Confidence Signaling, Gender, and Crowdfunding Outcomes

Master’s Thesis 15 credits
Department of Business Studies
Uppsala University
Spring Semester of 2018
Date of Submission: 2018-05-29

Authors: Jeroen de Baat
Thomas Overfield

Supervisor: Gundula Lücke
Abstract

Crowdfunding is a relatively new addition to the entrepreneurial range of funding options. It has been considered a “game changer” and an “equalizer” for entrepreneurs seeking to finance new ventures. However, it shares several attributes with traditional funding methods as well as many of the same investor concerns. Since research is still scant on both crowdfunding as whole and on its fast-developing sub-categories this study endeavored to analyze two related topics in this area.

Understanding how close this new paradigm is to the old is a focus of new research. In the case of this study perceived self-confidence of the crowdfunding project founder to the successful outcomes is examined. Additionally, to see if gender bias plays a part in this new era it is included as a control to determine if women need to project greater confidence than men to overcome these and achieve the same goals. Kickstarter.com is one of the oldest and most successful rewards based crowdfunding sites in the world. A sample of 9050 completed campaigns from here were used for this analysis.

In the methodology qualitative coding was used to identify the linguistic symbols of confidence. To empirically investigate the research questions statistical analysis was carried out to seek the relationships between confidence signaling and successful crowdfunding performance as well as if gender bias has a moderating effect.

The two hypotheses were not supported by the results of this study. Self-confidence was not a predictor of crowdfunding success and gender did not have a significant influence on the outcomes.

Keywords: confidence, signaling, funding, crowdfunding, gender, coding, text analyses
Acknowledgements

We would like to express our greatest gratitude to a few people that helped us during our journey from the start to finalizing the thesis. First, we are grateful for the help of supervisor Gundula Lücke with her weekly feedback sessions from the very beginning. Thanks also go to Professor Philip Kappen for his ideas on how to tackle our analysis. We benefitted from the generosity, expertise, and guidance of post-doctoral researcher Cecilia Von Otter. Finally, we thank Professor Martin Fredriksson for his time reviewing our work.

A special thank you to the family of Jeroen who helped with crowdfunding efforts in sponsoring a new laptop which contributed to finalizing the thesis. A souvenir from Sweden as a reward will be sent with appreciation to Holland after graduation. Tom thanks his family, Petra and Theodor, for their love and ongoing support.
Table of Contents

1 Introduction .................................................................................................................... 6
  1.1 Problem formulation ............................................................................................... 6
  1.2 Research questions and aims .................................................................................. 8
  1.3 Contribution ............................................................................................................ 8
  1.4 Methods ................................................................................................................... 8
  1.5 Results ..................................................................................................................... 9
  1.6 Structure .................................................................................................................. 9

2 Theoretical background and hypotheses ........................................................................ 9
  2.1 Crowdfunding ......................................................................................................... 9
    2.1.1 Reward-based crowdfunding ......................................................................... 10
    2.1.2 The players in crowdfunding ......................................................................... 11
    2.1.3 Crowdfunding success ................................................................................... 12
  2.2 Self-efficacy, self-esteem, and confidence in entrepreneurship ........................... 13
  2.3 Signaling self-confidence and crowdfunding success .......................................... 14
  2.4 Gender entrepreneur bias ...................................................................................... 16

3 Methodology ................................................................................................................ 18
  3.1 Research method ................................................................................................... 18
  3.2 Data collection ...................................................................................................... 18
    3.2.1 Elicitation of gender ....................................................................................... 22
  3.3 Data analysis method ............................................................................................ 23
    3.3.1 Analytical tools .............................................................................................. 23
    3.3.2 Measures ........................................................................................................ 23
    3.3.3 Content analysis ............................................................................................. 26
  3.4 Reliability and validity .......................................................................................... 27

4 Results .......................................................................................................................... 28
  4.1 Sample demographics ........................................................................................... 28
1 Introduction

"The problem with the world is that the intelligent people are full of doubts, while the stupid ones are full of confidence.” — Charles Bukowski

Attracting funding is essential for an entrepreneur to create venture survival, growth, and profits. In the early days it was common for an entrepreneur to receive funding for their new venture from customary investment sources; banks, venture capital firms, family, friends, and fools. Traditionally one important influencer for attracting investment is confidence signaling which is one of the must have characteristics for an entrepreneur to successfully launch new endeavors (Chen, Greene, & Crick, 1998; Robinson, 1987). Confidence signaling is part of entrepreneurial self-efficacy (ESE) and refers to the strength of a person’s belief in capability to successfully accomplish starting new ventures (Chen et al., 1998). From an investment perspective, perceived self-efficacy increases the chance to be seen as a true qualified entrepreneur and effects traditional funding investment positively. More precisely, this reflects on the entrepreneur's skill in convincing funders of their new ideas and is thus a factor of investor decision. It also increases someone's commitment for and hours spent in the newly launched venture. Moreover, according to Albert Bandura (1997), people are motivated in life by the perceived self-efficacy. What they think they can achieve is more important, rather than the objective ability. This means that our perceptions most influence our decisions and therefore self-efficacy, including perceived self-confidence and its signaling, plays thus an important role in entrepreneurship and funding world.

1.1 Problem formulation

However, acquiring funding is seen as a daunting undertaking (Mitteness, Sudek, & Cardon, 2012) and can be gathered by traditional investment strategies or the newer online method of crowdfunding. It is especially challenging for women entrepreneurs who always have received less venture funding than men (Brush, de Bruin, & Welter, 2009; Buttner & Rosen, 1989; Greene, Brush, Hart, & Saporito, 2001; Greene, Hart, Gatewood, Brush, & Carter, 2003; Harrison & Mason, 2007). One of the explanations of the funding gap between women and men entrepreneurs is the entrepreneurial bias (Shane, 2010). There exists a social bias where both women and men associate being an entrepreneur with masculine characteristics (Gupta, Turban, Wasti, & Sikdar, 2009). Because of this, women believe they are less capable of launching new companies and so on have lower levels of self-confidence
within entrepreneurial roles compared to men (Gatewood, Shaver, & Gartner, 1995; Kirkwood, 2009b).

Crowdfunding is considered a “game changer” and an “equalizer” for entrepreneurs and is seen as the most ground-breaking solution of the last decade for closing the funding gap problem for women when it comes to launching new ventures. This is because online crowdfunding is referred to as a “democratized” process where many of the usual entry barriers for participants are removed which importantly includes many gender-based ones. The less confounding variables making it easier to study investor and founder behaviors. Since women tend to have lower levels of entrepreneurial self-confidence, it makes investigating the self-efficacy influence in crowdfunding more important due to the theoretical foundations that imply an effect on performance.

