IT'S NOT JUST PHYSICAL: GENDER AND BIAS IN EQUITY CROWDFUNDING

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Abstract: This research considers if equity investors on crowdfunding platforms display the same bias against women as can be seen in venture capital alternatives. In this study we build a conceptual model in which we argue that increasing the number of women in a team is often associated with a decrease in funding success. We test this model using a dataset of 397 campaigns from a leading UK-based equity platform to elaborate further on the issues around gender, and its impact upon entrepreneurial finance in the context of equity crowdfunding. From this research study we conclude that the aggregated gender within the language used in the investors comments has an influence upon the success of the funding obtained from equity investors. We demonstrate that not only does the physical gender of the team, and the gender of the primary signatory, influence the final decision, but also any gendered nuances in the language within the campaign can have a significant impact. The findings of this study therefore have an important role in helping us to understand why the size and frequency of equity crowdfunding achieved by women is lower when compared to the success achieved by men.

Keywords: Gender, Equity Crowdfunding, Investor Comments, Bias.

1 Introduction

Crowdfunding is a term commonly used for when people and organisations raise money from a wide range of different sources. Often these sources individuals who are interested in being supportive. By each one contributing a small amount, when accumulated together, the total reaches a required target. Mollick extends this definition further by describing crowdfunding as being "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" (2014, p.2).

Raising capital through crowdfunding has become increasingly important in the recent years (Bruton *et al.,* 2015; Mollick and Robb, 2016; Short *et al.,* 2017). United Kingdom (UK) data indicates that the total annual equity-based crowdfunding grew from <£30 million in 2011 to >£360 million in 2018 (Statista, 2020), and although a typical investment in equity crowdfunding is smaller than in the case of venture capital (VCs), substantial amounts of equity can still be raised.

According to Ahlers *et al.,* (2015), the motivations of investors on equity crowdfunding platforms are expectedly different to those of alternative approaches such as rewards-based crowdfunding. Equity platforms are known to attract a more diverse range of investors, including those who may not have the experience, or resources, to fully evaluate the ventures in which they invest. As a direct result, this may lead to the introduction of bias creeping within the decision-making that investors make on such platforms.

Mollick and Robb (2016) argue that all types of crowdfunding support female entrepreneurs because they are expected to democratise access by opening up the market. Conversely, other research proposed that it is rewards-based crowdfunding which may actually be democratising the opportunities for female entrepreneurs to access capital (Marom *et al.,* 2016; Mollick and Robb, 2016). Although equity crowdfunding is fast emerging as a '*highly distinctive, relational form of entrepreneurial finance'* (Brown *et al.,* 2018, p. 187), it has not been widely studied in the context of democratizing access to finance (Hoegen *et al.,* 2018). Crowdfunding research has primarily considered rewards-based crowdfunding (Belleflamme *et al.,* 2014), and only recently has more interest in the context of equity crowdfunding emerged (Ahlers *et al.,* 2015; Vulkan *et al.,* 2016; Vismara, 2016, 2019; Brown *et al.,* 2018; Geiger and Oranburg, 2018) because the market of equity crowdfunding is still not widely developed and is subject to stricter regulations.

Research previously undertaken demonstrates a desire to explore the potential linkages between both gender and funding (Greenberg and Mollick, 2016; Kanze *et al.,* 2018; Mollick and Robb, 2016). There also have been a number of contradictory findings. For example, Marom *et al.* (2016) undertook research focussed upon Kickstarter campaigns. The conclusion was that women entrepreneurs experienced improved success rates in relation to their ability to meet funding targets, regardless of the size of the funding target. Furthermore, a recent study examining Kickstarter campaigns (Mollick and Robb, 2016), concluded that when data relating to both women and men, there was no conclusive difference presented in respect of funding targets, nor did it relate to the amount of funding raised. Building upon preliminary, and quite contrary results, there remains a clear justification for further research to be undertaken to analyse the potential role of gender within successful crowdfunding.

This paper reports on a new study which builds upon the previous work undertaken (Greenberg and Mollick, 2016; Kanze *et al.,* 2018; Mollick and Robb, 2016) by adopting a new perspective to help expand our understanding regarding the role of gender, and the use of gender related language, within crowdfunding applications. As such, the paper makes an original contribution which extends the existing body of knowledge regarding the impact of gender upon the success, or otherwise, of applications for crowdfunding. How gender relates to the success of crowdfunding applications is important to know due to the potential impact which it may have upon future application strategies adopted by applicants.

To achieve this, a body of data from Crowdcube has been used. Located in the UK, Crowdcube is one of the most successful equity crowdfunding platforms. In this paper, we consider gender contained within the text of the comments, and the campaign description, using machine-based textual analysis to examine if gender of the language used has any effect on funding success of the campaign.

Through this paper we aim to contribute to the broader empirical literature on investor decision-making in the face of bias in the context of equity crowdfunding. We will also show that, not only the physical gender of the team and the Gender of Primary Signatory (Geiger and Oranburg, 2018) (*GPS) are influential*, but also gendered nuances in the language can have an impact upon the success of funding. In this study we therefore address the following questions about gender bias in equity crowdfunding:

i. Does a higher number of women in a team indicate a lower chance of funding success?

ii. Is there an effect of gender inherent 'within language' on the success of funding?

Firstly, this paper will consider crowdfunding, and the role of gender, and the use of language within it. The research approach will then be presented. Following this, the data collection and analysis undertaken will be examined. Discussion of what the research results may mean will be considered, followed by concluding remarks and observations offered by the authors of this study relating to the potential impact of the findings.

2 Considering Crowdfunding

Given the struggles in finding suitable forms of traditional sources of finance (Aldrich and Martinez, 2001), young firms and start-ups are now often relying on the power of the crowd to seek funding support (Belleflamme *et al.,* 2014) to get their ideas off the ground. Research shows a rapid increase in interest, and the establishment of crowdfunding, as a suitable form of entrepreneurial finance (Stevenson and Jarillo, 1990; Mollick, 2014; Lehner *et al.,* 2015; Moritz *et al.,* 2015; Block *et al.,* 2017; Vismara, 2016) and this is largely due to the proliferation of internet technology (Cumming *et al.,* 2017).

Depending upon the business model of the crowdfunding platform, the common categories of crowdfunding (Mollick, 2014) are:

- Donation-based - backers expect no return for their donations.
- Rewards-based - backers receive rewards by supporting a project.
- Lending-based - backers provide finance as a loan with expectation of some financial return.
- Equity-based - backers are investors who receive equity stakes.

In the case of equity-based crowdfunding, any investors are awared a portion of the equity in the company being supported. As such, this model resembles classical company financing which is often delivered by either Business Angels or Venture Capitalists (Belleflamme *et al.,* 2014; Mollick 2014; Ordanini *et al.,* 2011). Equity-based crowdfunding platforms need regulatory approval to operate, whereas the rewards-based and donation-based alternatives are largely deregulated (Brown *et al.,* 2018). Rewards-based platforms, such as Kickstarter in the US, are very large and in fact represent some of the earliest crowdfunding platforms (Gerber *et al.,* 2012; Mollick, 2014; Colombo *et al.,* 2015; Lin and Viswanathan, 2015; Short *et al.,* 2017; Balachandra *et al.,* 2019). Equity-based crowdfunding is a growing business model, and investment via these platforms grew 22% year on year to reach £333 million in the UK during 2017 (Zhang *et al.,* 2018). This total equates to as much as 12.9% of all of the UK's seed and early-stage funding offered during that year.

