms possess needed knowledge-based resources, and that the start-up firms emphasize and prioritize such resources in the firm (Higgins and Gulati 2006). For example, start-up firms with a founder with a FA background signal to the marketplace that their firm possess a sufficient understanding of risk and an ability to manage their current limited financial situations (Mian 2001).

However, start-up firms, on average, only have three founding team members (e.g., Lerner et al. 2018; Wasserman 2012), and while they can and typically do add more members to their top management team (TMT), these later additions do not have the same imprinting effect on the strategic direction or provide a signal of operational capabilities as the initial founders (Beckman and Burton 2008). Hence, the backgrounds of the founding team of start-up firms cannot comprise of many different functional backgrounds, but instead provides a setting to investigate whether having a co-founder with a certain type of functional

background will lead to a greater or lesser likelihood to obtaining an investment in comparison to other types of functional backgrounds.

Conceptual Framework

Therefore, based on (i) 24 interviews conducted with start-up founders and investors, (ii) a review of the various business and economic discipline literatures, and (iii) signaling theory and related sub-concepts such as role and resource legitimacy, we expect the composition of functional backgrounds of the founding team to impact the likelihood of start-up firms' obtaining investments. We take a comparative approach and investigate whether the likelihood of obtaining an investment will differ based on the backgrounds of the founding team members. As we are most interested in co-founders with a MS background, we make this our focus, and discuss the pros and cons associated with the signals of having a MS background in comparison to signals provided by co-founders with backgrounds in (i) FA, (ii) MC, and (iii) SET.[1] We assume that each co-founder has one primary functional background, even though as we discuss in the limitations and future research section, co-founders in practice may have overlapping functional skillsets.

Our approach is to discuss, first, the comparative benefits of each type of functional background one-by-one to develop a hypothesis of the relative importance of MS over other functional backgrounds. Second, we describe potential benefits and limitations associated with start-up firms having greater heterogeneity vs. homogeneity in their founding team functional backgrounds, and propose a hypothesis on respondent preferences for start-up firms that have multiple founders with a marketing background. Third, we discuss which combinations of functional backgrounds with marketing will be most preferred.

[1] The size of the founding team and composition of founding team backgrounds were selected based on: (i) a review of most common size of founding team members and most common reported functional backgrounds of founders in start-up firms (Startup Muster 2017; Wasserman 2012), (ii) discussions with a number of start-ups, and (iii) a compromise between including too little types of backgrounds and making the experimental conjoint analysis data collection feasible.

In addition, based on the cognitive processes prospective, which suggests that decision maker's formulate preferences and judgments based on individual backgrounds, perspectives, and experiences (e.g., Spence and Brucks 1997), we discuss why we expect the comparative effects of having a co-founder with a MS background, in comparison to one of the aforementioned backgrounds, to likely differ based on who is making the investment decision or evaluation of the start-up firms, i.e., investors vs. entrepreneurs. Further, the literature on expertise suggests that individuals with greater expertise possess greater amounts of information in memory, recognition of key factors that lead to better or worse decision outcomes, and structures and rules for using such information to obtain success (Perkins and Rao 1990; Sujan, Sujan, and Bettman 1988). Consequently, we discuss why we expect investors and entrepreneurs with greater levels of experience to have different preferences for and against functional backgrounds of founding team members, which should include how the value founders with a MS background relative to other functions.

In our framework, we assume based on prior findings on founding team size (Lerner et al. 2018; Wasserman 2012) that each start-up firm has three founding team members. Our industry of focus is high-tech, i.e., life sciences and information technology, since this industry contains the greatest concentration of start-up firms (Wasserman 2012). To provide baseline high-tech product or service development knowledge, we assume at least one founding team member has a SET functional background and the two other founding team members have one of the four aforementioned backgrounds (i.e., FA, MC, MS, and SET). Consequently, to summarize, we assume for our analysis that each start-up firm has a founding team consisting of three members, with one co-founder with a SET functional background and two additional co-founders that have backgrounds from our four types of functions, with their positions all of equal value (i.e., no one has a higher or lower rank like CEO, COO, etc.).

Hypotheses

Why Founders with Marketing and Sales Background would be Preferred

To begin, start-up firms with a management and consulting (MC) co-founder are expected to signal to the market that they have a better ability to manage the complexity and uncertainty associated with the start-up environment (Datta and Iskandar-Datta 2014). This is an important skillset because, with less available resources, start-up founders often need to possess sufficient skills in many aspects, perform multiple roles for the firm, and be able to manage the flexible and unpredictable nature of start-up firms (Wasserman 2012). Further, start-up firms need co-founders with management skills to be able to provide a strategic vision for the firm as they deal with resource deficiencies, survival challenges, and difficulties with trying to obtain growth (Tzabbar and Margolis 2017). Consequently, it has often been stated that start-up founders need to be "jacks-of-all trades" and have the ability to perform many different types of tasks associated with skillsets that managers with a MC background possess (Lazear 2004).

For start-up firms with a finance and accounting (FA) co-founder, this should signal that their firms are more competent at managing risk, efficiently allocating and creating budgets, and administering lower levels of capital and higher rates of cash burnout (Mian 2001). Hence, firms with founders with a FA background should have a better ability to understand their current financial limitations, recognize current and future risk, and develop formalized financial plans. In addition, start-up firms with a co-founder with a FA background are also likely to signal to potential investors and stakeholders that their firms are devoting greater resources and possess greater skillsets related to targeting and obtaining financing since this is often a primary task of top financial officers in start-up firms (Hoitash, Hoitash, and Kurt 2016). Further, firms with a co-founder with a FA background often have similar backgrounds to potential investors of the firm, and hence, are likely to more easily

convince investors about the quality and potential value of their firms by speaking the same financial language (Higgins and Gulati 2006).

However, as start-up firms are often valued based on the technical capabilities of the firm, and the potential ability of the firm to sustain rapid growth, general skills provided by co-founders with MC or FA backgrounds may be less valued by investors and stakeholders than co-founders with more specialist and technical backgrounds such as science, engineering, and technology (SET) or marketing and sales (MS). Further, the resources and skillsets provided by accounting, finance, and general management may also seem replicable, in that investors perceive that start-up firms will either hire someone to their TMT to handle these responsibilities or is something that the investors can push for themselves. For example, chief financial officers are typically the primary TMT hire that VC's impose on start-up firms after making their investments (e.g., Wasserman 2012).

Hence, firms with additional founding team members with SET backgrounds should signal the firms' technical proficiency in their products or services, as such technical skills are often thought of as critical to start-up firm success (Tzabbar and Margolis 2017). Further, since investors are most interested in start-up firms' capability to achieve high returns (Huang and Pearce 2015), start-ups with multiple founders with an SET background should provide a strong signal to the market that they place a heavy focus and strategic emphasis on novel technological innovations.

Yet, a common cause of start-up firms' failure is their lack of understanding their current and potential customers' wants and needs (Xiong and Bharadwaj 2011). This often leads start-up firms to produce innovative products or services that do not match preferences of customers, which results in customers who are less likely to purchase these products or services, no matter the product's or service's level of innovativeness or usefulness (Wasserman 2012). Consequently, investors and relevant stakeholders are likely to seek a

strong signal from start-up firms regarding its strategic and resource devotion toward understanding customers. This was a point reinforced in our interviews, best exemplified by one prominent investor stating "one thing I see with all successful business is when I talk to the main guy [founders], he is like a PhD in customer behavior."

As understanding customers' behaviors, wants, and needs is one of the core principals of marketing and sales (Saboo, Kumar, and Anand 2017), when start-up firms have a co-founder with a MS background, this should produce an easily observed signal of start-up firms' focus or capability of understanding customers. Further, co-founders with a MS background are likely to leverage their MS capabilities to establish key relationships between the start-up firms and their customers (Palmatier, Dant, and Grewal 2007). As a result, co-founders with a MS background should help start-up firms develop a more satisfied and loyal customer base who engage in repetitive exchanges or purchases with the firms (Ofek, Muller, and Libai 2016).

In addition, by having a co-founder with a MS background, start-up firms should provide a signal of their firms' resource and role focus on sales and growth (Anderson, Chandy, and Zia 2018). For example, start-up firms with a MS co-founder are more likely to utilize their MS skillsets to effectively employ marketing mix and sales methods to try to substantially expand their current customer base in efforts focused on acquiring, satisfying, and retaining an increasing amount of customers (Ofek, Muller, and Libai 2016). Further, as one successful entrepreneur stated in our interviews, a "relentless focus on sales is critical" for start-up firms. Thus, even though start-up firms with such MS co-founders may also signal negative aspects like their firms are perhaps over aggressive in their focus on growth even to the potential detriment of the firms' survival, we expect stakeholders to prefer co-founders with a MS background over co-founders with MC and FA backgrounds, and over having an additional co-founder with an SET background.