A lot has been already researched on the factors that increase the chance of funding performance at crowdfunding sites. Previous research has looked at the defining factors that influence successful fundraising for campaigns using crowdfunding as a revenue method. Signaling quality was found to be of importance in the likelihood of reaching funding goals (Burtch, Ghose, & Wattal, 2012; E. R. Mollick & Kuppuswamy, 2014). Since confidence is a signal that indicates the potential for success and high performance among other quality attributes (Gatewood et al., 1995; Hmieleski & Baron, 2008) success in obtaining financing should increase as more is communicated. Gender brings a bias against female entrepreneurs from both men and women (Gupta et al., 2009). This bias would lower the view investors have of the quality of human capital in campaigns where women are the founders. However, no research has been done on the two factors above and their interaction with each other. Also, little is known about the influence of the entrepreneur’s perceived self-confidence on crowdfunding performance moderated by gender. Insights on this can increase investment success for both sexes towards an understanding of using crowdfunding for launching new ventures as true entrepreneurs.

There are many similarities between crowdfunding and traditional entrepreneurial methods of funding as to make investor concerns similar (Casanova, Cornelius, & Dutta, 2018; Frydrych, Bock, Kinder, & Koeck, 2014; Pichler & Tezza, 2016). Due to this and other entrepreneurial investment factors discussed, we believe that higher signaled confidence will have a positive effect in successful crowdfunding and divers by gender. Since crowdfunding is entitled as the revolutionary method to fund new ventures besides traditional funding, it is
important to research the effects of self-confidence to be successful in this field which until now has been unexplored.

1.2 Research questions and aims

In this thesis, we examined the influence of perceived self-confidence by women and men entrepreneurs on the funding success gathered by the crowd of investors via crowdfunding projects on Kickstarter.com. Additionally, we aim to investigate if women need to display a higher level of self-confidence compared to men to reach the same levels of funding success because of the gender bias in entrepreneurship. This is expressed in the research questions below;

“Does signaled self-confidence increase success in obtaining goals in reward-based crowdfunding?”

“Does a gender bias effect mean that women must signal more self-confidence then men for reward-based crowdfunding success?

1.3 Contribution

This study expects to contribute both to academic literature and practice. Examining how self-confidence and gender bias interact to effect outcomes in the new arena of online rewards-based crowdfunding will add to the body of entrepreneurial research. Investigating how perceived self-confidence in campaign creators by investors effects outcome success contributes to signaling theory literature. Lastly, rewards-based online crowdfunding creators can gain additional practical knowledge of how to design a successful campaign utilizing research done here.

1.4 Methods

We collected data from the largest and most used crowdfunding platform in the world, Kickstarter.com. Information was obtained on both successful and unsuccessful campaigns completed from 2009 to the end of 2017. After rejecting inappropriate data, the final set consisted of 9050 campaigns.

To empirically investigate the research question, a qualitative content analysis was carried out using creator biographies to determine self-confidence signaling scores. This was utilized in statistical analysis to explore the relationship between that and funding outcome. Finally, gender was examined as a moderator and the interaction determined.
1.5 Results

The results of the study do not support our hypotheses. The statistical tests showed a minimum negative correlation between the level of self-confidence and funding performance. The more self-confidence words expressed in the biographies, a slightly significant lower investment will be attracted. In addition, we found that women have a slightly higher level of displayed self-confidence compared to men. This is contrary to traditional funding and prior literature (Gatewood et al., 1995; Kirkwood, 2009). Also, there exists no gender differences in crowdfunding performance. Consequently, female entrepreneurs do not need to display a higher level of self-confidence in their crowdfunding campaigns to get the same investment as men entrepreneurs. Reward-based crowdfunding could be the promised equalizer for closing the funding gap between genders.

1.6 Structure

This thesis is structured in the following order. Chapter 2 presents the literature background on confidence signaling outcomes in traditional funding, self-efficacy, the concepts of crowdfunding and the gender bias in entrepreneurship, resulting in the hypotheses formulated in our study. Chapter 3 reveals the used research methods, including the data collection process, the research design, the data analysis, and the research reliability and validity. Chapter 4 presents the results conducted by the statistical tests; independent T-tests, Pearson R, and two linear regression analyses. Chapter 5 presents a discussion of the results. The limitations of this study and suggestions for future research are examined in chapter 6. This paper’s concluding thoughts found in chapter 7.

2 Theoretical background and hypotheses

2.1 Crowdfunding

While the area of crowdfunding is a relatively recent field of research, the concept has been around for hundreds of years in different forms with people pooling money to finance different endeavors. Micro financing, peer-to-peer lending and pre-ordering started way before the term crowdfunding was coined (Morduch, 1999). With the rise of web 2.0 (O’Reilly, 2007) the infrastructure and networks were there to support the platforms needed to pair entrepreneurs with potential backers (Agrawal, Catalini, & Goldfarb, 2010; Gerber & Hui, 2013) which gave birth to the forms of crowdfunding that we know today. Crowdfunding is a broad term that includes several subcategories and can have several
different practical applications. We have listed one of the most used definitions that the researchers have come up with in their studies of the subject to get an understanding of the crowdfunding concepts.

Belleflamme et al., (2014) definition of crowdfunding reads “(it) involves an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes.” Another definition in an entrepreneurial context is “Crowdfunding refers to the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries.” (E. Mollick, 2014).

Crowdfunding can be divided to several subcategories, what type of crowdfunding being used depends on the goal and needs of the project creator. Different crowdfunding types exist based on the incentives which the crowd gets. The main types used today are rewards-based crowdfunding, donation-based crowdfunding, crowdlending and equity-based crowdfunding (Agrawal et al., 2010; Giudici, Nava, Rossi Lamastra, & Verecondo, 2012; Leimeister, Huber, Bretschneider, & Krcmar, 2009). Before these types became common use, micro financing, peer-to-peer lending and pre-ordering models where considered by entrepreneurs as alternatives to traditional venture capital or business angel financing (E. Mollick, 2014). As a project creator it’s possible to mix the above-mentioned models (Belleflamme et al., 2014). Since this thesis is focused on reward-based crowdfunding, we explain this type of investment briefly in the following section.

2.1.1 Reward-based crowdfunding

Rewards-based crowdfunding is today’s most popular crowdfunding model and offers both material and immaterial compensation (E. Mollick, 2014). The world's largest used crowdfunding platform is Kickstarter.com, a typical reward-based community (Frydrych et al., 2014; Kuppuswamy & Bayus, 2017). We decided on researching the reward-based model due to the extensive available data we could retrieve from Kickstarter’s website. Around 399,812 projects have been started which gave us more data to strengthen our study.

One important working method of Kickstarter.com is the use of the all or nothing mechanism. In practical terms this means that the project founder only gets the investments when the funding goal is reached (E. Mollick, 2014). The underlying reasoning is to avoid
entrepreneurial failure by lack of necessary capital. It also creates an exciting product launch process utilizing the underlying tension of the chasing of and racing to the goal. Funds gathered beyond the goal are also kept. This all provides an obvious success level differentiation for our study to use.

