**Three Essays on Entrepreneurial Resource Acquisition Through Crowdfunding**

by

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**ABSTRACT**

Crowdfunding serves as an important means of raising financial resources for entrepreneurs (Mollick, 2014). This thesis is composed of three essays examining the role of various stylistic cues in Crowdfunding. In the first essay, we focus on entrepreneurs' presentation style and examine how and under what conditions passion displayed by entrepreneurs in a Crowdfunding pitch influences funding outcome. In the second essay, we examine whether the effectiveness of entrepreneurs' use of particular linguistic styles in promoting their ventures in Crowdfunding depends on entrepreneur's ethnicity. In the third essay, we examine whether and how colors influence the perceptions and funding decisions of backers in Crowdfunding. We pursued answers to our research questions by using a combination of archival and survey data and our findings provide important implications for both entrepreneurs and crowd investors.

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# CHAPTER 1: GENERAL INTRODUCTION

Entrepreneurs face tremendous challenges in the process of bringing an idea to fruition, the first typically being the acquisition of financial resources (Ko & McKelvie, 2018). In recent years, a growing number of start-ups and small businesses have opted to acquire financial resources via crowdfunding rather than through traditional sources of financing such as banks, venture capitalists, and angel investors (Short, Ketchen Jr, McKenny, Allison, & Ireland, 2017). Extant crowdfunding research suggests that the ability to raise financial capital through crowdfunding is largely determined by entrepreneur's attributes (e.g., Ahlers, Cumming, Günther, & Schweizer, 2015; Johnson, Stevenson, & Letwin, 2018; Mollick, 2014) and product characteristics (e.g., Chan & Parhankangas, 2017; Davis, Hmieleski, Webb, & Coombs, 2017).

However, little is known whether stylistic cues (e.g., images, non-verbal gestures, narratives) might influence the perception and funding decisions of backers in Crowdfunding. This represents a significant gap in the literature because such cues are pervasive in Crowdfunding platforms and more importantly, crowdfunding backers are very much likely to be influenced by these cues due to their lack of investment knowledge and expertise. This thesis, therefore, takes the opportunity to examine three important stylistic cues that are commonly used by entrepreneurs in Crowdfunding and their subsequent impacts on funding outcomes.

In the first essay, we draw on emotion-as-social-information (EASI) framework to propose how and under what conditions passion displayed by entrepreneurs in a pitch influences resource acquisition from crowdfunding backers. Using a combination of archival and survey data, we found that displayed passion influences funding outcomes via two competing mechanisms: positively through increasing funders' enthusiasm and negatively through increasing funders' perception of risk in the venture. Moreover, the perceived risk effect was moderated by venture stage, being stronger for ventures at the early conception stage than for ventures at the late commercialization stage.

In the second essay, we investigate whether entrepreneurs' ethnicity (white vs. non-white) affects the relationship between entrepreneurs' use of particular linguistic styles in promoting their ventures and their ability to raise financial resources through equity crowdfunding. Using a sample of 430 equity crowdfunding projects, we found that the use of past-oriented linguistic style and concrete linguistic style led to greater funding outcomes for ventures with minority founders than it did for those with white founders. Future-oriented linguistic style, on the other hand, was found

to be more beneficial for ventures with white founders. In addition, we found a consistent pattern of results using racial composition of entrepreneurial team rather than the race of individual founders, which implies that investors' bias is not only limited to individual founders' ethnicity but also persists regarding the wider entrepreneurial team.

In the third essay, we investigate whether and how colors influence the perceptions and funding decisions of crowdfunding backers. We argue that funders are necessarily influenced by visual cues, and that color serves as an important heuristic (i.e. mental shortcut) that affects their attitude toward entrepreneurial ventures and consequent funding decisions. Using a combination of 916 reward crowdfunding projects and 350 equity crowdfunding projects, we found that projects that utilize a variety of different colors in video pitches enjoy better funding performance. In addition, we found that while the color red has a negative impact on funding performance, blue has an inverted U-shape relationship with funding performance in that it is positive up to a point and then becomes negative. Finally, we found that the effect of color on funding performance can be seen on reward-based but not equity-based crowdfunding projects, suggesting that the characteristics of investors may serve as an important boundary condition for the effects of visual cues on funding decisions.

## CHAPTER 2: ESSAY 1

## The Double-Edged Sword of Passion:

When and Why Entrepreneurs' Displayed Passion Facilitates Funding Outcomes


### ABSTRACT

Entrepreneurial passion is important, but evidence about the effect of displayed passion in venture financing appears contradictory. Using the emotions-as-social-information perspective, we combined archival crowdfunding projects with survey data, finding that entrepreneurs' displayed passion influenced funding outcomes through two competing mechanisms: increasing investors' enthusiasm, but also increasing their perception of risk in the venture. Moreover, the perceived risk effect was moderated by venture stage, being strongest for ventures at the conception stage. The results provide a richer understanding of how displayed passion shapes investors' funding decisions, resolves conflicting prior findings, and has important implications for both entrepreneurs and investors.



*Key words*: Entrepreneurial pitch, Displayed passion, Emotion-as-social-information (EASI), Venture stage, Crowdfunding


### 2.1 INTRODUCTION

Passion – reflecting intense energy and positive feelings for activities that one identifies with (Cardon, Wincent, Singh, & Drnovsek, 2009) – plays a vital role in many aspects of the entrepreneurial process, including opportunity identification, discovery, exploitation (Cardon, Wincent, et al., 2009; Sundararajan, 2008), entrepreneurial intention (Biraglia & Kadile, 2017), and venture growth (Drnovsek, Cardon, & Patel, 2016). In recent years, there has been increased interest in understanding the role of passion in entrepreneurs' acquisition of financial resources, with recent studies indicating that entrepreneurial passion is an important criterion for many investors, serving as a key indicator of the entrepreneur's motivation, commitment, and ability to persevere (Cardon, Sudek, & Mitteness, 2009; Murnieks, Cardon, Sudek, White, & Brooks, 2016).

Current research on entrepreneurial passion's effects on funding can be divided into two broad streams. The first stream focuses on passion as experienced by entrepreneurs. Using a series of hypothetical venture descriptions, studies in this stream have shown that investors are more

willing to fund a venture if they believe the entrepreneur is highly passionate (Hsu, Haynie, Simmons, & McKelvie, 2014; Murnieks et al., 2016; Warnick, Murnieks, McMullen, & Brooks, 2018). However, when the entrepreneur is interacting with funders (e.g., pitching to prospective investors), rather than being described in a hypothetical scenario, it is an entrepreneur's *displayed* passion which investors observe and use as input for funding evaluations. The second stream of research thus focuses on entrepreneurial pitches and examines how passion displayed by entrepreneurs, such as through animated facial expressions and energetic body movements, influences investors' funding decisions (Chen, Yao, & Kotha, 2009). Most theoretical accounts in this stream suggest that an overt display of passion in an entrepreneur's pitch will increase investors' willingness to invest, but the results of empirical studies have been mixed, with observed effects ranging from positive (Davis et al., 2017; Li, Chen, Kotha, & Fisher, 2017; Mitteness, Sudek, & Cardon, 2012) to insignificant (Cardon, Mitteness, & Sudek, 2017; Chen et al., 2009; Lu, 2018) and even negative (Cardon, Sudek, et al., 2009).

This inconsistency reveals an incomplete understanding of the effects of displayed passion and underscores a need to examine prevailing assumptions. While the common view is that entrepreneurial passion has mainly positive effects, some scholars have postulated that passion can also lead to negative outcomes, such as when it clouds entrepreneurs' judgement (Cardon, Wincent, Singh, & Drnovsek, 2005) - a claim corroborated by Ho and Pollack (2014) concerning obsessive passion. However, in the context of funding pitches specifically, it is unknown whether entrepreneurs' displayed passion has any negative effects. This uncertainty creates a crucial gap in our understanding of the entrepreneurial funding process, one which may lead entrepreneurs to indiscriminately display passion during pitches without being aware of the potential downsides of doing so. From a research standpoint, identifying potential negative effects of displayed passion would provide a more nuanced understanding of the relationship between entrepreneurs and investors, and could help to reconcile the seemingly contradictory findings of previous studies.

In this study, we propose a theoretical framework that incorporates both the potentially positive and negative effects of entrepreneurs' displayed passion on funding outcomes. In particular, we draw on the emotion-as-social-information framework (EASI; Van Kleef, 2009) to propose that entrepreneurs' displayed passion influences investors' decision-making processes via two distinct mechanisms: the *emotional contagion process* and the *cognitive inferential process.* Specifically, we propose that entrepreneurs' displayed passion in a funding pitch increases the

likelihood of investment by increasing investors' own enthusiasm for the venture via the emotional contagion process. At the same time, we propose that displayed passion *decreases* the likelihood of investment by increasing investors' perception of risk in the venture through the cognitive inferential process. Furthermore, since previous findings have shown positive, null, and negative effects from passion, it is important to understand the moderating contingencies involved. We propose that the extent to which entrepreneurs' displayed passion results in more positive or negative outcomes is contingent upon the developmental stage of the venture being pitched. We propose that passion displayed during pitches for ventures at an early stage (conception) results in greater perceived risk among investors, and thus worse outcomes, relative to passion displayed when pitching at a later stage (commercialization).

We tested our hypotheses in the context of crowdfunding, where entrepreneurial ventures seek financial capital from a large pool of novice investors, typically through an online platform (Mollick, 2014). Crowdfunding has become a major source of financing for ventures and has been the context of many studies on entrepreneurial passion, resource acquisition and investment decisions (Ahlers et al., 2015; Davis et al., 2017; Li et al., 2017). We extracted 228 video pitches from Kickstarter, one of the largest reward-based crowdfunding platforms, and recruited 1,090 participants from Amazon's Mechanical Turk to assess those videos (e.g., displayed passion). We then analyzed their assessments in relation to both respondents' likelihood of funding the venture and actual project outcome from archival data. The results supported our predictions.

Our model and findings contribute to the emerging literature on entrepreneurial passion in several ways. First, most previous passion research has investigated only the direct effect of passion displayed by an entrepreneur in a pitch on investors' funding decisions (e.g., Chen et al., 2009). Our study extends this prior research by exploring the mediating mechanisms through which displayed passion affects funding decisions. In addition, our study enriches the prevailing scholarly consensus regarding the benefits of displaying passion in a pitch by also investigating its potential drawbacks. By highlighting the two competing processes whereby passion may influence investors' decision-making, our model not only offers an explanation for the otherwise contradictory findings of previous studies but also provides a framework for understanding when displayed passion may facilitate or hinder investment outcomes. To explain these contingent effects, we show that the effects of displayed passion on financial outcomes depend on the development stage of the venture. Not only does this contingency potentially explain prior results,

but it also advances understanding of the theoretically and practically important, but research-neglected, issue of how ventures' developmental stage influences entrepreneur-investor dynamics. Lastly, our study also contributes to scholarship on the EASI model. The broad utility of the EASI perspective is suggested by the variety of contexts in which it has been successfully used, including negotiation, conflict management, leadership, and teams (Clark, Pataki, & Carver, 1996; Van Kleef et al., 2009). Our work extends the model's applicability to entrepreneurship using it to illuminate entrepreneur-investor interactions.

## 2.2 THEORY AND HYPOTHESE

### 2.2.1 Entrepreneurs' Displayed Passion

Entrepreneurs face tremendous challenges in the process of bringing an idea to fruition, the first typically being the acquisition of financial resources (Ko & McKelvie, 2018). Acquiring financial resources is critical to the development of a new venture, and often such resources come from external investors (Cumming & Johan, 2017). Entrepreneurs generally use oral presentations - commonly referred to as business pitches - as the primary means of presenting their business ideas to prospective investors and persuading them to invest in the venture (Huang & Knight, 2017). Previous research has revealed several decision-making criteria used by investors when assessing a venture, including the entrepreneur's track record, revenue potential, the growth potential of the market, and exit routes (e.g., Sudek, 2006). While investors use market and financial data to guide funding decisions, studies suggest that they also rely on more subtle symbolic cues gleaned from the pitch itself (Zott & Huy, 2007). For instance, the linguistic style of a pitch, such as characterizing the venture as a personal dream, or the frequent use of concrete and precise language, has been found to positively influence investors' funding decisions (Allison, Davis, Webb, & Short, 2017; Chan & Parhankangas, 2017).

In this regard, a growing body of work has examined the role of entrepreneurs' displayed passion in business pitches. Passion in entrepreneurship is defined as "consciously accessible, intense positive feelings experienced by engagement in entrepreneurial activities" (Cardon, Wincent, et al., 2009, p.517). In the context of a pitch, prior research suggests that entrepreneurial passion is accompanied by unique physical manifestations, including facial expressions, body movements, and vocal tone (Chen et al., 2009). Scholars argue that displaying passion in a pitch is critical to persuading potential investors, because it can give investors more confidence in

entrepreneurs, especially when the product or market in question is highly uncertain (Zacharakis & Shepherd, 2001). The cues of displayed passion may provide a strong indication of how motivated and committed an entrepreneur is to the venture (Murnieks et al., 2016), and how persistent they will be in the face of obstacles (Cardon & Kirk, 2015). It has also been suggested that displayed passion may lead investors to get caught up in the entrepreneur's excitement through emotional contagion, which in turn prompts the investor to view the proposed venture in a more positive light (Cardon, 2008). This line of reasoning suggests that the passion an entrepreneur displays in a pitch should have a positive influence on funding decisions.

We are aware of seven prior studies examining the effect of entrepreneurs' displayed passion on investors' funding decisions, and their results suggest potential contradictions. In one of the first studies, Chen et al. (2009) divided entrepreneurs' passion into affective and cognitive dimensions. Affective or *displayed passion* refers to the extent to which entrepreneurs exhibit enthusiasm and energy in facial expression, body language, and vocal tone during a pitch; while cognitive passion or *displayed preparedness* denotes the extent to which entrepreneurs exhibit a thorough understanding of their business idea through the content of the pitch. In two experiments, they found that while displayed preparedness increased investors' willingness to fund a venture, displayed passion had no effect on investors' decisions. Following this study, Cardon et al. (2009) examined the effect of passion in the context of angel investing. Using a sample of 59 real investment pitches, they found that entrepreneurs' displayed passion actually decreased, rather than increased, angel investors' interest at the screening stage, and had no effect at the final investment stage. Instead, Cardon et al. (2009), like Chen et al. (2009), found that displayed preparedness positively influenced investors' decision to invest in a venture. However, in contrast to these findings, Mitteness et al. (2012) found that displayed passion positively influenced angel investors' funding decisions, and that this effect was stronger for investors who were older, used a more intuitive cognitive style, had a more open personality, or had a strong proclivity for mentorship. A more recent study by Cardon et al. (2017), on the other hand, found that displayed passion did not have a significant effect on angel investors' funding evaluations, but that displayed preparedness did - consistent with the prior findings.

Scholars have also examined the effect of displayed passion in the context of crowdfunding, with results similar to those above. Both Davis et al. (2017) and Li et al. (2017) found that displayed passion positively influenced funding outcomes. Furthermore, they showed

that these positive effects were mediated by funders' own positive affect or enthusiasm. These two studies thus provide empirical support for prior predictions that entrepreneurs' displayed passion may lead to emotional contagion, wherein backers and investors get caught up in the entrepreneur's excitement and are thus motivated to provide financial support. In contrast, Lu (2017) found that while displayed passion positively influenced crowdfunding performance, this positive effect disappeared after controlling for the entrepreneur's displayed preparedness, again suggesting that it is the entrepreneur's understanding of a business idea, as conveyed through the content of the pitch (i.e. preparedness), which matters to investors - not entrepreneurs' affective manifestation of passion. Thus, the crowdfunding results seem consistent with those from traditional investors.

In sum, existing studies provide mixed, and potentially conflicting, evidence about the effect of displayed passion on investors' responses, both in the traditional funding context as well as in crowdfunding. A close consideration of these findings highlights the possibility that displayed passion may have both positive and negative effects on investors, and that there may be contextual factors which determine the relative strength of each effect. While a mediated positive effect of displayed passion through emotional contagion has been empirically demonstrated, it did not control for the effect of displayed preparedness, which other studies suggest is the better predictor of outcomes (e.g., Cardon, Sudek, et al., 2009). Moreover, the potential downside of displayed passion has been neglected empirically. Theoretically, Chen et al. (2009) suggested that displayed passion may entail some negative effects by postulating "it is possible that investors were more aware of the danger of emphasizing emotional expression (displayed as passion) as opposed to the substance of the business plans being presented to them" (p.210). Similarly, Cardon and colleagues (2009, 2017) argued that investors may be wary of some aspects of displayed passion. Nonetheless, no empirical research has yet been conducted to substantiate these claims and hence it remains unclear whether, how, and when entrepreneurs' displayed passion might negatively influence funding decisions. In order to contribute to this body of work and to address the contradictory results of previous studies, we developed a model of the relationship between entrepreneurs' displayed passion and investors' funding decisions, one which takes into account both potential positive and negative effects, as well as conditions that affect the relative strength of each path.

### 2.2.2 Displayed Passion as Social Information

Rooted in a social-functional understanding of emotion, the emotions-as-social-information theory (EASI; Van Kleef, 2009)) explains the role of expressed emotions in social

interaction and decision-making. In particular, this theory posits that individuals' expressions of emotion influence observers via two distinct mechanisms: an affective path and an inferential path (Van Kleef, De Dreu, & Manstead, 2010). The affective path operates primarily through emotional contagion. An individual's expressed emotions may directly influence observers' emotions, and thereby shape their resulting attitudes and behaviors. For example, when individuals "catch" others' happiness through emotional contagion, those individuals tend to view the current situation in a more positive light, which leads to greater generosity and openness to exploration (Ashby & Isen, 1999; Baas, De Dreu, & Nijstad, 2008). In contrast, the inferential path involves a cognitive process whereby observers draw inferences about others based on their displayed emotion. In this context, displayed emotions are used by observers to determine the expresser's feelings, beliefs, and social intentions. For example, studies have demonstrated that followers infer the quality of their own task performance by observing the emotions expressed by their leaders (Fitness, 2000; Van Kleef et al., 2009). Given that passion is an intense positive emotion, an entrepreneur's display of passion during a pitch is likely to influence investors' funding decisions through both affective and inferential means. In the following sections, we therefore use the EASI model to consider the mechanisms through which entrepreneurs' displayed passion may influence funding decisions.

### 2.2.3 Displayed Passion and the Emotional Contagion Process

An individual may subconsciously and automatically experience emotions similar to those of individuals they are interacting with, and this process is referred to as emotional contagion (Barsade, 2002). The contagion process takes place primarily via behavioral mimicry, in which people spontaneously imitate facial expressions, body gestures, speech rates, and vocal tones of others (Chartrand & Bargh, 1999; Dimberg, 1982). When people engage in behavioral mimicry, they experience corresponding emotions through physiological changes in their muscular, visceral, and glandular responses (Hatfield, Cacioppo, & Rapson, 1992). Such contagion effects, and their behavioral consequences, have been demonstrated both in the laboratory (Sy, Côté, & Saavedra, 2005) and in field studies (Song, Foo, & Uy, 2008). For example, Sy et al. (2005) found that when leaders were in a positive mood, their team members not only reported a more positive mood themselves, but also exhibited greater coordination than did teams with leaders in a negative mood.

Entrepreneurs will often manifest their passion during business pitches through direct verbalization (e.g., "we are so excited about this project!"), as well as non-verbal cues such as animated facial expressions, expressive vocalization, and lively body gestures (Chen et al., 2009).

These cues can transmit the entrepreneur's passion to potential investors, consequently increasing the investors' own enthusiasm for the business venture. When potential investors observe entrepreneurs displaying passion, they are likely to subconsciously copy nonverbal cues such as animated facial expressions. In turn, this mimicry will elicit positive affective reactions such as enthusiasm, leading investors to experience a greater level of passion and excitement.

When potential investors "catch" an entrepreneur's passion, their resulting enthusiasm can influence their investment decisions via different kinds of affect infusion (Van Kleef et al., 2010). First, investors may (mis)attribute their positive affective state to the particular entrepreneurial project and subsequently allow their enthusiasm to influence their investment decisions, consistent with the "how do I feel about it?" heuristic (Schwarz & Clore, 1983). Indeed, under conditions of high ambiguity and uncertainty - such as those encountered by early-stage investors – emotional reactions play a particularly important role in individuals' judgement and decision-making (Loewenstein, Weber, Hsee, & Welch, 2001). In fact, early-stage investors often report relying on "gut feeling" when evaluating potential ventures (Chen et al., 2009). Investors may thus favor projects that make them feel excited. Second, investors' enthusiasm also may selectively direct their attention and memories of the entrepreneurial project through affect priming, thereby influencing their investment decisions (Bower, 1981). In other words, as investors evaluate the venture for potential investment, the enthusiasm induced by entrepreneurial passion may lead them to selectively focus on the positive aspects of the entrepreneurial project, making them more willing to invest. Based on this reasoning, we predict that entrepreneurs' displayed passion will increase investors' enthusiasm, which in turn will increase the likelihood of investment. In this regard, we note that Li et al. (2017) have already demonstrated this effect, but did so without controlling for the effect of displayed preparedness, which several other studies have shown to eliminate the effect of displayed passion on funding outcomes. Consequently, our first hypothesis addresses an empirically important replication and extension.

> **Hypothesis (H1).** *Investors' enthusiasm mediates the relationship between entrepreneurs' displayed passion and investors' probability of investment, such that displayed passion increases investor enthusiasm and investor enthusiasm increases the probability of investment.*

### 2.2.4 Displayed Passion and the Inferential Process

The second element of the EASI model involves inferential processes (Van Kleef, 2009). Given that individuals express specific emotions in certain circumstances, observing a particular emotion expressed by another person can provide meaningful information regarding the expresser's current feelings, intentions, and relational orientation (Ames & Johar, 2009). As a result, observers make conscious judgements based on information inferred from an expresser's displayed emotions (Caza, Zhang, Wang, & Bai, 2015; Miron-Spektor, Efrat-Treister, Rafaeli, & Schwarz-Cohen, 2011).

