

# Essays on Gender in Crowdfunding



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# Essays on Gender in Crowdfunding

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*In loving memory of my mother (Enapa, da yie)*

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*“Now thank we all our God, with heart and hands and voices,  
Who wondrous things has done, in Whom this world rejoices;  
Who from our mothers’ arms has blessed us on our way  
With countless gifts of love, and still is ours today.”*

(Martin Rinkart, *ca.* 1636)

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# **Introduction to Doctoral Dissertation**

## **1. Introduction**

Gender is crucial when it comes to financial inclusion, and this has been well documented in entrepreneurial finance literature (Brush et al., 2018; Zhao & Wry, 2016). By financial inclusion, the focus is on how existing boundaries can be pushed to develop new opportunities that can reduce the underrepresentation of minorities in financial markets (Butticè & Vismara, 2021). Research shows that entrepreneurial and business characteristics such as gender, age, ethnicity, and geography are key factors that influence entrepreneurship participation (Cumming et al., 2021; Dy et al., 2017). However, of these elements, gender has attracted more interest in research and practice, with females representing a minority within the pool of both fundraisers and funders in financial markets.

As females tend to shape societal norms and conditions with their participation in entrepreneurship (Moreira et al., 2019), considerable efforts have been made through extensive research and public debate to help increase their participation in entrepreneurship-related activities. Since traditionally entrepreneurship has been equated with masculinity female entrepreneurship has often been regarded as an exception (Ahl, 2006; Susan Marlow & McAdam, 2013). Accordingly, female entrepreneurs have remained strongly underfunded and female investors are less visible among investors in financial markets (Becker-Blease & Sohl, 2007; Richard T Harrison & Colin M. Mason, 2007; Kanze et al., 2018). Furthermore, a noticeable and often substantial lack of participation in entrepreneurship by females implies welfare losses both for females and the greater populations of nations (Groza et al., 2020). Thus, the ability of females to contribute to shaping economic sectors, drive positive change, and be part of the solution to society's complex challenges has been limited by unfavorable financial marketplace conditions.

Fortunately, over the last decade, females who have been underrepresented in entrepreneurial finance have achieved great strides through crowdfunding (Gafni et al., 2020; Greenberg & Mollick, 2017). Crowdfunding seeks to provide a means to 'democratise' the entrepreneurial funding process (Cumming et al., 2021; Vismara et al.,

2017), where there is an open call to fund entrepreneurs by a large number of small investors on an online platform (Mollick, 2014). However, research on gender in crowdfunding have largely ignored investors perspective with most studies centered on entrepreneurs' perspectives (e.g. Barasinska & Schäfer, 2014; Greenberg & Mollick, 2017; Johnson et al., 2018). Thus, the broader picture regarding how crowdfunding, when compared to traditional finance, can improve the participation of females in entrepreneurship remains unclear and is less understood.

This may be due to the lack of a gender-specific theoretical anchoring, used to examine the effects of a funder's gender in entrepreneurial finance. Still, some scholars have shown the limits to, and indirectly warned against, the simplistic transfer of existing gender funding dynamics from traditional finance to crowdfunding (Gafni et al., 2020). This is for instance evident in female funding female entrepreneurs and vice versa for male funders. Indeed, this may stem from static positions on research models that impose male centered views and the treatment of western entrepreneurs as the 'universally' accepted norm, where individual characteristics are assumed to be stable across time and different contexts (Ahl, 2006). This demonstrates the need to consider context within gender and entrepreneurial finance research, especially for giving voice to non-western contexts.

From the gaps described above, the broader research question I address in this dissertation concerns which mechanisms underlie gender differences in funding decisions and behavior in crowdfunding. This broad research question is further cascaded into specific ones, each of which is investigated in a dedicated research article.

Before delving into empirical findings, the dissertation begins by taking stock of existing knowledge as harvested from literature on gender and entrepreneurial finance, with a focus on females (Paper 1). This is achieved by conducting a systematic literature review to identify *which factors impact female entrepreneurs' access to finance, and which factors impact the behavior of female investors?* Following this, it became very important to dig much deeper into gender aspects specifically in the context of crowdfunding (Paper 2). Here, a more focused and narrow literature review was conducted for finding what *specific conditions account for gender differences at each stage of the crowdfunding process? how do researchers conceptualize gender within this field? and to what extent has this new form*

*of fundraising achieved the promise of financial democracy in offering females an equitable alternative path in entrepreneurship?*

Thereafter, the next study sought to build a gender-specific theory to explain crowdfunding contribution differences between males and females (paper 3) answering the research question *what are the factors that influence crowdfunding contribution intentions (CCI) differently in males and female contributors?* Finally, an empirical investigation of funding differences in a context characterized by gender equality is carried out (Paper 4) to address the question *to what extent do gender differences in crowdfunding backer behavior prevail in gender equal societies?* Such approaches allow for examining the boundaries of social feminist approaches' ability to explain gender differences and similarities in different social contexts.

Through its findings, this thesis contributes to the growing stream of research on female entrepreneurship and gender dynamics in crowdfunding. Further, it suggests practical implications to increase females' representation in entrepreneurial finance and how fundraisers can address different segments contributors by gender, towards enhancing their crowdfunding campaigns' success.

The rest of this introductory chapter continues with an overview of the adjacent literature on gender and entrepreneurial finance before a discussion on crowdfunding and gender is presented. These would be followed by a presentation of the philosophical stance and the research design adopted in this dissertation. Next, a summary of the studies contained in the dissertation highlighting the key findings is presented. The chapter concludes with the contributions of each research paper, as well as their limitations, which are then followed by suggestions for future research.

## **2. Gender and entrepreneurial finance**

Across the globe, females' engagement in entrepreneurship is known to shape their economies and families (Kwong et al., 2011; Moreira et al., 2019; Yacus et al., 2019). Yet, an important aspect of female's engagement in entrepreneurial venturing relates to their ability to participate in entrepreneurial finance markets both as fundraisers and investors. Although prior research on similarities and differences between males and females in their engagement with entrepreneurial finance is abundant, studies focusing on the supply side

outweigh those that focus on the demand side (e.g. Alsos & Ljunggren, 2017; Bellucci et al., 2010; Cowden et al., 2021).

Over the years, there has been a significant growth in female entrepreneurial venturing activities (Eddleston et al., 2016). In the US, it is estimated that female ventures grew from 6.5 million to 9.9 million between 2002 and 2012 (Yacus et al., 2019). Despite this remarkable growth, female entrepreneurs trail behind male entrepreneurs in terms of the revenues their firms generated and the rates of their ventures' growth (Yacus et al., 2019).

Such gender gaps have important implications for the economy. For instance, it is estimated that by closing the entrepreneurial gender gap between females and males in the UK, the country can generate up to \$326.4 billion in added gross value for the economy. Achieving this requires particular attention to the various challenges that female entrepreneurs face in their entrepreneurial activities. Access to finance is a concrete challenge faced by most female entrepreneurs across the world (Becker-Blease & Sohl, 2007; Coleman, 2000; Richard T Harrison & Colin M. Mason, 2007).

There are various reasons that have been put forward to explain the funding challenges faced by female entrepreneurs. Research shows that female entrepreneurs are disadvantaged when seeking funding due to barriers to networking, experience, and relevant education (Greene et al., 2001; Verheul & Thurik, 2001). According to Coleman and Robb (2009), females are less successful with funding because they tend to have smaller businesses. In addition, certain scholars argue that much of the entrepreneurial finance research is based on the notion of assumed difference, where male entrepreneurs serve as a benchmark against which one judge's women entrepreneurs' performance (S Marlow & Swail, 2014; Wheadon & Duval-Couetil, 2019). Accordingly, females must always demonstrate high levels of competence to investors, a characteristic males are assumed to have and therefore required less to demonstrate (Tinkler et al., 2015). And even when specifically considering female investors as a promising source, they are both fewer compared to male investors (Richard T. Harrison & Colin M. Mason, 2007; Mohammadi & Shafi, 2018), and tend to invest smaller amounts while expecting lower returns (Romaní et al., 2012).



Despite notable growth in research on gender in entrepreneurial finance, related studies come up with contradictory findings. These inconsistencies can be categorized along gender gaps related to gender discrimination (Balachandra et al., 2019; Carter et al., 2007) and structural differences (e.g. Stefani & Vacca, 2014; Watson et al., 2009). Thus, the first paper, *Women and Entrepreneurial Finance: A Systematic Review*, presents a comprehensive review and analysis of the research with the aim of untangling inconsistencies and contradictions through a system of variable clusters. Such clustered view of effects helps to identify patterns and gaps in our understanding.

### **3. Crowdfunding and gender**

Crowdfunding offers ventures an opportunity to raise funds from an undefined large pool of contributors where each contributes a relatively small amount with the help of social networks and digital platforms. Crowdfunding presents an alternative means of providing funding to entrepreneurs at the early stages of their businesses instead of resorting to traditional angels, venture capitalists, and mainstream financial institutions (Schwienbacher & Larralde, 2012), while simplifying interaction between the funders and entrepreneurs. According to the Cambridge Centre for Alternative Finance (CCAF) report, global alternative finance (of which crowdfunding is a major component) transaction volumes reached \$304.5 billion in 2018 (Ziegler et al., 2020).

According to existing literature, crowdfunding can be categorized into four major types, distinguished by the kind of incentives available to investors. They are; (a) donation model, in which contributors receive no tangible rewards, but enjoy intangible rewards such as satisfaction and joy in supporting a cause they are passionate about; (b) reward model, where contributors receives both tangible and non-pecuniary tangible benefits for their contribution, primarily in the form of pre-purchasing products and services before they are fully developed and/or produced; (c) lending model, where an entrepreneur is given a loan through funding by one or more lenders, which is then paid back in accordance with prespecified interest and payment conditions; and (d) equity model, which offers investors equity stakes in the venture or other investment object (Cholakova & Clarysse, 2015; Mollick, 2014; Shneor, 2020).

Solutions to certain challenges, which hinder females' participation in entrepreneurship, may come in the form of emerging digital technologies such as crowdfunding. The advent of crowdfunding seems to provide certain advantages to female entrepreneurs in their entrepreneurial activities in terms of a more democratized access to funding (Gafni et al., 2020). Specially, this democratization has been found to help female entrepreneurs in their fundraising efforts (Gafni et al., 2020; Greenberg & Mollick, 2017; Johnson et al., 2018) , and to increase the participation of female funders in the creation of new ventures and products through investment (Gafni et al., 2020; Groza et al., 2020). Greenberg and Mollick (2017) emphasize that female entrepreneurs might surprisingly have an advantage over males in crowdfunding markets and in industries where they are underrepresented. Furthermore, research has also shown that female investors will support female-led projects over male-led projects (Gafni et al., 2020; Greenberg & Mollick, 2017).

While findings show that fundraising and investment patterns mimic those of traditional finance settings, they also show that the probability of fundraising is reversed such that male entrepreneurs are less likely to be successful with their crowdfunding campaigns. Therefore, it is important to address certain deficiencies in the literature, both conceptually and methodically, to increase our understanding of the factors that sustain gender inequalities and how to deal with them in a sustainable manner. Specifically, from a feminist perspective (Ahl, 2006), it is important to understand whether the reversed trajectory in crowdfunding success is in favor of female fundraisers or those fundraisers who display feminine characteristics? A summary and analysis of the literature can help to identify and address some of these limitations in previous research.

Promoting crowdfunding activities has been at the heart of current policy debates aimed at changing investment criteria as crowdfunding has been found to eliminate biases (Younkin & Kuppuswamy, 2018). Specifically, by shifting funding decisions away from a small group of experts to a diverse and large pool of individual contributors may enhance financial inclusion. Through crowdfunding, females' share of the world's value creation may increase because of their financial investments (Gafni et al., 2020; Groza et al., 2020). Since prior research suggest that crowdfunding contribution follow a similar pattern as it is in traditional finance (Gafni et al., 2020), this branch of research is highly relevant for female entrepreneurs and other small and medium enterprises. This is because with an

increase in individual female contributors, and with an evident gender-based choice homophily among women (Greenberg & Mollick, 2017), the probability of female fundraisers meeting their funding goal might increase. Again, in most western economies there is a growing population of females that have high levels of education, experience and expertise (Jones, 2012) that can help start-ups flourish through their investments.

While these prior findings have advanced our knowledge on gender and crowdfunding investments, much of the discussions applies to industrialized and western economies. The field is dominated by studies in the USA and China (Serwaah, 2021). However, in the context of most developing economies (such as Ghana), where females are inherently taught to be modest and less aggressive (Boohene et al., 2008), these attributes represent a core aspect of society that can influence funding decisions differently in males and females. Feminist scholars have therefore argued that studies on gender and entrepreneurship must be contextualized to account for explanations which are independent of an individual (Ahl, 2006; Henry et al., 2016). This contextualization is important since *“gender is a result of upbringing and social interaction, and it varies in time and place”* (Ahl, 2006, p. 597).

Regarding the empirical papers on funders, there is little research on how the funding decisions differ between male and female contributions. However, the funding decisions are of utmost importance in crowdfunding, considering the more open and transparent nature of new financial intermediaries (i.e., platforms) and the individual action of funders. Here, potential challenges in investigating gender dynamics in funding decisions might be a result of theoretical inadequacy. Many studies in traditional finance have relied on gender neutral theories such as theory of planned behavior (Ajzen, 1991) and self-determination theory (Deci & Ryan, 1985). Similarly, explanations offered by the few extant studies in crowdfunding have relied on gender neutral theories (e.g. Johnson et al., 2018; Zhang & Chen, 2019) and these theories might not fully explain certain contextual mechanisms related to the funder’s gender. These theoretical arguments, by being gender neutral, may not consider gender differences or different realities of socialized gender, which can lead to inconsistencies of results when trying to understand contribution decisions in different contexts and settings.

As noted earlier, the purpose of this dissertation is to enrich our understanding of gender issues in crowdfunding from the perspective of the funders, which is motivated by the gaps and challenges discussed above. Paper 2, *Crowdfunding, Gender, and the Promise of Financial Democracy: A Systematic Review*, presents a systematic literature review on whether crowdfunding has improved financial inclusion while highlighting key issues related to gender and crowdfunding. Paper 3, *Explaining gender differences in crowdfunding contribution intentions*, addresses some of the identified gaps related to contextualization and theoretical limitations, by studying funders in a developing economy context while testing a gender-inspired framework. Paper 4, *Does gender equality matter? – Examining antecedents of crowdfunding backers’ intentions in a gender equal society*, contextualizes in Finland as a gender equal society, while examining the boundaries of relevance for social feminist explanations of gender differences.

## **4. Research design**

Research design is a “blueprint” that deals with 1) what questions to answer, 2) what data are relevant, 3) what data to collect and 4) how to analyze the results (Yin, 2009, p. 26). Thus, in this section I present the design used for the studies, their empirical settings and data collection procedures, the analyses employed, and conclude with addressing aspects of research quality. However, in the research process, researchers tend to be influenced by their worldviews and selected paradigms (Nkomo, 1992), hence I would first outline the philosophical stance underlying my research design.

### **4.1 Research philosophy**

In social sciences, researchers are influenced by diverse paradigms including: positivism, critical realism, and constructionism (Morgan & Smircich, 1980). Along a continuum of paradigms are two extremes positivism and constructionism with critical realism lying somewhere in the middle. Indeed, two key words differentiate the different paradigms: ‘reality’ (ontology) and ‘knowledge’ (epistemology). A positivist regards reality to be one and this reality can be made known through objective, empirical observations whereas a constructionist contends that reality is based on human imagination and knowledge which is a more phenomenon-oriented perspective (Järvensivu & Törnroos, 2010; Piekkari et al., 2009). Critical realism is founded on the ontological stance that there is a reality but in

different layers: real, actual, and empirical (Bhaskar, 2014), and to getting to this reality requires empirical observations bounded by consensus, community-based critique, and subjectivity (Järvensivu & Törnroos, 2010). Since, critical realism lies in between positivism and constructionism it builds on the advantages of these two for knowledge creation and production, especially in terms of methodological considerations (Baker, 2011).

Most literature on female entrepreneurship is characterized by positivism (Ahl, 2006; Henry et al., 2016). In this dissertation, I adopt a positivistic stance, however I go a step further to integrate recommendations from prior research calling for an inclusion of structural factors in studying gender and entrepreneurship (e.g. Ahl, 2006; S Marlow, 2002). While a major shortcoming of a positivistic position is that it does not consider unobservable factors such as the research context, improving the situation does not require outright dismissal of the positivistic position and instead “*account for factors outside the individual*” (Ahl, 2006, p. 611). Thus, the empirical papers (papers 3 and 4) adopt a contextualized approach. The contextualized approach focuses on examining differences in funding decisions, as contingent the contextual condition of gender equality. While paper 3 uses a gender unequal context (i.e., Ghana), paper four uses a gender equal context (i.e., Finland). In both papers theory development was not based on a grounded approach but on a combination of theoretical claims and the aggregation of insights from earlier research.

## **4.2 Context and data sources**

The context of the empirical papers in this dissertation are Finland and Ghana. In terms of alternative finance, Finland is a forerunner and an engine of growth for the Nordic crowdfunding market, representing the fifth largest market in Europe in 2018 (Ziegler et al., 2020). Although crowdfunding is at its infancy in Ghana, much funding and fundraising takes place in the country through international based platforms. However, with recent adoption of crowdfunding policy by the country, it is expected that it can help promote alternative financing activities. Report on the global gender gap ranked Finland on 2nd position out of 156 countries, while Ghana ranks at 117th position (World Economic Forum, 2021). Therefore, these two countries were deemed appropriate to represent two

extremes, when examining the context-contingent effects of gender on the relationship between cognitive antecedents and funding decisions.

Paper 1 and paper 2 are systematic literature review studies, where the data (articles) were retrieved from the Web of science, Scopus, and Ebsco academic databases. In addition, a snowballing approach was employed in reference tracking of selected articles. Paper 1 was based on 113 research papers while Paper 2 used 47 articles. The papers involving quantitative analyses involved large samples of respondents. Data for Paper 3 included 403 observations and Paper 4 included 556 observations. Both collected via surveys. SurveyXact was the software used for conducting the web-survey, on-location distribution was used for paper versions of the survey. Survey constructs were based on prior items which were all multi-item measurements using a seven-point Likert scale. While self-administered questionnaires can be web or paper based, the appropriate method to use depends on the context (Zikmund et al., 2010).

In Finland, an email containing the link to the survey was sent to users of the platform by the platform managers. Since Ghana, at the time of the data collection, had no active locally based crowdfunding platform, data was collected on-location from graduate students at the Kwame Nkrumah University of Science and Technology. In Ghana, pre-printed questionnaires from SurveyXact were personally delivered to graduate students after establishing contact with school authorities. Indeed, administrating the surveys personally in Ghana was prudent in order to increase the participation rate and the representation of the population compared to web-based method. Since data here was not collected from platform users, and to ensure proper understanding of crowdfunding, respondents were exposed to a fact-based introduction to crowdfunding lecture, which was intentionally devoid of normative tones, prior to filling the survey. This is because compared to Finland, the level of e-readiness in the Ghana is low (Bilbao-Osorio et al., 2013). Follow-ups on the questionnaires were made personally to increase participation rate and to ensure fastest response. The data collection in Finland took place in spring 2016 while that of Ghana was during spring 2021 based on the earlier survey developed and validated in Finland.

### 4.3 Data analysis

The first two papers are systematic literature reviews which were analyzed using content analysis and mostly following deductive approaches (Tranfield et al., 2003). This technique is the dominant approach to synthesizing scholarly articles in entrepreneurship and in particular crowdfunding and female entrepreneurship (Shneor & Vik, 2020; Wheadon & Duval-Couetil, 2019). For paper 3 and paper 4, structural equation modelling (SEM) was employed as most of the variables to be studied are unobserved and lack single objective measures. Typically, in SEM both independent and dependent variables can be either observed or latent and latent variables can be defined, measured, or inferred by multiple observed items or measured indicator variables (Hair et al., 2010). The key advantage of SEM is that it combines both factor analysis and multiple regression analysis while accounting for measurement errors in the estimation process. Thus, as multiple observable indicators are used to provide indirect support for unobserved mechanisms in Papers 3 and 4, SEM is the appropriate data analysis technique. The statistical tool and package used for the SEM analysis was the *lavaan* package in the R statistical software.