Much of the previous research on crowdfunding relates specifically to non-equity-based platforms. Research looking at equity-based crowdfunding is still in its infancy, but there is already a body of knowledge and understanding (Block *et al.,* 2017; Vismara, 2016; Vulkan *et al.,* 2016; Brown *et al.,* 2018; Hoegen *et al.,* 2018).

3 Gender and Crowdfunding

It is quite well evidenced now that there is a potential gender gap relating to entrepreneurship and entrepreneurial activities (Bruni *et al.,* 2004; Ahl, 2006). Entrepreneurship is seen as a masculine domain (Bird and Brush, 2002; Marlow, 2002). Women are therefore tought to be disadvantaged when compared to men in regard to bank financing (Buttner and Rosen, 1988; Alesina *et al.,* 2013; Stefani and Vacca, 2013; Eddleston *et al.,* 2016), and with regard to organisational capital (Bigelow *et al.,* 2014), with female firms often being activity discouraged from applying for bank loans, facing a higher probability of stricter lending conditions if they do apply, and higher interest rates on any microfinance loans awarded. Furthermore, when

considering the size of any loans agreed, an additional gender gap is becoming identifiable (Agier and Szafarz, 2013; Dorfleitner *et al.,* 2016).

Evidence has also been discovered relating to a gender gap being present in private equity finance (Becker-Blease and Sohl, 2007), including venture capital (Peterson, 1981; Blanchflower *et al.,* 2003; Cavalluzzo *et al.,* 2002; Cavalluzzo and Wolken, 2005; Muravyev *et al.,* 2009; Lins and Lutz, 2016; Kanze *et al.,* 2018; Leitch, 2018), with women-led firms found to receive only 1.3% of the venture capital funding (Canning *et al.,* 2012).

Considering equity-based crowdfunding, primary motivations for investors are often the potential for receiving a favourable return on investment (Cholakova and Clarysse 2014; Vulkan *et al.,* 2016). It is true to say that other motivations do exist, including social recognition, and even personal interest, which together may influence any investment decisions (Bretschneider and Leimeister, 2017). Whilst the motivations of many equity investors are expected to be similar to that of venture capital funders (Ahlers *et al.,* 2015; Geiger and Oranburg, 2018), they may in fact not be the same as other types of crowdfunding investors. As Vismara states, 'While the motivation to donate may be philanthropic, a marked characteristic of equity crowdfunding is the possibility of financial returns' (2019, p.99).

In the crowdfunding research being reported, there are often conflicting findings in relation to gender and funding success. Equity crowdfunding regulation also varies by country (Borello *et al.,* 2015; Cumming and Johan 2013; Levin *et al.,* 2013). Taking this country perspective, Geiger and Oranburg (2018) studied the equity platforms in the US and discovered a distinct gender bias with female dominated campaigns typically receiving lower funding in comparison to the target amount, when compared to male dominated campaigns. This becomes even more evident as the amount of funding being sought gets higher. A study by Malaga *et al.* (2018) found that in the US female-owned companies constitute only 15.2% of the ventures seeking funding via equity crowdfunding, and in contrast to other research, their study identified no evidence of gender influencing the likelihood of successful fundraising.

Conversely, with other types of crowdfunding platforms such as peer-to-peer lending (P2P), independent studies by Duarte *et al.* (2012), and Pope and Sydnor (2011), use data from the US, and from this data they are able to demonstrate that with all else being equal, women are more likely to get funds on the platform than men. But a study on a German P2P lending platform, which considered the effect of personal characteristics on the borrowing success, found there is no effect of gender on the individual borrower's chance to receive funds on this platform (Barasinska and Schäfer, 2014), but that female applicants do, on average, request smaller amounts.

Research undertaken (Marom *et al.,* 2016) investigated the case of Kickstarter campaigns, and concluded from the data that women entrepreneurs did experience higher rates of funding success rates, regardless of the funding targets, in comparison to their male counterparts. Other studies also confirm this finding (Chemin and De Laat 2013; Colombo *et al.,* 2015; Genevsky and Knutson 2015), whilst Greenberg and Mollick (2016), determined no significance based upon gender (Barasinski and Schäfer 2014). It is also interesting to note that whilst some studies consider that females are more likely to achieve their funding goals due to female investors disparately supporting projects led by females compared to projects led by males (Greenberg and Mollick, 2016), other studies point out that males still constitute the vast majority of funders across most crowdfunding platforms, with female funders more likely to fund projects led by males compared to project led by females (Marom *et al.,* 2016; Allison *et al.,* 2013; Johnson *et al.,* 2018).

Crowdfunding offers opportunities for women, since more traditional venture capital is male dominated (Mollick and Robb, 2016). However, given the paucity of research in this field in regard to equity crowdfunding, and the fact that many of the prior studies stem from the context

of rewards-based crowdfunding, and importantly occurrence of limited and often contrary results, there is a need for more research on gender and crowdfunding especially in the context of equity (Hoegen *et al.,* 2018).

Funding outcome can also be seen as a manifestation of the investor decision-making process. Perceptions often guide the decision-making undertaken regarding whether to invest, and it is these perceptions that are often rooted in observable factors including ascriptive traits (Baron, 1998). Ascriptive characteristics (e.g., gender, age, race) may influence investor decisions (Bielby and Baron, 1986; Baron *et al.,* 2001). Gender is one of the most highly visible and stable ascriptive characteristics (Rudman and Phelan, 2008, p.68; Lee and Huang, 2018). It can be argued that investors may use gender-based attributions to compensate for information that is unobservable (Fiske, 2000), and so make evaluations on the basis of such observable characteristics to reduce information uncertainty (Kunda and Spencer, 2003; Lee and Huang, 2018).

A study by Balachandra *et al.* (2019), in the VC context, examined the relationships between gender-stereotypes and investor decisions, and studied nonverbal signals in a pitch including masculine and feminine stereotypical behaviours. The research found that investors are not biased against women entrepreneur(s) who contradict gender stereotypes, but concluded that investors may demonstrate bias against ventures which emphasise overly feminine characteristics, irrespective of the gender of the person actually undertaking the pitch itself. As a result, instead of finding a physical gender-based bias, they instead found a 'significant feminine-based bias that appears to promote prejudice against those who display overly feminine-stereotyped behaviours' (Balachandra et al., 2019, p.129). Similarly, Kanze *et al.* (2018) found that male and female entrepreneurs during a pitch, are asked starkly different questions, with the men asked questions which are more forward-looking and/or promotion orientated, and women asked questions which are more prevention focused. The type of questions asked elicited responses that were promotional and preventative respectively, and this ultimately led to a huge gap in funding awarded, with men receiving far greater amounts of money compared to women. In this context, Higgins' Regulatory Focus Theory (RFT) can be applied (1997). The theory reflects two separate regulatory concerns, these being promotion and prevention (Higgins, 1998), and the need to engage in goal-directed behaviours as motivation for attaining gains.