Emotion is often viewed as antithetical to rationality such that logical reasoning requires eradication of the impact of emotions (Haidt, 2001). When an entrepreneur passionately pitches their business idea, investors may be apt to infer that the entrepreneur could easily get carried away by that passion and make irrational decisions, including ones detrimental to the venture. Consistent with this view, studies on entrepreneurship suggest that positive emotions - especially those high in arousal such as passion - can increase entrepreneurs' susceptibility to various cognitive biases, including optimistic bias and the planning fallacy (Baron, 2008; Baron, Hmieleski, & Henry, 2012). Excessively optimistic entrepreneurs tend to overestimate profitability and underestimate competition, resulting in poor decisions and lower earnings (Gudmundsson & Lechner, 2013; Lowe & Ziedonis, 2006). Likewise, entrepreneurs subject to the planning fallacy tend to set unrealistically favorable project deadlines and underestimate the time, money, and resources needed to successfully commercialize their business idea (Baron, 1998).

Consistent with the cliché that "love is blind," prior research suggests that passionate entrepreneurs may be blind to significant risks surrounding their ventures, and prone to focus myopically on certain aspects while ignoring other, equally important, matters which may end up being detrimental to the venture (Bélanger, Lafrenière, Vallerand, & Kruglanski, 2013). Passionate individuals may also display a rigid persistence in the face of factors which might negatively affect venture performance (Vallerand, Houlfort, & Fores, 2003). Furthermore, Morris, Kuratko, Schindehutte and Spivack (2012) suggest that passionate entrepreneurs often view their venture as an extension of themselves, which may cause them to view any negative feedback as a direct attack on their identity, and thus cause them to react poorly. Therefore, potential investors may view more passionately-presented ventures as higher risk ones, since they may use the entrepreneurs'

displayed passion to infer tendencies such as over-optimism, planning fallacy, blindness, and resistance to feedback.

It is important to note, however, that investors may also infer positive information from displayed passion, such as an entrepreneur's motivation and commitment to the venture. Nonetheless, we expect that the inferential downsides of displayed passion will outweigh the positive ones, so that the net effect of displayed passion on cognitive processing will be to increase investors' perception of risk. We believe that negative inferences will overwhelm good ones because of the psychological tendency for negative thoughts to be more influential in one's decision-making (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Fiske, 1980). The asymmetric effect of positive and negative information has been observed across a wide range of human behavior (Eby, Butts, Durley, & Ragins, 2010; Tversky & Kahneman, 1992). For instance, when forming an impression of others, negative information tends to contribute more strongly to our impression than positive information (Ikegami, 1993). As a result, we expect that negative traits (e.g., optimistic bias, blindness) inferred from an entrepreneur's displayed passion will contribute more strongly to an investor's perception of risk than will positive implications of displayed passion (e.g., motivation, persistence). Therefore, we predict that displayed passion will lead investors to perceive more risk in the proposed venture, which in turn will deter them from providing financial support.

> **Hypothesis (H2).** *Investors' risk perceptions mediate the relationship between entrepreneurs' displayed passion and investors' probability of investment, such that displayed passion increases perceived risk and perceived risk decreases investors' probability of investment.*

### 2.2.5 Moderating effect of venture stage

Up to this point, we have theorized that entrepreneurs' displayed passion influences investors' funding decisions via two competing mechanisms: positively by increasing investors' enthusiasm, and negatively by increasing investors' perception of risk. The competing nature of these indirect effects makes it important to understand under which conditions displayed passion elicits stronger positive or negative responses. Prior studies suggest that responses to emotional expression depend on various contextual factors such as intensity of emotion (Cheshin, Amit, & Van Kleef, 2018), observers' information processing motivation (Van Kleef, 2010), the nature of the interpersonal relationship between expresser and observer (Clark & Taraban, 1991), cultural

norms (Adam & Shirako, 2013), and the context in which emotions are expressed (Adam & Brett, 2015). In particular, the inferential process is known to be more sensitive to contextual factors than the emotional contagion process, as emotions carry different meanings in different contexts. This difference suggests that the extent to which investors will infer risk from entrepreneurs' passion will be particularly contingent upon the context in which that passion is displayed.

Although all ventures seeking financial support are similar in that they tend to be relatively nascent, differences do exist among them which might affect how potential investors are influenced by entrepreneurs' displayed passion. The most notable difference is the stage of venture development at which an entrepreneur chooses to seek funding. Entrepreneurial ventures seeking financial support are most often in either the conception (early) or commercialization (late) stages of development (Koberg, Uhlenbruck, & Sarason, 1996). Conception is the stage wherein a new business idea is first identified and described (Kazanjian, 1988). Ventures at this stage typically seek funds to begin or continue the early development of a product/service, with entrepreneurs presenting only their ideas or prototypes that require further refinement. In contrast, commercialization is the stage at which the prototype has been successfully tested and refined; this stage is characterized by entrepreneurs' efforts to develop production and promotion strategies (Kazanjian & Drazin, 1990). Ventures at this stage typically utilize external financing to help bring the product/service to the market. For instance, in the case of a virtual reality headset, one project might present the initial idea or prototype and seek the financial resources needed to complete product development (conception), while another might present a completed virtual reality headset and solicit the funding needed for manufacturing and mass production (commercialization).

We posit that this difference in venture stage will strongly influence the extent to which investors perceive risk from passion displayed by entrepreneurs in a pitch, and thus the likelihood of investing. When the project being pitched is at the early conception stage, we argue that potential investors will infer more negative implications from entrepreneurs' displayed passion, and thus perceive greater risk in the proposed venture. At conceptualization, there is less concrete information available and entrepreneurs will have completed less work on their venture. Since signals rooted in behavior are more credible than verbal promises (Busenitz, Fiet, & Moesel, 2005), investors are more likely to think that entrepreneurs at conceptualization might get carried away by passion more easily and make poor business decisions. Potential investors are more likely to think that the entrepreneur is overly optimistic and is underestimating the time and resources

needed to successfully commercialize their business idea when the project is at the conception stage. Conversely, when a project is pitched at the later commercialization stage, investors are less likely to draw such negative inferences (e.g., over-optimism, blindness) from displayed passion because entrepreneurs will have demonstrated that they can follow through on their business idea; there will be some concrete evidence of the entrepreneur's ability to execute. Therefore, venture stage likely influences the strength of the relationship between entrepreneurs' displayed passion and investors' perceived risk, such that entrepreneurs' displayed passion leads to greater perceived risk by investors at the conception stage than at the commercialization stage.

> **Hypothesis (H3)**. *Venture stage moderates the mediated effect of displayed passion on investors' probability of investment through investors' perceived risk, such that displayed passion leads to greater perceived risk for ventures at the conception stage than at the commercialization stage.*

## 2.3 METHODOLOGY

### 2.3.1 Overview

We used a combination of archival and survey data to test our hypotheses. We selected project videos from Kickstarter, one of the largest reward-based crowdfunding platforms, and recruited participants from Amazon's Mechanical Turk to assess those video pitches. In the first analysis, called Study 1a, we tested the indirect and the conditional indirect effects of entrepreneurs' displayed passion by analyzing respondents' evaluation of a venture in relation to their own willingness to invest in that venture. In the second analysis, Study 1b, we aggregated the evaluations from multiple respondents to the project level and tested the same relationship using actual project outcomes from archival data.

### 2.3.2 Sample and Data

**Entrepreneurial projects**

We selected a sample from all US-based technology-related crowdfunding projects launched on Kickstarter between June 2017 and July 2018. We limited our sample to US-based projects to control for country and language effects. We focused only on technology-related projects as this category most closely reflects conventional entrepreneurial ventures, compared to other Kickstarter categories such as film and art (Chan & Parhankangas, 2017; Li et al., 2017). A total of 2,820 US-based technology projects was retrieved at the time of data collection in 2019.

We selected our final sample of 229 projects for inclusion in our study in five stages. First, we eliminated two cancelled and two suspended projects. Second, following Mollik (2014) and Li et al. (2017), we excluded 483 projects that sought less than $5,000 because projects at this low funding level often are not considered serious entrepreneurial endeavors. Third, we dropped 498 projects that did not have video pitches on the project web page. Fourth, given our focus on entrepreneurs' displayed passion, 919 projects were eliminated because the entrepreneurs or project creators did not appear in the videos. Finally, consistent with Li et al.'s (2017) approach, we sorted the remaining 916 projects in ascending order by funding amount and randomly selected one out of every four projects. Strictly speaking, this method is not random sampling, but it does provide a relatively random selection that also maximizes variance in a key project outcome variable. That is, the likelihood of projects meeting their funding target. In addition, the comparison between 229 projects and 916 projects in terms of various project characteristics such as funded amount, number of backers and funding target did not reveal any statistically significant differences between two groups, suggesting that our final sample of 229 projects is representative of 916 projects.

**Study 1a: Survey Data**

Amazon's Mechanical Turk (MTurk) is a reliable and established means of collecting research data in general (Mason & Suri, 2012) and one that is frequently used in crowdfunding studies because of MTurk workers' demographic similarity to actual crowdfunders (e.g., Chan & Parhankangas, 2017). We recruited 1,145 MTurk participants, paying $1.50 for their participation. Given that the average completion time was 11 minutes, the rate of compensation was comparable to that used in prior management research (Allison et al., 2017; Welsh & Ordóñez, 2014). We limited our study participants to individuals who were over the age of 18, were located in the United States, had previously completed more than 500 surveys, and had approval rates of at least 99%.

1,145 participants each watched one video pitch randomly selected from the sample of 229. All videos were extracted from the project web page so that no other project information was available. After watching the video, participants completed all survey measures (e.g., displayed passion, perceived risk; see Appendix for detailed measurement scales). To increase reliability and validity, we used time stamp functions to ensure that participants were not able to skip the video and incorporated three attention-check questions into the survey. Fifty-three participants were

removed due to attention-check failures, and two more participants were dropped due to unreasonable answers on demographic questions (e.g., age = 2 years). These removals led to the loss of one project. In the end, we had 1,090 observations across 228 projects, with each project rated by an average of 4.78 participants.

### 2.3.3 Study 1a: Measures

Consistent with prior entrepreneurial funding research (Chen et al., 2009; Warnick et al., 2018), we measured participants' probability of investment using a single-item measure: *willingness to invest* in the project. After watching the video, participants were asked, "If you were an investor, how likely would you be to invest in this project?" which they indicated on a scale from 1 (very unlikely) to 7 (very likely). To assess entrepreneurs' *displayed passion*, we used Chen et al.'s (2009) six-item scale of displayed passion, which reflects entrepreneurs' passion communicated through body language, facial expression, and vocal tones. *Enthusiasm* was measured using the seven-item scale from Li et al. (2017), which captures the degree to which participants felt excited and enthusiastic after watching the video. *Perceived risk* in the project was measured using three items from the perceived risk in the venture measure of Keh, Der Foo, and Lim (2002), combined with two additional items from Jordan and Kaas' (2002) perceived risk measure. All of these measures achieved high internal reliabilities: displayed passion ($\alpha = 0.93$), enthusiasm ($\alpha = 0.88$), and perceived risk ($\alpha = 0.92$).

We operationalized venture stage as a dichotomous variable. *Venture stage* was coded 0 (indicating the conception stage) if funds were sought to either begin or continue development of a product. Ventures at this stage typically present the initial idea or preliminary prototype and seek the financial resources needed to complete product development. Venture stage was coded 1 (i.e., commercialization stage) if funds were sought to bring an already developed product to market. Venture at this stage typically present the production prototype that has been successfully tested and refined and solicit funds for mass production. We recruited and trained two coders to evaluate each project. They were instructed to watch the crowdfunding video pitches and code each project as 1 or 0 for venture stage. Their inter-coder reliability was 1.0, and the coders' assessment of venture stage matched perfectly with that of the authors.

In addition, we included ten control variables to account for entrepreneur, funder, and project-level heterogeneity that prior research has linked to investment decisions. To account for potential effects stemming from entrepreneurs' demographic characteristics, we controlled for

entrepreneur gender and race using two dichotomous variables (e.g., Becker-Blease & Sohl, 2007). *Entrepreneur's gender* was coded 1 if the lead entrepreneur (in case of a team) was male and 0 otherwise. Similarly, *entrepreneur's race* was coded 1 if the lead entrepreneur was Caucasian and 0 otherwise. We also controlled for *funder's gender* by coding it 1 if the participant was male and 0 otherwise, as well as *funder's age* using a numeric value in years. In addition, since potential funders' prior experience in crowdfunding may influence the way they perceive different projects, we controlled for participants' *funding experience* with a dichotomous variable coded 1 if that participant had previously funded a crowdfunding project and 0 otherwise.

To account for potentially important project differences, we controlled for the *level of the funding goal* (log transformed dollars to account for skew) as prior studies demonstrated that the funding goal has a significant impact on individuals' probability of investment (Mollick, 2014). In addition, we controlled for *the presence of a team* (1 if the video pitch presented a team vs 0 if the video pitch showed a single entrepreneur) because a project led by a group of entrepreneurs may imply a different level of resources available for the venture. We also controlled for *video length* (minutes) as it could affect the level of attention funders paid to the video pitches and thus affect their subsequent funding decisions. Lastly, to control for perceived project quality, we used Chen et al. (2009)'s five-item *preparedness* scale ($\alpha = 0.9$) and Sethi, Smith and Park (2001)'s project *innovativeness* scale ($\alpha = 0.93$). The Appendix provides all measurement scales used in this study.

We tested our hypotheses using the PROCESS macro in SPSS (Hayes, 2013), which offers an estimation of conditional indirect effects with multiple mediators (Model 7 in PROCESS). We obtained estimates for the paths of the model through OLS regression analyses using heteroscedasticity-consistent standard errors. and tested the significance of indirect effects using bias-corrected confidence intervals from 5,000 bootstrapped random samples (Hayes, 2013). Coefficients were considered significant if the corresponding 95% confidence interval did not contain zero.

## 2.4 EMPIRICAL RESULTS

### 2.4.1 Study 1a: Results

Table 1 provides means, standard deviations, and correlations for the variables used in the study. The majority of the entrepreneurs were male (81%) and Caucasian (82%). Most videos (63%) used a single entrepreneur, rather than a team, and more than half (69%) of the projects had

progressed beyond the conception stage when funds were sought. Half of the study participants were female and slightly more than a third of participants (38%) had prior crowdfunding experience.

Examination of the data suggested that it was appropriate for use in testing our hypotheses. Post hoc power analysis revealed that the statistical power for this study (N = 1,090; 13 predictor variables; two-tailed tests at .05 alpha level) exceeded 0.99 for detecting a small effect size ($f_2$ = 0.02). Likewise, all variance inflation factors were below the suggested benchmark of 3, suggesting no multicollinearity concerns (Cohen, West, & Aiken, 2014).

**Table 1: Mean, SD, and Correlations of the variables (Study 1a)**

| | Variables | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Willingness to invest | 3.81 | 1.81 | | | | | | | | | | | | | | |
| 2 | Displayed passion | 4.5 | 1.49 | .38** | | | | | | | | | | | | | |
| 3 | Enthusiasm | 4.67 | 1.42 | .71** | .50** | | | | | | | | | | | | |
| 4 | Perceived risk | 3.8 | 1.47 | -.60** | -.26** | -.58** | | | | | | | | | | | |
| 5 | Venture stage [b] | 0.69 | 0.46 | .11** | .05 | .11** | -.13** | | | | | | | | | | |
| 6 | Funding goal [a] | 10.14 | 1.03 | .13** | .06* | .09** | -.08** | -.03 | | | | | | | | | |
| 7 | Entrepreneur's gender [b] | 0.81 | 0.4 | -.02 | -.06* | -.02 | .06* | .12** | -.04 | | | | | | | | |
| 8 | Entrepreneur's race [b] | 0.82 | 0.39 | -.02 | .05 | . | . | -.03 | -.11** | .05 | | | | | | | |
| 9 | Team [b] | 0.37 | 0.48 | .11** | .14** | .11** | -.06 | .04 | .15** | .09** | -.03 | | | | | | |
| 10 | Video length (min) | 2.9 | 1.13 | .07* | .05 | .02 | -.08** | -.05 | .14** | -.05 | -.05 | .15** | | | | | |
| 11 | Funder's gender [b] | 0.5 | 0.5 | -.17** | -.05 | -.12** | .19** | .01 | -.03 | -.02 | -.04 | .01 | .01 | | | | |
| 12 | Funder's age | 40.48 | 11.97 | -.03 | .01 | .10** | . | .01 | -.01 | . | . | . | .03 | -.09** | | | |
| 13 | Funder’s funding experience [b] | 0.38 | 0.49 | .04 | .04 | .06 | -.02 | -.04 | .05 | -.01 | -.03 | .01 | . | .02 | -.10** | | |
| 14 | Innovativeness | 4.87 | 1.46 | .72** | .43** | .72** | -.59** | .07* | .12** | . | .01 | .13** | .10** | -.17** | .07* | .03 | |
| 15 | Preparedness | 5.15 | 1.27 | .58** | .47** | .62** | -.57** | .09** | .14** | -.04 | .04 | .15** | .14** | -.14** | -.04 | .02 | .65** |

*Note.* $N$ = 1,090. [a] Variables are natural-logged. [b] Binary variable. * $p < 0.05$, ** $p < 0.01$. All tests are two-tailed tests.

Table 2 presents the results of hypotheses testing. Hypotheses 1 and 2 predicted that participants' experienced enthusiasm and perceived risk, respectively, would mediate the effect of entrepreneurs' displayed passion on participants' probability of investment. Model 1 shows that entrepreneurs' displayed passion increased participants' experienced enthusiasm ($b$ = 0.17, $p$ < 0.001), and this enthusiasm in turn increased their willingness to invest in the project (Model 3; $b$ = 0.45, $p$ < 0.001). Model 2 shows that entrepreneurs' displayed passion increased participants' perceived risk ($b$ = 0.07, $p$ = 0.03), which in turn decreased their willingness to invest (Model 3; $b$ = -0.2, $p$ < 0.001). We used bootstrapping to examine the significance of these mediation effects. As summarized in Figure 1a, the indirect effect of displayed passion on willingness to invest via enthusiasm was 0.08 (SE = 0.01, CI [0.05; 0.01]) while the indirect effect through perceived risk was -0.01 (SE = 0.01, CI [-0.03; -0.002]). Given that in both paths the bias-corrected 95% confidence interval did not include zero, Hypotheses 1 and 2 were supported.

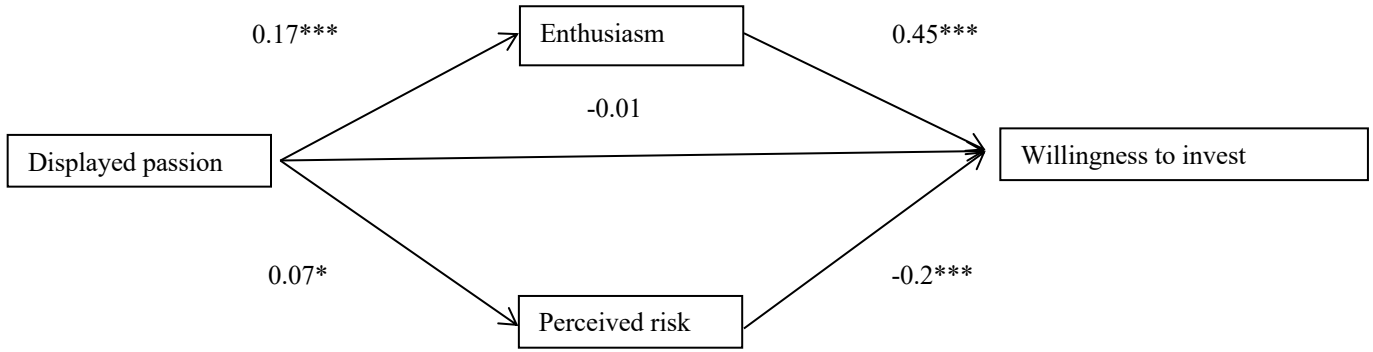
## Table 2: Indirect and conditional indirect effects of entrepreneurs' displayed passion (Study 1a)

| | Indirect effects | | | Conditional indirect effects | | |
|---|---|---|---|---|---|---|
| Variables | Enthusiasm | Perceived risk | Willingness to invest | Enthusiasm | Perceived risk | Willingness to invest |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Constant | 0.25 (.32) | 6.88*** (.43) | 0.22 (.5) | 0.38 (.35) | 6.71*** (.45) | 0.22 (.5) |
| Funding goal [a] | -0.01 (.03) | 0.01 (.04) | 0.06† (.03) | -0.01 (.03) | 0.01 (.04) | 0.06† (.03) |
| Entrepreneur's gender [b] | 0.01 (.07) | 0.19* (.08) | -0. (.08) | -0.01 (.07) | 0.23** (.08) | -0 (.09) |
| Entrepreneur's race [b] | -0.1(.07) | 0.05 (.09) | -0.1 (.08) | -0.1 (.07) | 0.05 (.09) | -0.09 (.08) |
| Team [b] | -0.01 (.06) | 0.09 (.07) | 0.03 (.07) | -0.01 (.06) | 0.09 (.07) | 0.03 (.07) |
| Video length (min) | -0.09*** (.03) | -0 (.00) | 0.02 (.03) | -0.09*** (.03) | -0.01 (.03) | 0.02 (.03) |
| Funder's gender [b] | 0.03 (.06) | 0.25*** (.07) | -0.13† (.07) | 0.03 (.06) | 0.26*** (.07) | -0.13† (.07) |
| Funder's age | 0.01*** (.00) | 0 (.00) | -0.01*** (.00) | 0.01*** (.00) | 0 (.00) | -0.01*** (.00) |
| Funder's funding experience [b] | 0.12* (.06) | -0.03 (.07) | 0.00 (.07) | 0.12* (.06) | -0.03 (.07) | 0 (.07) |
| Innovativeness | 0.48*** (.03) | -0.39*** (.03) | 0.45*** (.04) | 0.48*** (.03) | -0.39*** (.03) | 0.45*** (.04) |
| Preparedness | 0.27*** (.03) | -0.39*** (.04) | 0.03 (.04) | 0.26*** (.03) | -0.38*** (.04) | 0.03 (.04) |
| Passion | 0.17*** (.03) | 0.07* (.03) | -0.01 (.03) | 0.13** (.04) | 0.13** (.04) | -0.01 (.03) |
| Enthusiasm | | | 0.45*** (.04) | | | 0.45*** (.04) |
| Perceived risk | | | -0.2*** (.04) | | | -0.2*** (.04) |
| Venture stage [b] | | | | -0.16 (.21) | 0.19 (.23) | |
| Passion*Venture stage | | | | 0.06 (.04) | -0.1* (.05) | |
| $R^2$ | 0.60*** | 0.42*** | 0.63*** | 0.6*** | 0.43*** | 0.63*** |
| F (HC0) | 162.82 | 91.25 | 217.57 | 137.84 | 78.25 | 217.57 |