### 4.4 Research quality

As assessment of the quality of research findings is important not only for establishing rigor but also for showing authenticity and transparency (Lincoln & Guba, 1985). Thus, quality assessment promotes confidence among the audiences of researchers. The key criteria for assessing the quality of survey-based empirical study such as used in the current dissertation are non-response bias, common method bias, as well as validity, and reliability of measures. In this section, I review each of these criteria and elaborate on how they have been dealt with in this thesis.

***Non-response bias.*** Non-response bias arises when respondents fail to participate in the survey. To check for this potential problem in the survey data, a wave test approach (Armstrong & Overton, 1977) was adopted. This was done by testing the difference between early and late respondents concerning the means of demographic variables through an independent sample T-test. Based on the time stamps of the survey responses, two equal sub-samples were created in each empirical paper and the first sub-sample/observations were taken as early respondents and the last sub-samples/observations were taken as late respondents. The results showed the value for all variables was greater

than 0.05, except for age in Finland (Paper 4), which represented a 2-year gap deemed to be theoretically irrelevant (41 versus 43 years). This shows no statistically significant difference between early and late respondents. Thus, in each paper non-response bias is not a major concern.

**Common method bias.** Common method bias may occur because of measurement errors such as using the same measurement scale for all questionnaires. To rule out this bias, Podsakoff et al. (2003) have recommended a few approaches. In line with previous studies (Shneor & Munim, 2019; Zhang & Chen, 2019) two were adopted in this dissertation. First, Harman's single-factor was used to establish mono-method variance by loading all multi-item constructs to be analyzed in the SEM on a single factor without any rotation in an exploratory factor analysis. Second, the marker variable technique was employed to ensure a more robust evaluation. A five-item construct measuring respondents' perception of satisfaction with life was used as the marker variable. The above approaches confirmed that common method bias was not a problem in the analyses presented in this dissertation since the average variance explained in both approaches, as used in both Paper 3 and Paper 4, was below the recommended cut-off 50% (Hair et al., 2010).

**Validity.** Validity is the degree to which a measure or a set of measures accurately represent the concept being studied (Hair et al., 2010). While there are several categories of validity, the two most frequently considered are convergent and discriminant validity. Convergent validity measures the extent to which measures of the same construct are similar so that correlation between the measures/items are high enough, and hence capture the intended construct/concept (Hair et al., 2010). Discriminant validity, on the other hand, is used to assess the extent to which two conceptually similar concepts are different from each other, where measures/items should only measure what they are supposed to measure and not load on other factors (Hair et al., 2010).

In assessing convergent validity, factor loadings and average variance extracted were used. Factor loadings from confirmatory factor analysis (CFA) were above 0.05 and statistically significant ( $p < 0.001$ ). Again, average variance extracted (AVE) values of all constructs were greater than 0.50 which further confirms convergent validity. To test for discriminant validity, Fornell and Larcker (1981)'s rigorous criterion, based on the recommendation by



Anderson and Gerbing (1988), was applied. Here, AVE values within factors should be greater than the square of their correlations to ensure discriminant validity. This test was confirmed in all the constructs used in this dissertation.

**Reliability.** Reliability is the degree to which the observed variable measures the “true” value and is “error” free, thus it is the opposite of measurement error (Hair et al., 2010, p. 8). Hence, it is concerned with how a concept is measured ensuring consistency in the measure(s). The most common and widely used method for assessing reliability is Cronbach alpha, a reliability coefficient which measures the consistency of the entire scale. Cronbach alpha values for all constructs were greater than the required threshold of 0.70 , with the exception of one variable in in the Finnish data which was very close to 0.7 and within the acceptable range in social science (Cronbach, 1951).

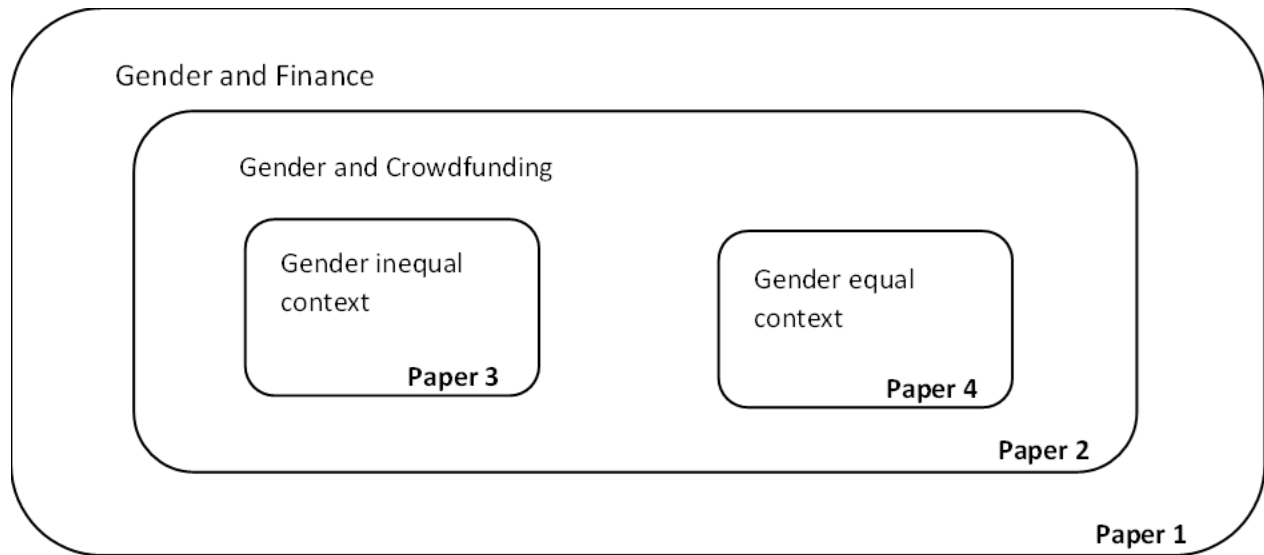
**Trustworthiness.** The literature review papers followed content analyses schemes, and hence subjected to quality criteria underlying trustworthiness in qualitative research (Lincoln & Guba, 1985). Here, credibility was ensured through the subjection of analyses to peer review through conference and journal review processes. Dependability and confirmability were ensured through detailed description of analytical procedures, sources, and content coding schemes. Finally, transferability was ensured through the refining of aggregated findings across contexts, while identifying the most prevalent and consistent findings across studies.

## **5. Key findings**

In this section, I present a summary of how the four papers are connected, related to each other, and complement each other. This is graphically illustrated in figure 1 below.

The first two papers are systematic literature reviews assessing the extent of female entrepreneurs and female funders engagements in financial marketplace, and the factors impacting such engagement. Although there has been growing interest in research on gender and entrepreneurship, the literature is less clear on how females’ representation in entrepreneurial finance has improved over the years. Thus, Paper 1 titled “**Women and Entrepreneurial Finance: A Systematic Review**” uses 113 articles spanning over three

**Figure 1: Focus of each research paper and interconnectedness amongst them**



decades of research to assess the factors that affect females demand for and supply of entrepreneurial finance. Overall, findings in this paper show that studies on female funders are rarer (motivates Papers 3&4), while studies on funding access are more abundant. However, such studies are often characterized by inconsistencies mainly due to a lack of adequate theoretical anchoring (motivates Papers 3&4) and the ignoring of relevant interaction terms. Furthermore, while exploring geographical contexts of the selected articles, the study illustrated that emerging economies have been substantially overlooked (motivates Papers 3). This study proposes an integrative model to emphasize the importance of different intangible and symbolic factors impacting female engagement in entrepreneurial finance from supply and demand sides, while suggesting different avenues for further research.

Paper 1 allows for a general understanding of persistent factors influencing females access to finance and their funding decisions. With the increased popularity of and interest in alternative financing as avenues for greater financial democracy, Paper 2 titled **“Crowdfunding, Gender and the Promise of Financial Democracy: A Systematic Review”** takes a narrower view to assess whether crowdfunding has indeed achieved more democratic engagement in entrepreneurial finance for both men and women. This study

presents an analysis of how crowdfunding has increased financial inclusion and participation of females. Like Paper 1, studies examining funding behavior are few compared to those examining issues related to access to funding (motivates Papers 3&4). Again, the findings show that female participation has increased although still mimicking funding and fundraising patterns in the traditional settings. Together with the development of an integrative framework, the study offers identifies research gaps and their implications for future research. More specifically, the study suggests that scholars should be wary of how context can influence gender conceptualization (motivates Papers 3&4), and hence critically consider whether findings relate to female actors or to people who display feminine characteristics.

Motivated by findings from Papers 1 and 2, paper 3 titled “**Explaining gender differences in crowdfunding contribution intentions**”, explores the gendered nature of crowdfunding intentions from a social feminist perspective. The paper suggests an alternative framework to investigating gender differences in contribution intentions. Accordingly, paper 3 develops a gender-based model which integrates different factors that prior articles have shown to exhibit gender differences. These factors include perceived risk, perceived homophily, self-efficacy, prosocial orientation, and susceptibility in social influence. The study employed SEM to analyze survey responses from 403 participants from Ghana. Findings from the study suggest that perceived homophily has stronger effects on contribution intentions in females while perceived risk has a stronger negative effect on contribution intentions in males. Additionally, the effect of self-efficacy on contribution intentions is stronger in males. However, prosocial orientation’s effect on contribution intentions does not differ between genders. Overall, the study reveals that cognitive antecedents of contribution intentions exert different effects in male and female crowdfunders.

The last paper titled “**Does gender equality matter? – Examining antecedents of crowdfunding backers’ intentions in a gender equal society**” shows the extent to which gender differences prevail in gender equal contexts, specifically with respect to factors influencing funding decisions. Drawing on social feminist theory, we propose that because dissimilar life experiences or socialization tend be minimal in such contexts, antecedents of crowdfunding backing decisions will have similar effects for both males and females.

We study the contribution intentions and behaviour of 556 users of a reward crowdfunding platform from Finland. Here, again we SEM is employed for analysis, while running separate models for male and female users. The findings show that self-efficacy has a positive association with intentions; and that risk perceptions and susceptibility to social influence are not associated with intentions and these do not differ between males and females. However, homophily is positively associated with intentions in females only, while pro-social orientation is positively associated with intentions in males only. For both genders, intentions are positively associated with behavior and that effects on behavior as mediated by intentions follow the same patterns. The findings from paper 4 complement those of paper 3 by showing how gender effects manifest differently in different social context, as captured by their level of gender equality.

## **6. Contributions**

The broader contribution of this dissertation is that it presents concrete evidence and a better understanding on how gender effects vary with context in entrepreneurial finance. Below, I highlight unique contributions of each of the four papers.

### **Paper 1**

- The paper contributes to literature on entrepreneurship and female entrepreneurship by offering a more holistic view and understanding of the current debate on females' access to- and investment of financial resources.
- Another contribution is a redirection of research towards symbolic and interaction factors to help uncover nuances and resolve some of the inconsistencies in the literature.
- It also suggests an integrative gender-oriented framework through conceptual clustering around the level and character of a factor, which is found to be influential in females' participation in entrepreneurship.
- The paper also identifies gaps in the literature and discusses avenues for investigation in future research.

## Paper 2

- The paper contributes to research on the potential of crowdfunding to democratise funding, particularly in terms of gender, by taking stock of over a decade of research at the intersection between crowdfunding and gender.
- Through a theory-oriented framework, the study evinces that females' funding success is significantly associated with external factors. This contributes to the literature on female entrepreneurship and shows that the 'bane' of females are rarely themselves but external factors.
- The study emphasizes key gaps in the literature and the associated opportunities for future research of which the impact of context and conceptualisation of gender is a major one.

## Paper 3

- The paper contributes to literature by problematizing the theoretical limitations of studying gender differences in contribution intentions when using theories that are gender neutral. More specifically arguing this can lead to inconclusive and inconsistent findings and proposing an alternative gender-based framework to investigate gender differences in crowdfunding contribution intentions.
- Responses to calls to shift away from western samples to help ensure a more inclusive knowledge production. The study specifically focuses on Ghana, a marginalised context in crowdfunding sampling.
- Furthermore, the paper presents findings specific to an early-stage crowdfunding industry development in a gender unequal society.
- Another significant contribution here is that from a gender-based model, gender becomes an essential attribute and a starting point of the research but not a mere variable which can be adjusted to examine funding intentions across different countries and across different financing sources.

## Paper 4

- Contributes and extends the extant literature on the supply side of gender dynamics in crowdfunding and entrepreneurial finance in general.

- Advances the entrepreneurial finance literature by moving the discussion on context beyond countries' levels of development to focus on the influence of countries' levels of gender gaps on funding decisions.
- Brings attention to the notion that 'not all equalities are equal' in gender egalitarian countries since gender differences related to crowdfunding intentions and behaviour may exist in such context.

## **7. Limitations and implications for further research**

Like any other research, this thesis has limitations that provides opportunities for future research. Below, I highlight some key limitations in the individual papers and suggest how they can be addressed in future research.

### Paper 1

- The methodology employed in this study has certain weaknesses. The articles included in the study came from three high-quality and impactful databases, however, given the study's research question and the field of female's entrepreneurship limiting articles selection to only journal publication might not be appropriate. Future studies can enlarge the search for papers to other sources such as practitioner articles and reports, while bearing in mind the importance of gender equity to policy makers at national and international levels.
- Additionally, given that the extensive nature of the field of female entrepreneurship, future review studies can combine SLR methodology with bibliometric analysis capturing advantages from both methods.
- Article selection was limited to English language publications. A review covering research in other languages may reveal new findings relating to unique gender conditions emerging from where such languages are used.

### Paper 2

- The articles selected for synthesise included only articles which treated gender as an independent or moderating variable. The findings of this study may be limited as studies that treated gender as a control may unveil other insights.

- Also, given the relatively young age of the crowdfunding industry, the results of the study may reflect early industry dynamics. Indeed, with the ever-greater regulatory requirements and involvement of traditional finance it remains unclear whether crowdfunding will maintain its democratic stance. Thus, future studies examining similar questions based on a more matured crowdfunding industry may reveal differing dynamics.

### Paper 3

- The sample for the study consisted of post-graduate students within the field of business. Not only can the results of the study be biased towards this public, but there may be a high association between the surveyed respondents and investment skills which can influence our findings. A promising avenue for future research is to extend the conceptual framework to students in other fields of study to uncover possible (in)consistent implications.
- One effort may be directed towards testing the boundaries of generalizability of our findings by exploring them in different national contexts characterized by different institutional environments, prevalent levels of gender inequality, as well as different crowdfunding industry maturity levels.
- Another limitation is the context of reward crowdfunding from which data was collected. Similar to suggestions above, generalizability may be tested with respect to applicability to other models of crowdfunding practice, such as equity, lending, as well as noninvestment activities in donations.

### Paper 4

- While we document differences and similarities in the decision making of men and women in our study, the research design limits our ability to capture respondents' perceptions of gender itself. Hence, future research could adopt a qualitative or mixed-methods research designs to enable data collection efforts that can aid a direct study of respondent's perception of gender.
- The study is based on data from Finland, a particular research context which limits the generalization of the results of the study. Alternative finance activities including crowdfunding are growing in many developing or higher gender gap countries towards promoting financial inclusion and financial democracy. Thus, future studies

can conduct comparative analyses uncovering gender gaps and their impact on crowdfunding contribution behaviour in both gender egalitarian and countries with higher gender gaps.

## 8. Dissemination of papers

Below, I present an overview of how papers included in this dissertation have been disseminated and subjected to peer review outside the supervision process and internal seminars. Furthermore, I include an indication of the current status of each paper vis-à-vis its stage along the publication cycle.

**Table 1. Papers in the dissertation**

<b>Paper</b>	<b>Authorship</b>	<b>Conferences/seminars</b>	<b>Status</b>
Paper 1	Co-authored	IECER, 2019 (Utrecht, the Netherlands); EURAM, 2020	Published in Venture Capital
Paper 2	Single-authored	World Finance Conference, 2021	Published in International Journal of Gender & Entrepreneurship
Paper 3	Co-authored	22nd Academy of African Business and Development Annual Conference, 2022	Under review in World Development
Paper 4	Co-authored	Americas Conference on Information Systems (AMCIS) 2022	Under review in Baltic Journal of Management



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# **PAPER 1: Women and Entrepreneurial Finance: A Systematic Review**

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## **Abstract**

The intersection of gender and entrepreneurship has received growing attention in recent years from academics, practitioners, and policy makers. The current paper reviews research on what influences women's demand for- and supply of entrepreneurial finance, while suggesting a conceptual approach untangling contradictory findings in earlier studies. This is achieved through a systematic literature review of 113 carefully selected papers, published between 1989 and 2019. Specifically, the review includes 77 studies dedicated to female access to finance, 32 studies on female investment behaviour, and 4 studies addressing both. We find that inconsistent findings can be traced to a combination of wide theoretical plurality in one half of the studies and an absence of theoretical anchoring in the other half, calling for conceptual integration of existing theories with feminist critiques. Accordingly, we propose integrative conceptual frameworks highlighting the roles of explicit and symbolic factors impacting women's access to- and investment of- financial resources. This approach led us to suggest that refocusing research on symbolic and intangible factors may help uncover new associations, otherwise obscured in earlier research. Furthermore, the inclusion of interaction terms with gender-related variables may also help untangle existing inconsistencies.

**Keywords:** Systematic literature review, entrepreneurship, entrepreneurial finance, gender, women, investment, access to finance.

## **1. Introduction**

Women entrepreneurship is on the rise (Brush, de Bruin, and Welter 2009; Foss et al. 2019). However, despite recorded progress in women taking ever more important entrepreneurial roles in some economies, they still lag significantly behind men in others (Bosma et al. 2020), suggesting that a gender gap in entrepreneurship persists. This persistence has inspired concrete policy efforts at national, regional (e.g. European Union 2016), and global levels as captured by the UN sustainable development goals (UN 2020). These include calls for inclusive and sustainable economic growth through full, productive, and decent employment for all (SDG No. 8); and for enhancing gender equality through improving women's access to economic resources and participation in economic, political, and social aspects of life (SDG No. 5).

One important way to achieve economic growth and empowerment for women is self-employment. However, launching one's own business venture requires access to sufficient sources of finance, which are crucial for all entrepreneurs, and even more so for women (Aidis and Schillo 2017). Hence, an important aspect influencing women's engagement in entrepreneurial venturing relates to their access to- and participation in- entrepreneurial finance markets. Unsurprisingly, a notable portion of earlier research aimed at highlighting similarities and differences between men and women in their engagement with entrepreneurial finance on both the demand and supply sides.

Research into women's demand for entrepreneurial finance show that women are less likely to seek equity capital (Orser, Riding, and Manley 2006), and when they do so, they seek financing at rates substantially lower than that of men (Becker-Blease and Sohl 2007), and with significantly lower valuations (Boulton, Shohfi, and Zhu 2019; Poczter and Shapsis 2018). In the context of reward crowdfunding, women were also found to seek lower sums in their fundraising campaigns compared to men (Gafni et al. 2020). And, with respect to lending, research shows that female entrepreneurs were less likely to apply for credit than male entrepreneurs (Garwe and Fatoki 2012; Treichel and Scott 2006). Instead, females tend to seek funding from family and friends to a greater extent than men (Greve and Salaff 2003).



On the other hand, research into the supply of finance for females finds evidence of discrimination faced by women in access to loans, as well as in the conditions and terms under which they are received (Coleman 2000; Cozarenco and Szafarz 2018; Eddleston et al. 2016; Le and Stefańczyk 2018; Sandhu, Hussain, and Matlay 2012; Treichel and Scott 2006), despite having a better repayment record than their male counterparts (Dorfleitner and Oswald 2016; Lin, Li, and Zheng 2017; Xu et al. 2018). Other studies show that women are disadvantaged in access to venture capital investments (Brush et al. 2018; Geiger and Oranburg 2018; Gicheva and Link 2013; Lins and Lutz 2016). And even when specifically considering female investors as a promising source, female investors are fewer compared to male investors (Harrison and Mason 2007; Mohammadi and Shafi 2018), and when women do invest, they do so with smaller amounts and while expecting lower returns (Romaní, Atienza, and Ernesto Amorós 2012).