Currently, there are many other online crowdfunding platforms facilitating funding from the crowd with all kinds of entrepreneurial purposes. With the rise of these websites, the crowd has created a new power in deciding which ventures will be launched in the world or not (Segelmark & Ociccek, 2014). The actors that play a role during the fundraising will be explained in next section.

2.1.2 The players in crowdfunding

The main players in crowdfunding are the project creators, the backers and the platform they use (Agrawal et al., 2010). In this section we describe the role of each actor in the funding process.

The creator

Creators are the entrepreneurs starting crowdfunding projects and could imitate three strategies; as communicator, networker, and self-runner. The communicator relies on their social network and fans to raise funds. The networker builds a hype upon their personal network community with the use of blogs and updates and offers interesting rewards to attract backers. The self-runner provides an attractive and innovative product, which sells itself (Koch & Siering, 2015).

The backer

Eisenmann et al., (2006) states that crowdfunding is a two-sided market with a distinct group of users on each side. The backer side subsidizes the money side who are the creators. Backers are the ones funding projects and are potential or actual investors. They can see the current amount of funds raised in a campaign, which influences their funding decisions. Therefore, social information generated among the backers affects the final success of crowdfunding projects (Kuppuswamy & Bayus, 2018). Backers can also act similarly to venture capital firms in some instances with more traditional behavior (E. Mollick, 2014). Two years of empirical data on both successful and unsuccessful Kickstarter projects has been analyzed by other researchers to study the role of social behavior of backers. A strong diffusion of responsibility was found to exist in the initial stages of funding. Therefore, goal setting and deadlines play a big role which is the reason the all or nothing mechanism is used
on such platforms (Kuppuswamy & Bayus, 2018). Although, when a deadline of a project comes closer, project updates tend to increase the amount of support of funders. This is most likely for projects that already reached their funding goals and tend to have sent updates in the final stage to make the crowd excited towards the funding results (Kuppuswamy & Bayus, 2018).

**The platform**

Online platforms or communities are formed by social interaction mechanisms. Crowdfunding platforms share the same characteristics as social media websites; they allow to set up a user profile and the possibility to post and comment on other users (Zvilichovsky, Inbar, & Barzilay, 2013). Online platforms like Kickstarter or Indiegogo offer tangible, but non-financial, benefits for the financial contributions of project backers (Eisenmann et al., 2006; Kuppuswamy & Bayus, 2018). The success of a community depends on the participation and contributions of its members (Butler, 2001).

Creators use these kinds of platforms to reach multiple consumer-investors to overcome the difficulties they face in attracting early financing for their startups from traditional resources (Schwienbacher Armin, 2010). Platforms charge a user fee based on the amount raised by backers. On Kickstarter the success rate is 45% and average backer contribution is $75 by 100 backers per project. The Average funding goal is $8500, and the average raised is $7000. Projects placed under most popular, recently posted, or ending soon get more backer support. Although, important it is not within the control of the creators. Being proactive in sending public and private updates, especially at the end of funding cycle is important for success (Kuppuswamy & Bayus, 2018).

2.1.3 Crowdfunding success

Previous research has looked at the defining factors that influence funding success for campaigns using crowdfunding as a revenue method. In this section the main practical actions for crowdfunding success are listed.

Signaling quality was found to be of importance in the likelihood of reaching funding goals (Burtch et al., 2012; E. R. Mollick & Kuppuswamy, 2014). Quality signals which indicate the potential for success and high performance are of importance (Gatewood et al., 1995; Hmieleski & Baron, 2008) and success in obtaining financing should increase as more are communicated.
Success in crowdfunding lies generally in the preparation of the project and during the actual fundraising. Belleflamme et al., (2014) also state that the type of project influences the success rate. For instance, projects with a non-profit aim to be more successful than any other types of organizations. This is based on the findings of Glaeser and Shleifer, (2001) who argues that less focus on profits more easily attracts capital.

It has been revealed that the following quality signals help in reaching funding goals: showing you have prepared by using correct grammar and spelling, the size of network, being featured on the platforms front page, and frequent updates (Cordova, Dolci, & Gianfrate, 2015; E. Mollick, 2014). “Quality signals are further magnified through a Matthew Effect that multiplies the impact of project quality” (E. Mollick, 2014). In other words, those who plan and execute well have a disproportionately more attractive campaign when compared to the extra work necessary. However, other key success factors are listed in the following table:

Table 1: Success factors for crowdfunding

| • Offer an interesting innovative project       | • Apply correct grammar and spelling in text |
| • Get early backer support                    | • The size of network                       |
| • The number of backers                       | • Create interaction with audience; frequent updates and blogs |
| • Webtools; video, social network platforms   | • The number of comments                    |
| • Use team introduction text with personal pictures | • The number of backing other projects      |

To achieve funding goals, above conditions should be combined; it doesn't make sense to use all (Kraus, Richter, Brem, Cheng, & Chang, 2016).

2.2 Self-efficacy, self-esteem, and confidence in entrepreneurship

The public perception of entrepreneurs are that they express confidence in their abilities and that associates with successful outcomes. (Gupta et al., 2009). For our study signaling of self-confidence in crowdfunding by entrepreneurs is a variable being examined so its elements will be discussed here.

There are several interrelated concepts which are associated with the display of confidence from an entrepreneur. The first is self-efficacy which is concerned with the entrepreneur’s internal motivations and beliefs. A large body of research exists in this area
but in general entrepreneurial self-efficacy (ESE) is defined as a construct which measures how much an individual believes they can achieve success with a new entrepreneurial venture (Bandura, 1994; Mcgee, Peterson, Mueller, & Sequeira, 2009). ESE influences the level of involvement and interest in a project and how proactive team members are in tackling the challenges encountered (A. Bandura, 1997; Chen et al., 1998; Mcgee et al., 2009). The expenditure of resources, including person hours, increases in endeavors where founders have a higher level of self-efficacy as well (Cassar & Friedman, 2009).

The next concept is that of self-esteem which is often simply described as a generally stable belief about one’s overall value (Rosenberg, 1989). Unlike self-efficacy, which is centered on situational abilities related to successful outcomes, self-esteem adds a layer of personal self-worth (A. Bandura, 1977, 1994). A more complex definition has two components, self-efficacy and self-respect, being the foundations which combine to create the level of self-esteem in an individual (Branden, 2009). Most famously it’s one of the basic needs in Maslow’s concept of a hierarchy of human needs (Maslow, 1943).

Self-confidence is a trait that is often discussed as an outcome of the above concepts. Personal evaluations of ability, historic performance, and expected performance combine in its formation (Lenney, 1977). If there is high self-efficacy and self-esteem then an individual will believe in oneself, which is the most concise definition of self-confidence (Bénabou & Tirole, 2002).