*Note.* $N$ = 1,090. Unstandardized coefficients are reported, with heteroskedasticity consistent standard errors in parentheses.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

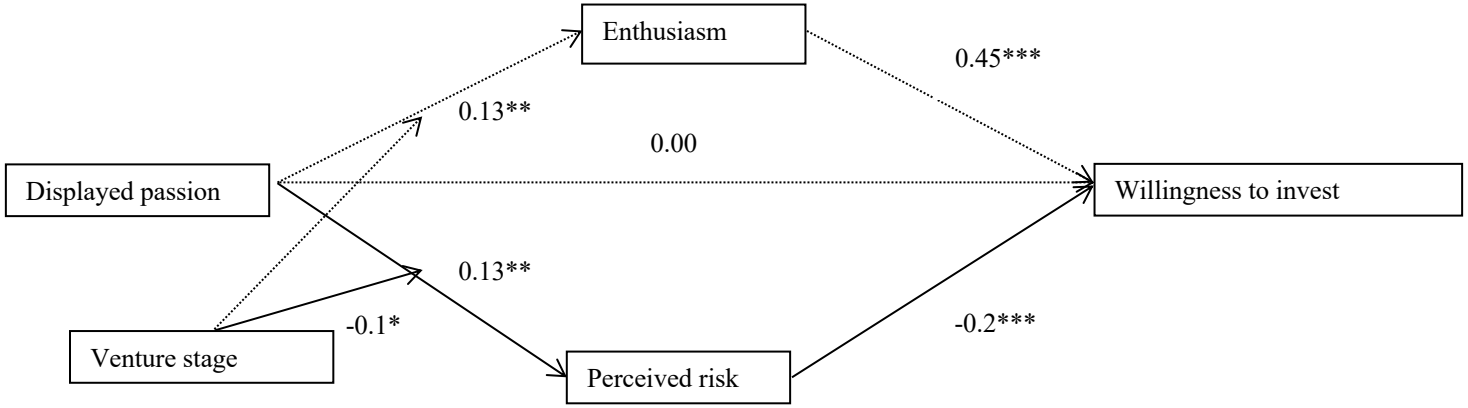
**Figure 1: Indirect and conditional indirect effect of entrepreneurs' displayed passion (Study 1a)**

1(a): Indirect effects of displayed passion for participants' willingness to invest




Indirect effect via enthusiasm: $b$ = 0.08, SE = 0.01, CI [0.05;0.1]
Indirect effect via perceived risk: $b$ = -0.01, SE = 0.01, CI [-0.03; -0.002])

1(b): Conditional indirect effects of displayed passion for participants' willingness to invest




Indirect effect through perceived risk at conception stage: $b$ = -0.03, SE = 0.01, CI [-0.05; -0.01]
Indirect effect through perceived risk at commercialization stage: $b$ = -0.01, SE = 0.01, CI [-0.02;0.01]

Models 4 to 6 in Table 2 present the results concerning the conditional indirect effect of entrepreneurs' displayed passion on participants' willingness to invest in the project. Hypothesis 3 predicted that venture stage would moderate the first stage of the mediation process via perceived risk. As shown in Model 5, the effect of displayed passion on perceived risk was moderated by venture stage ($b$ = -0.1, $p < 0.5$) and perceived risk in turn predicted participants' willingness to invest in the project (Model 6; $b$ = -0.2, $p < 0.001$). More specifically, displayed passion led to increased perceived risk for ventures at conception stage ($b$ = 0.13, $p < 0.01$) but not for ventures at commercialization stage ($b$ = 0.03, $p$ = 0.39). Bootstrap analysis further revealed that the magnitude of the indirect effect of displayed passion on participants' willingness to invest via perceived risk significantly differed between ventures at the conception stage and those at the commercialization stage. The results, as summarized in Figure 1b, suggest that the indirect effect of displayed passion via perceived risk was significant for ventures at the conception stage ($b$ = -0.03, SE = 0.01, CI [-0.05; -0.01]), but not significant for ventures at the commercialization stage ($b$ = -0.01, SE = 0.01, CI [-0.02; 0.01]). Thus, Hypothesis 3 was supported.

**2.4.5 Study 1b: Method**

The results above supported our theoretical model. However, two major concerns raise questions about the robustness of our findings. First, when a single self-report questionnaire is used to collect data on both the independent and dependent variables, common method bias may produce false internal consistency or common method bias (Chang, Van Witteloostuijn, & Eden, 2010). Second, since the dependent variable (i.e., willingness to invest) was both attitudinal and prospective, it is unclear whether participants' responses reflect what actual funders would do in real crowdfunding contexts. To address these concerns, we carried out additional analyses in which we aggregated participants' responses on our explanatory variables (e.g., displayed passion) to the project level, and then examined their effects on actual project outcome from archival data.

To assess project funding performance, we followed prior crowdfunding research (Anglin et al., 2018; Gafni, Marom, & Sade, 2019) and used the key outcome measure of whether the project's funding goal was met. Kickstarter utilizes an all-or-nothing model such that entrepreneurial ventures receive no funds if they fail to meet the funding goal that was set at the beginning of the campaign. This model not only ensures that reaching the funding goal is a salient measure of crowdfunding performance for entrepreneurial ventures but also increases comparability with other research in more traditional funding contexts that use funding success as

a key dependent variable (Cardon, Sudek, et al., 2009). Thus, we operationalized funding performance by using a binary variable *Success* coded as 1 if the project successfully met its funding goal and 0 otherwise.

In addition, we found sufficient between-group variance and within-group agreement to justify aggregation of the predictors to the project level (Shieh, 2016): Displayed passion: ICC1=0.2, ICC2=0.6; Enthusiasm: ICC1=0.07, ICC2=0.33; Perceived risk: ICC1=0.2, ICC2=0.59; Innovativeness: ICC1=0.17, ICC2=0.56; Preparedness: ICC1=0.26, ICC2=0.68. Since each project was assessed by a different set of randomly selected respondents, we calculated ICC values using the absolute agreement, one-way random effects model (Bliese, 2000).

Consistent with Study 1a, we included control variables to account for entrepreneur and project-level heterogeneity including entrepreneurs' gender and race, video length, funding goal, the presence or absence of an entrepreneurial team, innovativeness and preparedness, since all of these variables are likely to influence project success. However, we did not control for participants' gender, age and funding experience as the survey participants did not actually participate in any of the crowdfunding projects under study; rather we used their perceptions as proxy measures of those experienced by the funders. In contrast, there were four additional project-related control variables that were important to include because their potential effects on funding success. Participants in Study 1a would not have been aware of these factors, but the actual Kickstarter participants would have. We first controlled for the number of *rewards* offered by each project using a count variable (Allison et al., 2017). We also controlled for the *duration* of funding period by counting the number of days between project launch date and the date the funding campaign ended, because this length may influence the level of difficulty in attracting funds (Chan & Parhankangas, 2017). We controlled for the number of *prior created projects* by the entrepreneur, because serial project creators tend to enjoy better funding performance due to the social capital retained from previous projects (Buttice, Colombo, & Wright, 2017). Likewise, we also controlled for the number of *prior backed projects* by an entrepreneur to account for the effect of reciprocity prevailing between project creators in crowdfunding (Buttice et al., 2017). The last two variables were log transformed to account for skewness.

**2.4.6 Study 1b: Results**

Table 3 provides means, standard deviations and correlations for variables used in the study. As can be seen in the correlations, all four of the added control variables were significantly

related to project success. Furthermore, all variance inflation factors were below the suggested benchmark of 3, suggesting no multicollinearity concerns.

**Table 3: Mean, SD, and Correlations of the variables (Study 1b)**

| | Variables | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Success[b] | 0.37 | 0.48 | | | | | | | | | | | | | | | |
| 2 | Displayed passion | 4.5 | 0.97 | .13** | | | | | | | | | | | | | | |
| 3 | Enthusiasm | 4.67 | 0.76 | .23** | .51** | | | | | | | | | | | | | |
| 4 | Perceived risk | 3.8 | 0.8 | -.22** | -.23** | -.62** | | | | | | | | | | | | |
| 5 | Venture stage[b] | 0.69 | 0.46 | .29** | .08* | .21** | -.23** | | | | | | | | | | | |
| 6 | Funding goal[a] | 10.14 | 1.03 | -.14** | .10** | .16** | -.15** | -.03 | | | | | | | | | | |
| 7 | Entrepreneur's gender[b] | 0.81 | 0.4 | .08** | -.10** | -.03 | .12** | .12** | -.04 | | | | | | | | | |
| 8 | Entrepreneur's race[b] | 0.82 | 0.39 | -.02 | .08** | . | . | -.03 | -.11** | .05 | | | | | | | | |
| 9 | Team[b] | 0.37 | 0.48 | .18** | .22** | .21** | -.11** | .04 | .15** | .09** | -.03 | | | | | | | |
| 10 | Video length (min) | 2.9 | 1.13 | .03 | .07* | .04 | -.15** | -.05 | .14** | -.05 | -.05 | .15** | | | | | | |
| 11 | Innovativeness | 4.87 | 0.84 | .18** | .38** | .74** | -.63** | .12** | .21** | -.01 | .01 | .23** | .17** | | | | | |
| 12 | Preparedness | 5.15 | 0.76 | .22** | .48** | .67** | -.63** | .15** | .24** | -.07* | .07* | .25** | .24** | .71** | | | | |
| 13 | Duration (day) | 34.86 | 9.98 | -.15** | -.10** | .02 | .05 | -.06* | .22** | .04 | -.09** | -.08** | -.14** | .02 | -.04 | | | |
| 14 | Number of rewards | 9.34 | 5.25 | .37** | .24** | .23** | -.19** | .15** | .09** | -.21** | -.06* | .12** | .10** | .20** | .29** | -.15** | | |
| 15 | Prior created projects[a] | 0.15 | 0.37 | .25** | .10** | .02 | -.02 | .13** | -.13** | .12** | .02 | .02 | .06 | .04 | .03 | -.07* | -.04 | |
| 16 | Prior backed projects[a] | 0.62 | 0.98 | .41** | .07* | .14** | -.15** | .23** | -.03 | .10** | .05 | .10** | .07* | .11** | .15** | -.15** | .14** | .40** |

*Note.* $N$ = 1,090. [a] Variables are natural-logged. [b] Binary variable. * $p < 0.05$, ** $p < 0.01$. All tests are two-tailed tests.

Table 4 presents the results of our second analyses, testing the same relationships, but using aggregated (project-level) predictors and the actual project outcome. Model 1 shows that entrepreneurs' displayed passion increased observers' experienced enthusiasm ($b$ = 0.18, $p$ < 0.001), and this enthusiasm predicted the likelihood of project success (Model 3; $b$ = 0.37, $p$ < 0.05). Likewise, Model 2 shows that entrepreneurs' displayed passion increased observers' perception of risk ($b$ = 0.09, $p$ < 0.001), which in turn predicted less likelihood of success (Model 3; $b$ = -0.32, $p$ < 0.05). The results, summarized in Figure 2a, are consistent with the hypothesized positive indirect effect of displayed passion on project success via enthusiasm ($b$ = 0.07, SE = 0.04, CI [0.01; 0.15]), and the negative indirect effect through perceived risk ($b$ = -0.03, SE = 0.02, CI [-0.07; -0.01]). Model 5 shows that the interaction between entrepreneurs' displayed passion and venture stage significantly predicted perceived risk ($b$ = -0.13, $p$ < 0.01), and perceived risk in turn significantly predicted the likelihood of project success (Model 6; $b$ = -0.32, $p$ < 0.05). More specifically, displayed passion led to greater perceived risk for ventures at the conception stage ($b$ = 0.16, $p$ < 0.001), but not for ventures at the commercialization stage ($b$ = 0.03, $p$ = 0.21). As summarized in Figure 2b, bootstrap analysis further revealed that the indirect effect of displayed passion in predicting project success via perceived risk was significant for ventures at the conception stage ($b$ = -0.03, SE = 0.02, CI [-0.05; -0.01]), but not significant for ventures at the commercialization stage ($b$ = -0.01, SE = 0.01, CI [-0.02; 0.01]). These results provide further support for our hypotheses.

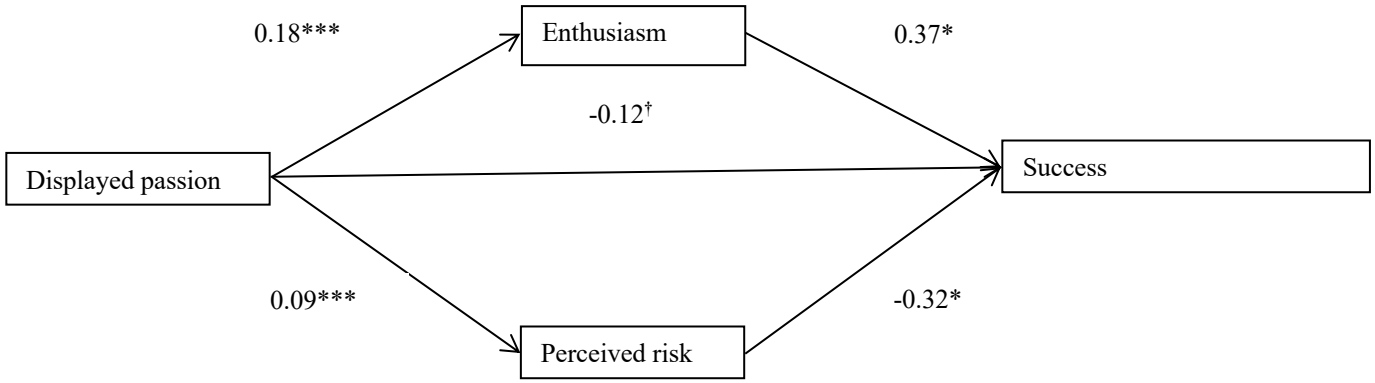
## Table 4:Indirect and conditional indirect effects of entrepreneurs' displayed passion (Study 1b)

| | Indirect effects | | | Conditional indirect effects | | |
|---|---|---|---|---|---|---|
| Variables | Enthusiasm | Perceived risk | Success | Enthusiasm | Perceived risk | Success |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Constant | 0.81*** (.17) | 7.03*** (.24) | 2.46† (1.49) | 0.91*** (.19) | 6.71*** (.25) | 2.46 (1.49) |
| Funding goal [a] | -0.02 (.01) | -0 (.02) | -0.63*** (.1) | -0.01 (.01) | -0 (.02) | -0.63*** (.1) |
| Entrepreneur's gender [b] | 0 (.04) | 0.19*** (.04) | 0.66** (.21) | -0.02 (.04) | 0.24*** (.04) | 0.66** (.21) |
| Entrepreneur's race [b] | -0.09** (.03) | 0.05 (.05) | -0.24 (.22) | -0.09** (.03) | 0.04 (.04) | -0.24 (.22) |
| Team [b] | 0 (.03) | 0.1* (.04) | 0.8*** (.17) | 0.01 (.03) | 0.1* (.04) | 0.8*** (.17) |
| Video length (min) [b] | -0.09*** (.01) | 0.01 (.02) | -0.1 (.08) | -0.08*** (.01) | -0 (.02) | -0.1 (.08) |
| Innovativeness | 0.46*** (.02) | -0.39*** (.03) | 0.16 (.16) | 0.46*** (.02) | -0.39*** (.03) | 0.16 (.16) |
| Preparedness | 0.22*** (.03) | -0.41*** (.04) | 0.4* (.18) | 0.2*** (.03) | -0.38*** (.04) | 0.4* (.18) |
| Duration (day) | 0 (.00) | 0 (.00)) | -0.01 (.01) | 0 (.00) | 0 (.00) | -0.01 (.01) |
| Number of rewards | 0 (.00) | 0 (.00) | 0.18*** (.02) | 0 (.00) | 0 (.00) | 0.18*** (.02) |
| Prior created projects [a] | -0.09** (.04) | 0.04 (.05) | 1.19*** (.28) | -0.1** (.04) | 0.07 (.05) | 1.19*** (.28) |
| Prior backed projects [a] | 0.05** (.02) | -0.06** (.02) | 0.74*** (.09) | 0.04* (.02) | -0.04* (.02) | 0.74*** (.09) |
| Passion | 0.18*** (.02) | 0.09*** (.02) | -0.18† (.11) | 0.15*** (.03) | 0.16*** (.03) | -0.18† (.11) |
| Enthusiasm | | | 0.37* (.18) | | | 0.37* (.18) |
| Perceived risk | | | -0.32* (.14) | | | -0.32* (.14) |
| Venture stage [b] | | | | -0.08 (.15) | 0.33† (.18) | |
| Passion*Venture stage [b] | | | | 0.05 (.03) | -0.13** (.04) | |
| $R^2$ | 0.64*** | 0.49*** | | 0.65*** | 0.52*** | |
| F (HC0) | 200.14 | 87.36 | | 177.91 | 79.58 | |
| Cox & Snell $R^2$ | | | 0.34*** | | | 0.34*** |
| -2LL | | | 976.35 | | | 976.35 |

*Note. N*= 1,090. Unstandardized coefficients are reported, with heteroskedasticity consistent standard errors in parentheses.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

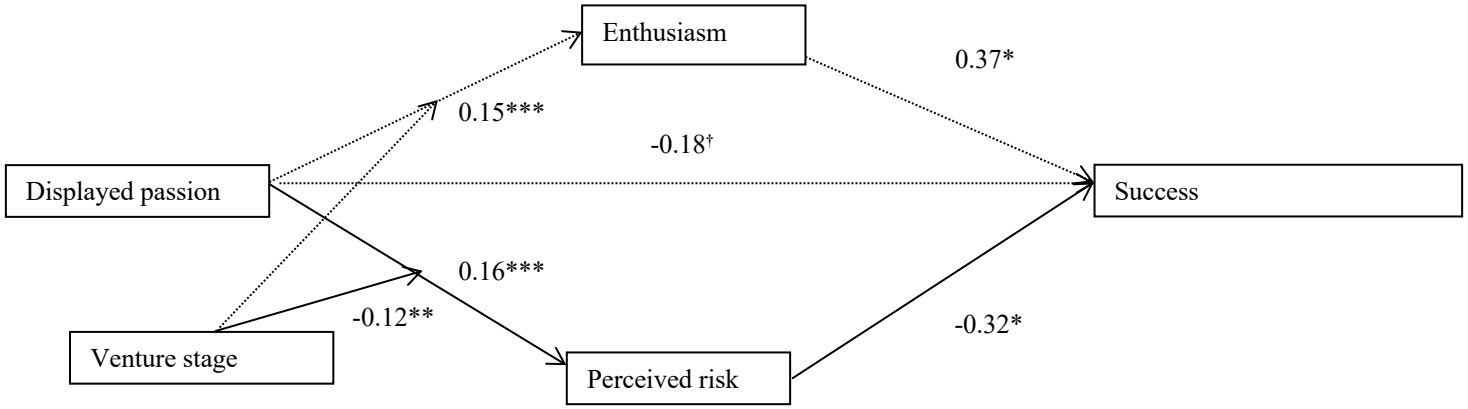
**Figure 2: Indirect and conditional indirect effect of entrepreneurs' displayed passion (Study 1b)**

2(a): Indirect effects of displayed passion for actual project outcome with aggregated predictors




Indirect effect via enthusiasm: $b$ = 0.07, SE = 0.04, CI [0.,01;0.15]
Indirect effect via perceived risk: $b$ = -0.03, SE = 0.02, CI [-0.07;-0.01]

2(b): Conditional indirect effects of displayed passion for actual project outcome with aggregated predictors




Indirect effect through perceived risk at conception stage: $b$ = -0.03, SE = 0.01, CI [-0.05; -0.01]
Indirect effect through perceived risk at commercialization stage: $b$ = -0.01, SE = 0.01, CI [-0.02; 0.01]

We carried out one additional analysis to further assess the robustness of the findings. Our theoretical prediction was that venture stage would make risk perceptions more or less salient, so that venture stage should moderate the relationship between the independent variable (displayed passion) and the mediator (perceived risk). However, there are two ways to assess a moderated mediation model depending on whether or not the moderator is tested for influence on the direct effect of the unmediated predictor (i.e., passion to funding outcome). In PROCESS, this is the difference between Model 7 and Model 8. The report above used Model 7, consistent with the stated hypothesis. For the sake of completeness, we re-conducted our analyses using PROCESS Model 8. The results remained consistent.

## 2.5 DISCUSSION

Although a growing body of research has examined the effect of passion on entrepreneurial funding efforts, those studies have yielded seemingly contradictory results. Most theoretical accounts predict that passion displayed by entrepreneurs should increase investors' willingness to fund new ventures (e.g., Murnieks et al., 2016), but the empirical evidence has not consistently supported this prediction (e.g., Cardon, Sudek, et al., 2009; Chen et al., 2009). Drawing on the social information role played by emotions (Van Kleef, 2009), we developed a model to reconcile this seeming discrepancy, proposing that passion displayed by entrepreneurs would have simultaneous positive and negative effects. In addition, we also proposed that the development stage at which a venture is pitched to investors will influence how strongly displayed passion shapes those investors' perception of risk. We tested this model using a combination of archival and experimental evidence, and our predictions were supported. As a result, this study provides the first empirical demonstration of the multiple, competing effects of displayed passion in the context of funding pitches and supplies a theoretical framework for integrating previous findings and guiding future research. Below, we summarize our model's key theoretical and practical implications.

### 2.5.1 Theoretical Contributions

Consistent with our theoretical model, we found that entrepreneurs' displayed passion had two simultaneous effects: it increased the likelihood of funding success by increasing potential investors' enthusiasm, and it decreased the likelihood of funding success by increasing potential investors' perception of risk. Our model advances current theory by highlighting the two

competing processes that mediate the relationship between entrepreneurs' displayed passion and investment outcomes. Most prior work has assumed passion is a predominantly positive quality in entrepreneurs, and particularly one that will increase the likelihood of investors funding a venture (e.g., Chen et al., 2009). As a result, previous studies tended to overlook the possibility that passion can also have detrimental effects on investors' funding evaluations. Our incorporation of both positive and negative effects offers a more nuanced view of the relationship between entrepreneurs' displayed passion and investors' funding decisions. As a result, the model tested here incorporates and advances the emerging literature on the potential downsides of entrepreneurial passion by providing the first empirical evidence of negative implications in funding outcomes.