Underlying the gender gap narrative are explanations provided by feminist theory, split by Becker-Blease and Sohl (2007) into two main streams, namely - liberal feminism and social feminism. Liberal feminism suggests that differences between men and women originate from women's unequal access to opportunities such as education, employment, social networking, and mentorship. For example, such explanation is used to explain why male dominance in investment firms leads to evaluate men entrepreneurs more favourably than women entrepreneurs, an effect even further exasperated by inherent preferences based on homophily (Boulton, Shohfi, and Zhu 2019; Edelman Linda et al. 2018). Similarly, on the investors' side, some have argued for the value of women-only angel networks and training programmes for mitigating performance and participation consequences of stereotype threat (Harrison, Botelho, and Mason 2020). Social feminism suggests that women and men are fundamentally different thanks to dissimilar life experiences or socialization. This stream corresponds with studies showing women's lower risk tolerance and higher risk aversion (Hervé et al. 2019; Jianakoplos and Bernasek 1998; Powell and Ansic 1997; Watson and McNaughton 2007), tendency to be more collaborative than competitive (Beckmann and Menkhoff 2008; Croson and Gneezy 2009), exhibiting greater sensitivity to others' needs and social cues (Croson and Gneezy 2009; Willer, Wimer, and Owens 2015; H. Zhang and Chen 2019). Here, some scholars argue that the extent of such differences corresponds with culturally constructed gender roles, which women are

socialized into while seeking to achieve gender role congruity (Ahl 2006; Shneor, Camgöz, and Karapinar 2013).

However, the gender gap narrative has its limitations as evident in contradictory findings. Here, several studies found no gender discrimination with respect to the availability of debt finance (Barasinska and Schäfer 2014; Garwe and Fatoki 2012; Haines Jr, Orser, and Riding 1999; Pallegedara 2017), with some even suggesting that women may enjoy better chances to receive loans (Chen, Li, and Lai 2017; Pham and Talavera 2018). In the equity sphere, some research shows only limited differences when comparing male and female investors (Harrison and Mason 2007). Yet other studies claim that gender differences can be explained by structural differences of female owned ventures, rather than by gender differences per se (Stefani and Vacca 2014), and that there is no supply-side gender-based finance gap in certain contexts (Watson, Newby, and Mahuka 2009).

In the current study we seek to take stock of existing knowledge while answering calls to explore the ways in which women entrepreneurs influence or are influenced by entrepreneurial ecosystems (Brush et al. 2019). Accordingly, we engage in a systematic literature review (hereafter ‘SLR’) (Tranfield, Denyer, and Smart 2003) examining empirical studies answering the following lead questions: (1) What impacts women’s access to finance? And (2) What impacts women’s investment behaviour?

Overall, our review covers 113 empirical papers published between 1989 and 2019 and identified through search results on three academic databases, as well as further checks of the references of these papers. The analysis of literature on women’s access to finance includes 81 studies that examined factors impacting various indicators of funding success and the amount raised by women fundraisers in a variety of fundraising models. The analysis of literature on women’s investment behaviour includes 36 studies that examined factors impacting various indicators of women investors’ willingness to fund, investment behaviour, and the level of risk accepted in such investments. Four of the papers covered analyses of both women fundraising and investments, and hence are counted in both.

The findings emerging from the SLR are then refined into aggregate models. Accordingly,

the first model presents the independent variables found to be most frequently and consistently associated with women's investment behaviour across studies, and the second model presents the independent variables found to be most frequently and consistently associated with women's access to finance across studies. Furthermore, and while inspired by Wheadon and Duval-Couteil's (2019) framework of women's barriers to entrepreneurship, our models organize the findings about consistently influential independent variables along the dimensions of the relevant factors' level (individual vs. context) and character (symbolic vs. explicit). The first dimension distinguishes between variables capturing characteristics of the individual fundraiser or investor versus characteristics of the socio-economic context in which they operate (i.e., market, country, industry, etc.). The second dimension distinguishes between variables that have an explicit (e.g., status, resources, etc.) or symbolic (e.g., identities, meanings, values, etc.) character. This results in a typology of four factor types, each representing the different combinations of these dimensions. We later show that such approach helps to disentangle certain inconsistencies in earlier findings, as well as identify research gaps in existing works that may inspire future research.

Overall, we suggest that inconsistencies in earlier research may result from several aspects characterizing current research. First, a combination of wide theoretical plurality in half the studies with a lack of clear theoretical anchoring in the other. A situation indicating a need for theoretical convergence marrying feminist critique with established theories. Specifically, integration with psychological theories for micro-level analyses, and institutional theories at macro-level analyses. Second, investigations into symbolic and intangible factors impact on supply and demand of entrepreneurial finance are often neglected, as they are more difficult to observe and manifest in interactions between gender and facets of culture. Incorporating such variables in both quantitative and qualitative research designs may help untangle conflicting results. And thirdly, we show that both direct and indirect gender effects exist in access to funding, and that some variables while having no direct effect may still serve as moderators of the effects of gender.

In the remaining sections of the article, we first present the methodological underpinnings of the SLR. Next, we present patterns across studies in terms of study characteristics, theory used, and methods employed. We then answer each research question by presenting

relevant findings while developing integrative frameworks that highlight the most frequent and consistent findings across studies. These aggregate frameworks are then critically discussed and are used to further identify gaps in current research practice. Lastly, we conclude by highlighting the study's contributions while suggesting implications for future research and practice.

## **2. Research Method**

We follow the SLR approach based on best practice recommendations as suggested by Tranfield, Denyer, and Smart (2003), while using similar procedures to those employed in earlier influential review papers in the context of female entrepreneurship (Brush 1992; Henry, Foss, and Ahl 2016; Moreira et al. 2019; Wheadon and Duval-Couetil 2019). SLRs help to ensure transparency by detailed reporting of search strategies, inclusion/exclusion criteria for articles. This enhances their replicability, allows assessing their rigor, as well as updating findings in later reviews (Thorpe et al. 2005).

Specifically, we deem the SLR approach as most relevant for our purpose. First, since we aim to present current knowledge while identifying gaps and research opportunities, we needed to follow a clinical and objective approach to our source selection and analysis. Accordingly, we deemed a narrative review approach less relevant since it does not follow a transparent and replicable scientific process, is not concerned with generalizability, and is often more prone to biases (Tranfield, Denyer, and Smart 2003). Furthermore, since we were interested to identify factors with consistent influence over concrete independent variables of interest, we did not follow a bibliometric analysis, which while transparent and replicable, is not concerned about cumulative knowledge about causal relations, and is used for uncovering common themes across studies based on statistical analysis of citation clusters (Kessler 1963). Finally, since we were concerned with the nature of relationships between variables rather than the actual value of their effect size (Glass 1976), we deemed meta-analysis approaches less relevant for our purpose.

## 2.1 Paper Selection

The search for relevant articles was carried out by using three leading academic databases: ISI Web of Science, Scopus, and Ebsco. The search began in July 2019 and concluded in October 2019, concluding with a list of studies covering 30 years of research from 1989 to 2019. The search focused only on peer-reviewed journals in Business, Finance, Management, and Economics that were published in English. This effort was supplemented by a ‘snowballing’ approach, where references of selected papers were examined for tracing additional relevant publications. As in earlier literature reviews, the focus on academic journal articles is followed for ensuring the quality of materials used in the review based on their successful completion of a peer-review process.

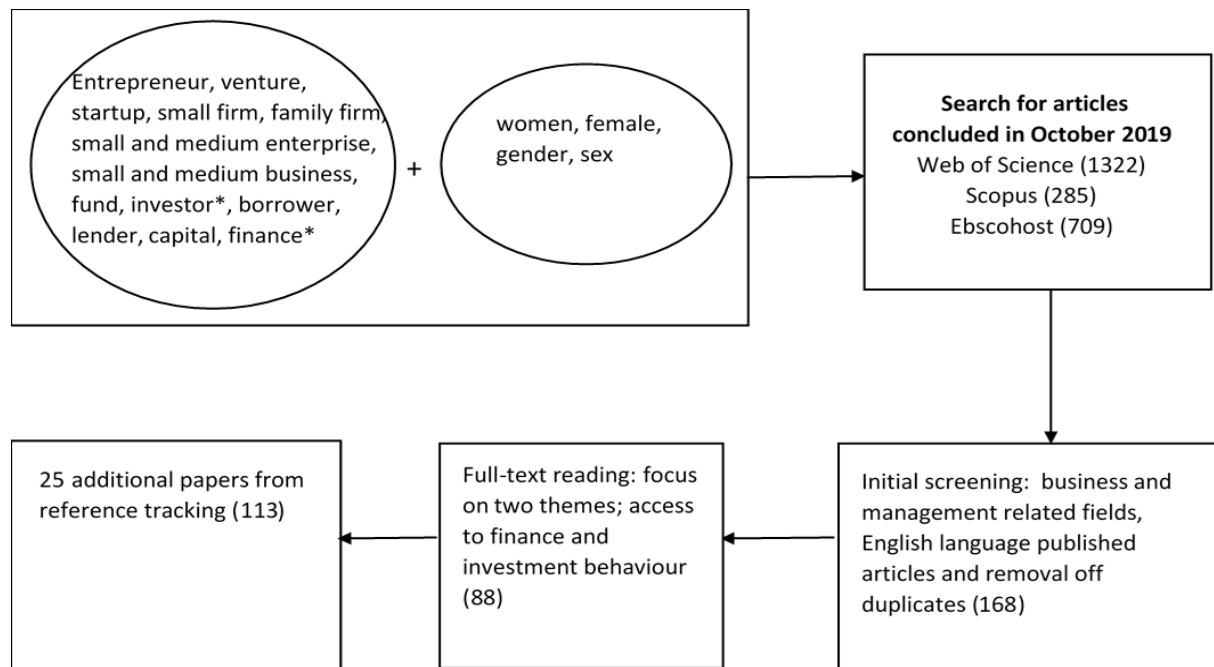
The paper process for paper collection and selection is summarized in Figure 1. First, the search used the following keywords: ‘women’ or ‘female’ or ‘gender’ or ‘sex’ together with various derivations of entrepreneurship, including - ‘entrepreneur\*’ or ‘venture’ or ‘startup’ or ‘small firm’ or ‘family firm’ or ‘small and medium enterprise (SME)’ or ‘small and medium business (SMB)’. Furthermore, to capture investment aspects, we also included derivations of the terms ‘fund\*’ or ‘investor\*’ or ‘borrower’ or ‘lender’ or ‘capital’ or ‘finance\*’.

The search within the Web of Science database generated 1322 hits whereas Scopus generated 825 hits. Ebscohost (EconLit) yielded 709 articles. After removal of duplicates, a review of identified articles’ titles and abstracts resulted in 289 articles in total. At this stage, papers were excluded when not meeting one of the following criteria: (1) relating to female access to finance, or (2) relating to female investor behavior. Here, most excluded abstracts were either related to corporate governance or human resource management but not entrepreneurial finance per se. Alternatively, they did relate to entrepreneurial finance but did not address female access to finance or female investor behavior. Subsequently, 168 papers were included for full-text reading.

The remaining 168 papers were fully read, resulting in the exclusion of an additional 80 papers which while mentioning relevant themes, did not fit our paper’s objectives. First, 14 papers were excluded for not incorporating an empirical examination, as we were interested to investigate evidence of differences between genders or its lack of, rather than

theoretical claims about them. Second, 39 papers were excluded for not actually addressing women access to finance or investment behaviour despite alluding to them in the abstract. Third, 25 papers were excluded since they did not include men in the analysis, as it was deemed challenging to argue that something was either unique or non-unique to females without a comparison group of males. Finally, 2 articles were removed since they represented different publications of same results from same study.

**Figure 1. Flow diagram describing the paper selection process**



At this stage, 88 papers were selected for deeper analysis. To further boost our database, we performed reference checks of the selected articles, which has helped identify 25 additional relevant papers that did not appear in the selected databases. Hence, our analysis covered 113 articles in total. These included 81 articles that explicitly investigated the role of gender in accessing finance, 36 articles that examined female investors' behaviour and financial decision making. In total, there are 117 articles. However, since four papers addressed both accessing finance and investment behaviour in the same article, we report 113 unique papers in total, to avoid the double counting of these four papers. A full list of the selected articles is available at:

*(www.researchgate.net/publication/356594798\_List\_of\_Reviewed\_Articles\_in\_Women\_and\_Entrepreneurial\_Finance\_A\_Systematic\_Review).*

## **2.2 Data Analysis and Categorisation**

As suggested by Tranfield et al. (2003) , a computer-based form was adopted to aid the recording of descriptive statistics and data synthesis. First, the data-extraction included details of authors, journal, publication year, dependent variables, independent variables, study context, reported effects (type, significance, and direction), unit of analysis, country, theory, methodology, paper type and key conclusions from the papers. In the next stage the papers were deductively grouped into the two main themes of access to funding and investment behaviour.

Accordingly, the dependent variables capturing access to funding were aggregated into two main variables- funding success and amount raised. Variables capturing funding behaviour were aggregated into four main variables: willingness to fund, investor funding behaviour, investments made, and level of risk accepted.

To organize the identified independent variables, we build on dimensions adopted from Wheadon and Duval-Couetil's (2019) framework of barriers to female entrepreneurial participation in technological industries. These include the nature of the barrier being either symbolic (referring to sociocultural identities, meanings, and values) or explicit (referring to tangible resources), as well as the level of the barrier as either situated within the individual or outside the individual (context).

Accordingly, combinations of these dimensions allowed us to categorise independent variables harvested from the various studies under common types of variables either as individual symbolic or explicit, as well as either contextual symbolic or explicit variables. Such approach allows us to separate between the explicit and tangible factors that have dominated research, from factors that are more symbolic and intangible, which were less studied in earlier research (i.e., gender roles and stereotypes, implicit bias, motivations, etc.). Furthermore, this allowed us to be more aligned with feminist critique (Henry, Foss, and Ahl 2016), transcending above the mere dichotomy of males and females, and capture

aspects of gender construction and socialization by accounting for symbolic factors at both the individual and contextual levels.

Finally, we answer each research question with an integrative model. Each model incorporating associations of the most prominent and persistent independent variables (including controls). These effects are summarized using the following symbols: ‘P’ (positive), ‘N’ (negative) or ‘NS’ (not significant). To reduce complexity, our framework only includes variables that have been found to have significant effect and followed the same direction appeared in at least two different papers on investment behaviour. Since research on funding access included a larger number of studies, the threshold for inclusion in that framework was set at least five persistent effects across studies in the same direction. In occasions when significant associations were reported with opposing directions, we include the direction with the most frequent occurrences.

### **3. General Findings**

The 81 empirical studies on access to funding were published between 1989 and 2019, exhibiting growth since 2012, and peaking in the past 4 years. Throughout the period, the context of bank financing is the most widely investigated context, with a growing attention to private equity/venture capital (PE/VC) in recent years. Studies examining investment and non-investment crowdfunding emerge in 2014 and have gained momentum since.

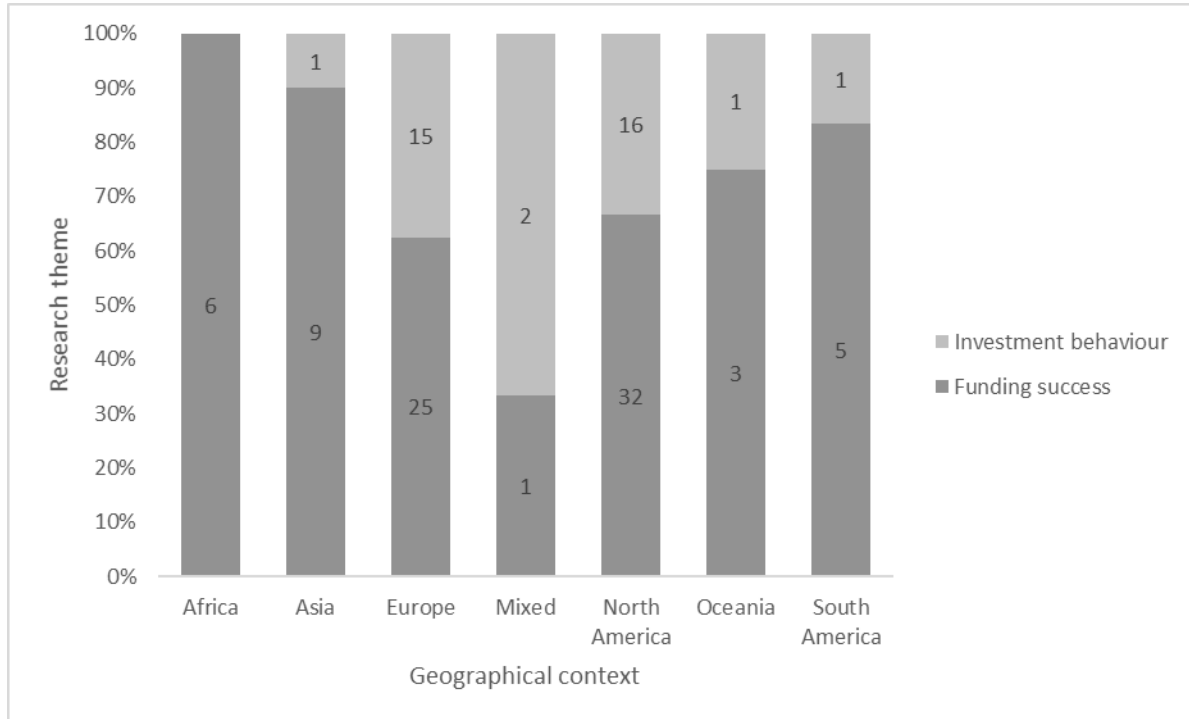
The 36 articles on female investment behaviour were published between 1997 and 2019. The first half of this period was dominated by female investment behaviour in insurance, retirement savings, publicly traded shares, and mutual funds. Studies examining angel investments, PE/VC, and investment-based crowdfunding emerge in 2005 peaking in the past two years.

#### **3.1 Geographical Context**

As shown in figure 2, 32 out of the 81 papers investigating access to finance were from North America, and primarily from the USA. Europe follows with 25 publications mostly covering data from the UK, Italy, Germany and France. The remaining papers originated from other parts of the world: Asia (9), Africa (6), South America (5), Oceania (3), and mixed or unspecified contexts (1).



**Figure 2. List of studies across geography context**



A similar pattern of geographical coverage emerges in studies on investment behaviour, where, again, most papers were from North America (16) or Europe (15). One study each from Asia, Oceania, and South America. The remaining two publications covered mixed or unspecified contexts. Studies on investment behaviour from an African context has been largely unexplored.

### 3.2 Methodological Choices

Table 1 presents the methodological approaches that were adopted by researchers in the reviewed papers, summarized separately for each of the two themes of the current study. We find that studies on access to funding were mostly quantitative with only a few qualitative (3.70%) and mixed studies (2.47%). Accordingly, surveys were the most prominent data collection methods followed by secondary data sources. Studies using secondary data were mostly in the context of crowdfunding harvesting public data from platform websites. An alternative method involved experiments and simulations which represented about 6% of data sources under this theme.

Analytical methods used in this stream of research, are dominated by regression analyses especially binary regressions, which were used in about 75% of all funding access papers reviewed. This was followed by bivariate comparisons and descriptive analysis. The few qualitative studies used a grounded approach, narrative and discourse analysis. The remaining mixed designs used a combination of regression and narrative analysis, and descriptive statistics and narrative analysis.

**Table 1. Themes by reviewed studies research design**

	Behaviour	Funding success
<b>Data collection</b>		
Survey	41.67%	58.02%
Secondary	25.00%	34.57%
Experiment	22.22%	6.17%
Case study	2.78%	-
Mixed data	8.33%	1.23%
<b>Analytical methods</b>		
<i>Quantitative</i>		
Regression	91.67%	93.83%
Structural equation modelling	72.22%	75.31%
Bivariate comparisons	5.56%	-
Descriptive statistics	11.11%	12.35%
<i>Qualitative</i>	2.78%	6.17%
Narrative analysis	5.56%	3.70%
Discourse analysis	5.56%	1.23%
Grounded theory	-	1.23%
<i>Mixed</i>	-	1.23%
Regression and narrative analysis	2.78%	2.47%
Descriptive statistics and narrative analysis	2.78%	1.23%
	-	1.23%

Studies on gender and investment behaviour exhibit similar patterns, where qualitative (5.56%) and mixed designs (2.78%) are in minority. While secondary data sources (25%) and experimental designs (22.22%) are more widely used here, survey data remains the

preferred source of data in most studies (41.67%). This is unsurprising given that, it is through primary data collection (e.g., survey, experiment) that the actual or potential decisions and behaviours towards investments can be observed or stimulated. The context where experimental design has been more frequent is Crowdfunding (Greenberg and Mollick 2017; Johnson, Stevenson, and Letwin 2018; H. Zhang and Chen 2019).