Entrepreneurship itself is often viewed as being a masculine domain (Marlow, 2002; Ahl, 2006), and female entrepreneurs who demonstrate overly feminine behaviours are deemed to possess lower overall business competence and leadership (Bird and Brush, 2002). The perceptions of entrepreneurs are rooted in information about their character, intentions and integrity which are often in themselves associated with masculine traits (Steier and Greenwood, 1995; Eddleston *et al.,* 2016).

Many studies suggest that the gender gap in funding persists, with some researchers arguing that this gap in outcomes achieved is the consequence of investors who select to support male entrepreneurs demonstrating their bias, on the basis that successful entrepreneurs are 'perceived' to be male (Balachandra, *et al.,* 2013; Brooks *et al.,* 2014; Gupta *et al.,* 2014; Eddleston *et al.,* 2016). However, other researchers claim that female entrepreneurs seek less, and therefore receive less capital as a result (Coleman and Robb, 2009; Morris *et al.,* 2006). Consequently, we should question whether campaign teams which have more women within them, have lower rates of funding success as a result.

4 Gender in Language and Crowdfunding

In crowdfunding, signals convey information to the potential investor about the quality of the offering. In the absence of objective information, the signals through visual imagery, written text, personal ascriptive characteristics of the team etc. become significant in the investor's

decision-making process (Fiske, 1998; Kunda and Spencer, 2003; Huang and Pearce, 2015; Wu, 2016;). These evaluations of the offerings, under high level of uncertainty, and limited information, become even more significant in the context of equity crowdfunding, where, unlike traditional investors, the offering is aimed at unsophisticated investors who possess limited knowledge, and use proxies (and other evaluations) to make their decisions (Moritz *et al.,* 2015).

Research undertaken by Moss *et al.* (2015) revealed that the language used in crowdfunding communication demonstrates signals about founder characteristics, and so has a bearing on the investor decisions. Language, and the expressed sentiment in the language of the communication, e.g., positive language in business plans and interactions on crowdfunding platforms (Courtney *et al.,* 2017; Wang *et al.,* 2018) are widely used to attract investors (Parhankangas and Ehrlich, 2014). Within project descriptions, linguistic style and the gender of author, are often seen to be inextricably linked, and therefore highly related (Cheng *et al.,* 2011). Sentiments integrated within the interactions between the campaign team and the investors, and the impact of affectual reactions, may impact upon the ultimate funding success (Genevsky and Knutson, 2015; Dorfleitner *et al.,* 2016; Courtney *et al.,* 2017). Furthermore, aspects of the language used, such as the tone of the message (Areni and Cox, 1995), and the various linguistic styles used (Yuan *et al.,* 2016; Parhankangas and Renko, 2017) are thought to also influence the investor decision-making process.

Gender identity can reveal itself in a many ways including the way language is used, and certain aspects of language such as the "tone and pitch of voice, intonation patterns, choice of vocabulary, pronunciation and even grammatical patterns" (Alami 2016, p.248). There are therefore sociological differences in the use of vocabulary and choice of words by men and women (Lakoff, 1975; Talbot, 1998). Other studies have also considered these aspects including research undertaken by Freeman and McElhinny (1996), Weatherall (2002) and Cheng *et al.* (2011). If this is true, and if potential investors are influenced unconsciously by the ascriptive characteristics, then we can assume that language of the text within the campaign will also be an influencing factor in the investor decision-making. Relatively little work has been done on gender identification from text (Vel *et al.,* 2002) and so there is no evidence yet that individuals use language that is in line with their physical gender i.e., that men use more male language and females use more female language.

In this study, we look at the language inherent within the online 'pitch' i.e., the description text, and examine whether there is gendered vocabulary in the language that may affect the overall funding outcome. Like Balachandra *et al.* (2019), we are trying to distinguish between the sex of the campaign-lead, and the gender displayed through the online 'pitch'. We do this to examine if gendered vocabulary in communication within the text, and within the comments, has any bearing on the success of the campaign. The study of gender differences within language has a long, albeit at times considered controversial (Wood and Dindia, 1998; Canary and Dindia, 2009). Algorithms can now accurately identify differences in male and female language, and many studies (Leaper and Ayres, 2007; Newman *et al.,* 2008; Fast and Funder, 2010) have evidenced gender-based language features including both words and phrases, used consistently by one gender and not by the other (Newman *et al.,* 2008). There are differences in gender in the use of language where self-identified females were warmer and more compassionate, whilst self-identified males were using language that was colder, more hostile and impersonal (Park *et al.,* 2016).

It is possible that the 'femaleness' of a campaign, or a female lead of a campaign, not only receives less funding when compared to their male counterpart, but also that 'femaleness in language' of a campaign creates an environment which discourages investors. In the context of equity crowdfunding, gender is a very relevant construct influencing the success of funding, with gender not just referring to the physical gender of the *GPS,* but also to the number of

women in a team, to the gender of the language used in the communication via description text, and to the communication undertaken with investors (aggregate).

Based upon the above discussions, the working hypotheses for this research study are:

- **Hypothesis 1.** Equity crowdfunding campaigns with a higher proportion of females in the team are disadvantaged.
- **Hypothesis 2.** The success of an equity crowdfunding campaign is related to any sense of gender inherent within the language of the campaign's text description.
- **Hypothesis 3.** The success of an equity crowdfunding campaign is related to any sense of gender inherent within the language of the investor's comments.

5 Research Design

The UK is the largest market for equity crowdfunding in the world, and provides the best empirical opportunity to examine how investors consider the gender of ventures in their decision-making. Crowdcube is the 'second' largest platform in the United Kingdom and was established in 2011. The platform works on an 'All-or-Nothing' (AON) model which means that if the campaign fails to raise the total target amount in the specified time, then the campaign gets nothing, and the money that was secured is returned to investors. This study provides consistency with previous work also based upon the Crowdcube platform (Cumming *et al.,* 2016; Signori and Vismara, 2018; Walthoff-Borm *et al.,* 2018; Vismara, 2016, 2018, 2019).

This research study seeks to address the following research question: "in the context of equity crowdfunding campaigns, is the success of funding related to the gender in a team, and/or the gender of the language within the campaign?". Analysis was performed with reference to one outcome variable (dependant variable), this being *SuccessRatio (SR)*. Instead of taking the discrete value of success as measured by whether a campaign has reached its target funding (Wang *et al.,* 2018), we used the ratio stated below, to control for the absolute amount requested. Another reason for using success ratio is that it represents the project's potential in relation to the original idea (Viotta Da Cruz, 2018), thereby demonstrating investor confidence.