In addition, our results highlighted a moderating factor in the effect of displayed passion. Entrepreneur's passion contributed to greater perceptions of risk when pitching an idea at an early, conceptual stage, as compared to ideas pitched at a later, commercialization stage. By adopting this more complex perspective, our model offers an explanation for what otherwise appears to be contradictory findings in previous studies. Seven prior empirical studies have examined the role of entrepreneurs' displayed passion in investment outcomes. Of these, three found that passion led to better funding outcomes, three found null effects, and one found that passion led to worse funding outcomes. Our model offers the potential to reconcile these disparate findings, since it highlights the simultaneous positive and negative effects of passion on funding outcomes, and contextual moderators may explain why the net effect of displayed passion varies between studies.

For example, an important moderator of the effect of displayed passion will be the extent to which investors recognize and understand the implications of entrepreneurs' passion. Indeed, the majority of previous studies that used professional investors found the effects of displayed passion to be insignificant or negative, while most studies conducted in the context of crowdfunding found that passion led to better funding outcomes. We speculate that this difference results from potential investors' varying ability to draw negative inferences from displayed passion. Expertise gained through training and past experience should cause professional investors to better understand the implications of entrepreneurs' passion, and thus perceive greater risk in potential ventures. In contrast, due to their lack of expertise and experience, crowdfunding backers may be less likely to recognize and understand these negative implications. As a result, displayed passion may have a stronger effect on perceived risk among professional investors than among

crowdfunding backers. Anecdotal evidence certainly suggests that professionals are aware of the risks of passion. For example, investor Barbara Corcoran from *Shark Tank* has stated that passion can be bad for business: "passion blinds an entrepreneur, just like a guy who is madly in love. He can't see clearly, he can't listen…" (Goudreau, 2014, Apr 23). Similarly, Noam Wasserman stated once at *The Wall Street Journal* that "passion blinds entrepreneurs, leading them to get overconfident and make bad choices at the worst times—potentially dooming even the most promising startups" (Wasserman, 2014). In contrast, our data reflected mostly novice respondents, and thus revealed a relatively weak effect of passion on perceived risk. We expect that the effect of displayed passion on perceived risk is stronger among professional investors, so much so that it offsets the positive effect on enthusiasm, and thus explains why many prior studies found null effects.

An alternative, but complementary, explanation is that crowdfunding backers may rely more on their emotions when making funding decisions even if they draw similar conclusions to professional investors about risk. The lower individual monetary contributions associated with crowdfunding, and the fact that most crowdfunders seek rewards rather than financial returns, may cause crowdfunding investors to be less concerned with risk than professional investors. Indeed, our data reported that respondents' enthusiasm had a stronger impact on their likelihood of investing than did perceived risk.

Another important consideration is the role of venture stage. Our findings indicate that displayed passion at the conception stage results in greater perceived risk among potential investors than passion displayed at the later commercialization stage. We speculate that the moderating effect of venture stage offers an additional explanation for the discrepant findings of previous studies. The majority of prior studies that used traditional investors appear to have involved projects pitched at the conception stage. For instance, in Chen et al. (2009)'s study, 31 business pitches from the university's annual business plan competition were presented to professional investors. Given that these pitches were presented as part of a student competition, few were likely to have been fully-developed, market-tested products or services. Similarly, Cardon et al. (2009, 2017) utilized the recorded entrepreneurial pitches made to an angel investing group. Since angel investors tend to invest in the early stages of venture development, it is likely that the majority of the ventures studied were at the conception stage. Conversely, projects seeking financial support through crowdfunding are often at a late stage of development, seeking

crowdfunding as a way to acquire pre-orders for their finalized products/services. In fact, projects at the commercialization stage accounted for more than two-thirds (69%) of all the projects examined in our study. Therefore, the null or negative effects of passion on investment observed in previous studies may be explained by the fact that the studied ventures were pitched at an early development stage, increasing investors' perception of risk.

In conclusion, it seems that the available empirical evidence is consistent with the model developed here. Our model thus provides a general framework for understanding why and how entrepreneurs' displays of passion influence investors' funding decisions. It allows us to make sense of what otherwise seem like contradictory findings, and thus helps to advance the field as a whole. It also highlights an important boundary condition – *the venture's development stage* - which influences the degree to which displayed passion affects funding outcomes.

### 2.5.2 Practical Implications

Our findings and theoretical model have clear implications for entrepreneurs seeking to acquire financial resources from investors. Contrary to intuition, displaying passion in a pitch may not always be an effective strategy. In some situations, it can lead investors to perceive greater risk in the venture. This risk is especially great for ventures pitched at the conception stage. Nonetheless, since passion also has beneficial effects, such as increasing investors' excitement, entrepreneurs should be strategic about displaying passion. Our findings suggest that entrepreneurs can benefit the most from displaying passion if they also take steps to mitigate investors' perception of risk arising from it. For example, given that passion can be used to infer tendencies such as blindness and over-optimism, entrepreneurs may need to incorporate other cues in their pitches to demonstrate their ability to make rational judgements.

Our findings also have practical implications for potential investors. By understanding the processes underlying the relationship between entrepreneurs' displayed passion and funding decisions, investors will be able to make more informed choices. In particular, our findings underscore the possibility of investors being drawn into providing financial support on account of enthusiasm induced by an entrepreneur's displayed passion. Potential investors may best be served by adopting practices which prompt them to also consider the potential negative implications of displayed passion.

### 2.5.3 Limitations and Future Research Directions

Our study has several limitations which should be kept in mind when considering its findings, and which suggest promising directions for future research. First, we did not have experimental manipulation, and thus could not prove causal effects. The underlying theory was causal, and the results were entirely consistent with that theory, but it remains for experimental designs to confirm causality. Second, our data did allow a test of the (potential) moderating role played by investors' expertise. Our conjectures in this regard (i.e., that passion leads to greater perception of risk among experienced professional investors) seem intuitively correct. Moreover, this reasoning is not just consistent with previous findings, but it appears to clarify and explain the otherwise confusing patterns in those results. Nonetheless, testing for the presence of both mediation paths among professional investors will be an important next step. Likewise, our data did not allow us to directly test whether investors actually drew negative inferences such as blindness and over-optimism from entrepreneurs' displays of passion. Future research should thus investigate the specific inferences that investors make when observing entrepreneurs' displays of passion in a pitch. Furthermore, another limitation stems from the fact that we did not use hierarchical linear modelling to account for nested structure of the data in the analysis 1. We believe this does not pose serious concern as the analysis 2 aggregated predictor variables to project-level and examined their effects on actual project outcome data.

Indeed, there are many possibilities for future research exploring the boundary conditions of the model tested in this study. For example, we focused on the general passion displayed by entrepreneurs without considering the specific targets of entrepreneurial passion. However, a growing body of research suggests that entrepreneurial passion can take different forms (e.g., passion for a product vs passion for founding a venture), and that the specific target of entrepreneurial passion may influence investors' perceptions and subsequent funding evaluations (Cardon, Gregoire, Stevens, & Patel, 2013; Warnick et al., 2018). Future research should thus investigate whether the target of entrepreneur's passion might influence investors' affective (i.e., enthusiasm) and cognitive (i.e., perceived risk) reactions to passion displayed in a pitch. In addition, it would be particularly informative to investigate whether the risk perceptions associated with passion ever outweigh the enthusiasm effect. With one notable exception (Cardon, Sudek, et al., 2009), all previous studies found either positive or null effects, but there may exist some contexts in which the sum of the two paths becomes negative.

Future research can also study whether certain personal characteristics may influence investors' preference for, and/or susceptibility to, emotional and cognitive reactions induced by entrepreneurs' displayed passion. For example, epistemic motivation refers to one's inclination to have a thorough understanding of a situation (Van Kleef et al., 2009). Individuals high in epistemic motivation tend to focus more on understanding the meaning behind others' emotions rather than the explicit expression of said emotions; therefore, such individuals may react differently to entrepreneurs' displayed passion in a pitch. In addition, since different cultures have different display rules regarding whether, when, and how one should express emotions, the same emotion display may play differently to audiences of different backgrounds. How might the cultural background of investors affect the way they respond to the passion displayed by entrepreneurs in a pitch?

### 2.5.4 Conclusion

Our model provides an integrative perspective that considers both the positive and negative effects of entrepreneurs' displayed passion on investors' funding decisions. Our findings indicate that while passion displayed by entrepreneurs can increase investors' enthusiasm for the venture and thus increase their likelihood of investment, it can also increase investors' perception of risk and so decrease the likelihood of investment. Passion has complex effects on funding decisions. We also found that displayed passion is more detrimental to ventures pitched at the conception stage, compared to those pitched at the commercialization stage. These results advance our theoretical understanding of the relationship between entrepreneurs' displayed passion and investors' funding decisions, reconcile the seemingly conflicting findings of prior studies, suggest fruitful directions for future research, and present important practical implications for both entrepreneurs and investors.

## CHAPTER 3: ESSAY 2

## Joint Effect of Linguistic Style and Ethnicity on Entrepreneurial Fundraising:

Evidence from Equity Crowdfunding


### ABSTRACT

This study investigates whether entrepreneurs' ethnicity (white vs. non-white) affects the relationship between entrepreneurs' use of particular linguistic styles in promoting their ventures and their ability to raise financial resources through equity crowdfunding. Using a sample of 430 projects, we found that the use of past-oriented linguistic style and concrete linguistic style led to greater funding outcomes for ventures with minority founders than it did for those with white founders. Future-oriented linguistic style, on the other hand, was found to be more beneficial for ventures with white founders. In addition, we found a consistent pattern of results using racial composition of entrepreneurial team rather than the race of individual founders, which implies that investors' bias is not only limited to individual founders' ethnicity but also persists regarding the wider entrepreneurial team.



*Key words*: Linguistic styles, Entrepreneur's ethnicity, Equity crowdfunding


### 3.1 INTRODUCTION

Entrepreneurs use linguistic strategies to persuade resource providers to invest (Anglin et al., 2018; Lee & Theokary, 2021; Parhankangas & Renko, 2017). Use of specific linguistic styles can enhance or detract from the apparent quality of the offer and influence an investor's ultimate decision to provide financial support (Di Pietro, Grilli, & Masciarelli, 2020; Parhankangas & Renko, 2017). Up to now, research in this field has done little to take into account the how the characteristics of individual entrepreneurs may determine how effective certain linguistic styles are when seeking venture financing.

This research attempts to fill this gap by focusing on entrepreneurs' race (in this case, white versus non-white) and examining whether it influences the relationship between entrepreneurs' use of particular linguistic styles in promoting their ventures and their ability to raise financial resources through crowdfunding. We have chosen this direction in acknowledgment of the

increasing attention paid in the field of entrepreneurship to the role of ethnicity and, in particular, the underrepresentation of racial minorities among entrepreneurs who have successfully obtained funding (Younkin & Kuppuswamy, 2018, 2019). Research indicates that minority entrepreneurs are at a significant disadvantage when securing financial resources compared to their white counterparts because of investors' unconscious assumption that ventures founded by minority entrepreneurs are of lower quality (Freeland & Keister, 2016; Neville, Forrester, O'Toole, & Riding, 2018). Such inherent bias would suggest that investors react to the linguistic styles adopted by minority entrepreneurs differently to the same styles when used by their white counterparts.

To examine this overarching question, we have focused on three distinct linguistic styles commonly used by entrepreneurs in promoting their ventures to prospective investors, namely past-oriented linguistic style (PLS), which refers to the use of vocabularies highlighting the venture's past results and achievements; future-oriented linguistic style (FLS), which highlights the venture's future plans and goals; and concrete linguistic style (CLS), which provides contextualized and detailed representation of the venture. We tested the joint effects of each of these three linguistic styles with entrepreneurs' race on their ability to secure crowdfunding capital. We chose this empirical setting as equity crowdfunding has become the major source of fundraising for the current generation of entrepreneurs and because crowdfunded opportunities represent an area of knowledge that is of significant theoretical and practical importance to entrepreneurial finance research (Ahlers et al., 2015; Hornuf & Schwienbacher, 2018; Vismara, 2016).

Using a sample of 430 companies that have raised secured resources via crowdfunding, we found that the use of PLS led to greater funding outcomes for ventures with minority founders than it did for those with white founders, as did the use of CLS. FLS, on the other hand, was found to be more beneficial for ventures with white founders. Furthermore, our post-hoc analysis revealed that, when we recorded the racial composition of the top management team instead of just the founder, outcomes were the same, implying that investors' bias is not only limited to individual founders' ethnicity but also persists regarding the wider entrepreneurial team.

Our findings contribute to the emerging literature on crowdfunding and entrepreneurial finance in several ways. First, while scholars have noted the importance of linguistic styles in promoting entrepreneurial ventures to prospective investors via crowdfunding (Anglin et al., 2018; Clarke, Cornelissen, & Healey, 2019; Lee & Theokary, 2021), the conditions under which different

types of linguistic styles influence investors' evaluation remains largely unexplored. We extend this line of research by showing how the ethnicity of entrepreneurs shapes the relationship between use of linguistic styles and funding outcomes. Our work not only identifies a specific moderator; it also highlights the general importance of considering entrepreneurs' characteristics in such investigations. Second, although existing research has documented the discouragement of minority entrepreneurs seeking financial resources, scholarly works said relatively little about how minority entrepreneurs may overcome the challenges associated with resource providers' reluctance to invest capital. To our knowledge, our research is among the first to address this issue by suggesting that minority entrepreneurs can circumvent bias through the use of appropriate linguistic styles when presenting their ventures to prospective investors. Last but not least, this study contributes toward the body of research on the role of ethnicity in entrepreneurship, specifically introducing evidence that racial biases exist in regards to the racial composition of entrepreneurial teams and not just due to the ethnicity of individual founders.

### 3.2 THEORY AND HYPOTHESE

Financing a new venture is characterized by high degrees of uncertainty and information asymmetry between entrepreneurs and investors (Ahlers et al., 2015). For the entrepreneur, the key challenge is associated with the "liability of newness", which requires them to offer proof that the venture is legitimate and will not falter when taking its first steps. External investors have to evaluate the feasibility of the venture, and its commercial viability, based on limited information, so entrepreneurs must find ways to effectively convey the value of the venture to investors.

Crowdfunding allows entrepreneurs to raise financial capital directly from the public via dedicated online platforms. The average crowdfunding investor tends to lack the skills and the incentives to carry out due diligence of the prospective venture and its business model. Also, in more traditional forms of financing – such as venture capital and angel investment – there is a degree of personal interaction between entrepreneurs and investors which helps reduce information asymmetries; in the context of crowdfunding, such interaction is limited. Activity is largely online and asynchronous. This suggests that entrepreneurs need to find alternative ways to promote the value and future prospects of their ventures to the crowd: convincing information and quality signals are particularly crucial for campaign success. Previous research has highlighted the importance of such signals including attainment of patent (Cumming, Meoli, & Vismara, 2019),

third-party endorsements (Courtney, Dutta, & Li, 2017), qualifications of the founding team (Bernstein, Korteweg, & Laws, 2017) and involvement of expert investors (Kim & Viswanathan, 2018).

A growing body of work on entrepreneurship is examining the degree to which the intentional use of specific linguistic styles used by entrepreneurs in promoting their ventures affect investors' responses. Linguistic styles refers to communicative strategies used by individuals or organizations to draw audiences' attention to particular aspects of reality and hence shape their interpretations and attitudes toward an issue of interest (Cornelissen & Werner, 2014; Entman, 1993; Giorgi & Weber, 2015); selective use of vocabularies to construct a specific version of reality and influences target audiences' understandings of the reality and their behavioral responses (Giorgi & Weber, 2015; Goffman, 1974; Loewenstein, Ocasio, & Jones, 2012). The use of linguistic styles is known to be particularly useful when audiences are pressed to make a decision in situations characterized by high levels of uncertainty and ambiguity (Giorgi, 2017). Research has demonstrated that the use of appropriate linguistic styles enables individuals to convince target audiences of the legitimacy of their intended actions (Hallett & Ventresca, 2006; Powell & Colyvas, 2008), formulate public opinions in favor of the communicators (Giorgi & Weber, 2015; Staw, Sandelands, & Dutton, 1981), and actively shape peoples' perceptions and attitudes toward new phenomena such as nascent markets (Anteby, 2010; Giorgi & Weber, 2015; Navis & Glynn, 2010).

The use of appropriate linguistic styles is particularly useful for entrepreneurs seeking financial resources from investors. First, competing ventures can enhance investors' attention in a more general way, engendering a sense of excitement around the investment opportunity, by using specific linguistic styles. Second, since the quality and the future prospects of early stage ventures are often unknown and uncertain due to lack of proven track record – and investment decisions therefore entail significant risk as they must be made in an environment of uncertainty and ambiguity – the use of appropriate linguistic styles is found to increase a venture's legitimacy in the eyes of the investor and mitigate the level of uncertainty by directing investors into conceiving of it in a particular way (Clarke et al., 2019; Di Pietro et al., 2020).

The importance of linguistic styles has been highlighted as particularly salient in crowdfunding as investors often need to base decisions largely on the subjective claims made by the entrepreneurs. For instance, Anglin et al. (2018) found that the positive psychological capital

languages enhanced funding performance examining 1,726 crowdfunding campaigns. Larrimore et al. (2011) confirmed that the use of concrete linguistic styles increased the likelihood of funding success. In addition, Allison et al. (2015) showed that resource providers responded more positively to language framing the venture as an opportunity to help others than as a means to earn profits.

Despite a growing interest in understanding the role of linguistic styles in crowdfunding, research has mainly investigated their direct effect on funding performance. However, linguistic framing perspective suggests that the effectiveness of different linguistic styles on audiences' responses depends on the characteristics of those doing the framing (Anglin et al., 2018; Hong & Len-Riós, 2015; Parhankangas & Renko, 2017). To explore these possibilities, we consider the ethnicity of entrepreneurs as a potential moderator, given that investors have shown to evaluate ventures with minority founders differently from those led by white founders (Younkin & Kuppuswamy, 2018, 2019). As a result, the use of same linguistic style may resonate with an investor differently depending on the entrepreneur's race. In the following section, we therefore focus on three linguistic styles commonly used by entrepreneurs in promoting their ventures and theorize how an entrepreneur's race may influence the relationship between the use of these linguistic styles and eventual funding outcome.

### 3.2.1 Past-oriented Linguistic Style and Funding Performance

In promoting ventures to prospective investors, an entrepreneur must address various aspects of their fledgling venture to convince investors of its inherent value, such as characteristics of product or service, qualifications of the entrepreneurial team, revenue potential, market growth potential, and exit routes (Ahlers et al., 2015; Calic & Shevchenko, 2020; Scheaf et al., 2018). Broadly speaking, entrepreneurs convey such information using two main linguistic styles, PLS and FLS (Di Pietro et al., 2020). PLS is concerned more with highlighting a venture's past achievements and attributes, such as product prototype testing information, existing customer base, patents or awards granted, partnerships with established firms and education and past entrepreneurial experience of those on the team. This approach helps reduce the information asymmetry inherent in venture financing and hence alleviate investors' uncertainty regarding the venture's quality. FLS represents a focus on future plans and goals. This may include information

about a venture's sales projections, operational plans and future partnerships, as well as exit routes for the investor. All of which helps interested parties assess a venture's future earning potential.

Given that both a venture's past achievements and future plans are crucial to investors' funding decisions, entrepreneurs often utilize a mix of PLS and FLS to persuade prospective investors and, depending on the nature of the project, one style will be used more than the other. We argue that the effectiveness of a venture's relative emphasis on PLS and FLS is contingent upon the ethnicity of the venture's founder.

It is well documented that minority entrepreneurs are underrepresented among founders of successfully funded ventures. Research suggests that resource providers use race as a proxy for certain unobservable traits of individuals and devalue the capability of minority entrepreneurs and the quality of their ventures (Neville et al., 2018; Younkin and Kuppuswamy, 2019). This in turn leads investors to perceive higher uncertainty and risk in ventures led by minority founders, resulting in investors' disproportionate preference to invest in ventures led by white founders. For instance, compared to white entrepreneurs, minority entrepreneurs were less likely to receive loans from financial institutions (Fairlie & Robb, 2007; Neville et al., 2018). Similarly, minority entrepreneurs tend to be offered higher interest rates from peer-to-peer lending platforms (Cavalluzzo & Wolken, 2005; Pope & Sydnor, 2011) and they were also less likely to receive supplier credit than their white counterparts (Coleman, 2005; Freeland & Keister, 2016). In the context of crowdfunding, minority entrepreneurs were also found to significantly underperform compared to their white counterparts (Younkin and Kuppuswamy, 2018, 2019). In sum, these studies indicate that minority entrepreneurs face significant discouragements in acquiring financial capital due to investors' bias toward members of their ethnic group. Under such circumstances, providing additional evidence of quality may help minority entrepreneurs mitigate this bias and secure funding.

We posit that minority entrepreneurs can achieve this through the greater use of PLS relative to FLS when presenting their ventures to prospective investors. In other words, focusing on past results and achievements will be particularly useful for ventures led by minority founders than those led by white founders. From the perspective of signaling theory, research indicates that entrepreneurs can reduce information asymmetry and investor uncertainty by providing signals of quality (Ahlers et al., 2015; Connelly, Certo, Ireland, & Reutzel, 2011; Di Pietro et al., 2020). In particular, costly signals that are difficult to obtain, such as patents, are far more effective than

costless signals, such as sales patter, that can be easily imitated by other ventures (Connelly et al., 2011; Pollock, Chen, Jackson, & Hambrick, 2010; Scheaf et al., 2018). Emphasizing a venture's past achievements should be particularly effective at reducing investors' uncertainty as it provides relatively objective and reliable evidence of venture's quality, compared to the use of FLS. For instance, a new venture that highlights past achievements such as an existing customer base, granted patents and established partnerships conveys legitimacy and signals its quality to prospective investors, whereas information about future plans such as claims about future expansion and sales projections may be less effective due to the lack of substance and costless nature of these claims.