Also, in investment behaviour studies, the dominant analytical technique for quantitative data analysis was regressions, which accounted for almost 72% of studies. The few that employed qualitative analytical techniques have followed content and narrative analyses.

### **3.3 Theoretical Lenses**

In terms of theory, half of all studies on access to finance did not refer to a concrete theory in a consistent manner. Such studies sometimes used a combination of assumptions from different theories, used more exploratory approaches, or referred to findings in earlier studies examining similar variables. Those that did clearly build on theory frequently referred to economic-psychology theories (n=34), while being dominated by discrimination theory (n=24) including both taste-based discrimination (Becker 1957) and statistical discrimination (Arrow 1973; Phelps 1972). Other economic psychology theories included signalling (Connelly et al. 2011), credit rationing (Stiglitz and Weiss 1981), and homophily (McPherson, Smith-Lovin, and Cook 2001). A second related smaller group of studies built on more general decision making theories such as the heuristics systematic model (K.Z.K. Zhang et al. 2014) and the regulatory focus theory (Higgins 1997), which were used in studying investment-based crowdfunding and private equity. A third group of studies has generally referred to institutional theory (DiMaggio and Powell 1983), feminist theory (Fischer, Reuber, and Dyke 1993), and gender role congruity (Eagly and Karau 2002). In this context, institutional and gender theories have sometimes been used in combination, where economic development and gender roles were often associated with normative, regulatory, and cognitive institutional environments. Finally, four papers built on social theories such as network theory (Aldrich 1989) and social learning (Bandura and Walters 1977).

Despite including a smaller number of studies, research examining female investment behaviour reflects a more diverse application of theory across multiple categories. One

group includes studies using decision making theories such as the heuristics approach (Tversky and Kahneman 1974). The second group are studies using general psychology theories applied into economic psychology contexts, and include motivation and self-determination theories (Deci 1971; Deci and Ryan 1985), theory of planned behaviour (Ajzen 1991), expected utility (Pratt 1978), social identification (Schervish and Havens 1997), and homophily (McPherson, Smith-Lovin, and Cook 2001). Next, a small group of studies used gender theories (Fischer, Reuber, and Dyke 1993). Moreover, unique to investment behaviour studies are a few publications that have employed theories such as the role investment theory (Bielby and Bielby 1988) and gender socialising theory (Dalton and Ortegren 2011). Finally, ten papers have developed hypotheses without reference to a clear theoretical anchor. This practice was evident in investigations of both investment and philanthropic behaviours.

In summary, the combination of wide theoretical plurality in half of the studies with a lack of clear theoretical anchoring in the other, jointly suggest a research stream in search of a unifying theoretical anchor. While theoretical plurality must be applauded, it may also be one of the prime causes for inconsistent findings. Once multiple theories have served as inspiration for studies at the intersection of gender and entrepreneurial finance, it may be time to strive towards more theoretical convergence and maturation. Specifically, much merit is to be found in the combination of well-established theories with the critiques of feminist theory. At the micro-level, a combination of feminist and gender theories with general and economic-psychology theories may prove an interesting venue for theoretical convergence in both streams of research. And at the macro-level, a combination of feminist theories with institutional theory may serve the same purpose. In this context, it is worth noting that most studies have relied on micro-level analyses, also indicating that an untapped potential remains for macro-level ones, especially when considering issues of socialization, gender roles and stereotypes when investigating gender differences in entrepreneurial finance.

#### **4. Results**

For conceptual integration of the findings across studies reviewed, we build two gender-oriented frameworks, each answering one of our research questions. For this purpose, we adopt two dimensions from Wheadon and Duval-Couetil (2019) framework of barriers to

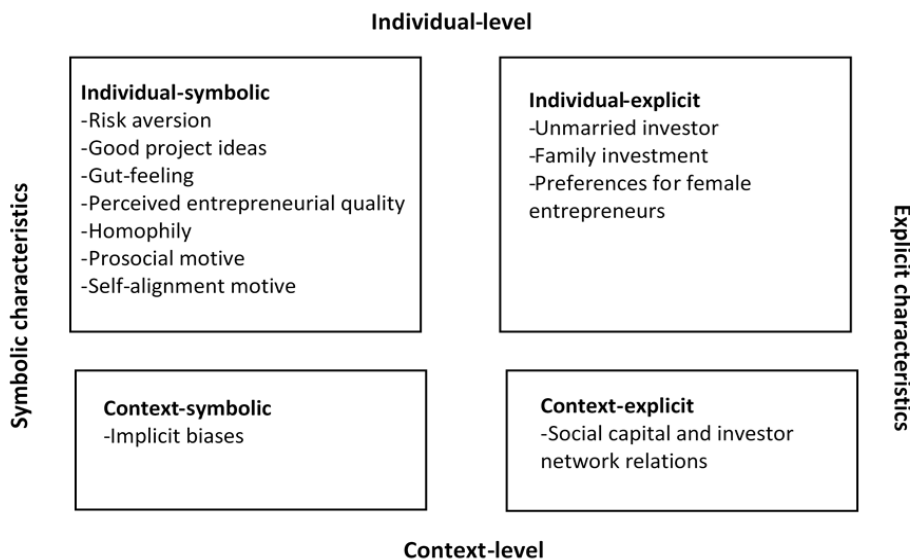
female entrepreneurship, namely – level and character. Level captures whether a variable relates to the individual concerned or to the context in which she is operating. Character captures the extent to which the variable has an explicit (e.g., status, resources, etc.) or symbolic (e.g., identities, meanings, values, etc.) nature. These dimensions are then combined in a matrix into four types of variables – individual explicit, individual symbolic, context explicit, and context symbolic.

#### 4.1 Investment Behaviour: What drives Female Investment Behaviour?

##### 4.1.1 Conceptual clustering

As noted previously, we clustered consistent variables that have been found to influence female investment behaviour along the four clusters identified (see figure 3). Individual symbolic variables include factors which are specific to an individual but are subtle in nature and not easily observable, whereas individual explicit variables are individual-specific but can be more easily observed. When considering context, context-explicit variables focus on aspects external to an individual which are easily observed, whereas context- symbolic are also external to the individual but also cannot be directly observed.

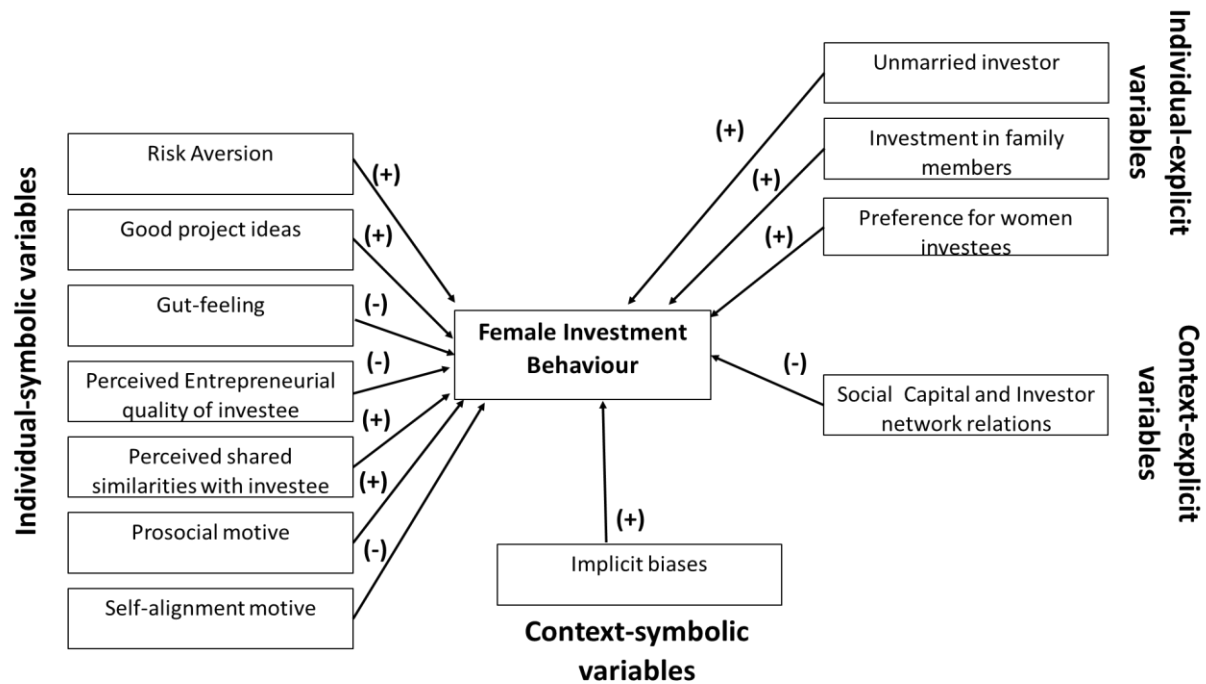
**Figure 3. Conceptual clustering: Factors in female investment behaviour research**



### 4.1.2 Identified effects

Twelve consistent factors have been identified in the 36 papers on female investment behaviour. Figure 4 presents these factors under each of our framework's types.

**Figure 4. Factors related to females' investment behaviour.**



**Individual-Explicit.** Our analysis identified three explicit variables at the individual level. First, findings show that unmarried female investors exhibited higher likelihood of investment behaviour (5P, 3N, 1NS). One explanation for lower levels of married women's investor behaviour may be that the financial decision-making unit shifts to the household rather than the individual. In households, financial decision-making may not be centralized in one spouse, and is often dictated by the relative education level of each spouse (Fonseca et al. 2012), or their control of household savings (Ashraf 2009).

Second, females have a high propensity to make informal family investments (3P) than non-family informal investments. Such preferences may be linked to an interaction between two predispositions more dominant among women including greater risk aversion (Hervé et al. 2019; Jianakoplos and Bernasek 1998; Powell and Ansic 1997) and greater

empathy (Willer, Wimer, and Owens 2015; Williams 1989; H. Zhang and Chen 2019). Here, stronger empathy for close relatives and friends may negatively moderate a general risk aversion, which ends up in females investing more in friends and family while doing this mostly as ‘love money’ with lower return expectations (Maula, Autio, and Arenius 2005; Romaní, Atienza, and Ernesto Amorós 2012).

Third, findings show that female investors commonly invest into female businesses (4P, 2N), in particular, Dale et al. (2017), emphasise that females are more likely to give to the causes of their fellow females. According to Burke et al. (2014), the fear of failure in establishing own ventures by female entrepreneurs also motivates them to put their weight behind fellow female entrepreneurs. Similarly, the banking literature shows that female loan officers tend to approve loan applications of female entrepreneurs (Buttner and Rosen 1989; Wollersheim et al. 2013).

***Individual-Symbolic.*** Our analysis identified seven symbolic variables at the individual level. First, perceived entrepreneurial quality, capturing a fundraiser’s entrepreneurial characteristics, were found to be negatively associated with female investment behaviour (3N, 1P). Here, despite tendency to support fellow female entrepreneurs, research does show that female investors rate female entrepreneurs lower on entrepreneurial attributes compared to male ones (Voitkane et al. 2019).

Some of the explanation to the above, may be found in the fact that perceived shared similarities with fundraisers is evident among female investors (4P, 1N, 1NS). Here, perceived similarities with underserved people has been found to motivate female investors (Greenberg and Mollick 2017). Intuitively, female investors will support other female entrepreneurs because they have a shared sense of the challenges associated with females’ access to funds , and because they share the same gender (Galak, Small, and Stephen 2011; Greenberg and Mollick 2017).

Motivation-wise, female investors are associated with prosocial investments (4P) instead of self-aligned investment motives (2N), in this context Zhang and Chen (2019) emphasise that females invest into projects because of other-orientation (selfless reasons) instead of self-orientation (selfish reasons). The empathetic nature of females in general may explain

this observed pattern (Einolf 2010; Willer, Wimer, and Owens 2015). Two types of indirect effects have been documented with prosocial investments; while Zhang and Chen (2019) find that gender moderates the relationship between funding probability and investment motive, Einolf (2010) and Willer, Wimer, and Owens (2015), show that investment motive mediates the indirect relationship between gender and funding probability.

Another important facet in this context is risk, where female investors generally are known to be more risk averse (4P). Thus, they are more likely to invest into low-risk and safer assets such as bonds and treasury-bills as evident in them making less investments (Hervé et al. 2019) into risky ventures such as young firms, high tech firms, and high equity offering firms (Mohammadi and Shafi 2018). Such preferences are also evident in findings showing that females were less likely to follow gut feelings (2N) in investment decisions and were more likely to invest into what they perceived as good project ideas (2P).

***Context-Explicit.*** Surprisingly, only one influential explicit variable relates to context level. Here, research shows that investors with greater social capital, as often captured by the size of professional and social networks, tend to invest more (2P).

***Context-Symbolic.*** Research here shows that females tend to use implicit biases (2P) in their decision-making process. Wollersheim et al. (2013) argue that female loan officers only favour female entrepreneurs in the absence of debiasing (conscious effort to do away with any conceived biases), yet, male(female) loans are more(less) likely to be approved when there is implicit bias.

## **4.2 What characterises Access to Funding?**

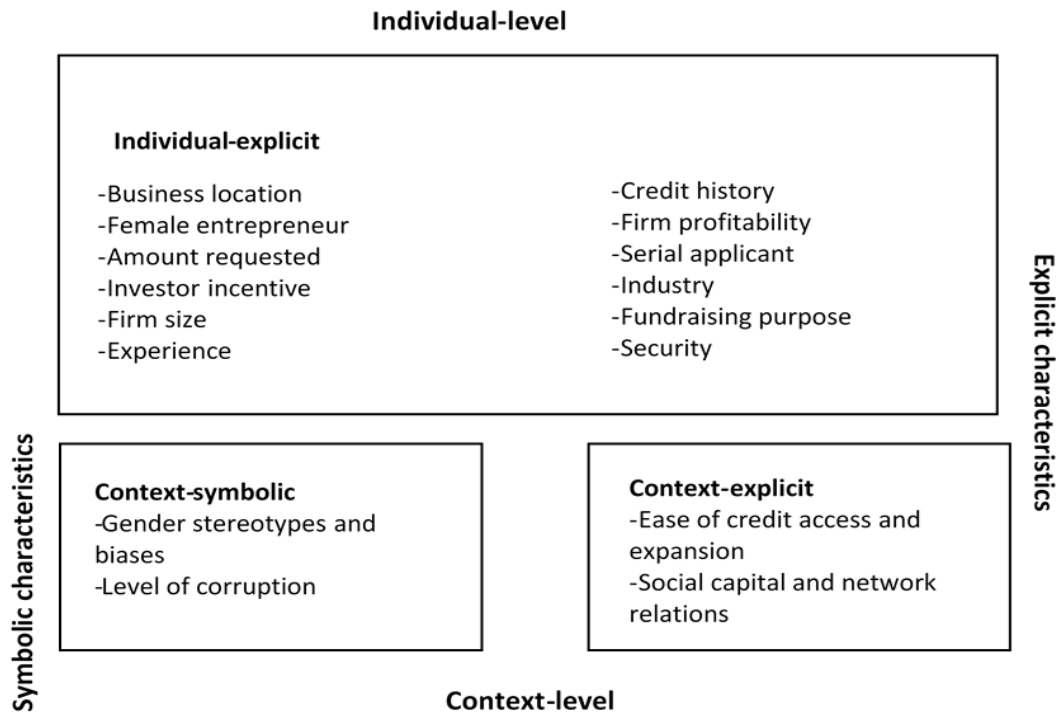
### **4.2.1 Conceptual clustering**

The current review also clusters persistent studied variables affecting funding access along our gender-oriented framework (see figure 4). Individual explicit focuses on internal and observable factors that influences an individual's funding success probability. Context explicit and context implicit capture factors 'outside' of an individual influencing the individual's efforts at being successful at raising funds, but whereas context explicit variables can be observed, context symbolic variables cannot be easily observed. Here,



papers directly studying individual symbolic variables are very rare. Hence, the latter are not included in the figure (summarizing frequent and consistent earlier findings) and represent an important research gap.

**Figure 5. Conceptual clustering: Factors related to funding access research**

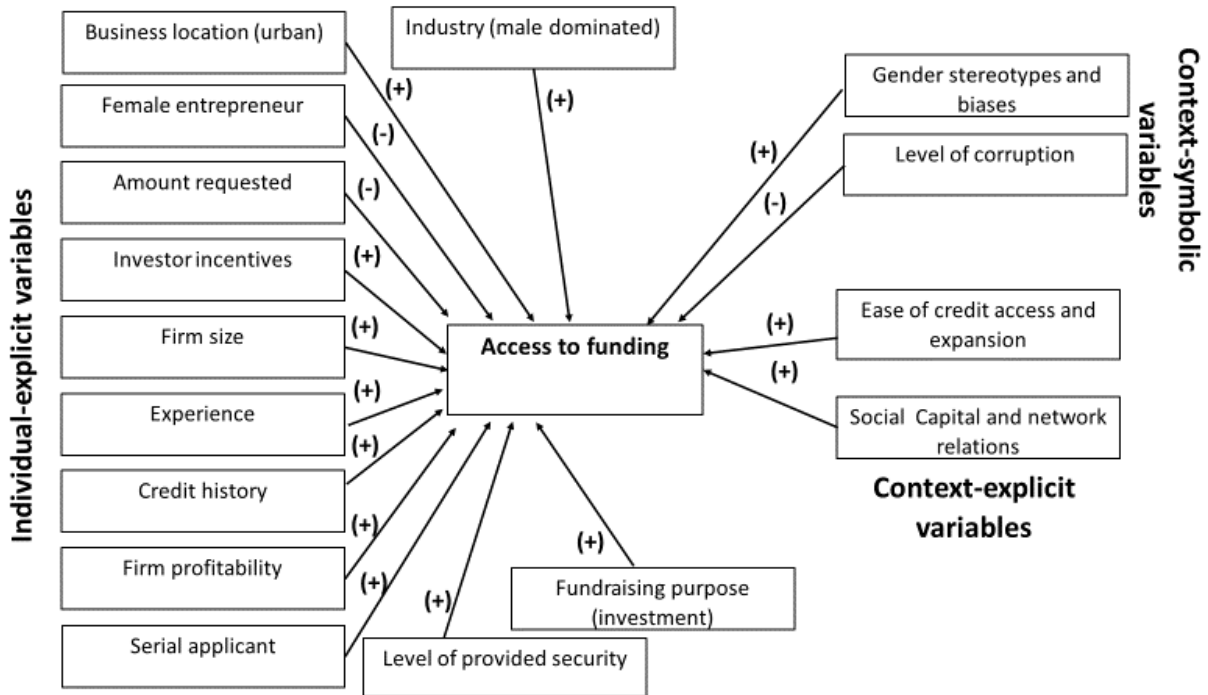


#### 4.2.2 Identified effects

Since most research measured funding access in terms of fundraising effort's success and amount raised, the focus of this SLR was on these measures of the dependent variables. Funding success was mostly measured as a dummy variable (success/no success; funding raised/not raised) in almost all relevant articles. Amount raised was a continuous variable either measured by sums of money raised or a percentage of the target amount that was raised. Few studies have used a combination of these different measures.

Overall, a total of sixteen variables (see figure 5) have been identified to be associated with access to funding in studies that included gender as an aspect of investigation.

**Figure 6. Factors determining funding access.**



**Individual-Explicit.** Factors under this category have received most attention in the literature. Twelve variables were identified as most frequently studied in this category. First, being a female fundraiser has, at aggregate level, a direct negative association with access to funding (8P, 16N). Furthermore, there is a positive relationship between male-dominated industries and funding success (11P, 6N, 5NS), which may signal some form of gender bias, as operations in such industries may come with expectations of conformity with ‘acceptable traits’ of successful entrepreneurship, which often are masculine traits (Alsos and Ljunggren 2017).

In terms of venture characteristics research shows that an urban location was positively associated with access to finance (8P, N, 4NS), versus a rural location. Firm size was positively associated with access to finance (26P, 3N, 10NS). Moreover, when the fundraiser is an individual rather than a venture, longer experience of the entrepreneur was found to have a positive association with funding probability (10P, 5N, 7NS). And so was

having a good credit history, which also increases the probability of being funded (5P, 2N, 1NS), often measured by either an entrepreneur's credit rating or credit score.