Crowdfunding success is a scale/continuous ratio variable *SuccessRatio* (*SR*) which has been logarithmically transformed to linearise *SR,* and to reduce its heteroscedasticity. We define the ratio variable *SuccessRatio SR* as being:

$$SR = \text{Amount of Funding Received/Amount of Funding Sought} \quad (1)$$

Examining the relationship between gender within team and language, and the success of funding raised through equity crowdfunding campaigns, data from one of the UK's leading equity crowdfunding platforms was used. In this study we have used Crowdcube's equity crowdfunding campaigns. We collected publicly available data, using a web data extraction method from the full population of 768 successful campaigns on Crowdcube.
This full population contains data from its inception in February 2011 to the date of the research which was August 2019. Collecting data in this manner is a widely used method within similar investigations (Belleflame *et al.,* 2014; Mollick, 2014; Huhtamaki *et al.,* 2015; Raab *et al.,* 2017; Wang *et al.,* 2018), and which is therefore considered to be an acceptable process. Crowdcube was, as of March 2020, the world's largest platform, with £1.6 million successfully raised in the third quarter of 2018, and with additional £50.4 million in pledged investments (Crowdcube, 2020). Previous research by Vismara (2019) excluded 'mini-bond offerings, offerings of convertible bonds and equity offerings by companies that have previously raised capital through equity crowdfunding' (p.102) and so we have followed a similar approach for this study.

To analyse the gender distribution in the data, we used third party services including Amazon Comprehend and Amazon Rekognition (AWS, 2020). In addition, genderapi.io was used to extract identifiers such as names, and to predict the gender of the identified names primarily using a machine learning approach which was crucial for analysing non-binary data. uClassify Gender Analyser_V5 was used to gauge the gender by examining the writing style of the input text. We used multiple third-party software tools, to increase the validity and reliability of the data relating to gender of the language. Both uClassify, and the Amazon services, yielded similar results. Like the study by Alami (2016), we using machine-learning based software tools to identify the gender inherent within campaign text, and we form this we argue that gender can be identified from the language and vocabulary used in such text.

For coding based upon gender, we followed established principles in line with Geiger and Oranburg who looked at the primary signatory gender i.e., the individual most responsible (2018, p.3). We also coded the gender of the campaign lead similarly, and called this variable GPS i.e., Gender of the Primary Signatory, in line with Geiger and Oranburg's methodology (2018). Where the machine-based gender tool yielded an 'unknown', we manually searched the respective campaign for the gender identifiers such as "he" and "she" (Geiger and Oranburg, 2018, p.3).

Within each campaign, the comments from investors were collected. Out of the 768 campaigns, 419 had accessible interactions and comments that could theoretically be considered. Of the 419 campaigns, the total number of comments available to analyse were 33,064 comments from 397 campaigns. Similar to past studies, we aggregated the comments, and replies, into a single number (Mollick, 2014; Li and Jarvenpaa, 2015).

A textual gender analysis was applied for each investor interaction, using uClassify's Gender Analyser_V5 tool, to ascertain the 'maleness' and 'femaleness' of each interaction. This tool analyses text in terms of the vocabulary within it, and it is a software tool that is based on machine-learning, and has been trained on 11,000 blogs (uClassify, 2020). For example, with a comment stating "I am pleased with the details within your marketing budget for the campaign" has a 55% probability of being male and only a 45% probability of being female. For each campaign, we used the Gender Analyser_V5 output against both each individual investor comment, and its corresponding response when applicable.

For each of the 33,064 comments collected, and text analysed by the software tool above, we consider the ratio of the 'maleness' of each comment, to the 'femaleness' of each comment. The gender analyser tool yields a percentage score for 'maleness', and 'femaleness' for each item of text analysed. We extended Courtney *et al*.'s (2017) calculation of 'backer sentiment' (p. 276) to our own generation of the continuous variable *DiscGen* that measures the overall gender reflected in the interactions:

$$DiscGen = \sum MaleInt / \sum FemaleInt \quad (2)$$

In the development of this relationship, *MaleInt* is the Gender Analyser_V5 maleness score for each comment, and *FemaleInt* is the femaleness score for each comment and aggregated for each campaign. Similarly, for the text description on the campaign page, we used Gender Analyser_V5 to ascertain the maleness, and femaleness, of the text and created a continuous variable called:

$$DescGendR = MaleGendR / FemaleGendR \quad (3)$$

Here *MaleGendR* is the 'maleness' in the campaign text description, and *FemaleGendR* is the femaleness. Once we identified all these key aspects of the study, based on the number of comments from the interactions available to us, this yielded a sample of 397 campaigns. This selection included campaigns that are both closed and successful.

Table 1 provides the list and definitions of the independent variables which are defined in line with previous studies on equity crowdfunding undertaken by Ahlers *et al.* (2015), Courtney *et al.* (2017), Geiger and Oranburg (2018), Johnson *et al.* (2018) and Vismara (2018).

An assumption in this study is that women-led campaigns will have a lower success of funding than male led campaigns. Our goal is to investigate whether the relative success of a campaign is influenced by:

- Gender of the campaign team
- Gender inherent within the language in the text description of the campaign
- Gender inherent within the investor comments.

In this study we also look at funding outcome *SR* (measured in terms of amount of funding received in proportion to amount of funding sought) as a proxy to understanding the investor decision. However, investor decision is an aggregate of many different decision points over time, and therefore also relates to other variables.

Table 1 – Variable Definitions for this Study

Variable	Definition
SR	Success Ratio. The money awarded compared to the money requested
EQT	Equity offered as a percentage.
EIS	Enterprise Incentive Scheme with 1 = *EIS* available and 0 = *EIS* not available.
INV	Number of Investors.
DisNum	Number of discussion comments available in the campaign
GPS	Gender of the Primary Signatory with 0 = Female and 1 = Male.
TmT	Team Total. Number of the team members in the campaign.
FRT	Number of women in the team compared to total team size.
DescGendR	Description Gender is a measure of how gender orientated the language used is within a campaign. This indicates the ratio of male to female-based text in the description.
DiscGen	A measure of the ratio of the total male to total female gender orientation in the comments from the backers, calculated for each comment and aggregated, at the overall the campaign level.
FRTxGPS	Measures the moderating effect of *GPS* on the relationship between the dependent *SR* and independent *FRT.*
DiscGenxGPS	Measures the moderating effect of *GPS* on the relationship between the dependent *SR* and independent *DiscGen.*
GPSxDescGendR	Measures the moderating effect of *GPS* on the relationship between the dependent *SR* and independent *DescGendR.*

Authors' own work

As a result, this study has included other variables to ensure that possible confounding effects are monitored and controlled as these variables have previously been found to influence crowdfunding success. Examples of these variables include:

- Number of comments *DisNum*- according to past studies number of posted comments has a positive effect on the funding performance (Li and Jarvenpaa, 2015; Ryu and Kim, 2016; Wang *et al.,* 2018)

- Number of investors *INV* (Haifeng *et al.,* 2018), Equity *EQT* (Lukkarinen *et al.,* 2016; Vismara, 2019)
- Enterprise Incentive Scheme *EIS* (Chen *et al.,* 2018; Vismara, 2019)
- Gender of Primary Signatory *GPS* (Geiger and Oranburg, 2018; Lee and Huang, 2018)
- Team size *TmT* (Belleflamme *et al.,* 2013; Ahlers *et al.,* 2015; Vismara, 2019).