> ***Hypothesis 1****: Founder's race will moderate the relationship between the use of past oriented linguistic style and funding performance, such that emphasizing past-oriented linguistic style will lead to better funding performance for ventures led by minority founders than for those led by white founders.*

### 3.2.2 Future-oriented Linguistic Style and Funding Performance

On the contrary, we posit that the greater use of FLS relative to PLS will be more beneficial for ventures led by white founders than for those led by minority founders. Despite the costless nature of FLS, information regarding future plans and goals is crucial to investors' funding decisions as it enables investors to assess the future prospects of a venture and their potential returns on their investment. However, there are two conditions must be met for FLS to elicit positive responses from prospective investors.

The first condition is the perceived credibility of the entrepreneurs. Source credibility is defined as: "judgements made by a perceiver … concerning the believability of a communicator" (O'Keefe, 1990:181). Claims about intention to scale up and revenue projections will positively influence an investor's funding evaluations only when they trust the entrepreneur. In other words, an entrepreneur's statements about the future, even if they paint a very promising picture, will not lead to funding agreements if the investor is concerned with the validity of those claims.

The second condition is the perceived capability of the entrepreneurs. The extent to which entrepreneurs are capable enough to accomplish future plans and goals is also likely to influence investors' reactions toward entrepreneurs claims about the future. The entrepreneur's may tell a believable story regarding the future of their venture but this will not lead to increased funding if investors are concerned with entrepreneurs' capability to deliver on those promises.

Given that minority entrepreneurs are considered less credible and capable compared to their white counterparts, we expect that the use of FLS relative to PLS in promoting entrepreneurial ventures will be more beneficial for ventures led by white founders than those led by minority founders.

> ***Hypothesis 2****: Founder's race will moderate the relationship between the use of future oriented linguistic style and funding performance, such that emphasizing future-oriented linguistic style will lead to better funding performance for ventures led by white founders than for those led by minority founders.*

### 3.2.3 Concrete Linguistic Style and Funding Performance

Another linguistic style that is very relevant in the context of entrepreneurial pitching is the use of concrete words. CLS is the use of vocabularies that provide specific information and detailed description of situations (Ter Doest, Semin, & Sherman, 2002). Research has shown that the use of CLS enhances the ease with which information is processed and understood, thereby increasing the persuasiveness of the message (Toma & D'Angelo, 2015). The persuasion theory suggests that communicated messages have greater impact on receivers' attitudes and judgements when they are readily available and easily retrievable (Wood, 1982). The specific details and contextualized information provided through the use of CLS enables the communicated message to be perceived as both interesting and memorable. Across a wide range of settings, studies have confirmed that messages with concrete language are more persuasive in comparison to those that use abstract language (Hansen & Wänke, 2010; Larrimore, Jiang, Larrimore, Markowitz, & Gorski, 2011).

Given that it is easier to cognitively process, information communicated using CLS is often perceived as being more authentic and trustworthy (Semin & Fiedler, 1988), thereby increasing listeners' confidence in communicators. In the presence of the same information, Hansen and Wänka (2010) found that statements with similar content were evaluated as being more likely to be true when they were written using relatively concrete language. Moreover, when specific details are delivered using CLS, communicators may be regarded by listeners as more knowledgeable and competent (Larrimore et al., 2011; Toma & Hancock, 2012). The use of CLS is particularly relevant in the context of venture financing given the high levels of uncertainty and information asymmetry between entrepreneurs and investors. Indeed, the use of CLS can increase the legitimacy of a new venture by allowing interested parties a clearer understanding of the pitch, such as venture performance, strategic plans, and future prospects. Accordingly, Larrimore et al.

(2011) have found that the use of concrete language was positively correlated with the likelihood of funding success, by examining 213,510 completed loan requests.

While the use of CLS will benefit all ventures seeking financial capital from external investors, we posit that it will particularly be the case for ventures led by minority founders. The effect of concrete language has been shown to be more beneficial in high-risk settings (Pan, McNamara, Lee, Haleblian, & Devers, 2018). This is because, in the presence of high risk, individuals are more likely to scrutinize given information and the provision of specific details can help alleviate the impression of risk. Investors tend to perceive greater uncertainty and risk when investing in ventures led by minority founders due to their biases toward the ethnicity of the entrepreneurs. Under such circumstances, the specific details provided by the founders regarding their ventures by employing CLS will be particularly effective at mitigating investors' uncertainty. As a result, the benefits to the use of CLS will be greater for ventures led by minority founders than for those led by white founders.

> ***Hypothesis 3****: Founder's race will moderate the relationship between the use of concrete linguistic style and funding performance, such that using concrete linguistic style will lead to better funding performance for ventures led by minority founders than for those led by white founders.*

## 3.3 METHODOLOGY

### 3.3.1 Data

Our initial population of study consists of 558 equity offerings launched on Startengine since its inception in 2015 through March 2021. Startengine is one of the largest U.S based equity crowdfunding platforms, raising over $450,000,000 by more than 600,000 investors to date. Among 558 projects, 106 projects were still in progress at the time of data collection, resulting in 452 projects available for the inclusion in our empirical analysis. However, since not all the projects included offering details with variables in question, we employed a conservative approach by further excluding 22 projects that had missing values. Thus, our final sample is made of 430 projects.

### 3.3.2 Measures

*Dependent variables*

To assess project funding performance, we followed prior crowdfunding research (Anglin et al., 2018; Belleflamme et al., 2014) and used three measures: 1) success (i.e. amount raised divided by target amount), 2) amount raised, and 3) number of investors.

Startengine requires firms to specify a target amount at the beginning of the campaign. Given that startengine allows firms to keep the funds even when they fail to raise their target amount, majority of firms set a very ambitious target. As a result, only handful of firms (2% in our sample) succeed in raising more than their predetermined target amount. Consequently, the conventional approach of using a binary variable to account for project success (1 if firms successfully raise target amount, 0 otherwise) was not suitable in our study. Thus, we instead operationalized *success* through dividing total amount raised by target amount. This variable thus measures the funding performance relative to firm's aspiration. Both total amount raised and target amount were winsorized at 0.5 and 99.5 percentiles to alleviate the influence of outliers.

Consistent with prior research, we also used two complementary measures of funding performance. *Amount raised* is the total funds a project raised by the end of its campaign period. These values were first winsorized at 0.5 and 99.5 percentiles to alleviate the influence of outliers and subsequently log transformed to further account for skewness. *Number of investors* is a count variable reflecting how many individuals supported a project. Crowdfunding is designed to enable entrepreneurs to seek many small amounts of money from a large number of people, and thus the number of investors investing in a given project is an important performance criterion (Skirnevskiy et al., 2017). These values were also winsorized and log transformed.

*Independent variables*

Our main independent variables are past orientated style, future orientated style and concrete style, operationalized through computer-aided text analysis. We extracted both spoken and written texts from the project webpage and analyzed these texts using DICTION and LIWC (Linguistic Inquiry and Word Count) software packages. Both DICTION and LIWC analyze text on a word to word basis by counting the frequency with which words are used in a text and grouping them into predetermined linguistic categories. This approach has been widely adopted by scholars in management and entrepreneurial finance research (Arslan-Ayaydin, Boudt, & Thewissen, 2016; Parhankangas & Renko, 2017; Siganos, Vagenas-Nanos, & Verwijmeren, 2017).

Past and future oriented linguistic styles were measured using the LIWC category that assesses the time orientation of the text. LIWC "past focus" category consists of 341 words such as did, achieved and ago while "future focus" category is comprised of 97 words such as will, may and soon and LIWC generates the percentage of words in a given text that falls into each category. Consistent with our conceptual definition, we measured *past oriented linguistic style* by dividing past focus by future focus, which reflects the venture's relative emphasis on past oriented linguistic style in relation to future oriented linguistic style. Likewise, we measured *future oriented linguistic style*, by dividing future focus by past focus. Similarly, concrete style was operationalized using DICTION software (variable concreteness). A higher value of this construct indicates the greater use of language that provides specific details about people, objects and situations.

*Moderating variables*

Following the US Census Bureau's definition, we classified race into five categories including White, African American, American Indian or Alaska Native, Asian and Native Hawaiian or other pacific islander. To obtain information regarding the race of project founder, an independent coder visited the project webpage and assessed the last name and photo associated with the project founder. Founder's race was coded as 1 if the founder was classified as White and 0 otherwise. Thus, the value of 0 indicates that the founder belongs to racial minority. The result of coding matched perfectly with that of the author.

*Control variables*

Consistent with prior research, we use a set of control variables to account for venture-specific and offering-related characteristics that may influence the funding performance. We first controlled for *Venture age* and *Venture size* as these two factors may influence investors' perception of the venture and their subsequent funding decisions. *Venture age* was measured using a numeric value in years since firms' establishment until the launch of crowdfunding campaign. *Venture size* was measured using a categorical variable based on the number of employees working for the venture. It takes a value of 1 if the venture has 1 to 10 employees, 2 if it has 11 to 50 employees and 3 if it exceeds 50 employees. In addition, given that ventures' prior record of successful fundraising is likely affect investors' evaluation, we also controlled for *prior funding experience* using a binary variable coded 1 if the venture has received any prior funding, and 0 otherwise. We obtained information regarding the venture's prior funding history from the Crunchbase dataset. It is a database of startup ventures operated by TechCrunch that records all

the information about their financing history including venture capital funds, angel investment funds and crowdfunding. Moreover, we controlled for ventures' attainment of *patent* (1 if the venture has at least one patent granted, 0 otherwise) as the intellectual capital of the venture has found to increase investors' propensity to invest (Cumming et al., 2019; Scheaf et al., 2018).

In addition, we controlled for the venture's *total assets* to account for the level of resources available to the venture. To account for potential differences in offering details, we also controlled for project's *funding target* and *minimum investment* required by an individual investor. We obtained information regarding venture's *total assets*, *funding target* and *minimum investment* from offering documents on the project webpage. These three variables were also winsorized and log transformed to account for outlier and skewness. Since entrepreneur's gender also affects investors' perception of the venture and their subsequent funding decisions (Davis et al., 2017; Johnson et al., 2018), we also controlled for it using a binary indicator coded 1 if the founder was male and 0 otherwise. Finally, projects in our sample vary in terms of the year in which they launch their campaigns from 2015 to 2021. Over the past few years, equity crowdfunding platforms have enjoyed a growing legitimacy as an alternative source of venture financing. Thus, we used six-year dummies to account for the potential impact of campaign launch year. The Appendix B provides a detailed description of all the variables used in our study.

## 3.4 EMPIRICAL RESULTS

Table 5 provides descriptive statistics for the variables used in the study. On average, ventures were slightly older than five years at the time of launching their campaigns and they raised 44% of their funding targets through Startengine. Majority of founders were white (84%) and male (89%). In addition, slightly over one third of the ventures (36%) had at least one patent granted and almost half of them (46%) also had received an investment prior to launching their campaigns. Correlations among variables are displayed in Table 6. Among our three independent variables, only CLS had positive correlations with our dependent variables. In addition, as expected, majority of the control variables were significantly correlated with our dependent variables.

**Table 5: Descriptive Statistics**

| Variables | Mean | S.D. | Minimum | Median | Maximum |
|---|---|---|---|---|---|
| Success | 0.44 | 0.46 | 0.00 | 0.25 | 3.64 |
| Amount Raised [a] | 11.48 | 2.78 | 0.00 | 11.74 | 16.72 |
| Number of Investors [a] | 5.15 | 1.86 | 0.00 | 5.12 | 9.33 |
| PLS | 1.79 | 1.33 | 0.12 | 1.43 | 11.29 |
| FLS | 0.88 | 0.70 | 0.09 | 0.70 | 8.41 |
| CLS | 13.65 | 5.55 | 3.12 | 13.19 | 47.94 |
| Founder Race [b] | 0.84 | 0.36 | 0.00 | 1.00 | 1.00 |
| Founder Gender [b] | 0.89 | 0.31 | 0.00 | 1.00 | 1.00 |
| Venture Age | 5.14 | 4.43 | 1.00 | 4.00 | 33.00 |
| Venture Size | 1.43 | 0.58 | 1.00 | 1.00 | 3.00 |
| Total Asset [a] | 10.24 | 4.23 | 0.00 | 11.43 | 16.61 |
| Patent [b] | 0.36 | 0.48 | 0.00 | 0.00 | 1.00 |
| Prior Funding [b] | 0.46 | 0.50 | 0.00 | 0.00 | 1.00 |
| Funding Target [a] | 13.22 | 1.14 | 11.14 | 13.88 | 15.42 |
| Minimum Investment [a] | 5.44 | 0.57 | 3.93 | 5.53 | 6.91 |

Note. N = 430. [a] Variables that are natural-logged. [b] Binary variable.

## Table 6:Correlations

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Success | | | | | | | | | | | | | | |
| 2 | Amount Raised [a] | .57** | | | | | | | | | | | | | |
| 3 | Number of Investors [a] | .68** | .88** | | | | | | | | | | | | |
| 4 | PLS | 0.04 | 0.01 | 0.03 | | | | | | | | | | | |
| 5 | FLS | -0.08 | -0.04 | -0.07 | -.62** | | | | | | | | | | |
| 6 | CLS | .13** | .15** | .14** | 0.03 | -.11* | | | | | | | | | |
| 7 | Founder Race [b] | -0.06 | 0.04 | 0.01 | 0.08 | -0.03 | 0.09 | | | | | | | | |
| 8 | Founder Gender [b] | 0.06 | -0.01 | 0.01 | -.15** | .14** | 0.07 | 0.06 | | | | | | | |
| 9 | Venture Age | .14** | .11* | .12* | .10* | -.14** | 0.02 | .14** | -0.01 | | | | | | |
| 10 | Venture Size | .14** | 0.05 | .10* | -0.01 | -0.05 | 0.03 | 0 | 0.07 | .26** | | | | | |
| 11 | Total Asset [a] | .26** | .20** | .25** | .29** | -.35** | 0.07 | 0.05 | -0.06 | .29** | .15** | | | | |
| 12 | Patent [b] | .28** | .23** | .25** | -0.01 | -0.02 | -0.02 | -0.01 | 0.09 | .22** | -0.01 | .19** | | | |
| 13 | Prior Funding [b] | .21** | .16** | .19** | 0.04 | -.10* | 0.07 | 0.03 | 0.05 | .13** | .21** | .20** | 0.09 | | |
| 14 | Funding Target [a] | .21** | .46** | .57** | 0.06 | -0.09 | 0.03 | -0.02 | 0.01 | .11* | .15** | .25** | .17** | .13** | |
| 15 | Minimum Investment [a] | .11* | .16** | 0 | 0.08 | -.10* | 0.02 | 0.02 | -0.03 | .18** | .11* | .34** | 0.08 | .14** | .20** |

Note. N = 430. [a] Variables that are natural-logged. [b] Binary variable. * $p < 0.05$, ** $p < 0.01$. All tests are two-tailed tests.

We tested our hypotheses using ordinary least squares regression with heteroskedasticity consistent standard errors. Since the maximum variance inflation factor obtained in any of the regression analyses was below the suggested bench mark of 3, multicollinearity was not a concern (Cohen et al., 2014).

Table 7a presents the results of hypotheses testing using "success" as the dependent variable. Model 1 in Table 7a presents the main effect of our independent variables on funding success. While the use of CLS significantly increased the funding performance ($b = 0.01$, $p < 0.05$), PLS and FLS did not have any significant effect. In addition, venture's *total assets*, *patent* and *prior funding* were also found to significantly increase the funding outcome. Hypothesis 1 predicted that the use of PLS will be more beneficial for racial minority entrepreneurs than for their racial majority counterparts. As shown in the model 2, the interaction term for the joint effect of PLS and Founder Race was negative and significant in predicting funding success ($b = -0.13$, $p < .05$). To understand this moderating effect, we calculated simple slopes of PLS in predicting funding success by comparing ventures with white founder and those with racial minority founder. As depicted in Figure 3a, the use of PLS significantly increased funding performance for ventures with racial minority founders ($b = 0.11$, $p = 0.02$) while it was not significantly related to funding success for ventures with white founders ($b = 0.02$, $p = 0.3$).

Hypothesis 2 predicted that the use of FLS will be more beneficial for ventures with white founders than for ventures with racial minority founders. As shown in the model 3, the interaction term for the joint effect of FLS and Founder Race was positive and significant in predicting funding performance ($b = 0.27$, $p < .01$). The results, summarized in Figure 3b, suggest that the use of FLS significantly decreased funding performance for ventures with racial minority founders ($b = -0.25$, $p = 0.01$) while it did not have any significant effect for ventures with white founders ($b = 0.03$, $p = 0.38$).

Hypothesis 3 predicted that the use of CLS will be more beneficial for ventures with racial minority founders than for ventures with white founders. As shown in the model 4, the interaction term for the joint effect of CLS and Founder Race was negative and significant in predicting funding performance ($b = -0.03$, $p < .05$). In particular, as depicted in Figure 3c, the use of CLS significantly increased funding performance for ventures with racial minority founders ($b = 0.04$, $p = 0.002$) while it did not have any significant effect for ventures with white founders ($b = 0.004$, $p = 0.1$). Model 5 to 7 in Table 7a presents the results of testing the same moderation effects but

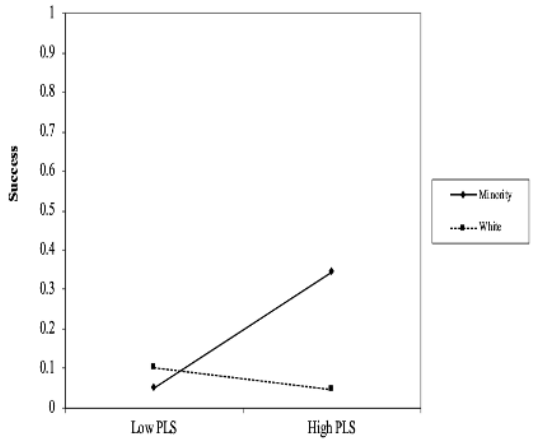
with the inclusion of all the independent variables simultaneously in the model. As shown in Model 5, 6, and 7, the interaction terms are all significant, and consistent with the results found in Model 2 to 4. Overall, the results provide empirical support for our hypothesis 1, 2 and 3.

**Table 7a: Hypotheses testing using "Success" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.01 | 0.11* | | | 0.11* | 0.00 | 0.00 |
| FLS | 0.00 | | -0.25* | | 0.01 | -0.24* | 0.01 |
| CLS | 0.01* | | | 0.04** | 0.01* | 0.01* | 0.04** |
| Founder Race [b] | | 0.11 | -0.35** | 0.30† | 0.09 | -0.35** | 0.31† |
| PLS * Founder Race [b] | | -0.13* | | | -0.12* | | |
| FLS * Founder Race [b] | | | 0.27** | | | 0.27** | |
| CLS * Founder Race [b] | | | | -0.03* | | | -0.03** |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | 0.06 | 0.06 | 0.06† | 0.06† | 0.06† | 0.07† | 0.06 |
| Total Assets [a] | 0.02* | 0.02** | 0.02** | 0.02** | 0.02* | 0.02** | 0.02** |
| Patent [b] | 0.21*** | 0.20*** | 0.20*** | 0.21*** | 0.20*** | 0.20*** | 0.21*** |
| Prior Funding [b] | 0.11* | 0.13** | 0.12** | 0.11** | 0.12** | 0.11** | 0.11** |
| Founder Gender [b] | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| Funding Target [a] | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04† | 0.03 |
| Minimum Investment [a] | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.02 |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -0.79 | -0.73 | -0.36 | -1.03† | -0.86 | -0.48 | -1.02† |
| $R^2$ | 0.19*** | 0.20*** | 0.20*** | 0.21*** | 0.21*** | 0.21*** | 0.21*** |
| F | 5.57*** | 5.91*** | 5.96*** | 6.28*** | 5.56*** | 5.62*** | 5.60*** |

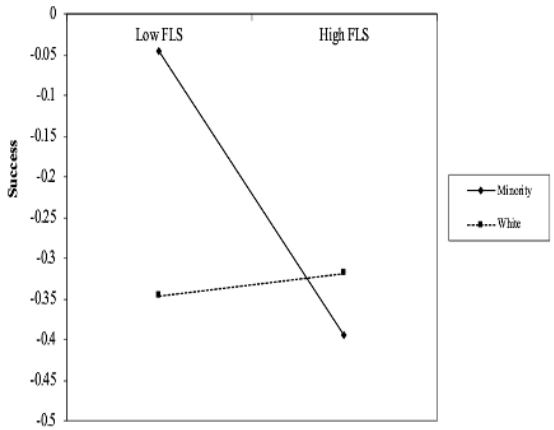
Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Figure 3a



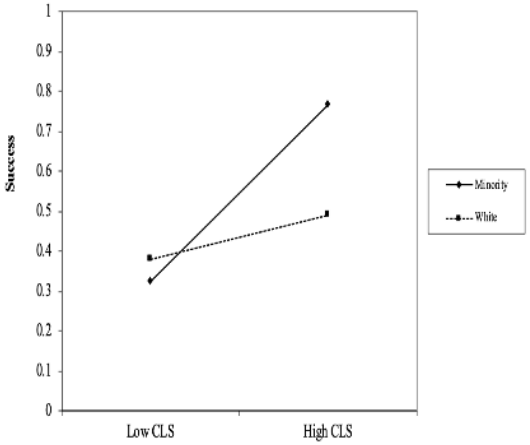

Minority: $b = 0.11, p = 0.02$
White: $b = 0.02, p = 0.3$

Figure 3b




Minority: $b = -0.25, p = 0.01$
White: $b = 0.03, p = 0.38$

Figure 3c




Minority: $b = 0.04, p = 0.002$
White: $b = 0.004, p = 0.1$

Table 7b presents the results of hypotheses testing using “amount raised” as the dependent variable. As shown in Model 2, 3, 5, and 6, we found that founder’s race significantly moderated the effect of PLS and FLS on funding performance in a predicted direction. However, we did not find a significant moderating effect of founder’s race on the relationship between the use of CLS and funding performance. As shown in Model 4 and 7, the interaction terms for the joint effect of CLS and Founder’s Race were not significant.