The amount requested (7P, 11N, 6NS) and the availability of investor incentives (9P, 2N, 1NS) were also related to funding success. Here, the higher the sum requested by an entrepreneur the less likely it is to be funded. However, the presence of attractive rewards, returns, or interest rates increases funding probability. Unsurprisingly, a positive impact on access to funding was also identified with respect to expected profitability of the fundraising venture (13P, 4N, 6NS).

The number of times a person has sought funding from a particular source is found to be positively associated with access to additional funding (5P, 1N, 1NS). Here, the advantage a serial applicant might gain may result from trust-building with the respective investor (Bellucci, Borisov, and Zazzaro 2010), which may be a more symbolic explanation of the success of serial fundraisers. The provision of securities is positively associated with access to funding (8P, 1NS) when coming in the form of collateral, guarantors, and/or equity stake required. Indeed, some studies show that female entrepreneurs are penalised for not providing security by charging them higher interest rates (Brana 2013; Chen, Li, and Lai 2017). Finally, entrepreneurs that seek funds for investment purposes are more likely to succeed (5P, 2N, 1NS) unlike those that seek funding for consumption purposes (Madill, Riding, and Haines 2006; Sandhu, Hussain, and Matlay 2012).

***Context-Explicit.*** Networking is the only variable that has shown persistence across studies under this category. The positive association with access to funding (7P, 1N, 5NS) resides in the fact that entrepreneurs utilise network relations to gain resources such as finance.

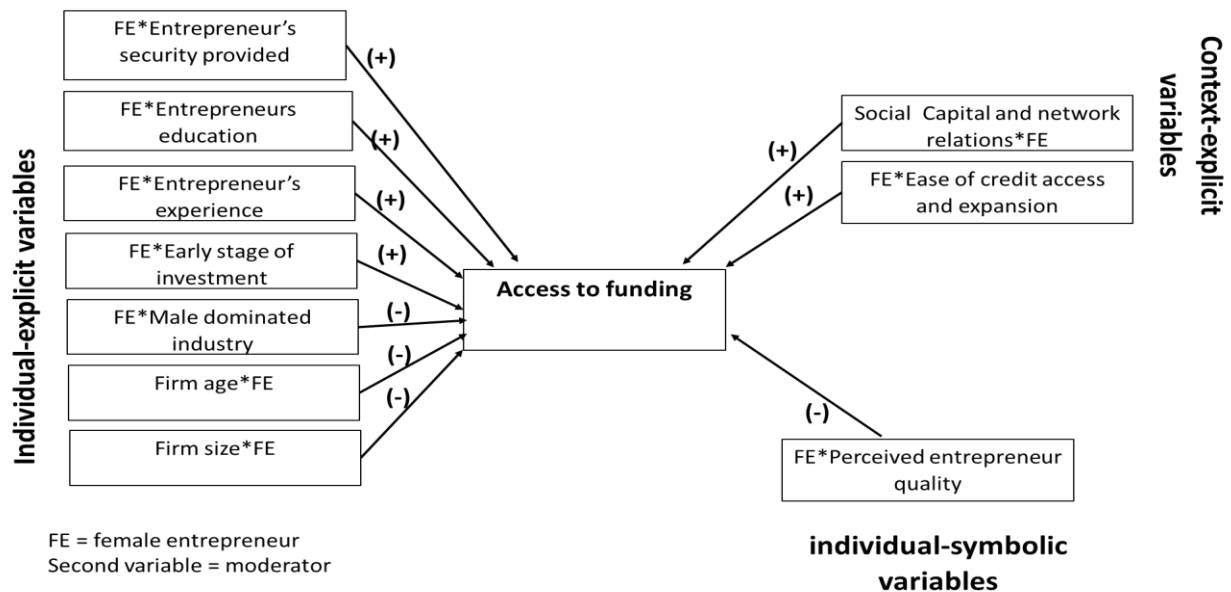
***Context-Symbolic.*** Two influential variables at the country or culture levels have been identified. First, both corruption and lack of transparency negatively affect access to funds (5N, 1NS). In countries where corruption and ineffective accounting systems prevail, people struggle to access funds and in situations where they are granted funding it may come at a higher cost than otherwise would be possible.

Second, gender stereotypes and biases have negative association with funding success, here, such biases are synonymous with feminism because masculine traits are perceived to represent ‘good’ entrepreneurial traits and feminine traits are associated with the opposite (Ongena and Popov 2016). Here, few studies used data from more than one country (e.g. Drori et al. 2020; Moro, Wisniewski, and Mantovani 2017; Muravyev, Talavera, and Schäfer 2009; Wellalage and Locke 2017) and even fewer actually included country/macro-level variables (e.g. Brana 2013).

### 4.3 Gendering Effects

The analysis of articles on access to funding indicates that there are both direct and indirect gender effects. Indirect gender effects result from the interaction/intervening of gender with other attributes reflecting human, financial and social capital in impacting access to funding (Kwong, Jones-Evans, and Thompson 2012). In this context, Verheul and Thurik (2001) suggested that failure to consider the intermediary variables, one is tempted to ignore the existence of any gender effect. Hence, we refer to such interactions as ‘gendering effects’ in the following discussion. Figure 6 summarizes relevant interaction effects.

**Figure 7. Interaction effects in funding access**



Overall, with respect to gender, the findings in the studies reviewed can be categorised into four main groups. The first group of findings only document direct gender effects, whether in a negative or positive direction, as reported in 24 papers (e.g. Guzman and Kacperczyk 2019; Mijid 2014). The second group of findings, presented in 16 papers, show both direct and indirect effects (e.g. Chen, Li, and Lai 2017; Corsi and De Angelis 2017). The third group includes 14 papers which only found indirect effects (e.g. Kim 2006; Kuwabara and Thébaud 2017) and the fourth group includes 21 papers that did not find any gender effect (e.g. Barasinska and Schäfer 2014; Cavalluzzo and Cavalluzzo 1998; Coleman 2000; Stefani and Vacca 2014).

In the latter group, authors report that after controlling for factors related to funder, business, and entrepreneur characteristics, both sexes will have equal chance in accessing funds (Orser, Riding, and Manley 2006; Treichel and Scott 2006). Here, since female entrepreneurs are heterogenous in terms of their individual and business characteristics, such diversity may eliminate any gender-specific effects (Constantinidis, Cornet, and Asandei 2006; Hill, Leitch, and Harrison 2006). Accordingly, such researchers tended to argue that gender is a ‘dead end’ (Ahl and Marlow 2012) in predicting the success of funding especially for female entrepreneurs.

Nevertheless, most of the papers reviewed argue that gender is a relevant and important variable in determining funding success, generally suggesting that females are less likely to get funding (8P, 16N). A wider perspective suggests that there are multiple effects associated with gender either directly or indirectly, where indirect effects involve gender as either a moderator of other factors’ effects, or as a factor whose own effect is moderated by other factors. To identify consistent findings in a relatively narrower research base, only interaction variables that have appeared in at least two papers in the same direction are included in this part of the analysis. The findings show that context-symbolic variables are rarely studied in moderation analysis, thus our study has no discussion on such category of variables.

***Individual-Symbolic.*** A single variable of this type was identified to consistently suggest that perceived entrepreneurial quality of the fundraiser (3P) moderated the association between female founders and access to funding. This suggests that entrepreneurial quality

of fundraiser can help overcome some of the inherent discrimination of females versus males in access to finance.

***Individual- Explicit.*** Here, four variables were found to help overcome some of the negative association between female entrepreneurs and access to funding, including: the extent of the entrepreneur's prior experience (4P, 2NS), level of entrepreneur's education (4P, 1NS), when the business is in an early stage (3P), and the level of security provided by the entrepreneur (7P). However, one factor was found to strengthen the negative effect between female entrepreneurs and access to funding, namely - venturing in male-dominated industries (3P, 4N).

Other studies found gender to be the moderator variable, instead of being the variable whose association with access to funding was moderated. Female entrepreneurs were shown to weaken the relationship between firm size and funding success (P, 3N), and that of firm age and funding success (3N, NS).

***Context-Explicit.*** Overall, studies show that female entrepreneurs further enhance the positive association between social capital and access to funding (5P, 2NS). Furthermore, credit access/expansion as a moderator has been found to enhance access to capital for female entrepreneur (2P). In this context, research shows that countries with high financial development provides females with increased access to finance, but in times of monetary policy constraints, females might face increased credit constraints (Le and Stefańczyk 2018).

## **5. Discussion and implications**

The SLR presented seeks to clear the fog of inconsistent findings about the role of gender in entrepreneurial finance by attempting to identify and refine the most pervasive of findings in research on both female access to finance and female investor behaviour. Having adapted and refined an original gender-oriented framework, we sought to classify consistent effects with respect to four clusters of variables. Such approach helped us to conceptually summarize findings across studies and highlight gaps for further research under each studied theme.

Overall, our results show that individual explicit factors are key determinants of access to funding. This suggests that funders tend to focus more on observable characteristics of entrepreneurs. Prominent among these is the simple identification of the entrepreneur as female, which reduces funding access probabilities. While contextual factors are important factors that could impact funding access (Henry, Foss, and Ahl 2016), they are less studied. An explanation of this may be research designs which favour quantitative studies instead of qualitative studies, which may be better equipped for capturing subtle and implicit factors outside of or within an individual.

Three persistent reasons are presented in the literature for explaining why females are less successful in securing funding: females' lower demand for funding, perceived structural differences, and supply side discrimination (Calcagnini, Giombini, and Lenti 2015; Carter et al. 2007). We propose that lower demand for funding is a result of both perceived structural differences and supply side discrimination. Therefore, perceived supply side discrimination may be associated with direct gender effects whereas perceived structural differences will be related to indirect moderation effects involving gender. Even though, direct gender effects may originate from the view of entrepreneurship as inherently requiring masculine traits, indirect effects can combine with this notion and either enhance it or limit it. Hence, it may be suggested that the conflicting and mixed findings in the literature may result from failure to recognise this subtle but complex situation. Indeed, earlier analyses revealed that both firm age and education level of an entrepreneur were not directly associated with access to finance, however their interaction with gender were. Thus far, only few studies have considered this perspective, as exemplified by Eddleston et al.'s (2016) study in the context of banking.

Clarifying some contradictions in funding access, while firm age and size show a negative association with female entrepreneurs' access to funding, the same variables are directly and positively associated with funding access in studies not controlling for gender. Here, gender role congruity theory may offer explanations. Since preferable entrepreneurial traits are synonymous with males, females may be perceived less attractive in comparison with their male counterparts. Female entrepreneurs may be perceived as either less ambitious, due to their relative risk aversion, or riskier based on concerns that they may abandon their

ventures to follow their more traditional ‘feminine roles’ (Kuwabara and Thébaud 2017) implying that female entrepreneurs’ lower success with fundraising results from their domestic circumstances (Carter and Rosa 1998).

The analysis along the four clusters affecting female investment behaviour presents interesting findings in relation to funding access. Here, while individual symbolic variables are less evident in studies of funding access, they do dominate examinations of females’ investment behaviour. In addition, studies also suggest that explicit individual variables, especially gender-based homophily, is associated with females’ funding decisions. At the same time, we observe that in the presence of implicit bias, female investors are less likely to favour female fundraisers. Indeed, implicit bias as context-symbolic factor is socially shaped by factors outside the individual. Hence, one may argue that in situations of uncertainty, females may fall on familiar social norms implying that masculinity presents desirable entrepreneurial traits (Ahl and Marlow 2012) to access the funding.. Thus, again, such implicit biases may also stem from the risk-averse nature of female investors. In this sense, we observe that risk aversion is associated with females in terms of both conditions preceding access to funding and investment behaviour.

Furthermore, the findings emerging from the reviewed papers support the general perceptions that females are more risk averse and that female entrepreneurs are associated with non-entrepreneurial traits. In this respect, the findings from our review support Wheadon and Duval-Couteil (2019) conclusion that the notion of entrepreneurship as a gender-neutral field, where access to resources is based on merit and equally opportunity, is not supported. Moreover, we observe that both direct and indirect gender effects exist, hence, concluding that gender’s interaction with other factors is important in capturing gendering effects. Thus, we agree with Eddleston et al.’s (2016) suggestion that studies that did not find gender effects are likely to have overlooked interactions effects with relevant moderating factors.

Finally, when comparing between the two themes covered in the review, one can identify that while individual-symbolic factors dominate the implied effects on female investment behaviour, individual-explicit factors dominate the implied effects on females’ access to finance. This may reflect a gap between male and female investors when considering



female entrepreneurs requiring investments. Here, while females consider risk, homophily, and prosocial value creation in investment behaviour, groups of mixed gender investors, often dominated by men, are mostly concerned with explicit aspects of their investment object, such as credit history, profitability, experience and incentives offered.

### **5.1 Opportunities for Future Research**

In addition to the findings presented earlier, our review also identifies several gaps in the literature that may represent promising venues for future research in terms of conceptualization, theory, and methods. First, while we show that all categories of factors are relevant in studying the role of gender in entrepreneurial finance, macro level and symbolic factors have received the least attention so far. Here, an analysis of symbolic societal factors that may suppress female entrepreneurs' access to finance are needed. However, identifying symbolic factors and their possible effects, it may be more fruitful to employ grounded qualitative research designs that will allow researchers to flesh out reasons for the gender differences observed.

Second, a shift in theoretical perspectives is required. The predominance of the discrimination and risk aversion hypotheses in most of the selected papers needs to be challenged, as other important aspects associated with gender differences may emerge as important. These may include, but not limited to, aspects of empathic orientation, emotional intelligence, process vs. outcome orientations, and collaborative vs. competitive orientations; all of which may hold merit. Alternatively, we support earlier scholars' (Brush et al. 2018) suggestions to borrow additional theories from the social sciences (especially psychological and motivational theories). Such theories may include stereotype content model (Fiske et al. 2002), theory of planned behaviour (Ajzen 1991) and self-determination theory (Deci and Ryan 1985), etc. Furthermore, theoretical reflection may also encourage employment of a combination of economic/financial perspectives (e.g., agency theory and resource-based view), with social-psychological perspectives (e.g., entrepreneurship theory, motivation theory) and organizational perspectives (e.g., strategic).

Third, we propose comparative studies across different financing models, as they differ in their underlying motivations for engagement, incentive mechanism, and risk profiles, among other aspects. Compared to other forms of financing, bank finance has dominated

much of the studies on gender and entrepreneurial finance which can be attributed to easy access to data while data from other settings such as angel finance is more difficult to access (Mason and Harrison 2008). Considering that much of the persistent variables found under this study may come from bank setting, it is important to understand how these variables are similar or different in other funding settings.

Additionally, the emergence of alternative finance such as crowdfunding, calls for a comparative analysis between women's engagement in traditional and alternative finance. Previous research suggests that in assessing funding applications in traditional settings, funders expect more qualifications from female entrepreneurs than male entrepreneurs (Fay and Williams 1993). However, in crowdfunding transactions are done online and funders are often less experienced with due diligence (Cumming, Meoli, and Vismara 2021). Thus, research should examine the innovative strategies female investors adopt in these online transactions relative to the traditional offline investment decisions. Previous studies from crowdfunding also show higher chances of success for female entrepreneurs (Gafni et al. 2020; Greenberg and Mollick 2017), and that such effects are consistent in studies examining reward-, donation-, and lending-based crowdfunding (Shneor and Vik 2020). Hence, more specifically for crowdfunding, comparative studies may shed light on females' incentives and motives for using it and whether their use of crowdfunding is a substitute or complement to the other sources of entrepreneurial finance.

Lastly, there are multiple opportunities for testing the generalizability and transferability of persistent effects identified in earlier research into contexts in which they are rarely studied. Here more research is required in non-Western contexts, which have dominated earlier studies. Indeed, examining such contexts are likely to reflect different gender roles and the opportunities that come with them in different socio-cultural, as well as economic development contexts.

## **6. Conclusion**

While entrepreneurial finance research shows that gender is both directly and indirectly associated with access to finance and investment behavior, such studies are characterized by inconsistent findings. The current study identifies the most pervasive effects while reflecting on gaps to be addressed in future research. Overall, we find that risk aversion is

associated with female finance on both the demand and supply sides. Furthermore, we show that individual level factors have dominated research on gender aspects in entrepreneurial finance. However, while explicit factors seem to dominate effects on access to finance, more symbolic and intangible factors dominate effects on female investment behavior.

While our study presents interesting findings it also identifies potential venues for further research. First, more research is required in non-Western contexts, where gender roles in society and the opportunities that comes with them may vary significantly from the Western contexts that have dominated entrepreneurial finance research thus far. Second, more grounded qualitative studies are necessary for fleshing out the driving forces behind the identified gender effects. Here, research should go beyond explanations in risk aversion and discrimination, and attempt to capture mechanisms for circumventing such conditions, as well as additional important factors that have been overlooked in existing research (for example – empathy, emotional intelligence, collaborative vs. cooperative orientations etc.). Third, more longitudinal studies should be incorporated for capturing changes in attitudes, opinions, and financial conditions under which females seek finance, as well as invest it. Fourth, since our review was limited to English language publications, a review covering research in other languages may surface new findings as emerging from unique gender conditions existing where such languages are used. And fifth, as our review followed convention in only including peer-reviewed academic articles, future reviews may follow calls for the inclusion of alternative sources such as practitioner, industry, and government reports for potentially uncovering aspects that may escape conventional academic practice (Massaro, Dumay, and Guthrie 2016).

Finally, our findings also suggest several implications for practice. First, for entrepreneurs seeking finance, when addressing prospective female investors, greater efforts should be placed towards conveying prosocial value creation in the venture, a more thorough review of risks and mitigation strategies should be included, as well as greater use of signaling homophily between prospective investor and investee may all contribute to greater likelihood of success. Second, when female entrepreneurs wish to raise funding, their communication with prospective investors should stress explicit aspects of their venture conditions, ambitions, profitability, and financial viability to enhance their likelihood of

investment. Such information may help in countering expectations about females being less concerned with performance than male entrepreneurs.

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## **PAPER 2: Crowdfunding, Gender and the Promise of Financial Democracy: A Systematic Review**

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### **Abstract**

**Purpose** – The purpose of this study is to review the literature at the intersection of crowdfunding and gender, while examining the extent to which crowdfunding has enhanced female financial inclusion and participation.

**Design/methodology/approach** – A systematic literature review was conducted across 47 studies from 2011 to April 2021.

**Findings** – Most studies suggest that the likelihood of success or failure of female-led campaigns depends on external factors associated with opportunities. The study points to a general trend where although female participation has not achieved its full potential, it is greater than in other channels, while enjoying higher chances of success for female fundraisers. The study highlights gaps in the literature and the associated opportunities for future research emerging from them.

**Originality/value** – This study is the first attempt to summarise and sensitise the literature on crowdfunding and gender. The study highlights the importance of analysing the impact of context on the conceptualisation of gender in alternative finance.

**Keywords** Systematic literature review, crowdfunding, alternative finance, gender, females.

**Paper type** Literature review

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## 1. Introduction

For decades, interest in research on access to finance has increased in parallel with a rise in entrepreneurial finance research. The underrepresentation of minority groups in the financial marketplace has been a subject of interest for entrepreneurial finance scholars and policy makers. More specifically, the underrepresentation of females in the demand and supply of finance has been one of the main themes of entrepreneurship research (Becker-Blease and Sohl, 2007; Xu *et al.*, 2018).

Such explorations are triggered by curious facts, such as those presented in Brush *et al.* (2018), showing that, of the 6793 companies that received venture capital investments between 2011 and 2013, only 2.7 per cent (183) were female-led business. Research has shown that female businesses are not under-represented among funded business because they lack adequate skills or experience (Brush *et al.*, 2018), but rather because they lack the necessary contacts to break through societal chains of widespread bias against females (Eddleston *et al.*, 2016; Wheadon and Duval-Couetil, 2019). Placed in a wider context of gender inequality, the World Bank (2020) estimated that the economic cost of gender inequality globally amounts to USD 160.2 trillion and that closing this gap could yield an economic dividend of \$172 trillion.