Previous studies have also looked at the duration of campaign (Mollick *et al.,* 2014; Wang *et al.,* 2018), but for this study it was decided not to include this variable as all campaigns on the platform had the same maximum of 30 days for 'pitching'. Furthermore, the sample of 397 used only included all closed and successful campaigns.

Studies looking at the language in the interactions between creators and backers, focussing on the sentiment of the language, have also looked at reply speed, reply length, signal quality via videos and pictures embedded within the campaign, and number of updates (Chen *et al.,* 2009; Frydrych *et al.,* 2014; Mollick, 2014; Beier and Wagner, 2015; Wang *et al.,* 2018). Again, we have not considered these additional variables in this study because our focus is only on the gender inherent within the language, and how this may affect the outcome variable *SuccessRatio.* Barbi and Mattiolli (2019) determined that the composition of the team plays a role despite the evidence being less clear cut.

In our study, we have tested the assumption that increasing the number of females in a team decreases the success of funding using the independent variable *FRT*. We assumed, from the existing literature, that the gender of the language (Alami *et al.,* 2006) in both the description *DescGendR,* and the investor comments *DiscGen,* would influence the funding success. This is because in crowdfunding, in the absence of objective and detailed information, investors (who are often unsophisticated) are thought to rely on ascriptive characteristics, and information signals, to arrive at their decision about the potential venture quality, which in turn will influence their investment decisions.

Our preliminary examination demonstrated that women-led campaigns, i.e., campaigns in which women are the primary signatory, accounted for 130 out of the 397 campaigns. Approximately 50% of the campaigns in the sample successfully reached their target in line with estimates made by Vismara (2019). The average number of investors was 397.87 which is higher than that predicted by either Ahlers *et al.* (2015) or Vismara (2019). This is considered to be due to the larger sample size. This high number of average investors also indicates that the United Kingdom is more '*truly characterised by the presence of small investors, relative to other platforms*' (Vismara, 2019, p.141). Further characteristics of the data observed included:

- The number of team members (*TmT*) was an average of 4.42 ranging from 0-26. This is similar to the average of 4.5 reported by Vismara (2019), but higher than 3.6 by Ahlers *et al.* (2015).
- The average equity offered was 13.55%, and average number of interactions in the comments section was 81.3, with a range from 1 to 434.

To test the hypotheses, OLS regression was undertaken with three sequentially added blocks of predictors. The research employed the 'naïve sequential approach' which involves fitting the regression models, using the covariates revealed by the end of the current stage, and we have been able to do this as the number of covariates, and the total number of stages, was not prohibitively large. The study utilised a stochastic control process, or prediction problem, in which an outcome depends on a set of non-random covariates, in such a way that at each stage a model (either explanatory or predictive) for the outcome was required (Moffatt and Scarf, 2016; p.454). In our model, predictor variables were added as blocks in the sequential OLS regression, to assess the additional explanatory power of the predictor variables of interest, after accounting for the effect of the controls applied. Table 2 below shows the mean, standard deviation and the correlation matrix.

Table 2. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
logSR Mean 0.887 SD 0.233	1										
EQT Mean 13.540 SD 7.172	0.098**	1									
EIS Mean 0.700 SD 0.457	0.018	-0.018	1								
INV Mean 397.870 SD 569.743	0.371***	-0.150***	0.05	1							
TmT Mean 4.420 SD 2.890	-0.002	-0.182***	0.162***	0.114	1						
DisNum Mean 81.270 SD 69.628	0.301***	-0.152***	0.094**	0.631***	0.099**	1					
GPS Mean 0.810 SD 0.393	0.022	0	-0.007	0.089**	0.046	0.137**	-0.085**	1			
FRT Mean 0.213 SD 0.236	-0.173***	-0.081**	0.035	-0.137**	0.016	-0.215***	-0.005	-0.651***	1		
DescGendR Mean 7.985 SD 14.520	-0.044	-0.046	0	-0.010	0.083**	0.086**	0.029	0.096**	-0.094**	1	
DiscGen Mean 1.618 SD 0.378	0.153***	-0.155***	-0.021	0.115	0.084**	0.062	-0.016	0.204***	-0.115**	0.169***	1

N=397 ** statistical significance at 5%
***statistical significance at 1%
Authors' own work

6 Analysis of Results

From the working hypotheses, statistical hypotheses were developed to clarify our propositions in this study. Assumptions made included that femaleness of gender, both in terms of the composition of the team, and the language used within the campaign in communication and in conversations with investors, will adversely affect the success of funding. We argue that both the gender composition of a team, and the nuances in language and vocabulary used from a gender perspective, may manifest themselves in unconscious bias, and thereby disadvantage women on equity platforms. These assumptions stem from the existing evidence within the literature on gender issues within equity crowdfunding, and allow us to probe further into factors that may impact upon investor decision-making:

- **Hypothesis 1** - In equity crowdfunding campaigns, the number of women in a team has a negative effect on the success of funding. H_0, $ß_{FRT} = 0$, H_1, $ß_{FRT} < 0$.

- **Hypothesis 2** - In equity crowdfunding campaigns, the 'femaleness' of the gender of the language in the description of the campaign has a negative effect on the success of funding. H_0, $ß_{DescGendR} = 0$, H_1, $ß_{DescGendR} < 0$.

- **Hypothesis 3** - In equity crowdfunding campaigns, the 'femaleness' of the gender of the language in the comments of the campaign has a negative effect on the success of the funding. H_0, $ß_{DiscGen} = 0$, H_1, $ß_{DiscGen} < 0$.

In Table 3 we report the results from the sequential regressions comprising of sub-models (which we refer to as Block 1, 2 and 3) and Model 4. In this context, the word 'block' has been used to differentiate from 'model' used previously. A block in this sense is a sub-component of a model.

The overarching research question considers if there is an inherent bias against campaigns that are more female, in terms of number of women in the teams, and the vocabulary used, and the impact of these factors on the subsequent success of the funding. The dependent variable used is *LogSR*. The research examines the extent to which the number of women in a campaign predicts the success of the funding raised. Additionally, we also considered if the gender inherent in the language used within the campaign description, and within the investors' comments, may predict success. Furthermore, the gender of the campaign-lead as a predicter of success was considered.

In our model, the distribution of (prediction) residuals has acceptable normality with no outliers influential enough to be considered for removal. The variance inflation factors (VIFs) associated with each model specification all fall well below the acceptable threshold of 10, indicating multicollinearity is not a concern.

Block 1 of Table 3, as part of our sequential set of variable blocks, deals with non-gendered control variables that have been tested empirically in previous studies (Table 1). This accounted for about 17% of the total variance of success of funding (R^2 =.172).