H1: Start-up firm co-founders with a marketing and sales background are preferred over co-founders with a finance and accounting, general management and consulting, or an additional scientist, technologist, and engineer background.

Can Too Many Founders with a Marketing and Sales Backgrounds be Bad

Founder conflicts are a leading cause of start-up firm failure (Hellmann and Wasserman 2017). With limited resources and a limited number of founders available to make executive decisions, start-up firms are dependent on internal cohesion (Aven and Hillmann 2017) and a minimum level of co-founder conflict so they can make consensus decisions on a wide-range of issues (Wang and Song 2016). When co-founders possess similar, homogenous functional backgrounds, they are better able to "speak the same language" (Vogel et al. 2014), which makes it is less likely that they will get into conflict with each other due to conflicts about understanding the roles and resources needed for each function to be successful (e.g., Pfeffer and Salancik 1978).

However, the literature in management also posits that TMT functional heterogeneity is particularly important because such diversity enhances the TMT's broader knowledge, allows for better identification of a wider-range of challenges and opportunities related to the firm and environment, and increases the scope and breadth of decision alternatives when TMT's need to make strategic decisions (e.g., Finkelstein, Hambrick, and Cannella 2009). Further, for start-up firms who have a limited number of founders and limited resources, it is increasingly important for firm outcomes that co-founders maximize their own capabilities by working in areas directly related to their own particular knowledge (Aven and Hillmann 2017). Hence, investors may generally be wary about firms that over-allocate to a certain function (Zimmerman 2008) and may specifically be wary of investing in a firm that over-emphasizes in MS at the potential expense of other important functions such as FA and MC. Consequently, we expect that start-up firms with more than one co-founder with a MS background will be less preferred.

H2: Start-up firms with two co-founders with marketing and sales backgrounds are less preferred.

Are there Combinations of Founder Backgrounds More Preferred in Combination with Marketing and Sales

If stakeholders of start-up firms prefer both a co-founder with a MS background and functional diversity in their founders, this should imply that such stakeholders may prefer certain combinations of founder backgrounds with MS and SET over others. For start-up firms with co-founders with MS and SET backgrounds, having an additional co-founder with a FA background should help signal that their firms are both emphasizing growth and growth (MS & SET capabilities) but also managing their risk (MS & SET limitations but an FA capability). Consequently, with a founding team mix of backgrounds comprising of MS, SET, and FA, start-up firms should signal that they are devoted to understanding customers, their product(s), and the risks with over-emphasis on growth. Further, by having a co-founder with a FA background, start-up firms should be more easily speak the language of investors (Lehmann 2004), while still having adequate focus on the product, customers, growth, and revenues (Hanssens, Rust, and Srivastava 2009). This, we expect, should result in an increased likelihood of obtaining funding.

In contrast, if start-up firms have co-founders with MS and SET backgrounds, also have a third co-founder with a MC background, these firms should be able to better manage and allocate their under-resourced firms from being over-focused on customers or products. Yet, by not having a co-founder with a FA background, start-up firms with co-founders with a mix of MS, MC, and SET backgrounds will not necessarily alleviate larger concerns of investors and stakeholders about such firms' over-emphasis of growth, management of risk, and speaking the same language as potential investors, which are capabilities associated with FA skillsets. Thus, we expect start-up firms with co-founder backgrounds of MS, SET, and FA to be preferred over co-founder backgrounds of MS, SET, and MC.

H3: Start-up firms with a co-founding team comprising of marketing and sales, science, engineering, and technology, and finance and accounting backgrounds are preferred over start-up firms with a co-founding team comprising of marketing and sales, science, engineering, and technology, and management and consulting backgrounds.

Potential Differences in Preferences between Investors vs. Entrepreneurs

Both entrepreneurs and investors put financial capital into start-up firms. Investors are more interested in obtaining a sizeable return on a risky investment, while entrepreneurs are more interested in the survival, sustainment, and potential growth of new ventures (Gompers 1995). To sustain their businesses, entrepreneurs are likely to value firms with a co-founder with a MS background greater, since they should recognize their need to obtain sales. Without the ability to commercialize and obtain sales, which are capabilities and skills associated with marketing and sales, entrepreneurs are likely to understand that start-up firms could cease to exist in the more short-term (Hellmann and Puri 2002). In contrast, much has been written in the literature about marketing's decreasing influence in the firm due to its inability to effectively communicate its benefits with finance managers and investors (Lehmann 2004; Verhoef and Leeflang 2009). This inability has also lead to a detrimental credibility gap between marketers and other key stakeholders (e.g., Forbes Marketing Accountability Report 2017). Hence, we expect investors to value co-founders with a MS background less than entrepreneurs.

H4: Entrepreneurs prefer start-up firms with co-founders with of MS more than investors.

Potential Differences in Preferences based on Level of Experience

Based on the cognitive processes literature on expertise (e.g., Spence and Brucks 1997; Sujan, Sujan, and Bettman 1988), more experienced investors and entrepreneurs should gain a better perception of how important certain functions like marketing and sales are to start-up firm performance, and as a result, are likely to have greater preferences to start-up firms with co-founders with an MS functional background. For example, whereas, as discussed earlier, investors may be negatively pre-disposed against co-founders with a MS background due to

marketers' lack of accountability, credibility, and ability to communicate marketing's value to relevant stakeholders, experienced investors should better recognize marketing's importance to start-up firms. The reason is twofold. First, acquiring, satisfying, and retaining customers is fundamental to the survival of start-up firms (Ofek, Muller, and Libai 2016). Hence, once investors develop a knowledge base on domain-specific factors that have led to successful and unsuccessful decisions (Franke et al. 2008), they should further appreciate the importance of aligning start-up firms' strategies based on an understanding of customers' wants and needs. Second, for investors of start-up firms, their main objective in investment decisions is to assess start-up firms' ability to achieve exponential growth in a relatively short period (Huang and Pearce 2015), which is a strategic capability associated with an improvement in marketing and sales functions.

For more (vs. less) experienced entrepreneurs, founders with a MS background should also be more preferred due to greater observations of factors that have led to more or less success of their firms (Cassar 2014). This is substantiated by previous reports where experienced entrepreneurs have identified marketing and sales as one of their top reasons that their firm did not survive (Griffith 2014) and as the number one and three skills, respectively, they wished they had in their founding team (Startup Muster 2017). Consequently, based on such reports, it appears that MS are valued greater after entrepreneurs gain some experience and/or possibly not valued enough when they are less experienced. Thus, we expect:

H5: Start-up co-founders with a marketing and sales background are more preferred by more experienced investors and entrepreneurs.

Potential Differences in Preferences based on Interaction between Level of Experience and Investors vs. Entrepreneurs

However, experienced entrepreneurs will also be less willing to risk their firms chances of survival for chances of exponential growth, unlike investors who believe start-up firms have a low probabilities of survival and success (Gompers 1995). Thus, entrepreneurs will be less

tolerant of a high risk and reward relationship since they are more worried and focused on start-up firms' sustainability and survival in comparison to investors who are more focused on achieving rapid growth even if it increases associated risk levels to less sustainable measures. In terms of preferences for co-founder backgrounds, this would imply that experienced entrepreneurs are less likely to prefer MS founder backgrounds at the expense of other important co-founder functional backgrounds such as MC, FA, and SET, which are also important and critical to such firms (Ko and McKelvie 2018). Experienced investors, in contrast, are more likely to focus on observable characteristics like co-founders with a MS background that they perceive signal start-up firms foci and short and long-term strategic directions towards rapid growth. Consequently, we expect:

H6: Experienced investors prefer start-up firms with co-founders with a marketing and sales backgrounds over experienced entrepreneurs.

Method

Data Collection Method

Obtaining data on new ventures is a significant challenge for researchers interested in quantitatively examining start-up firms (Shane and Venkataraman 2000, p. 219). Secondary data on start-up firms in marketing has often on relied on a sub-segment of firms who received funding from VC's (i.e., Crunchbase, Angel.co) or achieved an IPO (i.e., from SEC filings). However, this data is quite atypical as only around 1% of start-ups obtain VC funding (U.S. Census Bureau 2017a) and only <0.05% of start-ups in the U.S. make it to an IPO (U.S. Census Bureau 2017b).[2] Hence, available secondary datasets on start-up firms are often comprised of data only consisting of extremely well performing firms with many unobservables in the funding process left unaccounted (e.g., Korteweg and Sorensen 2010;

[2] Further, the average valuation of a firm attaining an IPO in 2017 is $120 million (Statista 2018), which is much greater than the average valuation of typical start-up firms.

Wasserman 2017). Further, we are interested in obtaining revealed preferences from *both* investors and entrepreneurs, which secondary data are unavailable.