2.3 Signaling self-confidence and crowdfunding success

This study involves examining how self-confidence is shown textually. This kind of communication is part of signaling theory which is a term used to describe the behavior of different parties when they have access to different information. One group or individual in this interaction chooses how and what information to communicate while the rest receive these signals and must interpret them (Connelly, Certo, Ireland, & Reutzel, 2011).

Research has shown that signals about product excellence, social network scope, professionalism of presentation, and excellence of human capital expressed during funding projects are important. (Agrawal et al., 2010; Ahlers, Cumming, Günther, & Schweizer, 2015; Davis & Webb, 2012; Marom & Sade, 2013). All of these could be considered outward manifestations of confidence and underlying quality signals hence influencing funding outcomes positively. (Ahlers et al., 2015; E. R. Mollick & Kuppuswamy, 2014).
Signaling high self-efficacy does influence fundraising outcomes. Research demonstrates that in traditional financing decisions are based in part on the characteristics and endowments of those seeking investment (Chen et al., 1998; Robinson, 1987). For this reason, exhibiting high self-efficacy produces a positive correlation to beneficial attributes such as self-confidence and assuredness as well as future competence (Gatewood et al., 1995; Hmieleski & Corbett, 2008). It has also been shown that signaling confidence or over-confidence can increase investor receptiveness for financial information. A more confident appearing advisor is preferred and trusted more by individuals considering whether to accept advice on what is a sounder speculation (Price & Stone, 2004).

Confidence as expressed by accomplishment is also a factor in improved investor attractiveness. Founders who have a higher level of education or are better known in business networks will attract and have a higher number of investors (Ahlers et al., 2015). Investment project founders that signal confidence communicate the potential for success and high performance (Gatewood et al., 1995; Hmieleski & Baron, 2008). This, in turn, provides the impression of team effectiveness in managing a positive outcome. (Gatewood et al., 1995; Hmieleski & Baron, 2008; Hmieleski & Corbett, 2008). There are many similarities between crowdfunding and traditional entrepreneurial methods of funding as to make investor concerns similar (Casanova et al., 2018; Frydrych et al., 2014; Pichler & Tezza, 2016). Due to this and other entrepreneurial investment factors discussed we believe that higher signaled confidence will also have the effect in reward-based crowdfunding of increasing investment success.

Since we wish to determine if reward-based crowdfunding behaves in a similar fashion to tradition entrepreneurial ventures with regards to the concepts above our initial hypothesis is this:

**Hypothesis 1:** Signaled self-confidence is positively associated with increased success in obtaining funding in rewards-based crowdfunding.

Figure 1 shows the theory framework from the hypotheses in this study where confidence is positively related to the success of crowdfunding outcomes.
2.4 Gender entrepreneur bias

Bias towards female entrepreneurs has been studied extensively. The formation of a bias against women goes back to the foundational works on entrepreneurship. The framing of entrepreneurship in general is symbolically male (Bruni, Gherardi, & Poggio, 2004). In writing the expressed character of the ideal entrepreneur is more akin to masculine professions such as the conquering soldier or adventurous explorer and not Schumpeter’s innovator (Bruni et al., 2004).

Possibly because women do not fit the traditional mold for entrepreneurs those who are often face isolation. In research about entrepreneurial topics the analytical assumptions, frameworks, models, and methods portray women as “the other”, apart from the mainstream (Czarniawska & Hopfl, 2002) Differences due to gender in firm employment, size, and growth rates persist (Coleman & Robb, 2009; Fairlie & Robb, 2009). Literature also shows that women felt lesser confidence and underestimated their skills and performance in business environments (Albert Bandura, 1986; Croson & Gneezy, 2009; de Bruin, Brush, & Welter, 2007; Wajcnman & Fletcher, 2001).

Men’s and women’s intentions as entrepreneurs are influenced by these existing societal gender stereotypes (Gupta et al., 2009). In that it is implied that women lack the talents, skills, and character needed to become successful entrepreneurs (Hisrich & Brush, 1984). Another results of such bias is that females have less self-confidence in their abilities as entrepreneurs compared to men (Kirkwood, 2009a). Research on women entrepreneurs builds a case that historic and social biases put them on a lesser footing with their male
counterparts, even when they have similar education, skills, and experiences (Gupta et al., 2009). It follows that female entrepreneurs to be equally attractive as founders and successful in gathering investment in crowdfunding campaigns must appear as having abilities and skills which exceed men. Confidence is one of these competency indicators.

Has gender bias jumped into the digital realm in relation to these factors? If so gender could be a moderator creating a disparity in success levels necessitating increased confidence signaling in female created projects to achieve the same success as males. This idea is expressed in our second hypothesis:

**Hypothesis 2:** women entrepreneurs must signal more self-confidence than men at the same levels of reward-based crowdfunding success.

Figure 2 shows the theoretical framework from the hypotheses where gender is a moderating factor on the relationship between confidence and success in reward-based crowdfunding outcomes.

*Figure 2: Second hypotheses framework*
3 Methodology

3.1 Research method

Our research deals with an examination of past crowdfunding campaigns to obtain data on the variables of creator signaling by gender and campaign success. This information is then utilized to determine if our hypotheses are correct. While the analysis of the collected data in this study required a quantitative research method we also have used qualitative procedures to assemble one of our variables.

The qualitative method refers to research that produces descriptive data from people's own written or spoken words and ideas, as well as their observable behavior (Rist, 1979). It is concerned with the meanings attached to situations, understanding frames of reference, and exploring reality as it is experienced (Strauss & Corbin, 2008). In our study we examined the creator biographical data for signaling of self-confidence which necessitated this approach.

To see if the hypotheses in this study can be confirmed or rejected we needed to conduct an analysis of the relations between data variables. This requires using the quantitative research method which is concerned with the collection of numerical data and using a deductive approach in determining the significance (Bryman & Bell, 2015). Quantitative research emphasizes the importance of generalizability and reliability which are important to showing the validity of the results (Henn, Weinstein, & Foard, 2006).

3.2 Data collection

We collected data from the rewards-based crowdfunding site Kickstarter.com. The historical record for campaigns, both successful and unsuccessful, and their creators is publicly available. Web-scraping (automated procedures to find and download specific data contained in source webpages) processes allowed this data to be captured and used for our study.