We found positive significance for the variables *EQT* (ß=0.161, p<0.01), p<0.01); we also found a positive relationship between *INV* and success (ß=0.317, p<0.01) and *DisNum* (ß=0.129, p<0.05*),* thereby confirming our understanding of the impact of the control variables on the outcome variable.

Although *GPS* is an existing variable in previous study (Geiger and Oranburg, 2018) and hence ought to be in Block 1, we left the inclusion of any gendered variable until Block 2.

In Block 2, we added the gendered variables which accounted for an additional 4% of the total variance of funding raised (R^2=.218). To test the direct relationship between the number of women in a team, and the success ratio, we added the variable *FRT* to Block 2. The results showed a significant negative relationship between the number of women in a team, and the success ratio of a campaign (*ß*= -0.194, p <0.01). This finding supports Hypothesis 1.

In Block 2 we also entered the gender variables for the text description *DescGendR,* and the investors' comments *DiscGen,* as well as the gender of the primary lead of the campaign *GPS*. We found a significant positive relationship, with a success ratio of funding for the aggregated gender of the investors' comments *DiscGen* (*ß*= .164, p< 0.01). This finding supports Hypothesis 2.

However, importantly we did not find evidence of a link between the gender of the language within the text description*,* and the success of funding *LogSR*. Instead from the findings, we identified a significant negative relationship for *GPS* (ß= -0.172, p<0.01), with *LogSR* in line with existing evidence in the literature.

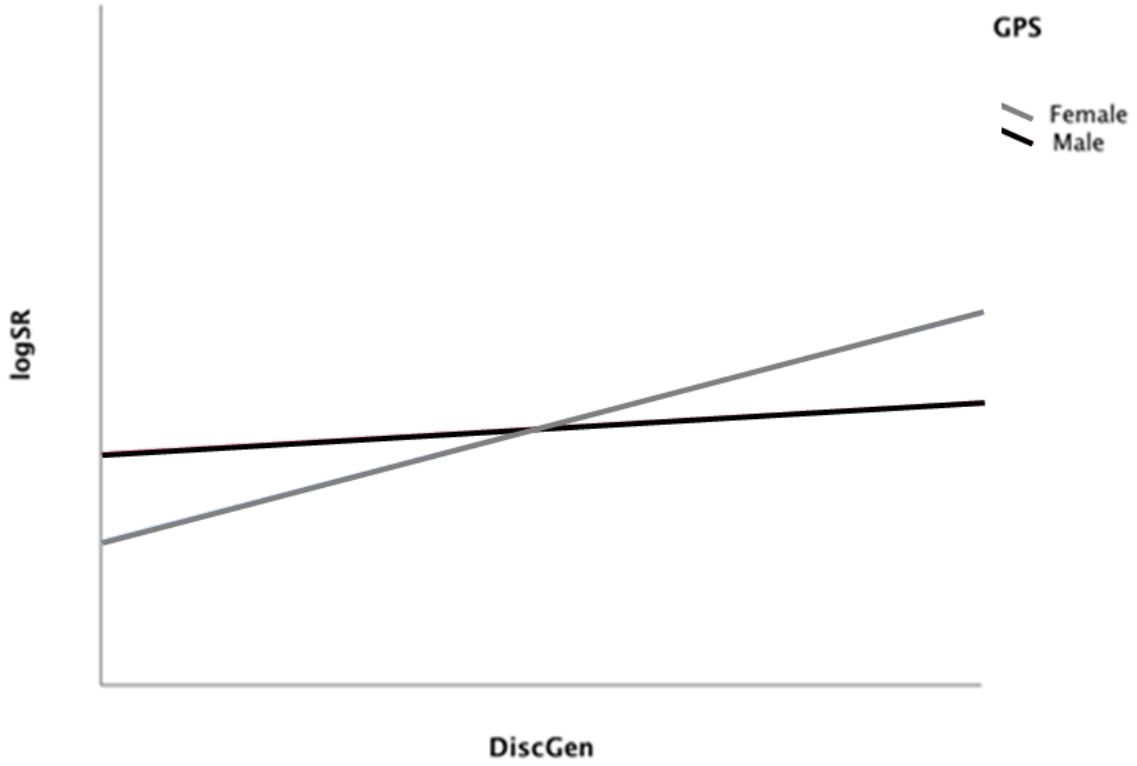
Table 3. Gender and the Success of the Campaign.

	Model 1	Model 2	Model 3.	Model 4
EQT	0.161 **0.001** 3.393 *(0.002)*	0.163 **<0.001** 3.470 *(0.002)*	0.174 **<0.001** 3.755 *(0.002)*	0.184 **<0.001** 4.023 *(0.002)*
EIS	-0.004 **0.940** -0.750 *(0.026)*	0.007 **0.887** 0.142 *(0.025)*	0.020 **0.657** 0.444 *(0.025)*	
INV	0.317 **<0.001** 5.313 *0.000*	0.288 **<0.001** 4.904 *0.000*	0.289 **<0.001** 5.020 *0.000*	0.292 **<0.001** 5.103 *0.000*
TmT	-0.022 **0.651** -0.453 *(0.005)*	-0.016 **0.737** -0.337 *(0.005)*	-0.076 **0.114** -1.584 *(0.005)*	
DisNum	0.129 **0.032** 2.154 *0.000*	0.123 **0.039** 2.067 *0.000*	0.124 **0.036** 2.103 *0.000*	0.110 **0.045** 1.903 *0.000*
GPS		-0.172 **0.004** - 2.858 *(0.037)*	-0.142 **0.514** - 0.653 *(0.134)*	
FRT		-0.194 **0.002** - 3.182 *(0.063)*	-0.513 **<0.001** -5.009 *(0.105)*	-0.447 **<0.001** -5.125 *(0.102)*
DescGendR		-0.072 **0.119** -1.561 *(0.001)*	-0.141 **0.483** -0.702 *(0.004)*	
DiscGen		0.164 **0.001** 3.470 *(0.032)*	0.333 **0.001** 3.260 *(0.069)*	0.347 **<0.001** 5.552 *(0.068)*
FRTxGPS			0.336 **<0.001** 3.953 *(0.133)*	0.275 **<0.001** 3.765 *(0.126)*
DiscGenxGPS			-0.448 **0.038** -1.949 *(0.077)*	-0.527 **<0.001** -5.110 *(0.076)*
GPSxDescGendR			0.078 **0.706** 0.378 *(0.004)*	
Constant	0.743 *(0.04)*	0.701 *(0.077)*	0.737 *(0.129)*	0.679 *(0.12)*
Model R^2	0.172	0.218	0.257	0.246
Adjusted R^2	0.161	0.200	0.234	0.231
ΔR^2	0.172	0.046	0.039	0.051