**Table 7b: Hypotheses testing using "Amount Raised" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.04 | 0.55* | | | 0.55* | -0.06 | -0.05 |
| FLS | 0.05 | | -1.26* | | 0.06 | -1.29* | 0.05 |
| CLS | 0.04* | | | 0.15* | 0.04* | 0.04* | 0.15* |
| Founder Race [b] | | 1.31* | -1.15† | 1.59† | 1.22* | -1.18† | 1.65† |
| PLS * Founder Race [b] | | -0.69* | | | -0.67* | | |
| FLS * Founder Race [b] | | | 1.48* | | | 1.46* | |
| CLS * Founder Race [b] | | | | -0.12 | | | -0.12 |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | -0.21 | -0.19 | -0.17 | -0.19 | -0.18 | -0.16 | -0.20 |
| Total Assets [a] | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 |
| Patent [b] | 0.87** | 0.84** | 0.85** | 0.90** | 0.87** | 0.87** | 0.89** |
| Prior Funding [b] | 0.39 | 0.48† | 0.45† | 0.39 | 0.43† | 0.40 | 0.40 |
| Founder Gender [b] | -0.30 | -0.34 | -0.28 | -0.28 | -0.32 | -0.28 | -0.32 |
| Funding Target [a] | 1.07*** | 1.07*** | 1.08*** | 1.08*** | 1.08*** | 1.09*** | 1.07*** |
| Minimum Investment [a] | 0.08 | 0.08 | 0.07 | 0.07 | 0.09 | 0.07 | 0.07 |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -4.82 | -5.14 | -3.23 | -6.30† | -5.98† | -3.91 | -6.23† |
| $R^2$ | 0.26*** | 0.26*** | 0.26*** | 0.26*** | 0.27*** | 0.27*** | 0.26*** |
| F | 8.39*** | 8.43*** | 8.44*** | 8.57*** | 7.88*** | 7.94*** | 7.68*** |

Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 7c presents the results of hypotheses testing using "number of investors" as the dependent variable. The results indicate that founder's race significantly moderates the effect of all three independent variables on funding performance in a predicted direction (Model 2: $b$ = -0.55, $p < 0.01$; Model 3: $b$ = 1.15, $p < 0.01$; Model 4: $b$ = -0.08, $p < 0.1$). In addition, as shown in Model 5 to 7, the results remain consistent even when all three independent variables are simultaneously included in the models.

**Table 7c: Hypotheses testing using "Number of Investors" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.06 | 0.42* | | | 0.42* | -0.07 | -0.06 |
| FLS | 0.04 | | -0.96** | | 0.04 | -1.02** | 0.04 |
| CLS | 0.02* | | | 0.10* | 0.02* | 0.02* | 0.10* |
| Founder Race [b] | | 0.92** | -1.02** | 0.98† | 0.86* | -1.04** | 1.04† |
| PLS * Founder Race [b] | | -0.55** | | | -0.53** | | |
| FLS * Founder Race [b] | | | 1.15** | | | 1.15** | |
| CLS * Founder Race [b] | | | | -0.08† | | | -0.08† |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | 0.02 | 0.03 | 0.05 | 0.03 | 0.05 | 0.06 | 0.03 |
| Total Assets [a] | 0.05* | 0.05** | 0.06** | 0.05* | 0.05** | 0.06** | 0.06** |
| Patent [b] | 0.55*** | 0.53** | 0.54** | 0.57*** | 0.54*** | 0.55*** | 0.56*** |
| Prior Funding [b] | 0.32* | 0.38* | 0.36* | 0.32* | 0.35* | 0.33* | 0.33* |
| Founder Gender [b] | -0.15 | -0.17 | -0.12 | -0.11 | -0.16 | -0.13 | -0.16 |
| Funding Target [a] | 0.86*** | 0.86*** | 0.87*** | 0.87*** | 0.87*** | 0.88*** | 0.86*** |
| Minimum Investment [a] | -0.63*** | -0.64*** | -0.65*** | -0.64*** | -0.63*** | -0.65*** | -0.65*** |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -4.89* | -5.22** | -3.77* | -5.87** | -5.70** | -4.06* | -5.77** |
| $R^2$ | 0.41*** | 0.42*** | 0.42*** | 0.41*** | 0.42*** | 0.43*** | 0.42*** |
| F | 16.89*** | 17.42*** | 17.38*** | 17.07*** | 15.93*** | 16.03*** | 15.36*** |

Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

In sum, we found full support for our hypothesis 1 and 2, and partial support for our hypothesis 3 as a significant moderating effect of founder's race on the relationship between CLS and funding performance was not observed when "amount raised" was used as the dependent variable.

### 3.5 Post-hoc Analysis

Our main results supported our theoretical model. However, ventures that were led by minority founders only accounted for 16% of the total sample. Thus, our findings regarding the interaction effect is subject to bias due to potentially unequal variances resulting from unequal sample sizes of the two subgroups. To alleviate this concern, we carry out an additional analysis using the racial composition of the entrepreneurial team (continuous) rather than the race of individual founders (binary). Consistent with our approach to code the race of founders, an independent coder visited the project webpage and assessed the last name and photo associated with the members of top management team in each venture. This was made feasible because Startengine requires all the ventures to include a description of top management team members on the project webpage. We operationalized *team race* by dividing the number of TMT members classified as white by total team size (Mean = 0.87, S.D.=0.22).

Table 8 presents the results of the post-hoc analyses. As shown in model 2 in Table 4a, the interaction term for the joint effect of PLS and Team Race was negatively significant in predicting funding success ($b$ = -0.13, $p < 0.1$). As shown in the model 3, the interaction term for the joint effect of FLS and Team Race was positive and significant in predicting funding performance ($b$ = 0.30, $p < 0.1$). As shown in the model 4, the interaction term for the joint effect of CLS and Team Race was negative and significant in predicting funding performance ($b$ = -0.04, $p < 0.1$). Model 5 to 7 in Table 8a present the results of testing the same moderation effects but with the inclusion of all the independent variables simultaneously in the model. As shown in Model 5, 6, and 7, the interaction terms are all significant, and consistent with the results found in Model 2 to 4. Overall, the results are consistent with our main results.

**Table 8a: Post hoc analyses using "Success" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.01 | 0.10† | | | 0.10† | 0.00 | -0.01 |
| FLS | 0.00 | | -0.24† | | 0.00 | -0.23† | 0.01 |
| CLS | 0.01* | | | 0.04* | 0.01* | 0.01* | 0.04* |
| Team Race [b] | | 0.28† | -0.21 | 0.48† | 0.26† | -0.22 | 0.48† |
| PLS * Team Race [b] | | -0.13† | | | -0.12* | | |
| FLS * Team Race [b] | | | 0.30† | | | 0.29† | |
| CLS * Team Race [b] | | | | -0.04† | | | -0.04† |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | 0.06 | 0.06 | 0.06 | 0.06 | 0.06† | 0.07† | 0.06 |
| Total Assets [a] | 0.02* | 0.02** | 0.02** | 0.02** | 0.02* | 0.02** | 0.02** |
| Patent [b] | 0.21*** | 0.20*** | 0.20*** | 0.21*** | 0.20*** | 0.21*** | 0.21*** |
| Prior Funding [b] | 0.11* | 0.12** | 0.12** | 0.11* | 0.11** | 0.11* | 0.11* |
| Founder Gender [b] | 0.05 | 0.04 | 0.05 | 0.06 | 0.05 | 0.05 | 0.05 |
| Funding Target [a] | 0.03 | 0.03 | 0.03 | 0.04 | 0.03 | 0.04 | 0.03 |
| Minimum Investment [a] | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -0.79 | -0.89 | -0.50 | -1.23* | -1.01† | -0.64 | -1.22* |
| $R^2$ | 0.19*** | 0.19*** | 0.19*** | 0.19*** | 0.20*** | 0.19*** | 0.19*** |
| F | 5.57*** | 5.57*** | 5.51*** | 5.80*** | 5.22*** | 5.18*** | 5.18*** |

Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 8b and 8c presents the results of post-hoc analyses using “amount raised” and “number of investors” as the dependent variable, respectively. The results are also largely consistent with our main results illustrated in Table 8b and 8c. In sum, the results of our post-hoc analyses continue to support our hypotheses. In addition, the consistent patterns of results found here imply that investors’ biases may not be limited to individual founders’ ethnicity but also persist regarding the wider entrepreneurial team.

**Table 8b: Post hoc analyses using "Amount Raised" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.04 | 0.68* | | | 0.67* | 0.01 | -0.04 |
| FLS | 0.05 | | -2.00** | | 0.04 | -1.94* | 0.06 |
| CLS | 0.04* | | | 0.13 | 0.04* | 0.04* | 0.13 |
| Team Race [b] | | 2.08* | -1.62† | 1.57 | 1.95* | -1.66† | 1.64 |
| PLS * Team Race [b] | | -0.85* | | | -0.82* | | |
| FLS * Team Race [b] | | | 2.48** | | | 2.44** | |
| CLS * Team Race [b] | | | | -0.09 | | | -0.10 |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | -0.21 | -0.21 | -0.19 | -0.21 | -0.19 | -0.17 | -0.22 |
| Total Assets [a] | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 |
| Patent [b] | 0.87** | 0.80** | 0.83** | 0.89** | 0.83** | 0.87** | 0.88** |
| Prior Funding [b] | 0.39 | 0.48† | 0.46 | 0.39 | 0.43† | 0.41 | 0.39 |
| Founder Gender [b] | -0.30 | -0.31 | -0.30 | -0.25 | -0.30 | -0.28 | -0.28 |
| Funding Target [a] | 1.07*** | 1.06*** | 1.08*** | 1.08*** | 1.07*** | 1.09*** | 1.07*** |
| Minimum Investment [a] | 0.08 | 0.08 | 0.05 | 0.07 | 0.08 | 0.05 | 0.06 |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -4.82 | -5.68† | -2.80 | -6.29† | -6.49† | -3.68 | -6.26† |
| $R^2$ | 0.26*** | 0.26*** | 0.26*** | 0.26*** | 0.27*** | 0.27*** | 0.26*** |
| F | 8.39*** | 8.44*** | 8.58*** | 8.44*** | 7.89*** | 8.04*** | 7.55*** |

Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

**Table 8c: Post hoc analyses using "Number of Investors" as the dependent variable**

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| PLS | -0.06 | 0.50** | | | 0.50* | -0.02 | -0.06 |
| FLS | 0.04 | | -1.29** | | 0.03 | -1.25** | 0.05 |
| CLS | 0.02* | | | 0.12† | 0.02* | 0.02* | 0.12† |
| Team Race [b] | | 1.50** | -1.12* | 1.50 | 1.43** | -1.11* | 1.58† |
| PLS * Team Race [b] | | -0.65** | | | -0.63** | | |
| FLS * Team Race [b] | | | 1.64** | | | 1.58** | |
| CLS * Team Race [b] | | | | -0.10 | | | -0.11 |
| | | | | | | | |
| Venture Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Venture Size | 0.02 | 0.02 | 0.04 | 0.02 | 0.03 | 0.04 | 0.01 |
| Total Assets [a] | 0.05* | 0.05** | 0.06** | 0.05* | 0.05* | 0.06** | 0.06** |
| Patent [b] | 0.55*** | 0.50** | 0.53** | 0.57*** | 0.52** | 0.55*** | 0.56*** |
| Prior Funding [b] | 0.32* | 0.38* | 0.36* | 0.32* | 0.35* | 0.33* | 0.32* |
| Founder Gender [b] | -0.15 | -0.16 | -0.15 | -0.09 | -0.15 | -0.14 | -0.13 |
| Funding Target [a] | 0.86*** | 0.86*** | 0.87*** | 0.87*** | 0.86*** | 0.88*** | 0.87*** |
| Minimum Investment [a] | -0.63*** | -0.64*** | -0.66*** | -0.65*** | -0.64*** | -0.66*** | -0.65*** |
| Project Launch Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -4.89* | -5.66** | -3.69† | -6.37** | -6.12** | -4.13* | -6.29** |
| $R^2$ | 0.41*** | 0.42*** | 0.42*** | 0.41*** | 0.42*** | 0.42*** | 0.41*** |
| F | 16.89*** | 17.40*** | 17.31*** | 17.01*** | 15.91*** | 15.87*** | 15.30*** |

Note. N = 430. Unstandardized coefficients are reported.
[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.00$

## 3.6 DISCUSSION

In this research, we investigated whether entrepreneur's ethnicity (i.e. white vs. non-white) affects the relationship between entrepreneur's use of linguistic styles and funding outcomes in crowdfunding. Our findings indicate that the use of past-oriented linguistic style (PLS) led to greater funding outcomes for ventures with minority founders than it did for those with white founders, as did the use of concrete linguistic style (CLS). Future-oriented linguistic style (FLS), on the other hand, was found to be more beneficial for ventures with white founders. Furthermore, our post-hoc analysis revealed the same pattern of results when we replaced the founder's race with the racial composition of entrepreneurial team.

Our research contributes to the emerging literature on crowdfunding and entrepreneurial finance in several ways. First, while scholars have noted the importance of linguistic styles in promoting entrepreneurial ventures to prospective investors, we do not fully understand the conditions under which these effects pertain. Prior studies had uncovered some boundary conditions, but they focused exclusively on the characteristics of the venture (Di Pietro et al., 2020; Parhankangas & Renko, 2017; Plummer, Allison, & Connelly, 2016). The impact of entrepreneur characteristics on the relative effectiveness of linguistic styles has rarely been studied. Our findings regarding the moderating effect of entrepreneur's ethnicity thus contribute to the development of a more nuanced understanding of the relationship between entrepreneur's use of linguistic styles and investors' funding decisions.

In addition, although existing research has documented the discouragement of minority entrepreneurs seeking financial resources, little is known regarding how minority entrepreneurs may overcome such challenge (Neville et al., 2018; Younkin & Kuppuswamy, 2018). We addressed this gap by examining the use of linguistic styles in communicating the ventures to prospective investors. Our work suggests that minority entrepreneurs can overcome investor biases through the use of appropriate linguistic styles. Last but not least, this study advances the stream of research on the role of ethnicity in entrepreneurship that has focused primarily on individual founders of entrepreneurial ventures (Park & Westphal, 2013; Zhu, Shen, & Hillman, 2014). Our findings imply that prospective investors are not only biased toward minority founders but such bias also pertains to racial composition of entrepreneurial team.

Our study has several limitations which should be kept in mind when considering the results, and which suggest promising directions for future research. First, we adopted computer-

aided text analysis approach to measure the linguistic style used by entrepreneurs. Despite its accuracy and efficiency in analyzing large quantities of data, this approach has its shortcomings and likely to miss some nuances of the language (Tausczik & Pennebaker, 2010). For instance, the frequency of past tenses used in entrepreneurial pitch may not adequately reflect the degree of entrepreneur's focus on highlighting past achievements. Future studies that incorporate manual text analysis would address the limitations associated with using computer-aided text analysis.

Our second limitation concerns the generalizability of our findings. Our study is confined to equity-based crowdfunding, which might limit the extent to which our results could be generalized to other types of crowdfunding including donation-based, lending-based and rewards-based crowdfunding (Berns, Figueroa-Armijos, da Motta Veiga, & Dunne, 2020). Investors in these other types of crowdfunding have different motivations and possess different levels of knowledge and expertise (Ahlers et al., 2015). Examining our model in different types of crowdfunding platforms would allow future studies to understand how much of our findings are specific to equity-based crowdfunding.

In addition, future research could study whether the effect of linguistic styles on funding performance is contingent upon other characteristics of the founders. While we focused on entrepreneur's ethnicity in our research, we believe studying different characteristics of entrepreneurs could also bring important insights. Female entrepreneurs are more likely to face harsher penalties, or negatively judged as compared with male entrepreneurs (De Hoogh, Den Hartog, & Nevicka, 2015). The gender roles have also been linked to people's expectations related to different language use (Gupta, Turban, Wasti, & Sikdar, 2009). Future research should thus examine whether the gender of the entrepreneur also affects the relationship between entrepreneur's use of different linguistic styles and investors' funding decisions. Furthermore, our research highlights the use of appropriate linguistic styles as a potential means for minority entrepreneurs to overcome the challenge associated with financial capital. But there could be an array of other strategies that minority entrepreneurs can employ to overcome such challenge. How might the display of entrepreneurial passion affect the way how investors react to minority entrepreneurs?

# CHAPTER 4: ESSAY 3

## The Role of Colors in Crowdfunding:

Evidence from Reward-based and Equity-based Crowdfunding Platforms


## ABSTRACT

This study investigates whether and how colors influence the perceptions and funding decisions of crowdfunding backers. We argue that funders are necessarily influenced by visual cues, and that color serves as an important heuristic (mental shortcut) that affects their attitude toward entrepreneurial ventures and consequent funding decisions. Using a combination of 916 reward crowdfunding projects and 350 equity crowdfunding projects, we found that projects that utilize a variety of different colors in video pitches enjoy better funding performance. In addition, we found that while the color red has a negative impact on funding performance, blue has an inverted U-shape relationship with funding performance in that it is positive up to a point and then becomes negative. Finally, we found that the effect of color on funding performance can be seen on reward-based but not equity-based crowdfunding projects, suggesting that the characteristics of investors may serve as an important boundary condition for the effects of visual cues on funding decisions.



*Key words*: Color, Visual heuristics, Reward-based crowdfunding, Equity-based crowdfunding


## 4.1 INTRODUCTION

Being able to deliver a successful pitch is a daunting task for all the ventures that seek financial support via crowdfunding. Previous studies suggest that both what the entrepreneur says and how they say it affects crowd investors' funding decisions. For example, the frequent use of concrete and precise language (Parhankangas & Renko, 2017) and an animated delivery of the pitch (Li et al., 2017) both have an impact. However, little is known about the role of visual cues in crowd investors' funding decisions, despite visual cues being important perceptual cues that enable one to process information more effectively (Dzulkifli & Mustafar, 2013; Grady, 1993) and the abundant use of images, charts, and colors in crowdfunding pitches.

This represents a significant gap in the literature as resource providers often rely on easy-to-process visual cues to speed up decision making (Chan & Park, 2015). The digital nature of

crowdfunding platforms makes visual cues particularly salient due to the lack of personal interaction between entrepreneurs and investors. Moreover, crowd investors typically commit a relatively small amount of money, and they often lack the expertise to engage in the rigorous assessment of a venture, leading to a greater reliance on heuristics such as visual cues, compared to more sophisticated investors such as venture capitalists or business angels (Mahmood, Luffarelli, & Mukesh, 2019). Taken together, these factors warrant an examination of whether and how visual cues may influence the perceptions and funding decisions of investors in crowdfunding.

In this research, we draw on heuristic processing theory and color psychology literature to propose a framework for understanding the impact of different colors used in videos on investors' funding evaluations in crowdfunding. We focus on color as it is considered the most salient visual experience to human beings (Dzulkifli & Mustafar, 2013). We argue that colors serve as a heuristic for crowd investors that influences their perceptions of crowdfunding campaigns. We tested our propositions using an advanced methodology that uses artificial intelligence to automatically collect and analyze the composition of different colors used in crowdfunding videos.

Using a combination of 916 reward crowdfunding projects and 350 equity crowdfunding projects, our findings suggest the following. First, crowdfunding videos that utilize a variety of different colors result in greater funding performance. Second, while red has a negative impact on funding performance, the performance of blue follows an inverted U-shape, having an initially positive relationship with funding performance and then becoming negative. Finally, we found that color has an effect on funding performance for reward-based but not equity-based crowdfunding projects, suggesting that characteristics of investors may serve as an important boundary condition for the effects of visual cues on funding decisions. Our post-hoc analyses provide additional insights into the role of color in crowdfunding by demonstrating the contrasting effects of warm and cool colors.

This study makes meaningful contribution to color and crowdfunding literature in several major ways. First, although scholars have demonstrated the role of various heuristic cues in crowdfunding, the extent to which visual cues may influence crowd investors' funding decisions remains largely overlooked. Our study addresses this gap by examining the most prominent visual cue: color, and showing its profound impact on funding performance. Second, our study responds to a recent call to examine the differences in forms of crowdfunding. By demonstrating that color impacts funders differently, depending on whether they are participating in reward-based or

equity-based funding, we highlight that crowd investors from the two modalities do not rely on the same decision criteria when making funding decisions. In particular, the lack of investment knowledge and expertise possessed by crowd investors in reward-based crowdfunding makes them more susceptible than equity investors to the influence of simple heuristic cues. Last but not least, this study also contributes to the color literature in general by introducing a novel way of measuring colors that utilizes the latest image processing analysis technology. Extant color research has primarily relied on the manipulation of colors in still images as capturing color dynamics in a video was impossible. Our color analysis automatically collects and analyze the color composition of a video, and so addresses the limitations in the conventional color research and enables the field to move forward.

## 4.2 THEORY AND HYPOTHESES

For many nascent entrepreneurial ventures, crowdfunding has evolved from a distinct source of seed capital to a valuable platform for testing new business ideas (Belleflamme et al., 2014). Reward-based crowdfunding platforms, in particular, have enabled numerous early-stage entrepreneurs with little track record to develop their business ideas into successful commercial ventures (EquityNet, 2014). Crowdfunding differs from traditional sources of financing in several major ways. First, unlike venture capitalists and angel investors – who presumably are well-informed, sophisticated businesspeople with relatively good expertise – backers in crowdfunding contexts are most likely to be novices with little investment experience and thus lack the relevant skills and knowledge to assess the quality of an entrepreneurial venture (Allison et al., 2017).

In addition, while professional investors commit large amounts of capital and have the goal of maximizing their own financial return, crowdfunding backers typically provide small amounts of funding as a means of supporting entrepreneurs, collecting rewards, or gaining early access to products, rather than for a share of eventual profits (Davis et al., 2017). Furthermore, unlike professional investors who have sufficient resources to conduct serious due diligence, crowdfunding backers have to primarily rely on the limited information presented to them and make decisions based solely on the claims made by the entrepreneur. These differences suggest that crowdfunding backers may not use the same decision criteria and processes as traditional investors (Li et al., 2017).

A growing body of research suggests that crowd investors rely on various heuristic cues or mental short-cuts to form judgements and make decisions (Allison et al., 2017). This is because crowd investors' lack of knowledge of and experience in investing prevents them from engaging in any rigorous analysis of a venture's characteristics. Heuristic processing is fast and automatic as it concentrates on one aspect of the task of decision-making while ignoring others (Chaiken, 1980; Kahneman, 2003). This type of processing allows individuals to form quick judgements by relying on the availability of information and their affective states (Kahneman, 2003). Research has shown that crowd investors are influenced by cues such as the quality of an entrepreneur's storytelling – which enables investors to make sense of an investment opportunity (Anglin et al., 2018) – and the level of animation of entrepreneurs' facial expressions and other gestures during the pitch (Li et al., 2017).