Therefore, for this study, we decided to conduct choice-based conjoint (CBC) analysis to obtain investors and entrepreneurs revealed preferences in a controlled setting. Conjoint analysis has a long history of being employed in marketing to analyze respondents' preferences (e.g., Carroll and Green 1995; Green and Srinivasan 1978, 1990). Conjoint analysis decomposes an overall evaluation or utility of a multi-attribute product to derive the subjects' implied evaluation, or "partworths," of attribute levels without asking the subjects to provide ratings for each attribute and product contribution. CBC models are based on random utility theory, which posits that subjects select the option with the largest random utility, which gives probit choice probabilities if the random component has normal distributions (Aitchison and Bennett 1970) or logit choice probabilities if the random component has extreme value distribution (McFadden 1974). Hierarchical Bayes CBC (HBCBC) allows subject-level coefficients that vary across the population of subjects (Arora, Allenby, and Ginter 1998; Lenk and DeSarbo 2000). This paper uses the method of McCulloch and Rossi (1994) to analyze the multinomial-probit model for CBC (see Lenk 2014 for a review of HBCBC estimation techniques).

For our start-up context, the use of CBC analysis allows us to ask respondents about which start-up firms they would be most likely to invest in hypothetical choice scenarios that mirror real-world initial investment screening and selection procedures (e.g., Gruber, Kim, and Brinckmann 2015; Shepherd, Zacharakis, and Baron 2003; Zacharakis, McMullen, and Shepherd 2007). For each choice set, we provide investors and entrepreneurs three different start-up firms from which they need to select their preferred firm to invest (if any) based on a number of covariates. In Table 1 (shown following the references), we provide an example of one of our choice tasks. In Appendix A, we discuss the experimental design of the CBC task,

which has 18 choice tasks and three profiles per choice task. Each start-up firm in the CBC task has a co-founder with an SET background, and we did not show any start-ups with all three co-founders having the same background, but did allow for two co-founders, or doubles, of the same functional background. Thus, the founder backgrounds consist of nine possible pairs: FA & FA, FA & MC, FA & MS, FA & SET, MC & MC, MC & MS, MC & SET, MS & MS, and MS & SET, with a third co-founder with an SET background always included as well.

The focal variable in the CBC task is the composition of founding team functional backgrounds. For each choice profile, we include a description of three co-founders' functional backgrounds, with the backgrounds comprised of experimentally designed combinations of four different types of start-up founders' functional backgrounds (MS, FA, MC, and SET). In addition, based on previous literature in marketing (e.g., Saboo and Grewal 2013) and entrepreneurship (e.g., Wasserman 2012; Zacharakis, McMullen, and Shepherd 2007), we include controls for the high-technology industry (information technology vs. life sciences), stage of the start-up firm (early [seed funding] vs. late [Series B funding]), and level of customer and competitor orientation (both moderate vs. heavy). No descriptions of the products or services produced by these start-up firms were provided, controlling for such potential biases. Definitions of each variable included in the conjoint task (including the co-founder backgrounds) were provided prior to respondents answering the conjoint questions. Further, we collect information from the respondent after the CBC task on a number of personal and firm characteristics such as the respondents' risk orientation, functional background, gender, and the size of their firm. In Table 2 (shown following the references), we provide definitions, operationalizations, and descriptive statistics of these covariates.

Data Collection and Sample Description

Overall, we collect data on 8,100 choice decisions made by 224 investors and 226 entrepreneurs (450 subjects in total).[3] We collaborated with the market research firm Qualtrics to obtain investor respondents, and collaborated with the market research firm Survey Sampling International (SSI) to obtain entrepreneurial respondents. Initial screening of respondents was conducted by the market research firms based on a mutually agreed definition of (i) a professional investor as someone whose day-to-day job involves making investment decisions or that at least a significant portion of their annual income comes from investments and (ii) an entrepreneur as someone who considered themselves as an entrepreneur and is currently or previously worked at a start-up firm. For quality assurance purposes, we employed a number of procedures during the administration of the survey, including having screening questions to verify that the subjects are from the targeted population, utilizing attention checks during the survey, and employing a manipulation check at the end of the survey. In addition, we conducted quality control tests for respondents who completed the survey by checking for patterned responses and minimum completion times. Finally, subjects were only paid for quality submissions.

In Table 2 (shown following the references), we provide the descriptive statistics for our sample. The average respondent had 11-20 years of work experience. 24% of the subjects had a professional functional background in FA, 16% in MC, 19% in SET, 18% in MS, and 22% in another category. Further, 43% of the sample were female. Finally, as expected, the vast majority of the founder respondents work in smaller sized-firms of less than 50 employees (87%), while the investor respondents come nearly equally from small (38%), mid (30%), and large-size (31%) firms.

[3] Prior to the distribution of the conjoint task, we conducted a pre-test on 198 MBA students specializing in entrepreneurship at an East Coast University to test and refine our measures. Based on the feedback received, most notably, we simplified our conjoint design to the aforementioned example in Table 1 and provided a page of all our variable definitions in the CBC prior to respondents undertaking the choice tasks.

Model

The basis of discrete-choice conjoint is random utility theory. The hierarchical Bayes model has a lower-level model for subjects' preferences and an upper-level model that describes the variation of those preferences across the population. Our CBC has five attributes: one, nine-level attribute for pairs of founders' backgrounds and four binary attributes for firm and industry variables. Further, the number of choice sets *K* is 18, and the number of profiles *J* per choice set is three (see Appendix A for details on experimental design). The lower-level model for subject *i*'s random utility for profile *j* in choice set *k* is:

$$\begin{aligned} U_{ijk} &= \mu_{i0} + \alpha_{i,B1} + \alpha_{i,B2} + \gamma_{i,B1,B2} + \beta_{i1}\text{Late Stage} + \beta_{i2}\text{Industry} \\ &+ \beta_{i3}\text{Competitor Orientation} + \beta_{i4}\text{Customer Orientation} + \varepsilon_{ijk} \end{aligned} \quad (1)$$

where *B1* and *B2* are the backgrounds for the two founders in the profile. We use an ANOVA parameterization for founder backgrounds: μ_{i0}, is the grand mean; $\alpha_{i,B}$, are main effects for founder background *B*, and $\gamma_{i,B1,B2}$ are interactions between backgrounds *B1* and *B2*. The full parameterization for founders' background has 14 parameters for 9 levels. In Appendix B, we detail the five constraints on the main effects and interactions that identify the model. The random errors ε_{ijk} are normally distributed random variables for the probit choice model. Since the order of the profiles are randomly assigned to the choice sets, we assume that the correlation among the random errors are independent.

Next, we assume that the subject-level parameters vary across subjects according to an upper-level model of heterogeneity. We collect the free, subject-level parameters, α_i, β_i, γ_i, and μ_{i0} from Equation (1), into the *p* vector ψ_i. The upper level model describes the heterogeneity in ψ_i across the population:

$$\psi_i = \Theta' z_i + \delta_i \quad (2)$$

where z_i is a *q* vector of covariates (see Table 2; shown following the references), plus constant term, for subject *i*, Θ is a *q x p* matrix of regression coefficients, and δ_i is a normally distributed *p* vector with mean 0 and covariance matrix Λ.

In dual-response conjoint, subjects are first forced to choose the best profile among the three profiles in a choice set, and then asked if they would really make the investment. We standardize the utility of the outside good (do not make an investment in the selected startup) to zero. The standard, probit model CBC is easily modified to accommodate dual response. If subject *i* selects profile *k** in choice set *j*, and he or she indicates that he or her would make the investment, then $U_{ijk^*} \geq U_{ijk}$ for all *k* in choice set *j* and $U_{ijk^*} \geq 0$. However, if he or she indicates that he or her would not make the investment, then $0 > U_{ijk^*} \geq U_{ijk}$ for all *k* in choice set *j*.

Results

Model-Free Findings

Figure 1 displays model-free evidence for the preferences for founders' backgrounds (shown following the references). Panel A (the top panel) graphs the conditional probability of selecting a co-founder functional background pair, when it was an option.[4] The main result is that unique combinations of co-founder functional backgrounds pairs are more desirable than combinations of co-founder functional backgrounds that include doubles of the same function. Further, the combination of FA & MS are the most desirable co-founder backgrounds for start-ups to pair with their always included co-founder with an SET background. This is followed closely by selections of the combinations of FA & MC and MC & MS.

Next, we report on the respondents' likelihood of funding their chosen best start-up firm profile in the dual task choice design. Overall, we find 71.1% of our respondents indicated they would fund their chosen best start-up firm and their likelihood of funding this

[4] The number of times that a unique pair was presented is 7*450 = 3,150, and the number of times that a double was presented is 4*450 = 1,800. The relative frequency for the unique pairs is the number of times it was selected divided 3,150. For the doubles, it is the number of times it was selected divided by 1,800. Consequently, the sum of the conditional probabilities of selecting the different pairs do not equal to 1.

choice is dependent on the founding team's functional background ($p<.01$ for the Chi-Square test). In Panel B in Figure 1 (the lower panel), we report on the estimated probability of funding the best-choice start-up firm, along with 95% confidence intervals (shaded regions), given the founding team's functional background. Most interesting, we find that a founding team functional background combination comprising of FA & MS (in addition to the founder always included with an SET background), is significantly more likely to be funded than the overall average ($p<.05$). The probabilities of funding the other pairs of functional backgrounds are not significantly different than the overall average.