Kickstarter.com is the largest reward-based crowdfunding platform in the world. They describe themselves as "a global investment community for creative campaigns." Like all crowdfunding sites, the functioning principle is that interested investors examine posted campaigns. The information provided includes the “idea” and “pitch” sections which are an overview of the product and business plan. The position and biography of the campaign "creator", which is the entrepreneur, is shown so those reviewing can judge the quality of the human capital. The biography section gives entrepreneurs the chance to provide background
information about themselves and is a one of the main pages of a crowdfunding campaign. The amount needed for obtaining funding goal and the actual pledged funding amount are shown. Obtaining funding goal represents 100% funding and any investment beyond or below that is the pledged funding. Investments below the funding goal are considered as unsuccessful and will not be payed-out due to the "all or nothing" mechanism.

Kickstarter places all campaign details on a main page including the image and name of the creator. A link leads from this to the biography of that person which can have any content and amount of text the creator wishes. The biography is not required. These pages remain live after the end of crowdfunding campaigns and historical data can be obtained from them.

Our initial sample consisted of 10500 crowdfunding campaigns. These were part of the completed campaigns on Kickstarter from 2009 to the end of 2017. This information was provided by utilizing a web-scraping service to compile data on Kickstarter. This, however, did not include the biographies of the creators which we needed for confidence signal analysis. We worked with a second web-scraping developer to obtain those for our data set. While a wide range of data was obtained only a subset was relevant and is described in table 2.

Table 2: Campaign data fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campaign Identifier</td>
<td>Kickstarter campaign ID.</td>
</tr>
<tr>
<td>Name</td>
<td>Text name of campaign.</td>
</tr>
<tr>
<td>Country</td>
<td>Country of campaign creator.</td>
</tr>
<tr>
<td>Currency</td>
<td>Currency used for goal and contributions.</td>
</tr>
<tr>
<td>funding Goal</td>
<td>Funding goal. The campaign will only be funded when it reaches 100% of this goal.</td>
</tr>
<tr>
<td>Pledged Funding</td>
<td>The actual money that has been funded.</td>
</tr>
<tr>
<td>state</td>
<td>The completion status of the campaign: successful or failed.</td>
</tr>
<tr>
<td>launched on</td>
<td>Date campaign was started.</td>
</tr>
<tr>
<td>category</td>
<td>Kickstarter category for campaign.</td>
</tr>
<tr>
<td>First Name</td>
<td>The campaign creator forename.</td>
</tr>
<tr>
<td>Last Name</td>
<td>The campaign creator family name or names.</td>
</tr>
<tr>
<td>Biographical text</td>
<td>Biographical text for team member.</td>
</tr>
</tbody>
</table>
Several processes needed to be undertaken to assure the data obtained was suited for the analyses that were done. Those campaigns which had defined quality issues were identified through the following evaluations and removed.

The initial data was contained in a spreadsheet file for ease of management and the first step was to use the software’s capabilities to check for missing data fields, incorrect formats, and poor structure. This can be caused by supplied data being corrupt and those records needed to be removed.

This study was conducted in the English language and the meaning of the confidence signals is derived from that language’s linguistics. This required that all crowdfunding campaigns not from an English-speaking country be removed. Since each campaign recorded the creator’s country of origin this was used for that determination.

Some of the analyses done in this study required a gender variable so it was necessary to have a single, specific gender for each creator. Campaigns founded by groups, organizations, or individuals operating under pseudonyms were removed. This allowed for a name-driven gender determination in a later data processing step.

Lastly, an examination was made for anomalies that were not in the previous categories by human examination of the data. Some data sets were found lacking validity such as when nonsense text was used as a filler for biographical information. All these checks resulted in the final data set being reduced to 9050 records.

As shown in table 3 geographically the campaigns in the data set were strongly centered in the U.S. which would be expected as it is the largest country and Kickstarter.com is based there. The rest follow a pattern of campaign quantity being in line with the country’s population. The exception is New Zealand which has more campaigns than Ireland.

Table 3: Campaign locations

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Campaigns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>29</td>
</tr>
<tr>
<td>New Zealand</td>
<td>35</td>
</tr>
<tr>
<td>Australia</td>
<td>190</td>
</tr>
<tr>
<td>Canada</td>
<td>323</td>
</tr>
<tr>
<td>Great Britain</td>
<td>802</td>
</tr>
<tr>
<td>United States</td>
<td>7674</td>
</tr>
</tbody>
</table>
The campaigns were spread throughout all the major Kickstarter categories. The distribution among categories was similar to statistics of all completed Kickstarter campaigns provided by online aggregator services ("Number of successfully funded projects on Kickstarter.com as of April 2018, by project category," 2018)

![Campaign Categories](image)

**Figure 3: Campaign categories**

The ratios of male to female creators was similar to data samples from other studies (Marom, Robb, & Sade, 2016). On a binary scale our sample did have a larger number of pass/fail successful outcomes but since our measure was of degree of success on a continuous scale this was not an issue ("Kickstarter Stats," 2018).

![Male/Female Creators](image)  ![Campaign Outcomes](image)

**Figure 4: Creator gender**  **Figure 5: Final campaign outcomes**
The number of campaigns started by date shows the growth of Kickstarter over time. Time is not one of our analysis variables so the spikes in our data set shown in 2014 and 2015 have no impact.

![Number of Campaign Starts by Date](image)

**Figure 6: New campaign starts timeline**

### 3.2.1 Elicitation of gender

In our second hypothesis gender is a moderator factor. To analyze this, we needed the data of sex (male or female) for all creators. We used the API of the web service Gender-API.com (similar to the procedure used by Greenberg and Mollick, 2015) to “genderize” founders by first name. Besides names also provided was the input of the creator’s country which allowed more accuracy in the evaluation. These countries were the United States of America (USA), Australia (AU), Canada (CA), New Zealand (NZ) and the United Kingdom (UK). The algorithm returns gender, a probability of the gender attribution being correct, and if the name is not in its database a blank output indicating no result.

As an additional check a human evaluation of samples of the name-gender attribution was conducted. This examination confirmed a high confidence level in the process and its outcome.
3.3 Data analysis method

This paper examines the relationship between online reward-based crowdfunding outcomes and confidence signaling levels as well examining for a gender interaction effect. To do this necessary software tools were chosen, measures were established, and analyses done to determine if our hypotheses were supported.

3.3.1 Analytical tools

Two software programs were utilized for the data analysis in this study. For analyzing the biographical content of crowdfunding campaign founders MAXQDA was used, a qualitative data analysis (QDA) computer software program published by VERBI GmbH. It is designed for qualitative researchers dealing with rich text-based and/or multimedia information.

The second program was the quantitative analysis package SPSS published by IBM. That software allowed us to explore the data and determine if there was support for our hypotheses using standard statistical testing methods. This program has long been the standard for researchers working in many fields of study.

3.3.2 Measures

Three variables were used as measures for testing the hypotheses; these are the independent, dependent and moderator variables. The independent variable is presumed to be a cause of change in the dependent variable (Hair, Black, Babin, & Anderson, 2010). A dependent variable has a "presumed effect of, or response to, change the independent variable" (Hair et al., 2010). The third variable is a moderator that affects the strength of the relationship between a dependent and independent variable. The first two are on a continuous scale starting from 0 and ending at a non-preset value dictated by the data sample. The third is a categorical moderator with two values (Kazdin, A.E., 2004).