Against this backdrop, reports show that the number of women participating in entrepreneurial activities has surged over the years, especially in less developed economies in Africa and the Middle East (MIWE, 2020). While the role of females' contribution to economic growth is profound, the growth in female entrepreneurship is not concomitant with an increase in access to finance. This was underscored in a study suggesting that the increase in female-led firms receiving venture capital funding was found to be partly due to a rise in the overall number of firms funded by venture capitalist (Brush *et al.*, 2018). Consequently, the percentage of female-funded ventures remains very small compared to that of males. Thus, as females continue to struggle to take a larger share of funds from traditional entrepreneurial financiers, the evolution of financial technologies such as crowdfunding may help address these challenges and improve minorities', including female entrepreneurs', representation among funded populations (Malaga *et al.*, 2018; Younkin and Kuppaswamy, 2018).



Financial democracy is at the heart of new forms of entrepreneurial finance which are easily accessible on digital platforms. Underpinning this reality are the advancements in information and communication technologies which have simplified the interaction between investors and entrepreneurs (Griffiths, 2020; Kallio and Vuola, 2020). According to Fisch *et al.* (2020), financial democracy in entrepreneurial finance is the creation of equal access to financial resources for groups which are underrepresented in the sector. Of particular interest is how socially marginalized or disadvantaged people will benefit and experience this shift in entrepreneurial finance on both demand and supply sides. Accordingly, it is expected that on the demand side entry barriers and fundraising costs will be low, and entrepreneurs can solicit for funds from a large and diverse pool of small investors (Butticè and Vismara, 2021). On the supply side, the digitization of entrepreneurial finance increases inclusionary possibilities for underrepresented, unsophisticated, and small investors (Cumming *et al.*, 2019). Therefore, the emergence of digital financial innovations such as crowdfunding ensures greater meritocracy within entrepreneurial finance and is expected to enable greater financial inclusion for both female entrepreneurs and investors who are usually in minority.

Crowdfunding is a method of funding projects by collecting small sums from many people, often through an online intermediary (Belleflamme *et al.*, 2014). Classified into four main types based on the incentives available to the pool of funders – equity (ownership-stake), lending (interest on amount pledged), reward, and donation (non-pecuniary benefits) (Cholakova and Clarysse, 2015) – crowdfunding has the potential to democratise access to finance and provide new investment opportunities for females, who are usually underrepresented in traditional finance. Scholars have argued that, by addressing the crowd, crowdfunding openly removes, at least to a certain extent, some social barriers and biases previously faced by females in traditional finance circles (Cumming *et al.*, 2021; Mohammadi and Shafi, 2018).

Proponents of crowdfunding argue that moving the locus of funding decisions away from a homogenous group of experts to a diverse and larger population of potential contributors may enhance gender equality in access to financial resources. Specially, this democratisation of investment decisions has been found to help female entrepreneurs in fundraising (Greenberg and Mollick, 2017; Johnson *et al.*, 2018), and to increase the

participation of female funders in the creation of new ventures and products through investment (Gafni *et al.*, 2020b; Groza *et al.*, 2020).

Accordingly, expanding the purview of crowdfunding has been at the heart of current policy debates focused on changing investment criteria because of previous evidence of crowdfunding eliminating biases and increasing funding access for minority entrepreneurs (Younkin and Kuppaswamy, 2018). Specifically, these ‘smaller funds’ from crowdfunding may serve as a starting point of support for female entrepreneurs, who commonly face many barriers, towards a longer empowerment journey. More importantly, crowdfunding may be a springboard toward improving female fundraisers’ business acumen, networks and financial literacy, which together will improve their ability to access larger credit facilities from mainstream capital markets.

Considering this, the purpose of this review is to summarise and garner a better understanding of gender-related differences in crowdfunding, while utilising a systematic literature review (SLR) method. While crowdfunding gained prominence about a decade ago, we believe the phenomenon has evolved, which makes this SLR timely. By this, we seek to examine factors that account for mixed findings and gender disparities in terms of participation and success in crowdfunding. While some studies have found gender to be insignificant (e.g. Barasinska and Schäfer, 2014) others have found gender to be significant in favour of males (e.g. Geiger and Oranburg, 2018) or of females (e.g. Johnson *et al.*, 2018). Therefore, it is also important to become aware of certain deficiencies in the literature, both conceptually and methodically, in order to increase our understanding of the factors that sustain gender inequalities and how these factors can be addressed in a sustainable manner. Consequently, the study is focused on addressing the following three key questions.

1. What specific conditions account for gender differences at each stage of the crowdfunding process?
2. How do researchers conceptualise gender within this field?
3. To what extent has this new form of fundraising achieved the promise of financial democracy by offering females an equitable alternative path in the entrepreneurship funding process?

To answer these questions, we adopt the SLR process recommended by (Tranfield *et al.*, 2003), where we analyse 47 selected articles through the Motivation-Opportunity-Ability (MOA) model (Ölander and Thøgersen, 1995). The MOA model emphasises the need to understand consumer behaviour from three main perspectives: motivation, ability and opportunity. This approach was adopted to facilitate theory development and increase a better understanding of the female behaviour in crowdfunding. While ‘conversional’ review studies tend to organise the accumulated learnings of the selected articles under themes both deductively and inductively, we believe that such an approach will not help to adequately conceptualise the intersection between crowdfunding and gender. Thus, the analysis focuses on gender-related differences of participation in the entire crowdfunding process from initial campaign activities to post-campaign activities.

This review is the first attempt to critically examine the corpus of literature on crowdfunding and gender. This effort presents the following contributions: (1) providing a detailed discussion of prior research, such as examining studied factors in each crowdfunding stage, theories used and methodological consideration and divergence of prior findings; (2) showing that campaign success of female fundraisers is mostly affected by external factors, both those that work to the advantage of female fundraisers (such as perceived trustworthiness) and those that inhibit their funding access (such as gender prejudice); (3) proposing and analysing existing research gaps, most importantly with respect to the impact of context on the conceptualisation of gender in alternative finance; (4) suggesting wider implications and the development of long-term solutions for systemic and persistent gender inequalities; and (5) contributing to ongoing discussions on financial inclusion and democracy of digital finance in a broader sense where crowdfunding is one context.

The remainder of the study is structured as follows. First, an introduction into gender conceptualisation in entrepreneurship, an exposition on female empowerment, and the promise of greater financial democracy in crowdfunding are all presented. Next, the SLR approach and methods are presented. Descriptive statistics and key findings are presented followed by a discussing of these findings. The paper concludes with the study’s limitations and avenues for further research, and implications for practice.

## **2. Gender conceptualisations in entrepreneurship research**

The conceptualisation of gender in entrepreneurship research is both inspired and criticised by feminist theory, seeking to both determine the intersection of gender and context in the field and to distinguish between them. A frequent critique highlights a need for a shift in the conceptualisation of gender in female entrepreneurship research, where scholars are encouraged to treat gender as an influence and not just a mere indicator or control variable (Marlow, 2002). The core of the issue is the oversimplification of gender and sex in research, where the meaning and implications of gender differences are not studied when comparing females to males. Furthermore, research on female entrepreneurship has tended to generalise its findings for all types of females without acknowledging heterogeneity in the female group as it may pertain to their male counterparts (Hill *et al.*, 2006) and within entrepreneurship more broadly (Bruyat and Julien, 2001).

Accordingly, some scholars have argued for feminine rhetoric while calling for an urgent change in epistemological position in entrepreneurship research (Ahl and Marlow, 2012). Studies that employ the normative position of positivist epistemologies, without focusing on context and within-group differences, may find problematic assumptions regarding their findings (Wheadon and Duval-Couetil, 2019). The first is the problematic assumption of innate sex differences that eventually ameliorate the ‘othering’ of females as minorities in entrepreneurship and the conception of males as the accepted ones for entrepreneurship (Henry *et al.*, 2016; Wheadon and Duval-Couetil, 2019). The second is the superficial equation of gender and sex. Here, while positivist studies tend to equate gender with sex, post-structuralists argue that gender is a culturally constructed phenomenon that must be differentiated from biological sex, with femininity and masculinity representing two distinct socially constructed guiding norms, identities, and practices (Ahl, 2006; Shneor *et al.*, 2013).

Studies that have investigated entrepreneurial discourses from a gendering order perspective uncover the profound gendered nature of entrepreneurship (Ahl, 2006; Henry *et al.*, 2016). Surprisingly, the framing of males as the norm for entrepreneurs tends to be fictional (Storey, 2011), with differences in males and females being more contextual and relevant in tighter societies (Uzuegbunam *et al.*, 2021). In this SLR, we revisit the recommendation regarding a shift towards feminist critiques in entrepreneurship.

Specifically, we investigate the implications of gender conceptualisation in crowdfunding to assess whether studies continue to only compare males and females, with or without any focus on how the social construction of gender influences relevant practices.

### **3. Crowdfunding and female empowerment**

The extant literature's finding that entrepreneurial finance involves less participation of females than males, both as investors and as entrepreneurs (Brush *et al.*, 2018) implies that females have limited power in influencing global value creation. While the explanation for this observed pattern is mainly attributed to lower-confidence and higher risk aversion amongst females (Hervé *et al.*, 2019; Watson *et al.*, 2009), it may not be just females' average characteristics, but a systematic problem in the way we view and address entrepreneurship. By de-facto excluding a large portion of females, the world misses the value creation potential of a large portion of potential investors and entrepreneurs that can help further economic growth and development. This has led to growing concerns with motivating and recruiting more female entrepreneurs and funders in the marketplace (Acs and Szerb, 2010; Horn and Pleasance, 2012).

According to Evans *et al.* (2018), females' economic empowerment refers to a circumstance that gives females access to financial gain and bargaining power. This implies that, with the appropriate credit programs and entrepreneurial engagements, females can take a greater role in household decision making, have greater access to diverse resources, access greater social networks, enhance their bargaining power, and have greater flexibility and mobility (Datta and Gailey, 2012; Pitt *et al.*, 2006). Pitt *et al.* (2006) provided empirical evidence supporting the view that females' participation in credit markets contributes to female empowerment. Through their entrepreneurial activities, females may have less incentive to invest in consumption and increase their contribution towards real financial investments. How then do we encourage more participation of females while empowering them economically?

This means that females do not have to be full-time investment experts in order to become shareholders of a new business. Furthermore, crowdfunding by democratising access to capital means that females, who have historically been downplayed in traditional capital markets, would gain more access to capital in the alternative capital markets. Thus,

crowdfunding is a timely financing tool that can ensure full participation of females as both entrepreneurs and funders in the marketplace (Groza *et al.*, 2020) and contribute to global value creation.

Crowdfunding also empowers females in the sense that it can contribute to poverty alleviation, where marginalised populations will have access to financial resources for wealth creation, new product development, and innovation that can emerge from their hard work (Yunus, 2007). Indeed, the individual and societal benefits of females participating fully in the entrepreneurial process cannot be overemphasised and crowdfunding can ultimately be a feasible way to help mitigate the resource divide (Groza *et al.*, 2020), where females tend to get a diminishing smaller piece of the resource pie.

## **4. Literature collection and analysis strategy**

### **4.1 Literature collection**

The study adopted a SLR approach, as increasingly applied in management research to ensure an orderly and replicable review (Tranfield *et al.*, 2003). Relevant articles were identified by: (a) searching article collections on the Scopus and Web of Science (WoS) databases; and (b) tracking the references cited in relevant articles that were found. The following keywords were used, based on those employed in prior general literature reviews in crowdfunding and female entrepreneurship (e.g. Brush, 1992; Shneor and Vik, 2020; Wheadon and Duval-Couetil, 2019): ‘crowdfunding’ ‘crowdinvesting’, ‘P2P lending’, ‘peer-to-peer lending’ together with ‘women’, ‘female’, ‘gender’, and ‘sex’. We conducted the SLR on articles from 2011 to April 2021 and the results of this search formed the basis for this article.

At the initial screening process, only peer-reviewed articles were retained, yielding a total of 218 from Scopus and 70 from WoS. Next, the papers were subjected to the following exclusion criteria: (1) removing same papers identified in both databases; (2) papers not published in English (3) papers that are not from business, economic, finance and management; and (4) papers that have used related terms in contexts that are not relevant

to review objectives (such as human resource and corporate governance). After the initial screening, 56 papers were retained for full-text reading.

Paper selection was further refined through full-text reading, while keeping papers that contained empirical analyses of gender dynamics in crowdfunding. Papers that were not based on the four main models of crowdfunding for their empirical data or conceptual developments were not reviewed. Again, articles that treated gender/sex as a control variable are excluded, as such studies tended not to provide explanations for their gender-related finding resulting in limited input for further discourse and theory development. The final process yields a total of 38 articles, to which nine additional papers were added following reference tracking. The 47 articles that described empirical studies AND contained the two search terms (crowdfunding and gender) were used as the primary basis for this literature review. These articles are listed and summarised in a table available at: ([https://www.researchgate.net/publication/356834010\\_Crowdfunding\\_gender\\_and\\_the\\_promise\\_of\\_financial\\_democracy\\_a\\_systematic\\_review](https://www.researchgate.net/publication/356834010_Crowdfunding_gender_and_the_promise_of_financial_democracy_a_systematic_review)).

#### **4.2 Analysis strategy**

A major trap that scholars can easily fall into when conducting a SLR is a ‘descriptive hole’, where authors risk describing only what the papers are saying without making any contribution to academic discussion and/or theoretical contribution. To avoid this, the analysis of this study is streamlined along the Motivation-Ability-Opportunity (MOA) model (Ölander and Thøgersen, 1995).

The MOA model posits that studies on consumer behaviour should include at least three main factors: motivation, ability and opportunity. As a point of departure, the model has been effectively used in studies of consumer behaviour, as well as investment behaviour and strategic policies making (Jackson and Michaelis, 2003). The MOA model assumes that, to achieve consistency between attitudes and behaviour, the behaviour should depend solely on the actor’s free choice; thus, the actor should command the necessary and sufficient will-power, resources, abilities, and technical means to perform the behaviour (Ölander and Thøgersen, 1995). Such an approach is well suited for the present paper as it helps to trace the factors that drive and inhibit female participation in crowdfunding markets, including their motives, abilities and opportunities that emerge.

The components within the MOA framework are defined as follows: (a) *Motivation* represents the underlying reasons to engage in an action that drive the individual's recognition of wants and the means to satisfy them; (b) *Opportunity* captures external conditions that support or inhibit intended action (Nielsen *et al.*, 2016); and (c) *Ability* covers the individuals' personal competences, resources, and knowledge (and the ability to carry out this knowledge in practice. Accordingly, the MOA model was used as the initial deductive coding scheme, helping to categorise key barriers and drivers in the crowdfunding process that were identified in the reviewed papers. Moreover, additional codes were used to record gender conceptualisation and measures, roles of female participant in study (funder vs. fundraiser), theories employed, study contexts (model, platform, country, etc.), and the journal identifiers for each of the reviewed studies.

### **4.3 Descriptive statistics**

Figure 1 shows the number of articles published in each year with respect to each crowdfunding model separately. In early years, publications focused on lending-based models, but after 2016 publications cover additional models including both equity and reward-based crowdfunding. While the general increase of research across models could be related to relatively easy access to data (for example, public data available on platforms), it also indicates growing interest in the extent to which crowdfunding delivers on the promise of greater financial democracy. Surprisingly, papers at the intersection of gender and donation-based crowdfunding are rare and represent a current gap in the literature and opportunity for research.

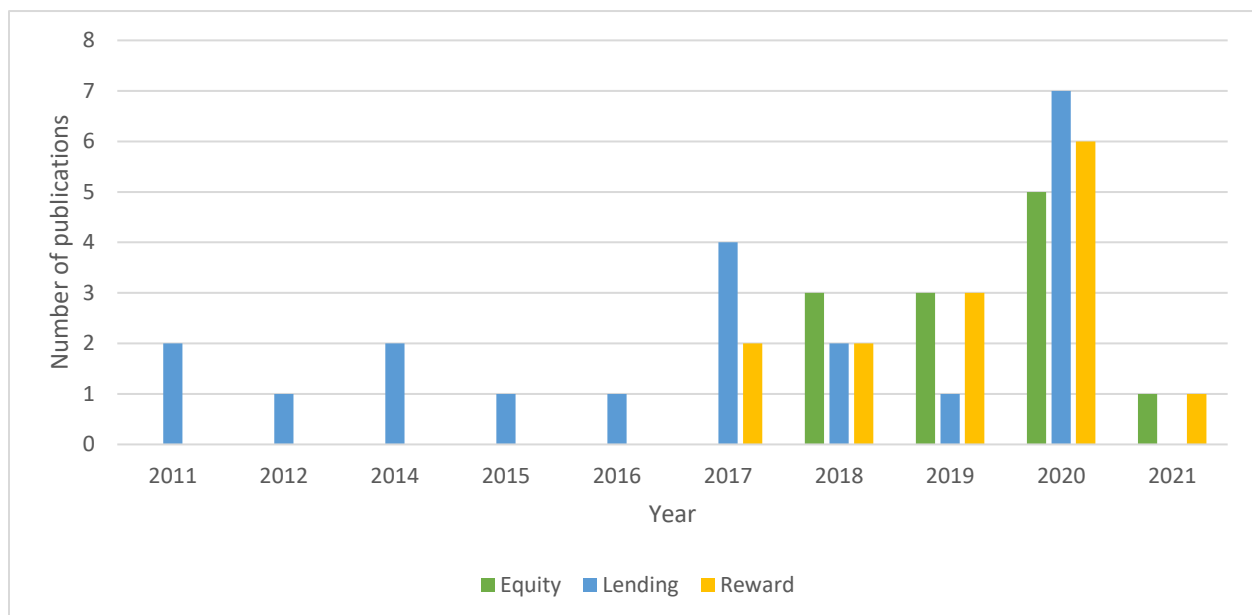
Changes in the crowdfunding models over the years are a direct reflection of the changing conditions of crowdfunding penetration and new platform development in different countries. The dominant platforms in crowdfunding gender studies are Kickstarter (8), Kiva (5), Renrendai.com (5), Crowdcube (3) and Prosper (2). Overall, data from the national contexts of the USA and China has dominated the research field, both in terms of using platform data and other primary data such as surveys.

The wide relevance of this line of research is evident in the diversity of publication outlets, with a total of 41 different journals publishing 47 relevant papers. Four journals published



two articles each: *Management Science*, *Journal of Business Venturing*, *Journal of Business Research*, and *Small Business Economics*. All others published only one paper. However, while the reviewed studies are characterised by rich empirical settings, their theoretical anchoring has often remained weaker. Here, while some studies did employ taste-based discrimination (Becker, 1957), statistical-based discrimination (Arrow, 1973; Phelps, 1972), heuristics (Tversky and Kahneman, 1974) and motivational theories (Deci and Ryan, 1985), 20 other papers did not build or relate to a concrete or clearly-specified theory.

**Figure 1. Reviewed articles on gender and crowdfunding by publication year**



## 5. Main findings

In this section, the findings regarding gender-related differences in crowdfunding practice will be presented in the context of two stages: the funding stage and the campaign performance stage. This will be done with respect to the core elements underlying the MOA framework. Here, while each component will be discussed separately, the interdependencies between these components are also acknowledged. For instance, an

increased ability to perform a certain task will normally have a positive influence on the motivations to do so (Ölander and Thøgersen, 1995).