Statistical Model Findings

In Table 3 (shown following the references), we present the posterior mean of Θ, the matrix of regression coefficients in Equation (2) for the upper-level model that relates the subject-level covariates to the individual-level parameters of the lower-level model. We use a "Bayesian p-value" to indicate significant coefficients in bold-italicized red font. The Bayesian p-value is the posterior probability that the coefficient is larger than zero. We indicate a coefficient as being "significant" if this probability is larger than 0.975, the posterior distribution is shifted above zero, or less than 0.025, the posterior distribution is shifted below zero. We use effects coding for both the attributes in the conjoint experiment and the categorical covariates for subjects. The one continuous covariate, risk orientation, is standardized.

To begin, we find, overall, that differences in co-founder functional backgrounds do in fact significantly matter to our respondents (see Main Effects Columns, Row 1 of data in Table 3). When looking at these overall preferences, we find that start-up firms with co-founders with a MS background are more likely to obtain an investment ($p<.05$). In addition, we find that co-founders with a MS background ($\beta=.448$) are more preferred than co-founders with a MC ($\beta=.329$) or FA functional background ($\beta=.079$). Hence, as expected in

H1, we find that respondents prefer and are more likely to invest in start-up firms when one of the founders has a background in MS. Consequently, these results provide strong evidence in support of MS importance for start-up firms, at least in terms of founder's functional backgrounds, over other important but less preferred functional backgrounds.

Next, when examining the interaction between having two co-founders with a MS background (see Interaction Effects Columns, Row 1), we find a negative and significant coefficient (β=-1.019; $p<.05$). Consequently, as expected in H2, we find start-up firms with double founders with MS background are less likely to gain an external investment. We also find this effect is mostly consistent for each type of double founders with the same functional background; i.e., start-up firms with two MC founders and two FA founders (although not for two SET founders). In contrast, we find that respondents are more likely to invest in start-up firms whose founders have diverse functional backgrounds. For example, in terms of combinations of functional backgrounds of founders in conjunction with MS and SET, we find that having the third founder with a FA background is preferred (β=.417; $p<.05$). In addition, we find the combination of FA, MC, and SET founder backgrounds is also significantly preferred by our respondents (β=.318; $p<.05$). Thus, our results demonstrate that respondents significantly prefer founding team functional heterogeneity to functional homogeneity, or an over-functional emphasis, in their start-up firms, which provides further support to previous research documenting the importance of founder heterogeneity over homogeneity (e.g., Zimmerman 2008). Further, we find that start-up firms with a founding team functional background comprising of MS, SET, and FA are preferred over a founding team background comprising of MS, SET, and MC (β=.417 vs. β=.003; $p<.05$). As a result, we find support for H3. We discuss the implications of this result in more detail in the Discussion section.

Next, we compare preferences of MS based on whether the respondent is an investor or entrepreneur and based on the respondent's level of experience (see 2nd column of data [MS, Main Effects], Rows 2-4). We find that investors do not have significantly more negative overall preferences towards start-up firms with a co-founder with a MS background in comparison to entrepreneurs (β=-.052; p=n.s.) and that more experienced respondents do not significantly prefer a co-founder with a MS background (β=.070; p=n.s.). In contrast, we find the interaction between investors and amount of experience is positive and significant (β=.100; p<.05), indicating that as such investors gain more experience, the greater their preferences towards co-founders with a MS background. Consequently, we find support for H6, but not for H4 or H5.

We now turn to the results of the controls variables. Similar to positive preferences towards firms with a founder with a MS background, we find respondents, overall, significantly prefer start-up firms that have a greater customer (β=.308; p<.05) and competitor orientation (β=.100; p<.05). In addition, we find that respondents with greater risk orientations are more likely to invest in start-up firms, in general (β=.372; p<.05), which provides some evidence of external validity. Further, we find that these respondents prefer more homogenous founder team functional backgrounds such as those with two founders with MS backgrounds (β=.229; p<.05), which may indicate preferences to firms with greater risk-reward potential. Finally, we find that females appear to have significantly different preferences than males for a number of founder functional backgrounds and combinations. For example, we find females significantly prefer co-founders with a FA background more than males (β=.067; p<.05), but significantly less prefer co-founding teams with MS and MC backgrounds (β=.-141; p<.05). The theoretical reasons for these gender-based results are outside the scope of our research but offer a potential fruitful avenue for future research.

Additional Analysis

To provide further robustness for our findings and to account for specific issues arising from our data context, we estimate several variants of our model. First, we include an additional control for whether the respondent had ever invested in start-up firms previously. We find our hypotheses remain consistent with our original analysis and that such respondents were less likely to invest in any start-up firm ($p<.05$), as would be expected. Second, we estimate a model that includes several additional control variables such as the respondent's job title, level of education, and age. In addition, we estimate a model that reduces the number of control variables to just our focal variables and controls solely for risk orientation. In both sets of models, we find the coefficient signs and significance levels of managerial preferences for co-founders with certain functional backgrounds remained the same as our earlier analysis. Third, to account for potential differences in the perceived importance of certain functional backgrounds based on the stage of development of the start-up firm (e.g., Wasserman 2012), we include an interaction term between the stage and the main effects of co-founder functional backgrounds. We find results of this model are insignificant, indicating that preferences for co-founder backgrounds do not seem to vary based on the stage of development of the start-up firm, at least for our sample.

Discussion

In this paper, we ask, answer, and focus on the following research question: are start-up firms with a co-founder with a MS background preferred over start-up firms with co-founders with different functional backgrounds? We propose a conceptual model based on signaling theory and role and resource legitimacy to develop a series of hypotheses on (i) why co-founders with a MS background may be more preferred, (ii) why too many co-founders with a MS background may be less preferred, and (iii) which functional combinations in conjunction with a founder with a MS founder would be most preferred. Further, based on the cognitive

processes perspective, we propose that entrepreneurs are likely to have greater preferences for start-up firms with co-founders with a MS background than investors, and that the level of experience moderates these differences, particuraly in that these differences lessen for more experienced investors. To empirically test our conceptual model, we obtain data on 8,100 choice decisions by 224 investors and 226 entrepreneurs from CBC analysis tasks. Our analysis finds support for the proposed conceptual model in that our respondents tend to prefer start-up firms with a co-founder with a MS background and greater heterogeneity in their founding team functional backgrounds, and that more experienced investors have greater preferences for co-founders with a MS background.

Managerial Implications

The results of our analysis provide important managerial contributions to start-up firm practice. Most critically is that over the course of our two dozen interviews conducted for this research, we were a bit surprised to hear that the vast majority of start-up firms do not place much emphasis on marketing, consider it as an "afterthought," and simply do not conduct much (if any) marketing. Public press and previous managerial reports also document this deficiency (e.g., see 2015 Capital One survey of small business owners marketing practices). Further, work on marketing's role in start-up firms is an area that is a bit lacking in research, with only a few studies providing benchmarks or insights for marketing's value in such firms (e.g., Anderson, Chandy, and Zia 2018; Homburg et al. 2014). Our study addresses this gap by directly linking how a start-up firm's emphasis or perceived MS capabilities are related with investor and entrepreneurial preferences and the likelihood of a start-up firm of obtaining external financial investments. Further, our findings documenting that start-up firms with a co-founder with a MS background are more preferred and likely to obtain an external investment in our empirical sample, provide evidence that a firm's emphasis on MS is an important competency for start-up firms. Based on these results, we hope we can nudge

such firms to overcome their hesitation to conduct marketing, and have them establish a greater focus on understanding their customers and adopting a growth and sales mindset.

Another notable result from our analysis is that we find more experienced investors have greater preferences to start-up firms with a co-founder with a MS background. This is an important distinction because less experienced investors are likely to act as "gate-keepers" in larger investment firms and help screen out potential investments, while more experienced investors are likely to be the ultimate decision makers on such investment decisions in both small and large investment firms. Further, for investors, Type I errors are likely to occur when they are making investments that lose money (high risk), and Type II errors are opportunity costs such as passing on profitable investments (high reward). Investors may be more aware of Type I errors than entrepreneurs, so they tend to have lower utilities for the start-up firms with co-founders with a MS background as this could indicate that the firm has greater risk. However, more experienced investors may be more cognizant of Type II errors than less experienced investors, and be more likely to fund the selected start-ups based on signals of potential high-growth focus, such as the firms' having a co-founder with a marketing and sales background. Consequently, it is important for start-up firms to understand these differences and position themselves accordingly when trying to obtain financing from such investment firms, which is in line with what our investor and entrepreneurial interviewees stressed start-up firms needed to know to obtain investments.