Visual cues have been greatly overlooked in crowdfunding literature. According to Chan and Park (2015), resource providers tend to automatically attend to and rely on easy-to-process visual cues to speed up decision making. They claim that "people process images more easily than written information" (p. 732) and "visual images are easier to access and remember" (p. 735). In particular, color is deemed as one of the most influential visual cues (Dzulkifli & Mustafar, 2013), and it is especially abundant in crowdfunding platforms as entrepreneurs often utilize a combination of different colors in videos when pitching to crowd investors. It is well-documented that color enhances our attention and memory (Farley & Grant, 1976). Colors also convey meaningful information about an object, which in turn influences our feelings, thoughts, and behaviors (Elliot & Maier, 2014). The psychological effect of color has been documented across a wide range of domains including brand perception (Hynes, 2009), health perception (Mead & Richerson, 2018), moral judgement (De Bock, Pandelaere, & Van Kenhove, 2013) and tipping behavior (Lee, Noble, & Biswas, 2018).

An important question that remains unaddressed is whether colors can influence the perceptions and funding decisions of investors in crowdfunding. In the following section, we theorize how colors used in crowdfunding videos may influence entrepreneurs' ability to raise financial resources from crowd investors. In doing so, we focus on red and blue as these two colors lie at opposite ends of the color spectrum, and because they have been featured heavily in previous color research.

### 4.2.1 The effect of color diversity on crowdfunding performance

Color is embedded in our daily conversations and decision making. People select which color clothes to wear and good to buy (e.g. cars) and comment on the color of others' hair and makeup. Beyond its aesthetic value, color has shown to considerably increase our attention and memory; this effect has been documented across a variety of settings such as education, marketing, and even sports (Hynes, 2009). The effect of color on attention and memory was first documented by Farley and Grant (1976), who found that colored multimedia presentations resulted in greater attention and memory than those in black and white. Similarly, colored advertisements were found to attract readers 42% more than monochrome advertisements (White, 1997).

We expect that the presence of diverse colors in videos will increase funding performance. Given the power of color on viewers' attention and recall, videos using a variety of colors are more likely to attract and sustain funders' attention and thus engage them cognitively in processing the pitch. Accordingly, the likelihood of being persuaded by the entrepreneurial pitch will increase as the level of funders' engagement increases. This suggests that projects utilizing various colors in videos should enjoy better funding outcomes than those using fewer colors.

*H1: The more colors used in crowdfunding videos, the greater the funding outcomes*

### 4.2.2 The effect of red and blue on crowdfunding performance

Beyond its impact on attention and memory, color also affects our feelings, thoughts, and behaviors. Associative learning theory posits that the associations between different objects are created by frequent combinations (Labrecque & Milne, 2012)l. As such, the repeated pairing of color with specific concepts and messages over time guides people's feelings and thoughts about the color (for a review, Elliot & Maier, 2014)). More specifically, colors are associated with positive and negative connotations about the environment, which in turn triggers approach or avoidance motivations in individuals (Elliot & Maier, 2007).

The color red is implicitly associated with danger and failure in Western countries (Elliot, Maier, Binser, Friedman, & Pekrun, 2009; Mehta & Zhu, 2009). Red is often used for stop or warning signs; the highest level of hazard alert is usually red; red pens are often used to mark errors on papers; and red is often used to indicate the downward trend of a stock, while green indicates the upward moving trend. These connections lead to a learned association of red with negative consequences, which in turn prompts people to view red as a negative cue about the environment.

In a controlled experiment, Rutchick et al. (2010) found that participants were more likely to complete the word fai_ as fail rather than fair when using a red pen compared to black pen. In fact, many prior studies found that viewing red in achievement settings evokes avoidance motivation and risk-averse behaviors (Friedman & Förster, 2010). For example, Elliot et al. (2009) showed that people were less likely to knock on a red door compared to doors of other colors and more likely to stay away from a red test cover. Similarly, teachers tend to evaluate students' work more negatively when using red ink relative to aqua ink (Dukes & Albanesi, 2013).

In the context of crowdfunding, the use of red is thus likely to negatively influence investors' funding evaluations. The learned association between red and negative outcomes is likely to prompt funders to view videos utilizing red as inherently riskier and hence discourage them from providing financial support for the venture. Further, since heuristic processing prompts individuals to be influenced by color spontaneously, other factors are unlikely to interfere with the effect of red. As a result, we expect that a venture that incorporates more red in its videos will secure less investment.

*H2: The use of red in crowdfunding videos will negatively influence funding outcomes*

Blue is another primary color that has attracted significant scholarly attention. Contrary to red, blue is often associated with positive outcomes such as safety and tranquility (Kaya & Epps, 2004), because it is the color of natural space (i.e. sky). As a result of evolution, people tend to experience greater relaxation and reduced psychological distress when exposed to a blue environment (Barton & Pretty, 2010; Pretty, Peacock, Sellens, & Griffin, 2005). The learned association between blue and environmental safety in turn triggers approach motivation and leads individuals to experience a higher level of trust when they are surrounded by the color (Friedman & Förster, 2010; Mehta & Zhu, 2009).

In color research, the notion that blue is associated with a positive evaluation tendency is widespread (Mehta & Zhu, 2009). In many studies, it was found that people had a consistent preference for blue over other colors (Hurlbert & Ling, 2007). For example, retail stores and online websites featuring blue were rated as more relaxing and trustworthy (Alberts & Van Der Geest, 2011; Gorn, Chattopadhyay, Sengupta, & Tripathi, 2004; Lee& & Rao, 2010; Yüksel, 2009). Likewise, blue is largely used in logos of large corporations, perhaps due to its positive impact on consumers' perception of trustworthiness (Labrecque, Patrick, & Milne, 2013). Thus, in the context of crowdfunding, a venture featuring more blue is likely to positively influence investors'

funding evaluations. Since blue activates approach motivation which leads individuals to view an environment as more benign, funders are likely to perceive lower risk and hence show greater willingness to invest in the venture.

While blue leads to increased level of trust, it also evokes a strong feeling of calmness and serenity (Naz & Helen, 2004). It is well documented that investors rely on their affective states when making investment decisions and that they favor projects that make them feel excited over those that make them feel dull (Hisrich & Jankowicz, 1990; Li et al., 2017). Thus, it is expected that funders' excitement will decrease as the color blue increases. This suggests that increased trust on the one hand, and decreased excitement on the other may reach a point where the expected costs of boredom outweigh the benefits of increased trust. Accordingly, we expect an inverted U-shaped relationship between the use of blue and funding outcomes, with a peak evident when blue is at a middling level.

*H3: The use of blue in crowdfunding videos will have an inverted U-shaped relationship with funding outcomes*

### 4.2.3 The role of investors' motivation and ability

Given that individuals differ in the way they process information (Peterson & Deary, 2006), we expect that they will also vary in their susceptibility to color when evaluating a venture. The heuristic-systematic model proposes two distinct ways in which people can be persuaded to change their attitude and evaluations about a given object (Chaiken, 1980). Influencing an attitude via systematic processing involves individuals forming an evaluation through effortful cognition. It requires thoughtful consideration of arguments and ideas in the message being communicated (Areni, 2003; Crano & Prislin, 2006). For instance, in crowdfunding, potential backers may decide to support a project by carefully thinking about the objective evidence of the quality of the product being pitched, the entrepreneur's expertise and experience, and how well the specific benefits and costs of the product will be received by the market (Mitteness et al., 2012; Parhankangas & Ehrlich, 2014). In contrast, influence via heuristic processing leads individuals to form an overall evaluation based less on cognition and more on salient and easily comprehended cues (Kahneman, 2003).

An important aspect of this theory is that both systematic and heuristic processing occur together to influence individuals' evaluations, but the relative impact of these two routes is

determined by one's motivation and ability (Crano & Prislin, 2006; Petty & Briñol, 2011). When individuals do not care about the topic at hand (lack of motivation) or have trouble assessing the message (lack of ability), they will be less willing and/or able to engage in systematic processing, and thus the heuristic cues will play a larger role in their final evaluation (Petty & Wegener, 1998). Conversely, when the topic at hand has high personal importance to the individual (high motivation) and that individual has relevant knowledge and expertise with the given topic (high ability), systematic processing will become more impactful, while the influence of the heuristic cues will diminish (Bhattacherjee & Sanford, 2006; Kim & Benbasat, 2009).

This suggests that the extent to which color (i.e. heuristic cues) influences funders' evaluation depends on their motivation and ability. Funders in reward-based and equity-based crowdfunding platforms greatly differ in terms of their motives of investment and investment expertise. First, unlike funders of reward-based crowdfunding ventures, who typically provide financial support as a means of collecting rewards or gaining early access to products, equity crowdfunders have the goal of maximizing their return on investment as they invest in exchange for a share of ownership in the venture. In addition, unlike investors in a reward-based crowdfunding project, who are most likely to be novices with little to no investment experience, equity crowdfunders often possess the relevant investment knowledge and experience to engage in rigorous assessment of the quality of an entrepreneurial venture. This suggests that equity crowdfunders will be more willing and able to systematically assess a proposed venture by engaging in deep thinking and intensive reasoning, compared to funders in reward crowdfunding platforms. In other words, the greater motivation and ability of equity crowdfunders will combine to decrease the influence of color on their funding decisions.

*H4: The use of colors in crowdfunding videos will not influence funding outcomes in equity-based crowdfunding platforms*

## 4.3. METHODOLOGY

### 4.3.1 Overview

We used a combination of reward-based and equity-based crowdfunding data to test our hypotheses. In testing hypothesis 1 – 3, we selected projects from Kickstarter, one of the largest reward-based crowdfunding platforms. Hypothesis 4 was tested using projects from Startengine, which is the largest equity-based crowdfunding platforms in the U.S.

### 4.3.2 Sample (reward-based crowdfunding)

Projects were selected from all of the US-based technology-related crowdfunding projects launched on Kickstarter between June 2017 and July 2018 (2,820 projects). We limited our sample to US-based projects to control for country and language effects. Following prior studies (Chan & Parhankangas, 2017; Li et al., 2017; Mollick, 2014), we also limited our sample to technology related projects because projects in this category are most comparable to conventional entrepreneurial ventures since they require the inclusion of a concrete manufacturing plan and a specific date for delivery of rewards.

From the 2,820 projects, we eliminated two cancelled and two suspended projects. In addition, following Mollick (2014) and Li et al. (2017), we excluded 483 projects that sought less than $5,000 because projects at this low funding level often are not considered serious entrepreneurial endeavors. Furthermore, we dropped 1,417 projects that did not have a video pitch on campaign page. This results in a final sample of 916 projects.

### 4.3.3 Measures

*Dependent variables*

To assess funding performance, we followed prior crowdfunding research (Anglin et al., 2018; Belleflamme et al., 2014) and used two archival measures. Amount raised is the total funds a project raised by the end of its campaign period, regardless of whether or not the project succeeded in meeting its funding goal. Number of Backers is a count variable reflecting how many individuals supported a project. Crowdfunding is designed to enable entrepreneurs to seek small amounts of money from large numbers of people, and thus the number of backers supporting a given project is an important performance criterion (Skirnevskiy et al., 2017). Both measures were log transformed to account for skewness.

*Independent variables*

Our main independent variables are color diversity, red and blue, operationalized through the use of latest image processing tool. Hue-Saturation-Value (HSV) color model is the representation of color and it has been widely adopted in color research as it accurately reflects the way human vision perceives different colors (Sural, Qian, & Pramanik, 2002). Hue refers to the wavelength of a color which ranges from 0 to 360 degrees. Saturation refers to the intensity or the amount of pigment in a color, ranging from 0 to 100 percent. A color high on saturation makes it appear very vivid. Value refers to the brightness of a color ranging from 0 to 100 percent where 0

is completely black and 100 is the brightest. Based on HSV model, we defined the ranges for 14 colors including red, orange, yellow, brown, pink, blue, green, purple, brown, cyan, magenta, rose, black, white and gray.

To extract the percentage of each different color used in the video, we used Imultis image processing technique by analyzing all the frames in the video. We first converted each frame into small chunks of 10 by 10 pixels and analyze the ratio of each color based on HSV definition. We then increment the ratio of color into the next video frame. This generates the percentage of each of 14 different colors in the whole video. For instance, a video may consist of 5% red color, 15% blue color, 10 % orange, 20% white and 50 % other colors, etc.

Our first independent variable, *color diversity*, was operationalized using Herfindhi-Hirschman Index, commonly used to measure market concentration. Using HHI, we calculated color concentration by squaring the percentage of each different color and summing them up, which in turn divided by 10000. This HHI value ranges from 0 to 1, and a higher value indicates that the video is concentrated on a single color while a lower value suggests that the video utilize diverse colors. Thus, we added minus sign to HHI so that higher value of HHI indicates a greater diversity in colors. The other two independent variables, red and blue, were operationalized by using the percentage of each corresponding color used in the video.

*Control variables*

We included nine control variables to account for entrepreneur and project heterogeneity that prior research has linked to funding success. To account for potential effects stemming from entrepreneurs' demographic characteristics, we controlled for entrepreneur gender and race using two dichotomous variables (Becker-Blease & Sohl, 2007; Johnson et al., 2018). Entrepreneur gender was coded 1 if the lead entrepreneur was female and 0 otherwise. Similarly, entrepreneur race was coded 1 if the lead entrepreneur was Caucasian and 0 otherwise. We also controlled for the number of past projects created by an entrepreneur, because serial project creators tend to enjoy better funding performance due to the social capital retained from previous projects (Buttice et al., 2017). Likewise, we also controlled for the number of projects previously backed by an entrepreneur to account for the effect of reciprocity prevailing between project creators in crowdfunding (Buttice et al., 2017). These two variables were log transformed to account for skewness.

To account for potentially important project differences, we controlled for the level of the funding goal (log transformed dollars to account for skew) as prior studies demonstrated that the funding goal of a crowdfunding project has a significant impact on its funding performance (Mollick, 2014). In addition, we controlled for the presence of a team (1 if the video pitch presented a team vs 0 if the video pitch showed a single entrepreneur) because a project led by a group of entrepreneurs may imply a different level of resources available for the venture (Calic & Mosakowski, 2016). We also controlled for video length (minutes) as it could affect the level of attention backers paid to the video pitches and thus affect subsequent funding performance (Chan & Parhankangas, 2017). Number of rewards offered by each project was also controlled using a count variable (Allison et al., 2017). We controlled for the duration of funding period by counting the number of days between project launch date and the date the funding campaign ended because this may also influence the level of difficulty in attracting funds (Calic & Mosakowski, 2016).

### 4.4 EMPIRICAL RESULTS

Table 9 provides aggregated means, standard deviations and correlations for the variables used in the study. The projects had a mean funding duration of approximately 35 days (SD=10.50) and the majority of the entrepreneurs were male (83%), and slightly less than half of the projects (46%) were created by entrepreneurial team rather than a single entrepreneur. Videos utilize 1.25% of red color on average while blue accounted for 12.77%. As expected, red color was negatively correlated with funding outcomes while blue color had a positive relationship. We tested our hypotheses using hierarchical ordinary least squares regression. We fitted two sets of models, one for each measure of funding performance: amount raised and number of backers.

**Table 9: Mean, SD, and Correlations of the variables (reward-based crowdfunding projects)**

| | Variables | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Amount raised [a] | 7.66 | 3.36 | | | | | | | | | | | | | |
| 2 | Number of backers [a] | 3.55 | 2.14 | .92** | | | | | | | | | | | | |
| 3 | Color diversity | -0.21 | 0.10 | .21** | .19** | | | | | | | | | | | |
| 4 | Red | 1.25 | 2.21 | -.07* | -.08* | .10** | | | | | | | | | | |
| 5 | Blue | 12.77 | 9.56 | .14** | .11** | .16** | -.13** | | | | | | | | | |
| 6 | Funding goal [a] | 10.19 | 1.07 | .08* | 0.01 | .08* | -0.03 | 0.05 | | | | | | | | |
| 7 | Entrepreneur's gender [b] | 0.83 | 0.37 | .07* | .08* | 0.01 | -0.04 | .13** | 0.04 | | | | | | | |
| 8 | Entrepreneur's race [b] | 0.80 | 0.40 | 0.04 | 0.04 | .09** | 0.01 | -0.02 | 0.04 | 0.05 | | | | | | |
| 9 | Team [b] | 0.46 | 0.50 | .48** | .47** | .18** | -0.04 | .11** | 0.04 | 0.04 | 0.02 | | | | | |
| 10 | Video length (min) | 3.23 | 2.41 | -0.06 | -.07* | 0 | -0.04 | -0.02 | .14** | 0.05 | -0.03 | -.07* | | | | |
| 11 | Duration (day) | 35.42 | 10.50 | -0.05 | -0.06 | 0 | -0.02 | 0 | .16** | 0.05 | -0.04 | -0.02 | 0.03 | | | |
| 12 | Number of rewards | 9.26 | 5.48 | .46** | .44** | .19** | -0.04 | .08* | .11** | -0.02 | -0.01 | .27** | -0.03 | -0.02 | | |
| 13 | Prior created projects [a] | 0.19 | 0.43 | .09** | .15** | 0.02 | -0.02 | -0.01 | -.11** | .09** | 0.04 | 0 | 0.02 | -0.03 | 0.01 | |
| 14 | Prior backed projects [a] | 0.54 | 0.92 | .36** | .40** | .07* | 0.04 | -0.01 | -0.06 | 0.04 | 0.05 | .14** | -0.03 | -.08* | .19** | .42** |

Note. N = 916. [a] Variables are natural-logged. [b] Binary variable. * $p < 0.05$, ** $p < 0.01$. All tests are two-tailed tests.

Table 10 presents the results of the hierarchical regression models testing H1, H2 and H3. H1 predicted that diversity of colors in crowdfunding videos would positively influence funding performance. As shown in Model 1 and Model 6, we found the positive effect of color diversity on two dependent variables (amount raised: $b=2.44$, $p<0.01$; number of backers: $b=1.15$, $p<0.05$). Thus, hypothesis 1 was supported. H2 predicted that red color would negatively influence funding performance. As shown in Model 2 and Model 7, the effect of red color was negative and significant (amount raised: $b=-0.09$, $p<0.05$; number of backers: $b=-0.07$, $p<0.01$). We also tested whether the red color has a non-linear effect on funding performance. As can be seen in Model 3 and Model 8, the squared term of red color did not significantly influence funding performance. Thus, we found support for our hypothesis 2.

H3 predicted that the blue color has an inverted U-shaped relationship with funding performance. As shown in Model 5 and Model 10, funding performance increases significantly with blue color (amount raised: $b=0.08$, $p<0.01$; number of backers: $b=0.05$, $p<0.01$), then decreases significantly as blue color continues to increase (amount raised: $b=-0.001$, $p<0.05$; number of backers: $b=-0.001$, $p<0.01$). Thus, our hypothesis 3 is also supported.

## Table 10: Regression analyses (reward-based crowdfunding projects)

| | Amount raised | | | | | Number of backers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
| Color diversity | 2.44** | 2.68** | 2.79** | 2.15* | 1 | 1.15* | 1.33* | 1.39* | 1.02† | 0.26 |
| Red | | -0.09* | -0.14† | | | | -0.07** | -0.09† | | |
| Red$^2$ | | | 0 | | | | | 0 | | |
| Blue | | | | 0.02* | 0.08** | | | | 0.01 | 0.05** |
| Blue$^2$ | | | | | -0.001* | | | | | -0.001** |
| Constant | 3.68*** | 3.95*** | 4.03*** | 3.47*** | 2.85** | 2.08*** | 2.28*** | 2.32*** | 1.99** | 1.58* |
| Funding goal[a] | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | -0.04 | -0.05 | -0.05 | -0.04 | -0.05 |
| Entrepreneur's gender[b] | 0.51* | 0.50* | 0.49* | 0.45* | 0.42† | 0.35* | 0.34* | 0.33* | 0.32* | 0.30* |
| Entrepreneur's race[b] | 0.06 | 0.06 | 0.06 | 0.08 | 0.09 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 |
| Team[b] | 2.31*** | 2.29*** | 2.28*** | 2.28*** | 2.25*** | 1.45*** | 1.43*** | 1.43*** | 1.43*** | 1.41*** |
| Video length (min) | -0.04 | -0.05 | -0.05 | -0.04 | -0.04 | -0.03 | -0.03 | -0.03 | -0.03 | -0.03 |
| Duration (day) | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | 0 | 0 | 0 | 0.00 | 0 |
| Number of rewards | 0.19*** | 0.18*** | 0.18*** | 0.18*** | 0.18*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** |
| Prior created projects[a] | -0.25 | -0.28 | -0.28 | -0.25 | -0.28 | 0.06 | 0.04 | 0.04 | 0.06 | 0.04 |
| Prior backed projects[a] | 0.94*** | 0.95*** | 0.96*** | 0.95*** | 0.95*** | 0.65*** | 0.67*** | 0.67*** | 0.66*** | 0.66*** |
| $R^2$ | 0.419*** | 0.423*** | 0.423*** | 0.423*** | 0.427*** | 0.414*** | 0.418*** | 0.418*** | 0.415*** | 0.420*** |
| F | 64.443*** | 59.315*** | 54.399*** | 59.267*** | 55.188*** | 62.936*** | 58.236*** | 53.377*** | 57.510*** | 53.628*** |

Note. N= 916. Unstandardized coefficients are reported.

[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

H4 predicted that colors will not influence funding performance in equity-based crowdfunding platforms. To test this, we selected projects from Startengine, one of the largest U.S based equity crowdfunding platforms.

**Sample (equity-based crowdfunding)**

Our initial population of study consists of 558 equity offerings launched on Startengine since its inception in 2015 through March 2021. Among 558 projects, 106 projects were still in progress at the time of data collection, resulting in 452 projects available for the inclusion in our empirical analysis. However, since not all the projects included offering details with variables in question, we employed a conservative approach by further excluding 22 projects that had missing values. Of the remaining 430 projects, we further eliminated 80 projects that did not include a video pitch on their campaign webpage. Thus, our final sample is made of 350 projects.