Authors' own work

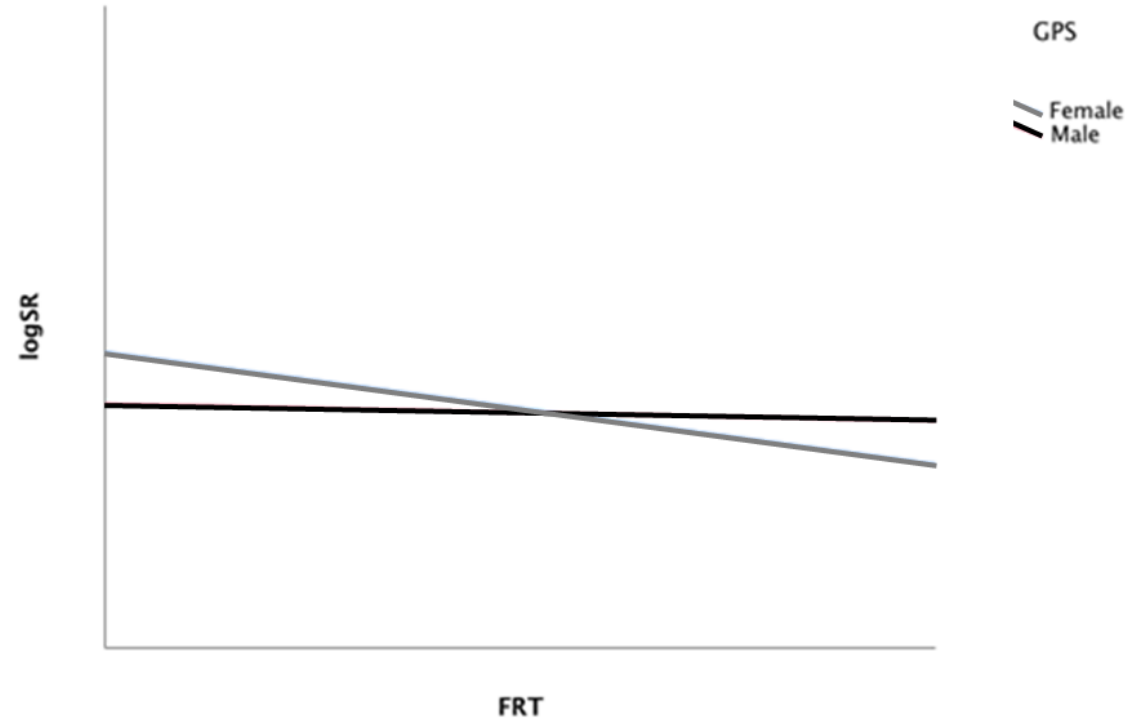
Note: Table 3 includes sequential regressions for LogSR - sample = 397 equity crowdfunding offerings listed on Crowdcube between 2011-2019, with standardised coefficients, robust standard errors in parentheses, p-values in bold and t-values in grey.

Figure 1. Interaction Plot - Relationship Between logSR and FRT



Authors' own work

Figure 2. Interaction Plot - Relationship logSR and DiscGen



Authors' own work

In Block 3, we entered the control variables along with the gendered variables as per Block 2. This model accounted for an additional 4% of the total variance of funding raised (R^2=.257). Hence, in Model 3 we entered the interaction between *GPS* and *FRT* (named as *FRTxGPS*)

to see if the interaction with *FRT* was causing the significant effect on *GPS* as a predictor. We found this to be the case with a significance at ß=0.336 and p<0.01. Here the moderator is the binary variable *GPS.* To examine the significant interaction, we first explored the magnitude of the effect of the number of women in a team, as a function of gender of the primary signatory, by plotting an interaction for both male-led teams and female-led teams. By exploring the significant interactions in this manner, we improved our ability to interpret the effects (Geiger and Oranburg, 2018). As displayed in Figures 1 and 2, when the *GPS* is female, an increasing proportion of women in the team is associated with a decrease in success ratio of funding. And when *GPS* is male, similarly, an increasing number of women in the team is associated with a decrease in success ratio, albeit the effects of the *GPS* male is weaker than *GPS* female. This lends support to Hypothesis 1 that an increasing number of women in a team does lower the chances of success of funding. Here *GPS* male, compared to *GPS* female increases the success ratio *SR* by 0.336x*FRT*.

In Block 3 we also entered the interactions between *GPS* and Description Gender i.e.*GPSxDescGendR* and GPS and gender aggregate of the comments i.e., *DiscGenxGPS.* The results showed a significant negative relationship with funding raised for the interaction term *DiscGenxGPS* (*ß*= -0.448, p<.05). These findings can be explained- if *GPS* is female there is a moderate increase in success ratio as the proportion of 'maleness' in language increases; when *GPS* is male the same effect is present, but this effect is much weaker. This explains why the coefficient of the interaction is negative because compared to female a male *GPS* tends to reduce *SR*. We find no significant relationship between the interaction term *GPSxDescGendR* and *LogSR.*

And finally, in Model 4, we tested again Model/block 3 without the non-significant predictors *EIS, TmT, GPS, DescGendR* and the non-significant interactions *GPSxDescGendR*. Here we removed the non-significant predictors. We note that this model did not differ substantively from the end point of the sequential blocks (R^2=.246 and Adjusted R^2 =0.232). As expected, significant variables in Model 3 of the sequential model are significant in this model too. Here *EQT* (ß=0.184, p<0.05), *INV* (ß=0.292, p<0.01), *FRT* (ß= -0.447, p<0.01), *DiscGen* (ß=0.347, p<0.01), *FRTxGPS* (ß=0.275, p<0.01) and *DiscGenxGPS* (ß= -0.527, p<0.01).

7 Discussion

Equity crowdfunding is different to other crowdfunding methods. Firstly the motivations of the investor are likely to be starkly different to say a rewards-based, or a donation-based crowdfunding supporter. 'Supporter' in the context of both rewards and donation-based crowdfunding opportunities, are investors who are not allowed to own a stake or shares in the company. From an investor point of view, equity crowdfunding can be seen to be similar to more traditional forms of entrepreneurial finance such as venture capital funding (Ahlers *et al.,* 2015; Geiger and Oranburg, 2018; Vismara, 2019). Gender has been previously been found to be a critical factor in investor decision-making in entrepreneurial finance (Blanchflower *et al.,* 2003; Lins and Lutz, 2016; Kanze *et al.,* 2018; Leitch, 2018) and there is a body of literature on gender issues in crowdfunding context too, but many of these studies are in the context of non-equity-based crowdfunding, and there are conflicting findings ranging 'crowdfunding being an advantage for women', to there being no reportable difference in funding success based upon gender.

Given the conflicting nature of findings to date, there is a need to add further evidence to extend the existing body of literature. In this study, crowdfunding decisions are explored in relation to gender in teams, and gender in language, thereby combining these two themes which are each considered to be of great relevance. Our study makes several contributions. Firstly, we find significant evidence that crowdfunding campaigns with an increasing number of women in a team leads to a decreased success of funding for both male and female team leads. This relationship is stronger for when a female leads a team, but also present when a

male leads a team. This supports a previous study by Geiger and Oranburg (2018) which indicated the impact of physical gender of both team, and team-lead, on the success of an equity crowdfunding campaign. We found a negative relationship between the gender of the campaign-lead, and the success of funding in line with Geiger and Oranburg (2018). We have provided empirical evidence that the composition of the team, in terms of gender of team members, affects funding success, and this reinforces the direct relationship between gender, and the success ratio of funding, within equity crowdfunding campaigns.
A further contribution comes from the gender of the language used within the investors' comments. As investors are making decisions in the absence of objective information and evidence, often attributions such as gender become an important factor in evaluation of the campaign quality (Huang and Pearce, 2015; Wu, 2016). Gender can be manifested in a variety of ways, including the use of language, and the choice of vocabulary (Alami, 2016, p.248). If men and women use language differently has been investigated by Cheng *et al.* (2011), and this is very relevant because if there are gender differences in the use of language, including vocabulary, then we can expect this to have an influence on investor decision-making, even though the physical gender of the individual may have no influence on the language gender that they use.