In addition, we find that both investors and entrepreneurs value greater founder functional heterogeneity over homogeneity. As many start-up firms are formed based on founder availability rather than expertise complementarity (Jung, Vissa, and Pich 2017), our results demonstrate that such start-up firms should avoid rushing into such partnerships without considering the complementary of their expertise or else risk consequences of perceived over-allocation to certain functions.

Theoretical Implications

Our research also contributes to marketing literature and theory on the importance of marketing to the firm. Previous research in marketing has documented when marketing is considered more important to the firm (e.g., Verhoef and Leeflang 2009), how marketing impacts firm's sales and other financial metrics (e.g., Hanssens 2015), and when marketers in the TMT are more likely to be present (e.g., Germann, Ebbes, and Grewal 2015) and the conditions where this benefits the firm's performance (e.g., Homburg et al. 2014). However, unlike in the majority of these previous studies that investigated marketing's consequences on large and mature firms without directly comparing marketing's importance to other functions of the firm, the start-up environment enables a relatively cleaner investigation. For example, either start-up firms provide observable, identifiable signal of a marketing and sales foci and competency by having a co-founder with a MS functional background or it does not if the firm does not have a co-founder with a MS background. Based on our empirical analysis of 8,100 investment choice decisions, we find evidence of marketing's importance to early stage firms over opposing capabilities such as accounting, finance, management, or science and technology, which is important because such early stage firms must make difficult tradeoffs in terms of where to devote their human and financial resources to try to create sustainable strategic foci and capabilities. Further, our results of general stakeholder preferences for start-up firms with a MS co-founder demonstrates marketing and sales value relevance to the firm, as such firms are more likely to obtain early-stage funding, and are likely to create an imprinting effect which would lead such firms to continue with a MS focus and competency for the long-term.

In addition, we find greatest preferences for founding team functional composition consisting of MS, SET, and FA. This supports much of the underlying motivation in the marketing-finance literature where firms need to both understand customers and translate

their value to the financial community. However, we also find that start-up firms with multiple co-founders with MS backgrounds are less preferred, which provides caution to such firms over-emphasizing, over-signaling, and over-devoting their resources to developing MS capabilities.

Limitations and Future Research

Our research also has its share of limitations, which provide several avenues for future research. A main limitation is that even though we follow previous literature in the entrepreneurship literature (e.g., Gruber, Kim, and Brinckmann 2015; Shepherd, Zacharakis, and Baron 2003; Zacharakis, McMullen, and Shepherd 2007), our CBC tasks are based on simplified, hypothetical investment scenarios which may not be fully representative of real-world choices. Large-scale secondary data on investor and entrepreneur preferences for earlier-stage start-up firms is unavailable, however researchers could perhaps conduct qualitative longitudinal studies to gain further insights on such preferences. Further, qualitative longitudinal research techniques could account for and address challenges with unobservable factors that influence investment decisions, start-up founder formation, and how signals between such founders and investors are transmitted, received, and processed. Another limitation of this research is our focus on start-ups obtaining external financial investments. For many start-ups, long-term survival is a more important outcome; while for other start-ups, getting acquired by another firm or achieving an IPO are more important objectives. Hence, future research could compare how and whether different founder functional backgrounds lead to a greater likelihood of long-term start-up firm survival, getting acquired, or reaching an IPO. Further, our research cannot answer questions related to how start-up firms can provide easy to observe signals associated with a greater understanding of customers and a focus on growth if start-up firms do not have a co-founder

with a MS functional background. In addition, in practice, co-founders may have developed multiple cross-functional skills that may impact entrepreneur and investor preferences.

Conclusion

Overall, marketing's role in start-up firms is less understood. This research helps reduce this gap and provides a managerial contribution by investigating the impact of marketing and sales co-founders on start-up firms, and identifying the settings in which such co-founders are preferred. Further, this research provides theoretical contributions by examining the capabilities of different functional background and the signals produced to stakeholders by such backgrounds, and a methodological contribution by extending and modifying choice based conjoint tasks to examine investment preferences of stakeholders of such start-up firms. We hope our research motivates future research on this important topic.

Appendix A: Experimental Design

Subjects were presented with choice sets that had three profiles each. The profiles varied the (i) background of two founders, as each founding team always had a third founder with a SET background, and (ii) four, binary firm and industry attributes. We eliminated the possibility of all three founders having an SET background, but did allow two founders or doubles of the same functional background. Thus, the founder backgrounds consist of nine possible pairs: FA & FA, FA & MC, FA & MS, FA & SET, MC & MC, MC & MS, MC & SET, MS & MS, and MS & SET. To control for order of appearance effects, i.e., SET or MS always listed first, we randomized the order for which founder background appeared first, second, or third.

The conjoint design has 18 choice tasks per subject, and each subject has a total of 14 parameters: the grand mean, the four firm and industry parameters, and the nine founder pair background parameters. Consequently, the 18 choice task design allows us to balance the nine pairs of backgrounds and provides sufficient degrees of freedom to reliably estimate the 14 subject-level parameters. To generate four, utility balanced, designs with 18 choice sets and 3 profiles per choice set for a total of 54 profiles per survey, we used the DOE procedure of JMP®. Based on aforementioned theory posting that respondents are likely to prefer founding team functional background heterogeneity over homogeneity, the three "double" backgrounds (i.e., FA & FA, MC & MC, and MS & MS) appear in four profiles, and the other six pairs appear in seven profiles each. JMP® randomized the profiles within each survey and among the four surveys. Further, the use of four versions of the survey provides an additional guard against unintentional confounding. Finally, we conducted a pre-test on 198 MBA students at an East Coast University specializing in entrepreneurship to test and refine our measures. Based on the feedback received, most notably, we simplified our

conjoint design to the aforementioned example in Table 1 and provided a page of all our variable definitions in the CBC prior to respondents undertaking the choice tasks.

Appendix B: Constraints

We parameterize the nine founder backgrounds as a two-way ANOVA with grand mean μ_{i0}, main effects α_i, and interactions γ_i as follows:

SET & FA:	$\mu_{i0} + \alpha_{i,SET} + \alpha_{i,FA} + \gamma_{i,SET,FA}$
SET & MC:	$\mu_{i0} + \alpha_{i,SET} + \alpha_{i,MC} + \gamma_{i,SET,MC}$
SET & MS:	$\mu_{i0} + \alpha_{i,SET} + \alpha_{i,MS} + \gamma_{i,SET,MS}$
FA & FA:	$\mu_{i0} + 2\alpha_{i,FA} + \gamma_{i,FA,FA}$
FA & MC:	$\mu_{i0} + \alpha_{i,FA} + \alpha_{i,MC} + \gamma_{i,FA,MC}$
FA & MS:	$\mu_{i0} + \alpha_{i,FA} + \alpha_{i,MS} + \gamma_{i,FA,MS}$
MC & MC:	$\mu_{i0} + 2\alpha_{i,MC} + \gamma_{i,MC,MC}$
MC & MS:	$\mu_{i0} + \alpha_{i,MC} + \alpha_{i,MS} + \gamma_{i,MC,MS}$
MS & MS:	$\mu_{i0} + 2\alpha_{i,MS} + \alpha_{i,FA} + \gamma_{i,MS,MS}$

As every founding combination included at least one founder with a SET functional background, our model does not include an SET*SET interaction because this interaction is confounded with the main effect for SET. Instead, the main effect for SET is interpreted as the increase in utility for adding another founder with SET background when a founder also has a SET background, which can be thought of qualitatively equivalent to a SET double.

The two-way ANOVA for background has 14 parameters for 9 levels. Thus, we need five constraints to identify the model. Following standard ANOVA, the main effects sum to zero, so we set:

$$\alpha_{i,SET} = -(\alpha_{i,FA} + \alpha_{i,MC} + \alpha_{i,MS}).$$

Four additional constraints are created by assuming interactions sum to zero. Because, we do not distinguish between the second and third founder's background, the table of interactions is:

	FA	MC	MS
SET	$\gamma_{i,SET,FA}$	$\gamma_{i,SET,MC}$	$\gamma_{i,SET,MS}$
FA	$\gamma_{i,FA,FA}$	$\gamma_{i,FA,MC}$	$\gamma_{i,FA,MS}$
MC		$\gamma_{i,MC,MC}$	$\gamma_{i,MC,MS}$
MS			$\gamma_{i,MS,MS}$

Setting the sum across the second row to zero, and the sum down the second and third columns to zero, we obtain:

$$\gamma_{i,FA,FA} = -(\gamma_{i,FA,MC} + \gamma_{i,FA,MS}),$$
$$\gamma_{i,MC,MC} = -(\gamma_{i,SET,MC} + \gamma_{i,FA,MC}),$$
$$\gamma_{i,MS,MS} = -(\gamma_{i,SET,MS} + \gamma_{i,FA,MS} + \gamma_{i,MC,MS}).$$

The fourth constraint insures that the sum of all interactions is zero:

$$\gamma_{i,SET,FA} = \gamma_{i,FA,MC} + \gamma_{i,FA,MS} = -\gamma_{i,FA,FA}.$$

References

Aitchison, J. and J. A. Bennett (1970), "Polychotomous quantal response by maximum indicant," *Biometrika*, 57 (2), 253–62.