Success level variable

The dependent variable for our statistical analysis is the success level of the crowdfunding campaign. As stated a campaign can be considered successful if the funding goal is met but the overall funding amount is a more telling indicator. For example, there is a qualitative difference in getting no funding at all and getting 99% of your goal since the latter shows significantly more interest and commitment by backers.
The success level variable is the amount of funding obtained on a percentage scale where 100% is the stated funding goal. If funds obtained during the campaign exceed that then the success level exceeds 100%. The formula for this is:

\[ \text{Success level} = \frac{\text{Amount of funding}}{\text{minimum funding goal}} \]

**Confidence level variable**

In order to create a measure for confidence signaling a list signaling indicators needed to be developed from the biographical textual data. These biographies were the primary place where individual specific displays of confidence were found. A qualitative review was conducted to code words which indicated signals of creator confidence.

Three approaches were taken to develop the list of confidence signaling words. In the first the English language definition of confidence and synonyms were explored and listed (Kipfer, 1999). Plurals and the past tenses of these words if applicable also were incorporated.

Secondly, existing biographies were examined to find expressions of confidence. 350 campaign biographies were manually checked on Kickstarter to observe the signal words used by entrepreneurs themselves. This step added additional words indicating self-confidence such as those relating to academic and work achievement as well as vernacular terminology expressed by entrepreneurs in the crowdfunding practice. Expressions were then examined to see if they did not fully comply to what was needed for confidence signaling and ambiguous ones were culled. For example, some words could signal self-confidence but had other more common meanings in the biographical texts. The terms which had both a positive and negative self-confidence connotation were not removed since evaluation of the biographical data showed that creators used them in the positive when referring to themselves.

Next a judge based thematic content analysis for coding was used where we identified a critical theme which words were evaluated against. (Smith et al., 1992). That theme was expressed as “confidence signaling words should indicate past experience, efforts, strengths, successes, abilities, notable achievements, complimentary feedbacks, and positive modifiers of those.”

Lastly, words on the signaling list were considered with regards to the Rosenberg Self-Esteem Scale (Rosenberg, 1979). That scale assesses attitudes and beliefs of personal
qualities to create a rating of self-efficacy. Those questions were used as a guide when considering how words relate to personal worth, which is a component of confidence. This process consisted placing words in the context of survey questions such as “All in all, I am inclined to feel that I am a failure”. In the instance of the example question a word that could be framed as part of an affirmative answer would not be a good indicator of positive self-confidence signaling.

The result of this qualitative process was a list of 470 words that signaled confidence in Kickstarter creator biographies. Table 4 show examples of these words in component categories.

**Table 4: Sample of Confidence Signal Words**

<table>
<thead>
<tr>
<th>Ability</th>
<th>capacity, competence, skill, intelligence, qualification, strength, potential, power, possession, talent, understanding, aptitude, comprehension, dexterity, endowment, facility, resourcefulness, force, deeply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>action, background, contact, involvement, know-how, maturity, participation, patience, practice, reality, sense, training, understanding, wisdom, acquaintance, caution, combat, doing, evidence, existence, exposure, familiarity, intimacy, judgment, observation, practicality, proof, seasoning, sophistication, trial, worldliness, forbearance, early, integral</td>
</tr>
<tr>
<td>Capabilities</td>
<td>skill, capacity, competence, skill, effectiveness, efficiency, facility, means, potential, power, proficiency, wherewithal, adequacy, aptitude, efficacy, potency, might, potentiality, qualification, hard-working, driving, genuine, highly</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>ability, achieve, achievement, capability, success, completion, deed, effort, exploit, feet, performance, skill, triumph, talent, act, conclusion, execution, finish, fulfillment, production, proficiency, realization, bring, carrying out, effecting, leader, control, executive, founder, comprehensive, previously, extensive, largest, several, many</td>
</tr>
</tbody>
</table>

The confidence-signaling word table generated during the qualitative analysis was loaded into MAXQDA along with the biographical text passages. The software performed an analysis to determine the instances of signaling words in all texts. From this output a confidence score for each biographical entry was assigned corresponding to word count. If the entrepreneur uses no words it is noted as ‘0’, if they used two it is ‘2’, with three it is ‘3’, etc.
Gender moderator variable

In this study gender was examined for its impact as a moderating factor. This value was either male or female since creator teams were filtered out. As stated earlier mixed gender groups create a difficulty in backer perception of overall gender and so only individual creator campaigns were included in the data set. *Gender* was assessed by the forename of creator.

3.3.3 Content analysis

The first analysis we used was an independent-samples t-test. It is an inferential statistical test that determines whether there is a statistically significant difference between the means in two unrelated groups. In this case the gender groups of the crowdfunding creators, male and female, were used. Two tests utilizing the means of both confidence signaling and success level were conducted.

The second statistical analysis we performed was a bivariate correlation. This test looks for the relationship between two sets of continuous values. In the case of this study those values are confidence signaling and success level. The value that measures the strength of linkage can be called the correlation coefficient, Pearson's r, or Pearson product-moment correlation coefficient.

Finally, to discover if our two hypotheses were supported by the data we ran two linear regressions. Linear regression is a statistical method that allows us to find relationships between two continuous (quantitative) variables. One variable, *X*, is regarded as the predictor or independent variable. The other, *Y*, is the dependent variable being examined to see if there is a predictive relationship with it.

For our first hypothesis a simple linear regression was run to see if there was a predictive relationship between the independent variable of confidence signaling and the dependent variable of success level. This regression is expressed mathematically as shown below.

\[ y = \alpha + \beta x \]

For our second hypothesis a multi-variable linear regression was performed with moderation for gender. In this case the model was constructed with multiple independent input variables and it will indicate if there is a predictive relationship for female crowdfunding creators. This is expressed mathematically as shown below.
Model 2
\[ \gamma = \alpha + \beta_1 x + \beta_2 z \]

The third regression adds an interaction term to see if there is a moderating effect from gender. This relates to hypothesis two where female gender is expected to modify the amount of needed confidence for similar outcomes. This formula is shown below.

Model 3
\[ \gamma = \alpha + \beta_1 x + \beta_2 z + \beta_3 xz \]

While the regressions will specifically support or disprove our hypotheses we also ran the correlation to understand our data more fully. Unlike a regression a correlation quantifies the degree to which two variables are related and computes a correlation coefficient (r) which shows how much one variable tends to change when the other one does.