We have concluded that, for aggregate investors' comments (Li and Jarvenpaa, 2015; Mollick, 2014), the gender of the language used is a significant predictor of the success ratio. Where the comments are overarchingly male, it has a positive relationship with increasing success ratio of funding, and conversely, where the comments are overarchingly female, there is a decreasing success ratio of funding. Although the way a campaign is described on the investor facing page, including the content (Ordanini *et al.,* 2011), language (Moss *et al.,* 2015), and tone (Parhankangas and Ehrlich, 2014), has been found to be related to the success of funding (Zhou *et al.,* 2018), we found no support for our assumption that the gender of language in the campaign text description has a bearing on success of funding.

There are a few contradictions to the existing literature as it is normal in these studies. We find positive relationship between equity offered (*EQT*) and success of funding, thereby contradicting Vismara's (2019) study which reports a negative significance. In line with Haifeng *et al.* (2018), we found positive relationships between *INV* and success, and *DisNum* and success (Wang *et al.,* 2018), thereby confirming our understanding of the impact of the control variables on the outcome variable. However, we did not find any significance for *TmT*, which is found by Ahlers *et al.* (2015), and Vismara (2019). Additionally, we did not find any significance for *EIS* which supports Vismara (2019) findings in which no relationship between tax incentives and success was obvious. However, our findings do contradict Chen *et al.* (2018) who themselves concluded that investors allocate more funds to campaigns that are eligible for tax incentives such as *EIS*. Looking at the nature of findings across equity crowdfunding studies these contradictions are not problematic, or unusual, due to the nature of the sample, and the variables studied.

Finally, our study has useful implications for entrepreneurs and individual investors, as well as policy makers regulating the market for equity crowdfunding. Our study extends current research by addressing the influence of gender on crowdfunding success. This is more significant in the context of equity crowdfunding where investors are seeking a financial return on their contributions. We can therefore draw direct comparisons between their motivations, and that of venture capital investors. This study provides empirical evidence that gender bias is strongly present in the context of equity crowdfunding and shows that equity crowdfunding is more similar to venture capital funding, than to other rewards-based crowdfunding, as far as the success of funding as a function of gender is concerned. In this study we have successfully advanced the knowledge of gender in entrepreneurial finance, by examining the unconscious biases at play when decisions are made.

8 Conclusion

This research considers if equity investors on crowdfunding platforms display the same bias against women compared to venture capital alternatives. A conceptual model was applied to a dataset of 397 campaigns, from a leading UK-based equity platform, to investigate the issues around gender, and its impact on entrepreneurial finance in the context of equity crowdfunding. This study investigates the manifestation of gender in both the physical sense of the term and in language, and its impact on the outcomes in an equity crowdfunding context.

From this research study, it is possible to conclude that the aggregated gender of the investors comments does has an influence upon the success of the funding obtained from equity investors. We have demonstrated that not only does the physical gender of the team, and the gender of the primary signatory, influence the final decision, but also any gendered nuances in the language within the campaign can have a significant impact. We found that the gender composition of the team can strongly predict the successful outcome of an equity campaign, and gender within language of investors comments can also strongly predict the success of a campaign.

The researchers found that for campaigns where the lead entrepreneur, referred to as the Gender of the Primary Signatory (GPS), was female, the campaign attracted less funding. Furthermore, we also found that as the target amount increased, the amount received decreased when the *GPS* was female. It is argued that not only does the gender of the primary signatory have an impact on the success of funding, but also the number of women in a team. It is also presented that given that the motivations of equity investors are similar to that of venture capital (VC) investors (Geiger and Oranburg, 2018; Kanze *et al.,* 2018), it would be reasonable to expect to see bias against women on the equity crowdfunding platforms in a similar manner to that in venture capital studies.

Through this paper we aim to contribute to the broader body of knowledge relating to investor decision-making in the face of bias in the context of equity crowdfunding. From this study we expect to stimulate further research in the areas of gender (both physical and the more esoteric, within signals) and equity crowdfunding, and the role of gender in both the decision-making process, and also the amount of funding being secured.

9 Limitations and Future Research

Challenges and limitations of this research are in line with those faced by many other similar studies also considering equity-based crowdfunding platforms:

- Data available only represents those who have successfully raised money. Data representing unsuccessful campaigns is unavailable for analysis.
- From the data it is evident that women are significantly under-represented in the population of fund seekers. This does not necessarily point to the bias against women, but could be a representation of the entire population of fund seekers, meaning that elements of the entrepreneurship gender gap is present before any investor involvement (Ewens and Townsend, 2020).
- No information on gender-based characteristics of investors is available in this dataset. It is therefore not possible to establish if female investors prefer to support women or vice versa.
- In a previous study, Marom *et al.* (2016) found that women founders are more likely to pair with women investors, but Kanze *et al.* (2018) concluded that in the context of VCs, both male and female investors were biased against women founders.

We took the first step to examine the gender effects of investor comments and within the text description. Our measure of gender in language is reasonable, but imperfect due to the error

margin that any machine learning based software has. Also, we are using a single number for the aggregated interactions in the comments, which risk limiting our understanding about the holistic effects of the interactions on crowdfunding success (Wang *et al.,* 2018). We thus call for future research that examines the gender nuances in language within the campaign, and within the interactions. There is also potential for further research linked to Kanze *et al.* (2018) in looking at the individual interactions in the investor comment section, to see if Regulatory Focus Theory can explain the nature of responses, and sentiments within it. For example, promotion-based questions, and prevention-focused questions, may be present in these interactions too.

In this study we found that having a higher number of women in a team elicits an unfavourable response from the investors in the form of reduced success of funding. These findings support previous research that suggests that women are disadvantaged when it comes to raising funds for their entrepreneurial ventures (Geiger and Oranburg, 2018; Kanze *et al.,* 2018). Further research utilising data from campaigns that have failed on the equity platforms and/or campaigns that are not selected to be launched on the equity platforms can offer more insights into the gender issues. This can be in the form of additional inquiry, through qualitative design, into motivations and perceptions of lead of failed/unselected campaigns.

The study recognises the difficulty and data protection issues around equity-based studies in the UK and EU. However, under the 1997 UK Copyright and Rights in Database Regulations Act, a database made available to the public may have elements of its contents extracted for the purpose of teaching and/or research, as long as the source is clearly indicated.

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