Anderson, Stephen J., Rajesh Chandy, and Bilal Zia (2018), "Pathways to Profits: The Impact of Marketing vs. Finance Skills on Business Performance," *Management Science*.

Arora, Neeraj, Greg M. Allenby, and James L. Ginter (1998), "A Hierarchical Bayes Model of Primary and Secondary Demand," *Marketing Science*, 17 (1), 29–44.

Aven, Brandy and Henning Hillmann (2017), "Structural Role Complementarity in Entrepreneurial Teams," *Management Science*, 64 (12), 5688–5704.

Beckman, Christine M. (2006), "The Influence of Founding Team Company Affiliations on Firm Behavior," *Academy of Management Journal*, 49 (4), 741–58.

--- and M. Diane Burton (2008), "Founding the Future: Path Dependence in the Evolution of Top Management Teams from Founding to IPO," *Organization Science*, 19 (1), 3–24.

Bernstein, Shai, Arthur Korteweg, and Kevin Laws (2017), "Attracting Early-Stage Investors: Evidence from a Randomized Field Experiment," *Journal of Finance*, 72 (2), 509–38.

Brazell, Jeff D., Christopher G. Diener, Ekaterina Karniouchina, William L. Moore, Válerie Séverin, and Pierre-Francois Uldry (2006), "The no-choice option and dual response choice designs," *Marketing Letters*, 17 (4), 255–68.

Capital One (2015), "Small Business Optimism At Five-year High Since Great Recession, Yet Growth Challenges Persist."

Carroll, J. Douglas and Paul E. Green (1995), "Psychometric Methods in Marketing Research: Part I, Conjoint Analysis," *Journal of Marketing Research*, 32 (4), 385–91.

Cassar, Gavin (2014), "Industry and startup experience on entrepreneur forecast performance in new firms.," *Journal of Business Venturing*, 29 (1), 137–51.

Center for American Entrepreneurship (2018), "What is Entrepreneurship?" *What Is Entrepreneurship?* (accessed June 20, 2018), [available at http://www.startupsusa.org/what-is-entrepreneurship/].

Datta, Sudip and Mai Iskandar-Datta (2014), "Upper-echelon executive human capital and compensation: Generalist vs specialist skills.," *Strategic Management Journal*, 35 (12), 1853–66.

Finkelstein, Sydney, Donald C. Hambrick, and Albert A. Cannella (2009), *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*, Oxford, UK: Oxford University Press.

"Forbes Marketing Accountability: A CEO Blueprint for Driving Enterprise Value by Maximizing the Effectiveness of Marketing Investments, Strategies and Actions" (2017), Forbes CMO Practice.

Franke, Nikolaus, Marc Gruber, Dietmar Harhoff, and Joachim Henkel (2008), "Venture Capitalists' Evaluations of Start-Up Teams: Trade-Offs, Knock-Out Criteria, and the Impact of VC Experience," *Entrepreneurship Theory and Practice*, 32 (3), 459–83.

Germann, Frank, Peter Ebbes, and Rajdeep Grewal (2015), "The Chief Marketing Officer Matters!" *Journal of Marketing*, 79 (3), 1–22.

Gompers, Paul A. (1995), "Optimal Investment, Monitoring, and the Staging of Venture Capital," *The Journal of Finance*, 50 (5), 1461–89.

Green, Paul E. and V. Srinivasan (1978), "Conjoint Analysis in Consumer Research: Issues and Outlook," *Journal of Consumer Research*, 5 (2), 103–23.

--- and --- (1990), "Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice," *Journal of Marketing*, 54 (4), 3–19.

Griffith, Erin (2014), "Why startups fail, according to their founders - Fortune," *Fortune*.

Gruber, Marc, Sung Min Kim, and Jan Brinckmann (2015), "What is an Attractive Business Opportunity? An Empirical Study of Opportunity Evaluation Decisions by Technologists, Managers, and Entrepreneurs," *Strategic Entrepreneurship Journal*, 9 (3), 205–25.

Hand, John R. M. (2005), "The Value Relevance of Financial Statements in the Venture Capital Market.," *Accounting Review*, 80 (2), 613–48.

Hanssens, Dominique M. (Ed.) (2015), *Empirical Generalizations about Marketing Impact*, Cambridge, Mass., USA: Marketing Science Institute.

Hanssens, Dominique M, Roland T Rust, and Rajendra K Srivastava (2009), "Marketing Strategy and Wall Street: Nailing Down Marketing's Impact.," *Journal of Marketing*, 73 (6), 115–18.

Hellmann, Thomas and Manju Puri (2002), "Venture Capital and the Professionalization of Start-Up Firms: Empirical Evidence," *Journal of Finance*, 57 (1), 169–97.

--- and Noam Wasserman (2017), "The First Deal: The Division of Founder Equity in New Ventures," *Management Science*, 63 (8), 2647–66.

Higgins, Monica C. and Ranjay Gulati (2006), "Stacking the Deck: The Effects of Top Management Background on Investor Decisions," *Strategic Management Journal*, 27 (1), 1–25.

Hoitash, Rani, Udi Hoitash, and Ahmet C. Kurt (2016), "Do accountants make better chief financial officers?" *Journal of Accounting and Economics*, 61 (2), 414–32.

Homburg, Christian, Alexander Hahn, Torsten Bornemann, and Phillip Sander (2014), "The Role of Chief Marketing Officers for Venture Capital Funding: Endowing New Ventures with Marketing Legitimacy," *Journal of Marketing Research*, 51 (5), 625–44.

Huang, Laura and Jone L. Pearce (2015), "Managing the Unknowable: The Effectiveness of Early-Stage Investor Gut Feel in Entrepreneurial Investment Decisions," *Administrative Science Quarterly*, 60 (4), 634–70.

Jaworski, Bernard J. and Ajay K. Kohli (1993), "Market Orientation: Antecedents and Consequences," *Journal of Marketing*, 57 (3), 53–70.

Jung, Heejung, Balagopal Vissa, and Michael Pich (2017), "How do Entrepreneurial Founding Teams Allocate Task Positions?" *Academy of Management Journal*, 60 (1), 264–94.

Kirsch, David, Brent Goldfarb, and Azi Gera (2009), "Form or Substance: The Role of Business Plans in Venture Capital Decision Making," *Strategic Management Journal*, 30 (5), 487–515.

Ko, Eun-Jeong and Alexander McKelvie (2018), "Signaling for more money: The roles of founders' human capital and investor prominence in resource acquisition across different stages of firm development.," *Journal of Business Venturing*, 33 (4), 438–54.

Korteweg, Arthur and Morten Sorensen (2010), "Risk and Return Characteristics of Venture Capital-Backed Entrepreneurial Companies," *Review of Financial Studies*, 23 (10), 3738–72.

Kurt, Didem and John Hulland (2013), "Aggressive Marketing Strategy Following Equity Offerings and Firm Value: The Role of Relative Strategic Flexibility," *Journal of Marketing*, 77 (5), 57–74.

Lazear, Edward P. (2004), "Balanced Skills and Entrepreneurship," *American Economic Review*, 94 (2), 208–11.

Lehmann, Donald R. (2004), "Metrics for Making Marketing Matter," *Journal of Marketing*, 68 (4), 73–75.

Lenk, Peter J. (2014), *Handbook of Choice Modelling*, (S. Hess and A. Daly, eds.), Cheltenham, UK: Edward Elgar Publishing.

--- and Wayne S. DeSarbo (2000), "Bayesian Inference for Finite Mixtures of Generalized Linear Models with Random Effects," *Psychometrika*, 65 (1), 93–119.

Lerner, Josh, Antoinette Schoar, Stanislav Sokolinski, and Karen Wilson (2018), "The globalization of angel investments: Evidence across countries," *Journal of Financial Economics*, 127 (1), 1–20.

Luo, Xueming (2008), "When Marketing Strategy First Meets Wall Street: Marketing Spendings and Firms' Initial Public Offerings," *Journal of Marketing*, 72 (5), 98–109.

McCulloch, Robert and Peter E. Rossi (1994), "An exact likelihood analysis of the multinomial probit model," *Journal of Econometrics*, 64 (1–2), 207–40.

McFadden, Daniel (1974), "The measurement of urban travel demand," *Journal of Public Economics*, 3 (4), 303–28.

Mian, Shehzad (2001), "On the choice and replacement of chief financial officers," *Journal of Financial Economics*, 60 (1), 143–75.

Mintz, Ofer and Gary L. Lilien (2019), "When Does Conducting Systematic Marketing Benefit Start-up Firm Valuations?" Working Paper, University of Technology Sydney.