3.4 Reliability and validity

Reliability and validity are crucial factors in quantitative studies since they act as building blocks for drawing appropriate conclusions. Defined as the consistency of measures for a concept reliability in a study can be tested using the test-retest method. This means that a measure should be able to be re-tested on another occasion using the same sample (Bryman & Bell, 2015). Reliability is achieved here by listing the steps of the research including the sample selection process, research design, methodology, and description of the models to ensure replicability.

One impediment to reliability in this study is caused by using coding in the methodology. This qualitative step was performed by the authors and was based on literature, linguistics, and judge based thematic content analysis. A certain level of researcher bias can be expected which hinders replicability. As with many qualitative methods this element cannot be avoided but the procedure was designed to minimize it (Noble & Smith, 2015).

Internal validity refers to whether a measure of a concept really has the capacity to measure that concept, that is; are the indicators that have been chosen to measure a theory applicable and appropriate for drawing conclusions (Bryman & Bell, 2015)? Also, a causal relationship between the dependent and independent variables should exist (Bryman & Bell, 2015). The measures used in this study have been proven to be valid through repeated use by researchers in this area of study (Greenberg & Mollick, 2015; Lukkarinen, Teich, Wallenius, & Wallenius, 2016; Mohammadi & Shafi, 2017). Our theoretical model has a well displayed
causal flow between the variables of confidence signaling and online rewards-based crowdfunding outcome.

For the results of this study to be both valid and repeatable, a quality check on the data was performed. Internal validity includes how accurate and free of errors the data used for analysis is (Bryman & Bell, 2015).

External validity assists in answering the question if the research is applicable to similar situations and can be generalized across different people, settings, and times (Borsboom, Mellenbergh, & Van Heerden, 2004). We look for confidence to infer a causal relationship which can be generalized across different people, settings, and times (Borsboom et al., 2004; Cook & Campbell, 1979). Using Kickstarter.com, the largest crowdfunding platform in the world, provides validity in this way. English is the premier language for international relations and business transactions, so it’s use here also increases external validity.

4 Results

The results of the statistical analysis test discussed in the previous section are shown in the tables below.

4.1 Sample demographics

Table 5

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>6568</td>
<td>72.6</td>
</tr>
<tr>
<td>Female</td>
<td>2482</td>
<td>27.4</td>
</tr>
</tbody>
</table>

As seen in table 4 The 9050 campaigns used for data analysis consisted roughly of 1/3 female and 2/3 male creators. This ratio aligns with gender data collected in other crowdfunding studies and adds validity to our sample (Marom et al., 2016).
4.2 Descriptive statistics

Table 6

*Descriptive Statistics (N=9050)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence Signaling</td>
<td>6.95</td>
<td>8.17</td>
<td>0</td>
<td>106</td>
</tr>
<tr>
<td>Campaign Success Level</td>
<td>104.28</td>
<td>268.32</td>
<td>0</td>
<td>8975.98</td>
</tr>
<tr>
<td>Pledged Amount in USD</td>
<td>7585.92</td>
<td>30676.67</td>
<td>0</td>
<td>1265430.42</td>
</tr>
<tr>
<td>Campaign Length in Days</td>
<td>34</td>
<td>12.52</td>
<td>1</td>
<td>92</td>
</tr>
<tr>
<td>Biography Word Count</td>
<td>118.84</td>
<td>139.79</td>
<td>1</td>
<td>2961</td>
</tr>
</tbody>
</table>

The average for funds raised by the campaigns in our sample was slightly above the set goals. Confidence Signaling had a surprisingly high maximum range due in a biography that had a lengthy embedded CV.

4.3 T-Tests

Table 7

*Relation Between Gender, Confidence Signaling, and Success Comparing Means of Males and Females on Variables of Interest.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Male</th>
<th>Female</th>
<th>Diff.</th>
<th>T-Stat*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence Signaling</td>
<td>6.95 (8.14)</td>
<td>7.47 (8.23)</td>
<td>-0.72***</td>
<td>-5.718</td>
</tr>
<tr>
<td>Campaign Success Level</td>
<td>105.18 (291.62)</td>
<td>101.91 (193.62)</td>
<td>3.26</td>
<td>0.615</td>
</tr>
<tr>
<td>N</td>
<td>6568</td>
<td>2482</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.*** Statistically significant at the 0.001 level.

*a Equal variances not assumed*

In the T-Test results there is a statistically significant difference between males and females in average confidence signaling. Women tend to display more confidence signaling than males in their biographies, on average slightly less than one word.

We did not find a statistically significant difference between men and women in campaign success, suggesting that gender is not important to explain campaign success in our data. This is contrary to our stated hypothesis and will be investigated further in multivariate analyses below.
4.4 Correlation

Table 8

Correlation between confidence signaling and campaign success. (N=9050)

<table>
<thead>
<tr>
<th>Confidence Signaling</th>
<th>Pearson Correlation</th>
<th>Sig. (2-Tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.036**</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. ** Statistically significant at the 0.01 level.

A weak negative correlation between the two variables is shown suggesting that the predictive relationship for a small percentage of data samples is lower success with increased confidence signaling.

4.5 Regressions

Table 9

The role of gender and confidence signaling for campaign success. (OLS regressions)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence Signal</td>
<td>-1.17** (0.35)</td>
<td>-1.16** (0.35)</td>
<td>-1.16** (0.41)</td>
</tr>
<tr>
<td>Female</td>
<td>-2.4 (6.32)</td>
<td>-2.4 (8.45)</td>
<td></td>
</tr>
<tr>
<td>Intercept/Constant</td>
<td>112.4</td>
<td>113.0</td>
<td>113.0</td>
</tr>
</tbody>
</table>

Note. ** Statistically significant at the 0.01 level.

In the linear regression analysis if was found that confidence signaling is negatively related to campaign success. A one unit increase in confidence signaling is associated with a 1.2 decrease in campaign success. The overall fit of the model is very low (Adj R-squared 0.001). Hypothesis one proposed a positive relation between confidence signaling and success level and so is not supported by the analysis.

In model 2 we included gender as an independent variable (a dummy value was created where females are coded as 1 and males are coded as 0). From the results, we see that this variable is not significant, meaning there is no statistically significant difference between males and females. The association between confidence signaling and campaign success is still negative and of similar magnitude as in model 1. Model 2 does not explain more of the variation in campaign success than model 1 (adj R-squared=0.001 in both models). Thus, hypothesis two has no support from this analysis.

Model 3 tested whether the association between confidence signaling and campaign success differs between men and women. The result showed no statistical significance for the
interaction between gender and confidence signaling which also does not lend support for hypothesis two.