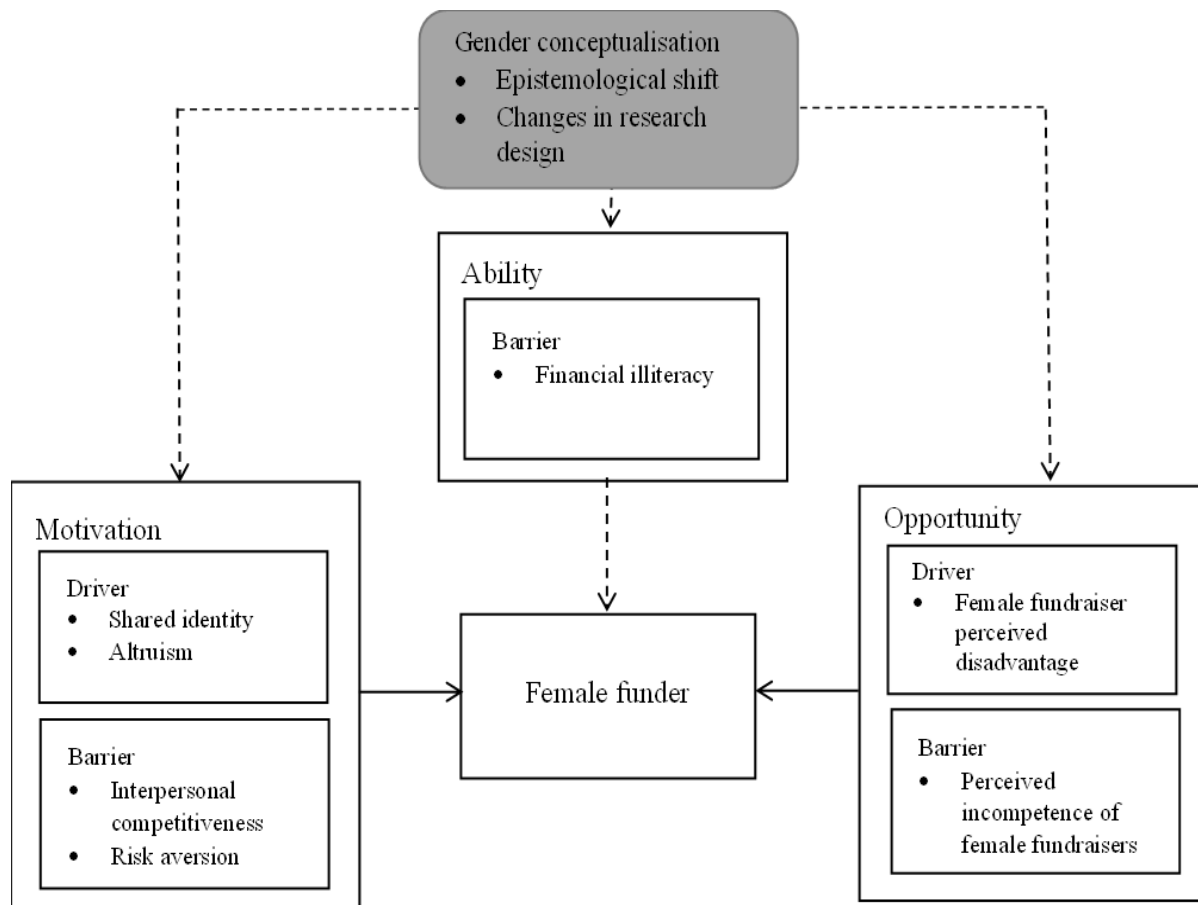
### **5.1 Conceptualisation of gender**

Since gender is often defined differently in various studies, it is first necessary to review actual conceptualisation and measurement of gender in the reviewed papers. Interestingly, the majority of papers measure gender while ignoring the role of contextual factors. Thus, almost all the studies mention gender (socially constructed sex) when in fact they are referring to/measuring biological sex. Such measurement tends to be a dummy variable (1-female, 0-male). Notable exceptions include Anglin *et al.* (2018), which recognised that there is a meaningful distinction between sex and gender, and thereby examined the moderating role of sex and sexual orientations on narcissistic rhetoric and crowdfunding performance. While focusing mainly on sex measurement, Kuwabara and Thébaud (2017) concluded that beauty emphasises femininity, thereby acknowledging a distinction between sex and gender. Battaglia *et al.* (2021) conducted a cross-country study on how gender gaps and inequality impact female fundraisers performance in crowdfunding but neglected contextual factors by focusing on biological sex. Overall, like most gender research, this subfield within crowdfunding is characterised by oversimplification of gendering and a disregard for feminist perspectives.

### **5.2 Gender-related differences in the funding stage**

The funding stage captures funders behaviours in the campaign process. The current review focuses on females as funders. Here, studies tended to predict and measure dependent variables in the form of lending decision, intention to donate, probability of backing, willingness to fund, lending likelihood, and funding intention. Papers that focused on a different phase but still presented findings related to a funding decision were also included in the current review.

## **Figure 2. Integrative framework: female as funder**



Largely neglected: Grey area

Less explored: ----->

Substantially examined: —————>

### *Motivation and female funders*

First, an important motivation mentioned consistently in the literature is the struggle that female funders sense they share with female fundraisers that propels them to support female fundraisers. Surveying a Spanish reward-based crowdfunding platforms, Groza *et al.* (2020) showed that reciprocal obligation and sense of shared struggle to help social ties drives females to contribute more to campaigners in their social networks when they (female funders) have been campaigners before. Another study posits that female funders tend to support female campaigners to overcome the structural barriers associated with the shared categorical identity of being a female (Greenberg and Mollick, 2017).

Second, females show a stronger relationship between altruistic motivation and early contributions, while men delay their contributions to ensure that they have a meaningful impact in terms of a campaign reaching its goal (Ryu *et al.*, 2020). Furthermore, an investor's gender was also found to moderate the effect of selfless orientation to help others on funding intention, claiming that females are more likely to contribute because of altruistic motives while males are more likely to contribute because of egoistic motives (Zhang and Chen, 2019).

Third, in certain situations, a same-gender dyad in the funder–campaigner relationship reduces funding intentionality and enhances funder competitive motivation (Gonzalez and Loureiro, 2014), and hence carries a negative rather than a positive effect on contribution. Using an online experiment, the authors showed that attractiveness appears to hurt same-gender borrowers and help opposite-gender borrowers in terms of the final lending decisions. A follow-up study suggests that enhanced interpersonal competitive motivation of funders as a result of same gender dyad is heightened when information asymmetry is severe (Loureiro and Gonzalez, 2015). They noted that males only reward higher credit ratings with higher loan amounts if borrowers are of the opposite gender, whereas female lenders allocate larger loan amounts to borrowers with higher credit ratings irrespective of their gender.

Fourth, insights from equity-based crowdfunding research suggest that risk aversion affects the investment behaviour of female investors, where females make larger investments than males in less risky projects (Hervé *et al.*, 2019). These investments are usually in the form of equity in firms that are younger high-tech firms with a higher percentage of equity offerings (Mohammadi and Shafi, 2018).

#### *Ability and female funders*

Chen *et al.* (2018) found that loans invested by females have higher default rates and lower returns than those of male investors. They concluded that female investors have lower financial literacy and lower ability to correctly evaluate default risks than male investors. However, the accumulation of skills and competences over time through investment experience reduces female funders' overreliance on heuristics and homophily activism (Bapna and Ganco, 2020). According to Bapna and Ganco (2020), in equity crowdfunding,

which involves higher-stakes, inexperienced female funders have a preference for fellow females, but among both experienced females funders and male funders (irrespective of their experience) there is no bias favouring one fundraiser gender over the other.

According to Greenberg and Mollick (2017), perceived disadvantage of females in entrepreneurship supports the evidence of homophily from female funders but neither heterophily nor homophily exist for male funders. However, stereotypical view of females as incompetent negatively (positively) affects the funding decision of female funders towards female(male) campaigners (Mohammadi and Shafi, 2018).

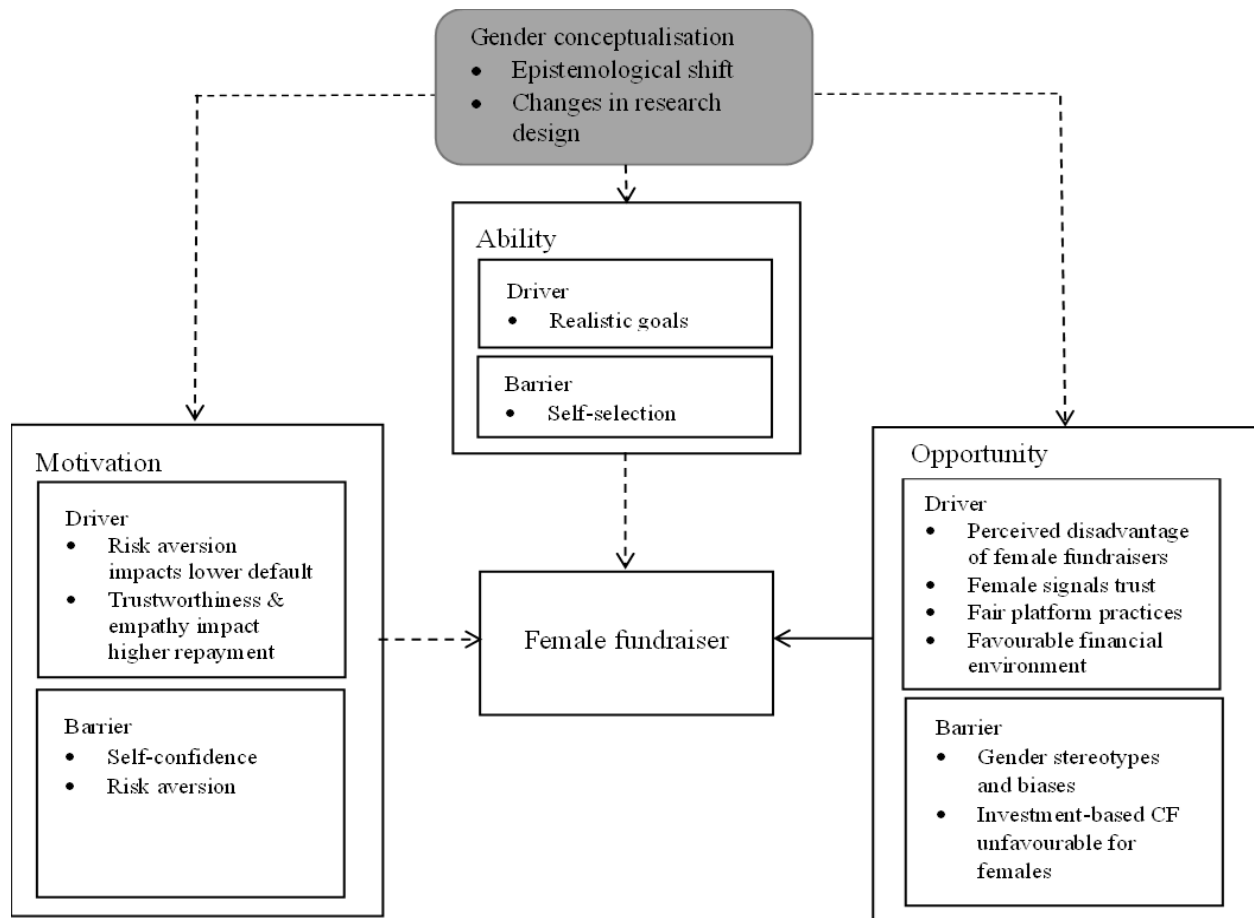
#### *Opportunity and female funders*

Crowdfunding involves a substantial degree of information asymmetry, which further increases in equity crowdfunding, where most amateur funders lack the necessary expertise to perform due diligence (Vismara, 2018). Both sophisticated and non-sophisticated investors rely on conditions from the external environment when assessing possible support and investment in projects. Beyond general bandwagon and herding effects that are evident in crowdfunding more generally (Bretschneider and Leimeister, 2017) as indicators of funders following an opportunity identified by others, research examining the role of gender in following such and other trends remains underexplored.

### **5.3 Gender-related difference in the campaign performance stage**

Campaign performance focuses on internal and external factors affecting individuals' efforts in being successful at raising funds. Here, focusing mainly on female fundraisers, a review of post-campaign activities is presented. Post-campaign activities include additional fundraising rounds, delivery of promised reward deliveries and repayment of borrowed funds. Most studies of campaign performance have measured it as amounts of funds raised, funding success (reaching minimum goal or not), number of backers, campaign failure, percentage of goal funded, time to funding, loan costs, and final interest rate.

**Figure 3. Integrative framework: female as fundraiser**



Largely neglected: Grey area

Less explored: ----->

Substantially examined: —————>

*Motivation and female fundraisers*

Studies of campaigner motivations are limited, and those examining issues relating to gender are even rarer. Nevertheless, fundraisers can have different motivations for using crowdfunding from testing markets to recruiting customer and these motivations can also vary according to the gender of the campaigner.

The studies that have investigated this are all in the context of lending models. Females' risk-seeking behaviour is found to have a positive effect on default risk (Lin *et al.*, 2017).

However, because female campaigners are less risk-seeking, the results indicate that they have lower default rates (Chen *et al.*, 2017). Caglayan *et al.* (2020) showed that unsuccessful female borrowers are more likely to exit the market early than unsuccessful male borrowers, suggesting that lower self-confidence, high risk aversion, and likelihood of unfavourable outcomes among female borrowers inhibit their drive to pursue success. Other studies have shown that trustworthiness and empathy of female borrowers had a significant positive effect on their repayment behaviour (Canfield, 2018; Chen *et al.*, 2017; Dorfleitner and Oswald, 2016), and that female borrowers have better loan quality (survival times) than males overall (Canfield, 2018).

#### *Ability and female fundraiser*

From the ability perspective, setting realistic goals moderates the effect of gender on funding success (Ullah and Zhou, 2020). Female fundraisers are more likely to succeed and raise larger amounts than males because they set realistic goals and deadlines by focusing on positive emotions, vivid and inclusive language use. In equity crowdfunding, however, Malaga *et al.* (2018) found that self-selection hinders female entrepreneurs' representation in the industry and their eventual fundraising success. Female-owned businesses were found to be underrepresented in Title II equity crowdfunding to an even greater extent than what is usually observed in angel and venture capital investments (Malaga *et al.*, 2018). The argument regarding self-selection may be as a result of a lack of knowledge, skills, competence, and the right networks, as previous studies have shown (Verheul and Thurik, 2001). As with other aspects, this remains to be studied and confirmed in a crowdfunding context, and across different models.

#### *Opportunity and female fundraisers*

Opportunities can be external factors, conditions, or perceptions of third parties that can ease/inhibit fundraising of female entrepreneurs since they are usually underrepresented or the disadvantaged ones in entrepreneurial finance. Studies accounting for such factors have dominated the reviewed literature on gender dynamics in crowdfunding. Here, studies suggest that being in a minority or being the disadvantaged one among the pool of fundraisers explains the female entrepreneurs' relative fundraising success, which has been observed in the crowdfunding industry (Anglin *et al.*, 2018; Battaglia *et al.*, 2021; Greenberg and Mollick, 2017) in an effort to help promote gender equality (Zhao *et al.*,

2020). In this respect, just being a female represents an opportunity for successful fundraising via alternative finance channels.

Several papers have concluded that female entrepreneurs and the presence of females in an entrepreneurial team signal trust and competence, which increases funding success. In particular Duan *et al.* (2020) argued that facial trustworthiness of females has a greater impact on their campaign success. The above finding has been consistent irrespective of whether the crowdfunding type is reward-based (Johnson *et al.*, 2018), lending-based (Chen *et al.*, 2017; Kim *et al.*, 2020), or equity-based (e.g. Cicchiello *et al.*, 2020; De Crescenzo *et al.*, 2020). Further, a recent study suggests that signalling the female gender and female-centric message contributes to the funding success of female fundraisers (Wesemann and Wincent, 2021).

From a platform perspective, certain key characteristics and activities of the platforms are associated with female campaigners' success. A reward-based crowdfunding study argued that fair crowdfunding practices and crowdfunding in general empowers females to create healthy businesses, ensuring the continuity and survival of their ventures (Bento *et al.*, 2019). Favourable financial environment and platform characteristics (Barasinska and Schäfer, 2014), and fair crowdfunding practices (Bento *et al.*, 2019) systematically improves females' success, if not rendering the entrepreneurs' gender insignificant. According to Moleskis *et al.* (2019), the social nature of platforms, where funders prioritise female projects, increases female funding success. Closely linked to the above is the popular perception of higher social and economic impact when funding female entrepreneurs (Gafni *et al.*, 2020a; Ly and Mason, 2012). These studies show that female borrowers are funded faster and raise higher amounts than males.

On the other hand, a significant barrier for leveraging such opportunities is gender stereotypes and prejudice against female campaigners (Chen *et al.*, 2017; X. Chen *et al.*, 2020). The literature indicates that deviance from stereotypically feminine gender roles hurts female funding success in reward-based crowdfunding (Anglin *et al.*, 2018), while perceived femininity in the form of attractive female entrepreneurs is perceived to be associated with a lack of fit for them seeking business loans in lending-based crowdfunding (Kuwabara and Thébaud, 2017). Furthermore, biases – both unconscious (implicit bias)



and conscious (statistical and taste-based discriminations) – can negatively affect minorities, especially female fundraisers (Younkin and Kuppaswamy, 2018). In lending-based crowdfunding, scholars have shown that due to the prevalence of taste-based discrimination, males are more likely to be funded than females, but also more likely to default on loans (S. Chen *et al.*, 2020). Chen *et al.* (2017) postulated that females tend to have higher funding probability, but that this is because of the co-existence of costly taste-based discrimination (higher interest rate) and profitable statistical-based discrimination (lower default rate). At the same time, (X. Chen *et al.*, 2020) found that while gender has no significant effect on funding probability, female borrowers must provide lenders with a higher rate of return to obtain a funding success rate comparable to their male peers, despite the higher creditworthiness of female borrowers.

Finally, one paper suggests that different context brings different advantages to female entrepreneurs, where the equity crowdfunding context is less favourable for female fundraisers (Geiger and Oranburg, 2018). The authors found that, unlike other crowdfunding types such as reward-based crowdfunding, the share of female fundraisers in equity crowdfunding campaigns remains low.

#### **5.4 Gender and democratisation of funding**

Table I presents the results of the significances of gender for each crowdfunding type and an analysis of which gender type has a higher funding success likelihood.

We observe that of the 13 papers that come from lending-based crowdfunding, six find gender to be significant with female fundraisers having higher chances of success. Three papers find gender significant, but males are more likely to succeed. However, four papers contend that, in lending-based crowdfunding, the gender of the campaigner has no effect on funding success. This can be explained by the mixing of prosocial lending with return-oriented lending in commercial peer-to-peer loans. Specifically, the mission of prosocial lending platforms such as digital micro-financers involves prioritising female borrowers, so they may therefore inherently prefer them in advance, while for-profit commercial lending usually does not have such in-built bias in its mode of operations.

**Table I. Campaign success according to crowdfunding type by gender**

Crowdfunding type	Is gender significant?	Higher success likelihood	Reviewed Literature
Equity	No		(Cumming <i>et al.</i> , 2021; Malaga <i>et al.</i> , 2018)
	Yes	Females	(Barbi and Mattioli, 2019; Battaglia <i>et al.</i> , 2021; Cicchiello <i>et al.</i> , 2020; De Crescenzo <i>et al.</i> , 2020; Zhao <i>et al.</i> , 2020)
		Males	(Geiger and Oranburg, 2018)
Lending	No		(Barasinska and Schäfer, 2014; X. Chen <i>et al.</i> , 2020; Kim, 2020; Si <i>et al.</i> , 2020)
	Yes	Females	(Chen <i>et al.</i> , 2017; Gafni <i>et al.</i> , 2020a; Kim <i>et al.</i> , 2020; Ly and Mason, 2012; Moleskis <i>et al.</i> , 2019; Pope and Sydnor, 2011)
		Males	(S. Chen <i>et al.</i> , 2020; Hayes, 2017; Kuwabara and Thébaud, 2017)
Reward	No		(Anglin <i>et al.</i> , 2018)
	Yes	Females	(Bento <i>et al.</i> , 2019; Duan <i>et al.</i> , 2020; Gafni <i>et al.</i> , 2020b; Greenberg and Mollick, 2017; Johnson <i>et al.</i> , 2018; Sauermann <i>et al.</i> , 2019; Ullah and Zhou, 2020; Wesemann and Wincent, 2021; Younkin and Kuppaswamy, 2018)

Reward-based crowdfunding has prospects for female campaigners, with almost 90 percent of the reviewed papers under this category concluding that females are more likely to succeed. Most importantly, one study found gender to be insignificant.

From an equity-based crowdfunding perspective, Cumming *et al.* (2021) and Malaga *et al.* (2018) found no significant effect of gender on funding success, while Geiger and Oranburg (2018) found a significant effect, where males have a superior advantage. Finally, five studies from equity-based crowdfunding show that although gender of campaigner influences funding outcome, females have higher probability of success.

Here, it is noteworthy that, across models, females tend to set lower target sums, often referred to as more moderate, realistic, or less ambitious than those that are on average set by men, which helps enhance the likelihood of a female fundraiser's success.

## **6. Discussion**

This study sought to investigate the oft-repeated claim that crowdfunding can democratise funding, and specifically for females, as they are considered to be an underrepresented minority in entrepreneurship in general, and in entrepreneurial finance in particular. Initial classification of the reviewed articles according to the components of the MOA model revealed interesting results with respect to gender-related differences in crowdfunding research. Throughout each stage of the crowdfunding process, most of the findings in the reviewed papers conclude that explanations for participation and success follow the dominant patterns in traditional finance settings.