Ofek, Elie, Eitan Muller, and Barak Libai (2016), *Innovation Equity: Assessing and Managing the Monetary Value of New Products and Services*, Chicago, Illinois: The University of Chicago Press.

Palmatier, Robert W, Rajiv P Dant, and Dhruv Grewal (2007), "A Comparative Longitudinal Analysis of Theoretical Perspectives of Interorganizational Relationship Performance," *Journal of Marketing*, 71 (4), 172–94.

Patel, Neil (2015), "90% Of Startups Fail: Here's What You Need To Know About The 10%," *Forbes*.

Perkins, W. Steven and Ram C. Rao (1990), "The Role of Experience in Information Use and Decision Making by Marketing Managers," *Journal of Marketing Research*, 27 (1), 1–10.

Pfeffer, Jeffrey and Gerald R. Salancik (1978), *The External Control of Organizations: A Resource Dependence Perspective*, New York: Harper & Row.

Plummer, Lawrence A., Thomas H. Allison, and Brian L. Connelly (2016), "Better Together? Signaling Interactions in New Venture Pursuit of Initial External Capital," *Academy of Management Journal*, 59 (5), 1585–1604.

Saboo, Alok R., Anindita Chakravarty, and Rajdeep Grewal (2016), "Organizational Debut on the Public Stage: Marketing Myopia and Initial Public Offerings," *Marketing Science*, 35 (4), 656–75.

--- and Rajdeep Grewal (2013), "Stock Market Reactions to Customer and Competitor Orientations: The Case of Initial Public Offerings," *Marketing Science*, 32 (1), 70–88.

---, V. Kumar, and Ankit Anand (2017), "Assessing the Impact of Customer Concentration on Initial Public Offering and Balance Sheet–Based Outcomes," *Journal of Marketing*, 81 (6), 42–61.

Shane, Scott and Toby Stuart (2002), "Organizational Endowments and the Performance of University Start-Ups," *Management Science*, 48 (1), 154–70.

--- and S. Venkataraman (2000), "The Promise of Entrepreneurship as a Field of Research," *Academy of Management Review*, 25 (1), 217–26.

Shepherd, Dean A., Andrew L. Zacharakis, and Robert A. Baron (2003), "VCs' decision processes: Evidence suggesting more experience may not always be better," *Journal of Business Venturing*, 18 (3), 381–401.

Spence, Mark T. and Merrie Brucks (1997), "The Moderating Effects of Problem Characteristics on Experts' and Novices' Judgments," *Journal of Marketing Research*, 34 (2), 233–47.

Spence, Michael (1973), "Job Market Signaling," *Quarterly Journal of Economics*, 87 (3), 355–74.

Startup Muster (2017), "Startup Muster 2017 Annual Report," Australia.

Statista (2018), "Number of IPOs in the United States from 1999 to 2017."

Sujan, Harish, Mita Sujan, and James R. Bettman (1988), "Knowledge Structure Differences between More Effective and Less Effective Salespeople," *Journal of Marketing Research*, 25 (1), 81–86.

Tzabbar, Daniel and Jaclyn Margolis (2017), "Beyond the Startup Stage: The Founding Team's Human Capital, New Venture's Stage of Life, Founder--CEO Duality, and Breakthrough Innovation.," *Organization Science*, 28 (5), 857–72.

U.S. Census Bureau (2017a), "2015 Annual Survey of Entrepreneurs," United States Census Bureau.

--- (2017b), "Startup Firms Created Over 2 Million Jobs in 2015," United States Census Bureau.

Verhoef, Peter C. and Peter S. H. Leeflang (2009), "Understanding the Marketing Department's Influence Within the Firm," *Journal of Marketing*, 73 (2), 14–37.

Vogel, Rick, Tatjana Xenia Puhan, Edlira Shehu, Doron Kliger, and Henning Beese (2014), "Funding decisions and entrepreneurial team diversity: A field study," *Journal of Economic Behavior & Organization*, Empirical Behavioral Finance, 107, 595–613.

Wang, Tang and Michael Song (2016), "Are Founder Directors Detrimental to New Ventures at Initial Public Offering?" *Journal of Management*, 42 (3), 644–70.

Wasserman, Noam (2012), *The Founder's Dilemmas: Anticipating and Avoiding the Pitfalls That Can Sink a Startup*, Princeton, NJ: Princeton University Press.

--- (2017), "The throne vs. the kingdom: Founder control and value creation in startups," *Strategic Management Journal*, 38 (2), 255–77.

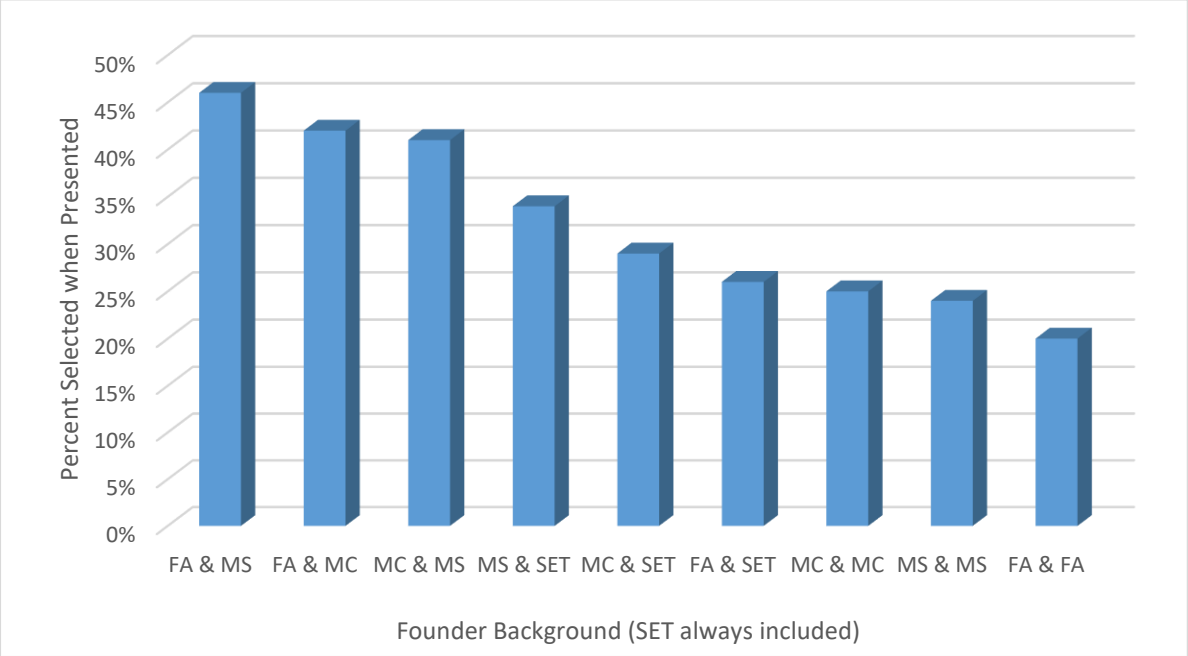
Xiong, Guiyang and Sundar Bharadwaj (2011), "Social Capital of Young Technology Firms and Their IPO Values: The Complementary Role of Relevant Absorptive Capacity," *Journal of Marketing*, 75 (6), 87–104.

Zacharakis, Andrew L., Jeffery S. McMullen, and Dean A. Shepherd (2007), "Venture Capitalists' Decision Policies across Three Countries: An Institutional Theory Perspective," *Journal of International Business Studies*, 38 (5), 691–708.

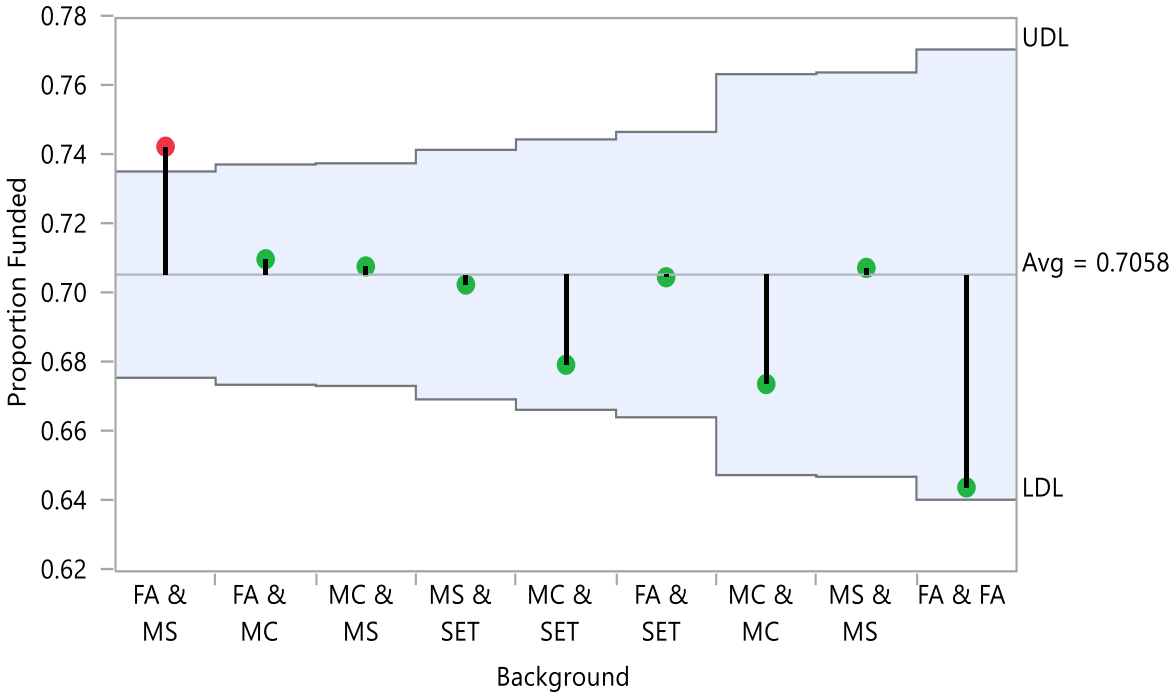
Zimmerman, Monica A. (2008), "The Influence of Top Management Team Heterogeneity on the Capital Raised through an Initial Public Offering," *Entrepreneurship Theory and Practice*, 32 (3), 391–414.