*Variables*

Dependent and independent variables were operationalized following the same procedure as they were previously measured. We had to use a different set of control variables that are relevant to the context of equity crowdfunding. We first controlled for *Venture age* and *Venture size* as these two factors may influence investors' perception of the venture and their subsequent funding decisions. *Venture age* was measured using a numeric value in years since firms' establishment until the launch of crowdfunding campaign. *Venture size* was measured using a categorical variable based on the number of employees working for the venture. It takes a value of 1 if the venture has 1 to 10 employees, 2 if it has 11 to 50 employees and 3 if it exceeds 50 employees.

In addition, given that ventures' prior record of successful fundraising is likely affect investors' evaluation, we also controlled for *prior funding experience* using a binary variable coded 1 if the venture has received any prior funding, and 0 otherwise. We obtained information regarding the venture's prior funding history from the Crunchbase dataset. It is a database of startup ventures operated by TechCrunch that records all the information about their financing history including venture capital funds, angel investment funds and crowdfunding. Moreover, we controlled for ventures' attainment of *patent* (1 if the venture has at least one patent granted, 0 otherwise) as the intellectual capital of the venture has found to increase investors' propensity to invest (Cumming et al., 2019; Scheaf et al., 2018).

Furthermore, we controlled for the venture's *total assets* to account for the level of resources available to the venture. To account for potential differences in offering details, we also controlled for project's *funding target* and *minimum investment* required by an individual investor. We obtained information regarding venture's *total assets*, *funding target* and *minimum investment* from offering documents on the project webpage. These three variables were also winsorized and log transformed to account for outlier and skewness. Since entrepreneur's gender also affects investors' perception of the venture and their subsequent funding decisions (Davis et al., 2017; Johnson et al., 2018), we also controlled for it using a binary indicator coded 1 if the founder was male and 0 otherwise.

Finally, projects in our sample vary in terms of the year in which they launch their campaigns from 2015 to 2021. Over the past few years, equity crowdfunding platforms have enjoyed a growing legitimacy as an alternative source of venture financing. Thus, we used six-year dummies to account for the potential impact of campaign launch year.

**Results**

Table 11 provides aggregated means, standard deviations and correlations for the variables. Unlike projects in reward-based crowdfunding platforms, the color red and blue were not significantly correlated with funding outcomes in equity-based crowdfunding platforms. Table 12 presents the results of our hypothesis 4. H4 predicted that colors would not influence funding outcomes in equity-based crowdfunding platforms. As shown in Model 1 through Model 10, none of our independent variables (i.e. color diversity, red, blue) significantly influenced funding outcomes. Thus, our hypothesis 4 is supported.

**Table 11: Mean, SD, and Correlations of the variables (equity-based crowdfunding projects)**

| | Variables | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Amount raised[a] | 11.76 | 2.46 | | | | | | | | | | | |
| 2 | Number of investors[a] | 5.32 | 1.79 | .89** | | | | | | | | | | |
| 3 | Color diversity | -0.23 | 0.12 | 0.08 | .13** | | | | | | | | | |
| 4 | Red | 1.44 | 3.52 | -0.03 | -0.05 | 0.08 | | | | | | | | |
| 5 | Blue | 15.03 | 13.06 | 0.02 | 0 | -0.07 | -.15** | | | | | | | |
| 6 | Venture age | 5.32 | 4.61 | 0.1 | 0.1 | .14** | 0.03 | -0.06 | | | | | | |
| 7 | Venture size | 1.44 | 0.58 | .12* | .12* | 0.04 | 0.02 | -0.09 | .26** | | | | | |
| 8 | Patent[b] | 0.38 | 0.49 | .24** | .26** | 0.08 | 0.09 | 0.03 | .22** | 0.03 | | | | |
| 9 | Prior funding[b] | 0.48 | 0.50 | .18** | .17** | 0 | -0.06 | 0.01 | .13* | .21** | 0.07 | | | |
| 10 | Funding target[a] | 13.27 | 1.12 | .54** | .60** | 0.08 | -0.09 | 0.04 | 0.1 | .18** | .17** | .13* | | |
| 11 | Total asset[a] | 10.35 | 4.32 | .21** | .26** | 0.03 | 0.01 | 0.02 | .30** | .18** | .19** | .23** | .27** | |
| 12 | Minimum investment[a] | 5.45 | 0.56 | .15** | -0.02 | 0.01 | 0.04 | 0.07 | .19** | .14** | 0.06 | .16** | .23** | .33** |

Note. N = 350. [a] Variables that are natural-logged. [b] Binary variable. * $p < 0.05$, ** $p < 0.01$. All tests are two-tailed tests.

**Table 12: Regression analyses (equity-based crowdfunding projects)**

| | Amount raised | | | | | Number of investors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
| Color diversity | 0.36 | 0.34 | 0.34 | 0.35 | 1.28 | 0.87 | 0.89 | 0.93 | 0.87 | 1.69 |
| Red | | 0.01 | 0.01 | | | | -0.01 | -0.02 | | |
| $Red^2$ | | | 0.00 | | | | | 0.00 | | |
| Blue | | | | 0.00 | -0.05 | | | | 0.00 | -0.04 |
| $Blue^2$ | | | | | 0.00 | | | | | 0.00 |
| Constant | -4.20 | -4.22 | -4.22 | -4.21 | -4.25 | -4.19* | -4.15* | -4.11* | -4.18* | -4.21* |
| Venture age | -0.01 | -0.01 | -0.01 | -0.01 | -0.02 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 |
| Venture size | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 |
| Patent[b] | 0.76** | 0.75** | 0.75** | 0.76** | 0.76** | 0.54** | 0.54** | 0.54** | 0.54** | 0.54* |
| Prior funding[b] | 0.41† | 0.42† | 0.42† | 0.41† | 0.47* | 0.29† | 0.29† | 0.29† | 0.29† | 0.34* |
| Entrepreneur's gender[b] | -0.39 | -0.39 | -0.39 | -0.39 | -0.37 | -0.14 | -0.14 | -0.14 | -0.14 | -0.12 |
| Entrepreneur's race[b] | -0.04 | -0.04 | -0.04 | -0.04 | -0.09 | -0.19 | -0.19 | -0.19 | -0.19 | -0.24 |
| Funding target[a] | 1.16*** | 1.16*** | 1.16*** | 1.16*** | 1.19*** | 0.91*** | 0.90*** | 0.90*** | 0.91*** | 0.94*** |
| Total asset[a] | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Minimum investment[a] | -0.14 | -0.14 | -0.14 | -0.14 | -0.13 | -0.74*** | -0.74*** | -0.74*** | -0.74*** | -0.73*** |
| Project launch year[b] | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R square | 0.331*** | 0.331*** | 0.331*** | 0.331*** | 0.338*** | 0.455*** | 0.455*** | 0.455*** | 0.455*** | 0.465*** |
| F | 10.296*** | 9.664*** | 9.099*** | 9.664*** | 9.396*** | 17.428*** | 16.371*** | 15.423*** | 16.354*** | 16.046*** |

Note. N= 350. Unstandardized coefficients are reported.

[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

### 4.5. Post-hoc Analysis (warm colors vs. cool colors)

While we focused on the effects of the red and blue color, colors can also be grouped into warm and cool colors based on the feelings that they evoke. Warm colors are the colors in the red area of the color spectrum including, for example, red, orange and yellow. These colors have shown to evoke the feelings of warmth and excitement. Cool colors, on the other hand, are the ones in the blue area of the color spectrum such as green, cyan and purple and are known to evoke the feelings of coolness. They are often described as calm and relaxing colors.

We tested the effects of warm and cool colors using the previous sample of reward-based crowdfunding projects. Warm colors were operationalized by summing up the percentage of red, yellow, orange, pink, rose, and brown colors. Likewise, we summed up the percentage of blue, green, purple, cyan and magenta colors to measure cool colors.

Table 13 presents the results of our post-hoc analysis. Model 1 to Model 5 describe the results of using *amount raised* as the dependent variable. As shown in model 3, we found that warm colors have an U-shaped relationship with amount raised. This suggests that funding performance decreases significantly with the use of warm colors ($b=-0.07$, $p<0.01$), then increases significantly as warm colors continue to increase ($b=0.001$, $p<0.05$). On the contrary, we found an inverted U-shaped relationship between the use of cool colors and amount raised. As shown in model 5, funding performance increases initially significantly with the use of cool colors ($b=0.06$, $p<0.05$), but decrease as the cool colors continue to increase ($b=-0.001$, $p<0.05$).

However, when *number of backers* was used as the dependent variable (Model 6 – Model 10), differences were observed regarding the effects of warm and cool colors. As shown in Model 7 and 8, the effect of warm colors was negative and significant ($b=-0.02$, $p<0.01$), different from the U-shaped relationship that we found previously. Likewise, cool colors no longer had an inverted U-shaped relationship with funding performance. As shown in Model 10, the result indicates that cool colors initially increase the funding performance up to a point ($b=0.03$, $p<0.1$), after which the effect becomes much weaker ($b=0.00$, $p<0.01$).

## Table 13: Post hoc analysis (warm vs. cool colors)

| | Amount raised | | | | | Number of backers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
| Color diversity | 2.44** | 3.26*** | 4.52*** | 2.15* | 0.83 | 1.15† | 1.68** | 2.05** | 1.12† | 0.32 |
| Warm | | -0.03*** | -0.07** | | | | -0.02*** | -0.03* | | |
| Warm$^2$ | | | 0.001* | | | | | 0.00 | | |
| Cool | | | | 0.01 | 0.06* | | | | 0.00 | 0.03† |
| Cool$^2$ | | | | | -0.001* | | | | | 0.000* |
| Constant | 3.68*** | 4.60*** | 5.41*** | 3.48*** | 2.48* | 2.08*** | 2.67*** | 2.91*** | 2.07** | 1.45* |
| Funding goal[a] | 0.12 | 0.13 | 0.13 | 0.12 | 0.11 | -0.04 | -0.04 | -0.03 | -0.04 | -0.04 |
| Entrepreneur's gender[b] | 0.51* | 0.44† | 0.38† | 0.50* | 0.50* | 0.35* | 0.30* | 0.29† | 0.35* | 0.35* |
| Entrepreneur's race[b] | 0.06 | 0.08 | 0.11 | 0.05 | 0.06 | 0.03 | 0.05 | 0.05 | 0.03 | 0.04 |
| Team[b] | 2.31*** | 2.19*** | 2.20*** | 2.31*** | 2.28*** | 1.45*** | 1.37*** | 1.37*** | 1.44*** | 1.43*** |
| Video length (min) | -0.04 | -0.04 | -0.04 | -0.04 | -0.04 | -0.03 | -0.03 | -0.03 | -0.03 | -0.03 |
| Duration (day) | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | 0.00 | -0.01 | -0.01 | 0.00 | 0.00 |
| Number of rewards | 0.19*** | 0.18*** | 0.18*** | 0.18*** | 0.18*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** |
| Prior created projects[a] | -0.25 | -0.29 | -0.30 | -0.25 | -0.27 | 0.06 | 0.03 | 0.03 | 0.06 | 0.04 |
| Prior backed projects[a] | 0.94*** | 0.93*** | 0.94*** | 0.94*** | 0.94*** | 0.65*** | 0.65*** | 0.65*** | 0.65*** | 0.65*** |
| $R^2$ | 0.419*** | 0.434*** | 0.437*** | 0.420*** | 0.423*** | 0.414*** | 0.429*** | 0.429*** | 0.414*** | 0.416*** |
| F | 64.443*** | 62.119*** | 57.585*** | 58.720*** | 54.384*** | 62.936*** | 60.775*** | 55.793*** | 57.154*** | 52.888*** |

Note. N= 916. Unstandardized coefficients are reported.

[a] Variables that are natural-logged. [b] Binary variable. † $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

In sum, the results suggest that warm and cool colors have different impact on our two outcome measures: *amount raised* and *number of investors*. Despite such difference, it appears that warm colors have a largely negative impact on funding performance while cool colors have a largely positive impact. We believe that the contrasting effects of warm and cool colors warrant an examination of underlying mechanisms and offer a fruitful direction for future research.

## 4.6 DISCUSSION

In this research, we proposed a framework for understanding the influence of color on crowdfunding performance. We contended that funders automatically attend to visual cues, and that color serves as an important heuristic that informs their perceptions of entrepreneurial ventures and funding decisions. In particular, we proposed that crowdfunding videos that utilize diverse colors result in greater funding outcomes, as visual images are easier to process and remember than written information. In addition, we proposed that while red would a negative impact on funding outcomes, blue would have a positive impact up to a point, before becoming negative. Furthermore, we proposed that the effect of color on funding outcome would only pertain to reward-based crowdfunding and not equity-based crowdfunding platforms, due to the difference in funder motivation and investment expertise. We tested our propositions using a sample of reward- and equity-based crowdfunding projects and our predictions were supported. Below, we summarize our study's key theoretical and practical implications.

### 4.6.1 Theoretical implications

Our study contributes to the entrepreneurship and crowdfunding literature by responding to a call for multidisciplinary crowdfunding research (McKenny et al., 2017). We combined insights from psychology, marketing, and entrepreneurship to shed light on the role of color on crowdfunding performance. Although a growing body of crowdfunding research highlights the role of heuristic cues, little is known about the potential influence of color, despite its prevalence on crowdfunding platforms. To the best of our knowledge, this is the first study that provides empirical evidence on how color influences the perceptions and funding decisions of backers in crowdfunding.

This research also advances crowdfunding research by demonstrating the different impacts color has on reward- and equity-based crowdfunding. In this way, we address a recent call from entrepreneurship scholars to examine cross-platform differences in crowdfunding. Our findings

highlight that funders in reward- and equity-crowdfunding platforms differ considerably in terms of motivation and ability to rigorously assess the quality of entrepreneurial ventures. In particular, we suggest that funders in reward-based crowdfunding are more susceptible than equity investors to the influence of simple heuristic cues when evaluating a venture.

We also contribute to the general color research by introducing a novel way of measuring colors through the use of the latest image processing analysis technology. In examining the effect of colors, prior studies have predominantly relied on manipulating images or objects into a single color (Elliot et al., 2009; Rutchick et al., 2010) This approach has its limitations, as it does not adequately reflect the reality in which images or objects are often made with a combination of different colors. To address this issue, we utilize a new image processing tool, Imutils python package, which automatically analyzes the composition of different colors. Imutils capitalize on advanced color analysis based on the HSV model and artificial intelligence to generate the percentage of each color used in a video. This advanced method provides management scholars with an effective and accurate way of measuring color compositions in images, objects, and videos.

### 4.6.2 Practical implications

Our findings have clear implications for entrepreneurs seeking to acquire financial resources from funders via reward-based crowdfunding. The results suggest that entrepreneurs should favor blue and avoid using red as a means to reduce the level of risk perceived by crowdfunders. However, caution is needed not to use blue excessively as it may decrease funders' excitement about the venture.

For potential funders in reward crowdfunding, our findings underscore the possibility of funders being drawn into providing financial support as a result of the color choice in videos. They are particularly likely to do so when evaluating a venture that utilizes blue. Thus, a practical recommendation for crowdfunders is to conduct more background research about entrepreneurs and the products/services they are proposing, to avoid contributing impulsively to a project because of the visual stimuli.

### 4.6.3 Limitations and future research

Our work has several limitations, which provide directions for future research. To start with, our reward-based crowdfunding sample consists only of projects in the technology, and thus it remains unknown whether the findings can be generalized to apply to other types of crowdfunding projects, such as film and art. We chose technology-related projects because we

were interested in projects that are most similar to conventional entrepreneurial ventures and to be consistent with previous crowdfunding studies (Chan & Parhankangas, 2017; Li et al., 2017). It is our belief that our model and findings will apply to projects in other categories but this belief remains to be confirmed.

Another limitation is regarding the applicability of our findings to countries other than the U.S., as color conveys different meanings in different cultures. For instance, unlike in the U.S, red is used to indicate an upward trend of a stock in many Asian countries; red is often associated with prosperity and fortune. This suggests that the effect of color on funding decisions may vary across countries. Future research is thus needed to investigate whether culture moderates the impact of colors in the context of venture financing.

Indeed, there are many possibilities for future research to expand upon our findings. In particular, studies can explore the boundary conditions of the model tested in this study. For example, future studies can examine whether entrepreneur's attributes (e.g. gender and race) and a venture's characteristics (e.g. level of innovation) moderate the effect of color on crowdfunding performance. Similarly, studies can also explore whether certain characteristics of funders (e.g. age and gender) may influence funders' preference for, and/or susceptibility to, colors when making funding decisions.

# CHAPTER 5: GENERAL CONCLUSION

In this thesis, we investigated whether, how and under what conditions stylistic cues influence the perception and funding decisions of backers in Crowdfunding. In the first essay, we examined how and under what conditions passion displayed by entrepreneurs in a pitch influences resource acquisition from crowdfunding backers. Using a combination of archival and survey data, we found that displayed passion has simultaneous positive and negative effects on funding outcomes: positively through increasing backers' enthusiasm and negatively through increasing their perceived risk in the venture. We further found that the negative effects of displayed passion through perceived risk was stronger for ventures at the early conception stage than for those at the late commercialization stage. The results provide a richer understanding of how displayed passion shapes investors' funding decisions, resolves conflicting prior findings, and has important implications for both entrepreneurs and investors.

In the second essay, we investigated whether entrepreneurs' ethnicity (white vs. non-white) affects the relationship between entrepreneurs' use of particular linguistic styles in promoting their ventures and their ability to raise financial resources through equity crowdfunding. Using a sample of 430 equity crowdfunding projects, we found that the use of past-oriented linguistic style and concrete linguistic style led to greater funding outcomes for ventures with minority founders than it did for those with white founders. Future-oriented linguistic style, on the other hand, was found to be more beneficial for ventures with white founders. In addition, we found a consistent pattern of results using racial composition of entrepreneurial team rather than the race of individual founders, which implies that investors' bias is not only limited to individual founders' ethnicity but also persists regarding the wider entrepreneurial team.

In the third essay, we investigated whether and how colors influence the perception and funding decisions of crowdfunding backers. We argue that funders are necessarily influenced by visual cues, and that color serves as an important heuristic (mental shortcut) that affects their attitude toward entrepreneurial ventures and consequent funding decisions. Using a combination of 916 reward crowdfunding projects and 350 equity crowdfunding projects, we found that projects that utilize a variety of different colors in video pitches enjoy better funding performance. In addition, we found that while the color red has a negative impact on funding performance, blue has an inverted U-shape relationship with funding performance in that it is positive up to a point and then becomes negative. Finally, we found that the effect of color on funding performance can

be seen on reward-based but not equity-based crowdfunding projects, suggesting that the characteristics of investors may serve as an important boundary condition for the effects of visual cues on funding decisions.

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## Appendix A: Measurement scales

| Construct | Item | Cronbach's Alpha |
|---|---|---|
| Displayed passion (Chen et al., 2009) | **The project team/creator…**<br>1. Had energetic body movements<br>2. Had rich body language<br>3. Showed animated facial expression<br>4. Used a lot of gestures<br>5. Face lit up when he or she talked<br>6. Talked with varied tone and pitch | 0.934 |
| Funder's enthusiasm (Li et al., 2017) | **When I was watching the video…**<br>1. I felt excited<br>2. I became curious<br>3. I felt happy<br>4. I couldn't help smiling<br>5. I felt bored<br>6. I felt tired<br>7. I became annoyed | 0.881 |
| Funder's perception of risk (Jordan & Kaas, 2002; Keh et al., 2002) | **Please indicate to what extent you agree with the following statements.**<br>1. The overall risk of the project seems high<br>2. The probability of failure seems high<br>3. There seems to be a lot uncertainty when predicting how well the project will do<br>4. It is likely that the product they developed failed to meet the performance requirements originally expected by the consumers<br>5. It is likely that the entrepreneur may fail to deliver the product or make a late delivery | 0.923 |
| Project innovativeness (Sethi et al., 2001) | **The product/project idea**<br>1. Novel<br>2. Original<br>3. Creative<br>4. Unique<br>5. Useful<br>6. Meaningful<br>7. Appropriate<br>8. Value-adding | 0.932 |
| Entrepreneur's preparedness (Chen et al., 2009) | **Please indicate to what extent you agree with the following statements.**<br>1.The presentation content had substance<br>2.The presentation was thoughtful and in-depth<br>3.The presentation was coherent and logical<br>4.The presenter(s) articulated the relationship between the business plan and the broader context<br>5.The presenter(s) cited facts to support their arguments | 0.903 |

**Appendix B: Variable Description**

| Variables | Operationalization |
|---|---|
| **Dependent variable** | |
| *Success* | Total funds a project raised by the end of its campaign period divided by target amount. |
| *Amount raised* | Total funds a project raised by the end of its campaign period (natural-logged). |
| *Number of investors* | Number of people supported a project (natural-logged). |
| **Independent variable** | |
| *PLS* | Computer-aided text analysis (LIWC software) assesses the time orientation. The percentage of words in a given text that falls into "past focus" categories divided by the percentage of words in a given text that falls into "future focus" categories. |
| *FLS* | Computer-aided text analysis (LIWC software) assesses the time orientation. The percentage of words in a given text that falls into "future focus" categories divided by the percentage of words in a given text that falls into "past focus" categories. |
| *CLS* | Computer-aided text analysis (DICTION software) assesses the frequency with which concrete words appear in the text. |
| **Moderating variables** | |
| *Founder Race* | Binary variable (1 if founder is White, and 0 otherwise). |
| *Team Race* | Racial composition of team (White members/ Total team size) |
| **Control variables** | |
| *Venture age* | Numeric value (years since firms' establishment until the launch of crowdfunding campaign). |
| *Venture size* | Categorical variable (1 if the venture has 1 to 10 employees, 2 if it has 11 to 50 employees, and 3 if it exceeds 50 employees). |
| *Total assets* | Numeric value (natural-logged). |
| *Patent* | Binary variable (1 if the venture has at least one patent granted, and 0 otherwise). |
| *Prior funding* | Binary variable (1 if the venture has received any prior funding, and 0 otherwise). |
| *Founder gender* | Binary variable (1 if the founder is male, and 0 otherwise). |
| *Funding target* | Numeric value (natural-logged). |
| *Minimum investment* | Numeric value (natural-logged). |
| *Project launch year* | Dummy variable (six-year dummies). |