4.5.1 Models

The models used for the three regressions with data inserted are shown below:

Variables
Y= Campaign Success Level (DV)
X= Confidence Signaling Level (IV)
Z= Gender (IV, Moderator)

Model 1
\[ y = \alpha + \beta x \]
\[ y = 112.4 - 1.17x \]

Model 2
\[ y = \alpha + \beta x + \beta z \]
\[ y = 113.0 - 1.16x - 2.4z \]

Model 3
\[ y = \alpha + \beta_1 x + \beta_2 z + \beta_xz \]
\[ y = 113.0 - 1.16x - 2.4z + 0.004xz \]

4.6 Findings

The statistical tests we have conducted enabled us to discover our data does not support our hypotheses in this study and therefore are rejected.

Surprisingly, we found that confidence signaling is significantly negatively related to campaign success. As the results showed us, a one unit increase in confidence signaling is associated with a 1.2 decrease in campaign success. The overall fit of the model is very low (Adj R-squared 0.001) and so this is dependence for only a small part of the data set. This disproves the first hypothesis in this paper.

Secondly, our results showed a statistically significant difference between males and females in average confidence signaling. Women display more confidence signaling than males in their biographies, on average slightly less than one word. However, we did not find a statistically significant difference between men’s and women’s campaign success, suggesting that gender is not important to explain campaign success in our data set. Also, it is contrary to the findings on the gender bias where women are believed to be less successful entrepreneurs and therefore receive less backing than males. This might support the belief
crowdfunding works as a true equalizer and thus closes the funding gap between females and males existent in traditional funding sources.

Lastly, the multi-variable linear regression with a control variable of gender showed no statistical significance. This indicates that there is no relationship for female gender on the association between self-confidence and crowdfunding success. This does not support our stated second hypothesis. This is an interesting finding, since self-confidence is found to play a key role in attraction of investments from traditional funding sources, while current literature frames both traditional funding and crowdfunding as having similarities when it comes to investor influence factors.

5 Discussion

The finding of a small but significant negative correlation between self-confidence and crowdfunding success and the unimportance of gender with regards to this was the opposite from the expectations in our hypotheses and what we predicted based on existing literature. To explain this some possibilities can be generated:

First, while it has been proved higher signals of self-confidence matter in entrepreneurship funding, it is arguable that over-confidence could hurt in the investment world. Over-confidence might trigger a feeling of distrust among potential backers and therefore leads to poorer investment support. Especially in reward-based crowdfunding, where the product reward is essential in the trade, it might be that an interesting product sells itself. When it's not, entrepreneurs might compensate with higher expression of product-confidence in their sales pitch and not self-confidence in the biography.

It could be that other factors are more essential to positively sway backers in reward-based funding. For instance, prior studies showed the reward product, the video pitch, the number of investors, the number of comments, and the size of networks to be key-signals for reaching successful investment goals.

Another argument is self-confidence has a stronger effect in other sections of the crowdfunding campaign. For instance, in the main campaign page where the company is introduced, and the products are offered is the first investors look at. The product reward is a central element on the reward-based platform Kickstarter.com which backers receive in return of their investment. Therefore, the main campaign page might be most essential place for positively influencing investor decisions.
Possibly this new paradigm of online crowdfunding may bring investors who do not use the same evaluative methods of the old. Less direct experience with backing entrepreneurial ventures might lead to judgements being made for more personal or more arbitrary reasons than traditional investors. The factors that make up self-confidence may no longer be as attractive to new backers in the digital realm.

In our results women were found to not have to display more signals of self-confidence to equally attract the same investments as male entrepreneurs. Once again this is a change from what was found by studies in traditional entrepreneurial environments. The most obvious possible explanation comes from the most apparent difference: the setting of these activities occurs in an online environment. The lack of face to face interaction may buffer traditional biases against female entrepreneurs. Possibly backers might not even feel the need to examine who the creator of the rewards-based crowdfunding campaign is and thus remove any chance of the bias at all.

Many crowdfunding campaigns use videos as product pitches which would not mask the gender of the presenter. Here it is possible the presenter may not be interpreted as being the creator mitigating gender bias. Another effect could be an increased positive personal image coming from being featured in a video lending prestige to the creator which transcends gender.

6 Limitations and future research

During the development of this study, the choices we made implied several limitations that open discussion for future research. First, reward-based crowdfunding has limitations as a subject here because it adds the tension of receiving goods or services as part of the backing process. These items bring their own patterns of influence to the decision-making process supporters use to determine their investment directions. It contributes to making this type of crowdfunding at a certain level more product critical than, for instance, equity crowdfunding. The latter is purely about investment value and provides no instant, tangible reward. At first, we intended to focus on the developing online equity crowdfunding world but issues such as the small number of completed campaigns for sampling and the low gender diversity turned us to the more established reward-based platform Kickstarter.com. When more mature conducting this same study on equity crowdfunding would make for interesting comparisons.
Furthermore, another issue with this study was the word selection for indicating self-confidence in the creator biography section of the projects due to the inherit limitations of qualitative analysis. Other researchers might have used different methodologies for confidence detection which could redefine the results. Looking at other types of presentation vehicles such as the product descriptions instead of biographical texts for confidence signaling could have led to different insights. Future research should explore these other avenues.

The result of the study presented a surprising negative correlation between self-confidence and crowdfunding success; therefore, we advise future research to examine this effect. While not a strong relationship it certainly poses a question worthy of scrutiny using different measures and types of analysis.

Another aim for new research could be to explore the signaling of self-confidence based on comparison of specific project categories that are known to be popular for women and separately for men. Here, the gender differences might be more visible. This type of research could also be broken into temporal categories to investigated changes of confidence and gender attitudes over a time span.

7 Conclusion

The purpose of this thesis was to research the effect of entrepreneurial self-confidence signaling on crowdfunding success in general and with gender as a moderator specifically. Moreover, this study aimed to contribute towards the empirical gap where self-confidence as success factor in crowdfunding has not been explored yet, despite its key role in successful entrepreneurship funding traditionally.

We expected our hypotheses to be correct, however, they were rejected. What comes from these findings is that this new method for entrepreneurial financing, online-crowdfunding, is quite different in unexpected ways from traditional forms. Not only is it a change of immense importance for making new ventures easier to capitalize but also one that disrupts many paradigms of how entrepreneurship works. It leaves many questions to examine but points to possible benefits such as enhancing gender equality.
References


Number of successfully funded projects on Kickstarter.com as of April 2018, by project category. (2018).


investor-preferences


Appendix 1

Rosenberg Self-Esteem Scale (RSES)

Instructions

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

2. At times I think I am no good at all.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

3. I feel that I have a number of good qualities.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

4. I am able to do things as well as most other people.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

5. I feel I do not have much to be proud of.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

6. I certainly feel useless at times.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

8. I wish I could have more respect for myself.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.
   
   Strongly Agree    Agree    Disagree    Strongly Disagree

10. I take a positive attitude toward myself.

    Strongly Agree    Agree    Disagree    Strongly Disagree

Scoring:

Items 2, 5, 6, 8, 9 are reverse scored. Give “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.