Figure 1. Founders of Selected Profiles and Chance of Funding

Panel A. Proportion Combination of Co-Founders are Selected when Presented



Panel B. Proportion Combination of Co-Founders are Funded when Selected



α = 0.05

FA = Finance or Accounting; MC = Management or Consulting; MS = Marketing or Sales; SET = Science, Engineering or Technology;
One SET co-founder is always included, so, to simplify, is not listed in the above figures.

Table 1. Conjoint Scenario Example

Introductory Page
For this exercise, please envision yourself as an investor in a position to make decisions about start-up venture proposals that are delivered to you.

You just recently completed funding for a new investment fund and are looking for ventures in which to invest. Please assume that these ventures are located in geographical locations in which you would normally invest, with the similar amount of competitors, and similar potential market size.

After examining the various business plans and completing initial due diligence, a junior associate has summarized key factors and provided comparative information for each firm.

The differences in each venture will be related to (i) which industry the start-up firm competes in, (ii) the 3 founders functional backgrounds, (iii) the stage of start-up, and extent that the firm's decisions focus on it's (iv) customers and (v) competitors.

Please assume all other factors are similar across these firms.

Each Conjoint Choice Task
Below is the information presented to you. Please carefully review all the information and answer the questions below.

Attribute	Venture A	Venture B	Venture C
Backgrounds of the 3 Founders	• Mgmt & Consult • Mktg & Sales • Sci, Eng, & Tech	• Sci, Eng, & Tech • Fin & Acct • Fin & Acct	• Fin & Acct • Sci, Eng, & Tech • Mgmt & Consult
Industry	Life Sciences	Information Technology	Life Sciences
Stage of Start-up	Late (i.e., Series B)	Early (i.e., Seed)	Late (i.e., Series B)
Focus on Customers	Heavy	Moderate	Heavy
Focus on Competitors	Moderate	Heavy	Moderate

- Which start-up venture is most likely to succeed?
- If you were an investor with sufficient resources, would you invest in this start-up venture?

Table 2. Variable Definitions and Descriptive Statistics

Variable	Definition	Entrepr. Sample Mean (StDev)	Investor Sample Mean (StDev)	Overall Sample Mean (StDev)
Focal Variables				
Entrepreneur	Respondent considered themselves as an entrepreneur and is currently or previously worked at a start-up firm	226 (sum)	---	.50
Investor	Respondent's day-to-day job involved making investment decisions or that at least a significant portion of their annual income comes from investments	---	224 (sum)	.50
Experience	For entrepreneurs: how many years they worked in start-ups or in new venture(s) For investors: how many years were they a professional investor • 1 = 1-5 years, 2= 6-10 years, 3 = 11-15 years, 4 = 16-20 years, 5 = >20 years; all with 0 experience were dropped	3.37 (1.56)	3.71 (1.50)	3.54 (1.54)
Control Variables				
Risk Orientation	For start-ups *you would theoretically like to invest in*, how strongly respondents agreed or disagreed with each of the following statements? (1 = strongly disagree; 7 = strongly agree)* • Higher financial risks are worth taking for higher financial rewards	5.06 (1.25)	5.40 (1.27)	5.23 (1.27)
Mkt & Sales Background	Respondent's primary professional background is closest to marketing and sales	.22	.15	.18
Fin & Acct Background	Respondent's primary professional background is closest to finance and accounting	.08	.40	.24
Mgt & Cons Background	Respondent's primary professional background is closest to management and consulting	.20	.13	.16
SET Background	Respondent's primary professional background is closest to science, engineering, and technology	.14	.24	.19
Other Background	Respondent's primary professional background is not closest to the four categories listed prior	.35	.08	.22
Small-Size Firm	Respondent's firm has less than 50 employees	.87	.38	.63
Mid-Size Firm	Respondent's firm has between 50-499 employees	.08	.30	.19
Large-Size Firm	Respondent's firm has more than 499 employees	.05	.31	.18
Female	Respondent is female	.53	.32	.43

* adapted from Jaworski and Kohli (1993)

Table 3. Results

	Grand Mean	Main Effects				Interaction Effects									Control Variables			
		MS	FA	MC	SET[a]	MS* MS	MS* FA	MS* MC	MS* SET	SET* FA	SET* MC	FA* FA	FA* MC	MC* MC	Late Stage	Ind ustry[b]	Comp Orien[c]	Cust Orien[d]
Focal Variables																		
Grand Mean	***-.625***	***.448***	***.079***	***.329***	***-.857***	***-1.019***	***.417***	.003	***.599***	***.735***	***.568***	***-.735***	***.318***	***-.886***	***.068***	***-.147***	***.100***	***.308***
Investor (vs. Entrepreneur)	-.105	-.052	.028	-.074	.098	***.187***	-.065	-.034	-.088	-.117	-.119	.117	-.052	***.171***	.022	.004	.004	-.056
Experience[1]	-.091	.070	.020	.001	-.091	***-.198***	.037	.074	.087	.074	.048	-.074	.037	-.085	-.004	***.048***	-.012	***-.072***
Investor * Experience	-.162	***.100***	.003	.020	-.123	-.087	.039	-.020	.068	.085	.089	-.085	.046	***-.135***	-.006	.045	-.024	.011
Subject-level Control Variables																		
Risk Orientation	***.372***	-.065	-.020	***-.074***	***.159***	***.229***	-.068	-.029	***-.131***	-.067	-.060	.067	.001	.059	-.026	***.052***	.000	.036
MS Background[2]	.018	.093	.027	.043	-.163	-.050	-.059	-.043	.152	-.110	-.116	.110	-.051	.167	-.058	-.021	.050	.070
SET Background[2]	.154	-.087	.025	-.089	.151	-.194	.000	.160	.033	-.027	.004	.027	-.027	.023	.015	.006	-.075	-.053
FA Background[2]	***-.701***	.038	***.116***	.037	-.190	-.056	.006	-.046	.096	***.196***	.130	***-.196***	***.191***	***-.320***	***.153***	.013	.024	.042
MC Background[2]	.283	-.003	-.017	.117	-.097	.156	.042	.035	-.233	-.016	.166	.016	-.058	-.109	-.036	-.048	.066	-.045
Small-Size Firm[3]	***-.313***	***.127***	.062	.090	***-.280***	***-.356***	***.111***	.029	***.216***	***.167***	***.173***	***-.167***	.056	***-.228***	-.016	-.033	-.002	***.110***
Large-Size Firm[3]	***.365***	-.029	-.021	-.034	.084	***.228***	-.084	-.044	-.100	-.097	-.063	.097	-.013	.076	-.056	-.003	-.027	-.062
Female	.090	.057	***.067***	.061	***-.185***	-.013	.046	***-.141***	.109	***.108***	.106	***-.108***	.063	***-.169***	-.042	.030	.012	.039

Bold, red type indicates P(□>0) > 0.975 or P(□<0) < 0.025.

FA = Finance or Accounting; MC = Management or Consulting; MS = Marketing or Sales; SET = Science, Engineering or Technology

[a] SET main effect should be considered similar to an interaction of SET*SET since one founder with an SET background is always included and this coefficient measures preferences for a second SET founder;

[b] Industry is 1 if IT and -1 if life science;

[c] Competitor Orientation is 1 if high focus on competitors and -1 if medium focus on competitors;

[d] Customer Orientation is 1 if high focus on customers and -1 if medium focus on customers;

[1] Experience is 1 if more than 10 years of startup experience and -1 if 0 to 10 years; [2] in comparison to an "other" background; [3] in comparison to mid-size firm