Our results indicate that while female participation has increased, this does not meet the expectations about participation extent. Further, this suggests that removing structural barriers that affected females' participation in traditional finance may be a necessary condition, but not sufficient for addressing the underrepresentation of females in entrepreneurship (Malaga *et al.*, 2018). More specifically, the underrepresentation of female investors may also be dependent on the crowdfunding-model. In this context, while (Gafni *et al.*, 2020b) showed that on a reward-based platform, females participate at a higher rate as backers than as campaigners, Malaga *et al.* (2018) showed that female participation as both campaigners and investors is low in equity-based crowdfunding. The success of females as campaigners in equity-based crowdfunding may also be context-dependent and may be affected by the structure of the campaign. Using data from platforms in USA and UK, Rossi *et al.* (2020) document that female entrepreneurs who are as successful as their male counterparts tend to set lower targets in UK markets.

While the extent of female participation varies, a majority of studies show that those who do participate tend to enjoy greater likelihood of success across different crowdfunding models. Attempts to explain this situation suggest a convergence of arguments from different theories. For instance, stereotype content theory has been used to explain higher

success for females in equity-based (Cicchello *et al.*, 2020; Zhao *et al.*, 2020) and reward-based (Johnson *et al.*, 2018) crowdfunding.

The core of financial democracy in terms of gender is that by replacing a small set of ‘gate keeper’ with a diverse pool of contributors, the significance of a founder’s gender will turn insignificant or at least decline (Cumming *et al.*, 2021). By this, one expects that, compared with traditional financial, crowdfunding will focus on directness and dispersity where platforms can treat entrepreneurs more equally, reduce discrimination, improve delivery of services, and ensure efficient utilisation of funds for all, irrespective of gender. Instead, most of the reviewed papers so far have shown that the prospective funders exhibit a consistent preference for female fundraisers over male fundraisers. Indeed, a paper examining factors that lead to failure in crowdfunding found that it is more likely to occur in firms that have no female founders (De Crescenzo *et al.*, 2020).

As shown in the results section, the overwhelming majority of articles ignore contextual factors that may affect gender roles, norms and identities, while simplistically equating sex with gender. Hence, actual gendering measures are missing in current research, which favours biological sex as a simple proxy that is more easily available for the dominant research designs adopted by scholars (for example, web-data scrapping). This is in line with the argument that “efforts to produce reliable, large-scale, robust research were often off-set by an inherent male/female comparative framework embedded in the research design and further highlighted in the analysis of findings” (Henry *et al.*, 2016). A major shortcoming of neglecting contextual factors is that we may lack adequate knowledge about actual factors explaining females’ seemingly advantaged position in crowdfunding practice. It remains unclear whether dimensions of crowdfunding practice inherently fit female gender roles, norms and identities better, or whether females adjust these aspects in a particular way that enhances their success when using crowdfunding.

The analysis along the MOA model aimed to identify whether differences related to gender are evident with respect to different sets of motivations, abilities and opportunities. Here, the findings suggest that the opportunity dimension dominates the narrative around female fundraisers’ success in crowdfunding. Here, the opportunity is the opening up of capital markets to the wider audience, where females can equally fund and fundraise on similar

terms with men, without being locked out of existing networks of gatekeepers, and not limited by an ability and interest to contribute and invest smaller amounts. However, while less prominent than in traditional channels, gender stereotypes and biases against female fundraisers are still evident in certain contexts and may, to a degree, negatively affect funding success.

### **6.1 Limitations and implications for further research**

While this study offers a timely review and synthesis of the research seeking to unveil gender differences and financial democracy in crowdfunding, it also has several limitations. First, the review was limited to articles that captured gender as an independent or moderating variable. Thus, the results may be biased, as studies that captured gender as a control may present other insights. Second, the review was limited to articles published in English. Hence, including research in other languages may unveil new findings emerging from unique gender conditions existing in such language settings. Third, when considering the relatively young age of the crowdfunding industry as a whole, the reviewed studies may reflect early industry dynamics. Future studies examining similar questions based on research in a more mature industry may again reflect differing dynamics, as it remains unclear whether crowdfunding will maintain its democratic stance with ever greater involvement of traditional finance and regulatory limitations in the industry. Fourth, we acknowledge that the findings of this study may be limited to the context of crowdfunding. This implies that further investigations are needed on other forms of financial technologies and digital finance services.

Despite the limitations above, the results of this review can inspire future research, which may include the following key research directions.

First, a more nuanced *conceptualisation and measurement of gender* is needed. In the most general terms, future research should seek to go beyond the use of biological sex for all issues related to gender as the social construction of sex (Ahl, 2006). Here, studies should explore the underlying issues that share gender differences and their impact on facets of crowdfunding practice and behaviour. One possible direction is the separation between biology and feminine vs. masculine traits as recent research shows that investors do not

exhibit bias towards female entrepreneurs but rather towards entrepreneurs that display feminine characteristics (Balachandra *et al.*, 2019).

Second, a more pluralistic use of *research designs* is warranted. Most of the reviewed studies adopted quantitative designs. A major issue with quantitative studies is the lack in adequate focus on context (Ahl, 2006). Such assumptions about gender and the reification of female subordination tend to be perpetuated through objective epistemology (Henry *et al.*, 2016). Another possible concern with this approach is that the heterogeneity within female groups (Hill *et al.*, 2006) and within entrepreneurship (Bruyat and Julien, 2001) might be ignored. Therefore, an approach towards more qualitative, mixed methods and other innovate methodologies could help advance the field.

Furthermore, *extending data collection* to different contexts, such as emerging and developing countries, can enhance our understanding of how different contexts and settings impact gender differences in crowdfunding participation and performance. Our review evinces the dominance of data from the USA and China in the field; however, most platforms operate, and a large portion of transactions occur, outside of those countries.

Third, while the use of the *MOA framework* increased clarity, this clarity often implied *knowledge gaps and shortcomings* in existing research. In terms of motivation, and beyond raising funds, campaigners can have diverse motivations for launching campaigns, including promoting their brand/venture, testing markets, creating awareness, and establishing networks (Gerber *et al.*, 2012). Consequently, it may be interesting to examine whether certain objectives are more prominent in female-led campaigns, or whether campaigners of different genders prioritise objectives differently, as well as explaining the reasons for such differences. Hence, we must understand motivation not only from funders' perspective but from campaigners' perspective and its effect on funding performance.

Similarly, in terms of issues related to abilities, there is room for further research that integrates differences in knowledge, resources, and competences among males and females with both fundraising and funding behaviours. Previous research has found a significant effect of self-efficacy and perceived behaviour control on funding intentions (Shneor and Munim, 2019). However, gender differences in funders' competence, resources or

knowledge, and self-efficacy has received less attention in current literature. Finally, an exploration of other external opportunity conditions, beyond those inherent to the crowdfunding industry, should also be explored through a gender lens (for example, different reactions to campaigns in industries affected differently by the COVID-19 pandemic, environmental degradation, climate change, etc.).

The fourth direction is introducing a longitudinal dimension and the study of *consequences over time*. As shown earlier, research on gender and post-campaign activities are rare and are only available to a degree in the context of lending crowdfunding. Accordingly, post-campaign consequences in reward-crowdfunding may identify gender differences in the ability to maintain relations and communication with supporters, in timely delivery of promised rewards, and in the extent to which one-time backers are turned into loyal customers. From an equity crowdfunding perspective, future research can improve the understanding about gender differences in the survival and growth of firms after the campaign.

Fifth, further research is needed to probe gender dynamics in equity crowdfunding. Research works that have investigated gender-related issues in equity crowdfunding point to increasing greater diversity and different conclusions concerning the investing patterns of female investors. Using data from a UK platform, Vismara *et al.* (2017) conclude that female investors are more likely to invest in the campaigns of their fellow gender group. This finding is in line with those found in other crowdfunding models (e.g. Gafni *et al.*, 2020b; Greenberg and Mollick, 2017). However, Mohammadi and Shafi (2018), using data from a Swedish platform, find the contrary that females are likely to invest in male-led campaigns. These differing findings bring back the question on whether the participation and investing patterns in equity crowdfunding are context dependent. Further, it remains important to understand the contexts and circumstances under which risk aversion reduces females' investment likelihoods (Hervé *et al.*, 2019; Mohammadi and Shafi, 2018) and whether homophily increases females' investment tendencies (Vismara *et al.*, 2017).

The sixth key direction is a growing need for *comparative studies*. Some scholars argue that the democratisation promise may be context-, platform-, or type-specific (e.g. Barasinska and Schäfer, 2014; Geiger and Oranburg, 2018). Since favourable platforms

characteristics and fair crowdfunding practices can influence gender differences in the crowdfunding process (Bento *et al.*, 2019; Moleskis *et al.*, 2019), we encourage comparative studies of platform policies and country market conditions when investigating such relationships.

## **6.2 Implications for practice**

In terms of practice, the aggregate insight may include suggestions for female campaigners, as well as for platform management and policy makers. First, female campaigners should be aware of current opportunities to maximise favourable external conditions to their advantage. This implies tapping into public sentiments of supporting underrepresented females in entrepreneurial circles, as well as the association of female entrepreneurs with greater trustworthiness and realistic projects.

Second, platform managers may consider investments in training tweaked specifically for female fundraisers, strengthening certain aspects of financial literacy and budget planning, reducing risk perceptions surrounding crowdfunding through examples and exercises, as well as helping to formulate marketing strategies that leverage aspects where females are viewed more favourably by crowd supporters (trustworthiness, realism, etc.).

Finally, relevant policy makers dedicated to the promotion of gender equality, and involvement of females in entrepreneurial venturing may incorporate crowdfunding education and training in their services, as well as devise certain incentive schemes aimed specifically at encouraging female fundraising efforts (from matching grants to free or subsidised support services).

## **7. Conclusion**

Interest in and attention to gender within the field of crowdfunding have increased over the years, as crowdfunding seeks to ensure equal participation by all, regardless of one's gender, race and geographical location, among others. This study provides the most current review of the literature on crowdfunding and gender, aimed at summarising and synthesising existing knowledge in the field to provide evidence for further research and practice. Using the MOA model, research into gender differences in crowdfunding is



systematically organised for capturing external and internal factors inhibiting or driving the motivations and ability to participate in crowdfunding, as well as the opportunities enhancing them. The study concludes with a concrete list of venues for future research aimed at addressing identified gaps, as well as suggestions for practice.

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## **PAPER 3: Explaining gender differences in crowdfunding contribution intentions**

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Under review in *World Development*

### **Abstract**

Crowdfunding represents digital fundraising channels that may enhance participation of females in project fundraising. The current study aims to analyse the gender differences in effects exerted by cognitive antecedents of financial contribution intentions (CCI) in the context of reward crowdfunding. Specifically, survey data was collected in Ghana, where crowdfunding is at its infancy, and where gender inequality is socially prevalent. Overall, we show that females exhibit significantly higher levels of CCI, perceived risk, homophily, and prosocial orientation, as well as significantly lower levels of self-efficacy. Furthermore, using a between-group analysis in structural equation modelling, we observe that: (1) self-efficacy has stronger effects on CCI in males; (2) homophily has stronger effects on CCI in females; (3) prosocial orientation's effect on CCI does not differ between genders; (4) a stronger effect of susceptibility to social influence on CCI in females is partially evident; and surprisingly, (5) perceived risk has a stronger negative effect on CCI in males. The results, possible explanations, and implications are then discussed.

**Keywords:** Gender, Sex, Female, Women, Crowdfunding, Financial Inclusion, Intentions, Africa, Ghana, Developing Market, Risk, Homophily, Prosocial.

## **1. Introduction**

Crowdfunding is a mechanism for project fundraising, where small sums are collected from many backers via online intermediaries (Belleflamme et al., 2014), and often with limited involvement of traditional financial institutions (Mollick, 2014). Its emergence originates from a combination of the needs of segments underserved by traditional finance (Haddad & Hornuf, 2019), efficiencies afforded through internet technologies (Rowan et al., 2019), and the appeal of ideologies heralding democratization of finance and fairer re-allocation of resources in society through a crowd economy (Bruntje & Gajda, 2016; Shneor et al., 2020). Such, ‘democratization’ effect is made possible through the facilitation of free enterprise and capital accumulation by a wide public, while providing opportunities for reducing social inequalities and overcoming certain discrimination patterns (Greenberg, 2019).

Accordingly, it has been argued that female entrepreneurs may enjoy greater access to finance thanks to the removal of some social barriers and biases previously faced by females in traditional finance circles (Cumming et al., 2021; Mohammadi & Shafi, 2018). This is backed by evidence emerging from recent studies showing that crowdfunding is associated with increased participation of female funders (Gafni et al., 2020; Groza et al., 2020), as well as successful fundraising by female-led ventures (Greenberg & Mollick, 2016; Johnson et al., 2018). Furthermore, recent literature reviews revealed that most crowdfunding studies find that female fundraisers are more likely to succeed than male fundraisers (Serwaah, 2021; Shneor & Vik, 2020).

While these findings present optimistic developments towards closing the ‘gender gap’ highlighted in earlier entrepreneurial finance research (Serwaah & Shneor, 2021), they often emerge from simplistic use of gender as either a control or dichotomous independent variable in related analyses. Here, earlier critique called for the treatment of gender in research as an influence rather than as an indicator, as it better accounts for the actual implications of gender differences (Ahl, 2006; Marlow, 2002). Such approach is in line with social feminist theory, suggesting that women and men are fundamentally different thanks to dissimilar life experiences or socialization (Becker-Blease & Sohl, 2007). Hence, accounting for the ways in which males and females are different is more important than indicating the fact that they are different.

In this study, we wish to bring a social feminist approach to explaining gender differences in effects exerted by various cognitive antecedents on crowdfunding backer intentions. Here, earlier research explaining backer intentionality in crowdfunding have built on a variety of theories including signaling theory (e.g., Ahlers et al., 2015; Kunz et al., 2017; Vismara, 2016), trust theory (e.g., Kang et al., 2016; H. Li et al., 2018; Liang et al., 2019), self-determination theory (e.g., Y. Chen et al., 2021; Wald et al., 2019; Wang et al., 2019), and the theory of planned behavior (e.g., Baber, 2020; Y. Chen et al., 2019; Shneor & Munim, 2019). However, common to all of these approaches is gender neutrality, and hence potential underestimation of implications of gender differences among prospective backers.

Accordingly, we propose an alternative framework that highlights critical ways in which males and females are different and empirically examine their effects on crowdfunding backers' contribution intentions. Specifically, we examine the extent to which perceived risk, self-efficacy, homophily, social orientation, and susceptibility to social influence affect backer intentions differently in males and females. We argue for the relevance of each of these factors based on findings from earlier research at the intersection of gender and related economic behaviors.

Hoping to further amplify relevant effects, we conduct our study in Ghana. This context is deemed relevant for three reasons. First, it represents a fast-growing lower middle-income economy (The World Bank, 2021), where females' access to finance via traditional institutions has been more limited (Buruku & Kudowor, 2020). Second, it represents a social environment characterized by relatively high gender inequality (Conceição et al., 2020; Crotti et al., 2021). Third, crowdfunding has only recently been introduced in Ghana with several platforms already operating in the market overseeing volumes surpassing half a billion USD in 2020 (Ziegler et al., 2021). Fourth, Crowdfunding is currently being reviewed by policymakers as a vehicle for unlocking new sources for economic growth (Bank of Ghana, 2021; Ministry of Finance, 2020). Fifth, we are answering earlier calls for studies of crowdfunding in the understudied African context (Chao et al., 2020). And, furthermore, such approach follows Henrich et al.'s (2010) recommendation of reducing social researchers' reliance on samples from 'WEIRD' societies (Western, Educated,

Industrialized, Rich and Democratic), while accommodating plurality of insights emerging from relevant though less studied contexts.

As such, Ghana represents a new market untainted by crowdfunding experience, where crowdfunding carries specific promise in improving female participation in financial activity in an otherwise gender inequal social environment. Hence, we conduct our analyses based on survey data collected from 403 respondents at a Ghanaian university. Data analyses employed structural equation modelling and a series of quality tests alleviating concerns with various potential biases.

Our results show that females exhibit significantly higher levels of contribution intentions (hereafter 'CCI'), perceived risk, homophily, and moral aspect of social orientation, as well as significantly lower levels of self-efficacy. Moreover, when examining how different aspects affect intentions differently in each gender group, we first find that self-efficacy has stronger effects on CCI in males. Second, homophily has stronger effects on CCI in females. Third, there are no gender difference in the extent which prosocial orientation is associated with CCI. Fourth, we find partial support that susceptibility to social influence may exert stronger effects on CCI among females. Finally, and surprisingly, perceived risk has a stronger negative effect on CCI in males.

Overall, our study presents several contributions. First, we propose and test a novel gender-based model explaining CCI, as inspired by social feminist theory, and accumulated knowledge on gender differences in financial backing and investment behavior. Hence, allowing us to dig deeper into gender as influence and go beyond its common use as an indicator or control variable (Ahl, 2006; Marlow, 2002; Serwaah, 2021). Second, we specifically show differences in the extent to which the cognitive antecedents of self-efficacy, risk perception, homophily, and susceptibility to social influence affect CCIs differently among males and females. And, third, we fill gaps in earlier crowdfunding literature by answering calls for greater use of primary data collected from stakeholders, and for greater coverage of understudied environments such as developing economies in general (Munim et al., 2021; Shneor & Vik, 2020) and African markets in particular (Chao et al., 2020).

In the remainder of the paper, we first present a literature review on crowdfunding backer intentionality. Building on social feminist critique, we then propose a gender-based model as an alternative framework for explaining backer intentionality, while suggesting a series of related hypotheses for testing. Next, we present our methodological choices, which are followed by the results of the analyses conducted. Our findings are then discussed in light of earlier literature, while highlighting both relevant contributions and limitations. Finally, we conclude with implications for future research and practice.

## **2. Literature review**

Crowdfunding backers' behavior and its antecedents has become a growing area of interest in recent years, paralleling the industry's fast growth and wide reach. Here, understanding of people's decision making towards supporting crowdfunding campaigns is viewed as critical for the success of such campaigns and the thriving of the community. Various authors have taken to the task, while building their studies on several well-established theories. One stream includes studies that follow the logic of signaling theory (e.g., Ahlers et al., 2015; Kunz et al., 2017; Vismara, 2016), where various crowdfunding campaign elements are used by prospective backers as informational signals. Such signals help to moderate perceived risks that emerge from the inherent information asymmetry characterizing transactions between people that may not be familiar with each other and may pose different levels of knowledge about the fundraised project.

A second stream draws on trust theory and examines the effects of both calculative and affective trust on funders' intentions and behavior (e.g., Kang et al., 2016; H. Li et al., 2018; Liang et al., 2019). Similar to the previous stream, here as well, the main focus is on gaging information asymmetries through strategic trust management, where certain campaign activities should be amplified under different trust conditions to both leverage existing trust, as well as nurture trust with new contacts (Baah-Peprah & Shneor, 2022).

A third approach focuses on understanding backers' motivations while drawing on self-determination theory (e.g., Y. Chen et al., 2021; Wald et al., 2019; Wang et al., 2019). Such studies focus on identification and satisfaction of both intrinsic (e.g., personal growth, sense of self-worth, sense of happiness, etc.) and extrinsic (e.g., financial returns, products,

social approval, etc.) motivations, as key to attracting prospective backers towards supporting relevant campaigns. Within this stream, there is a group of studies specifically arguing that backers contribution is congruent with enhancing their well-being, and campaigns are more likely to succeed when enhancing backers' experience positive emotions, engagement, relationships, sense of meaning, and sense of accomplishment (Efrat et al., 2020).

Finally, a fourth stream drawing on social psychology views crowdfunding contribution is a volitional behavior subjected to the assumptions of the theory of planned behavior (e.g., Baber, 2020; Y. Chen et al., 2019; Shneor & Munim, 2019). These studies show the roles played by favorable attitudes, subjective norms, perceived behavioral control, and self-efficacy in enhancing backers' contribution intentions and behavior; as well as the extent to which these vary across-cultures (Shneor et al., 2021).

While the above present interesting and valid arguments explaining crowdfunding contribution intentionality and behavior, they draw on gender neutral theories, which may underestimate relevant gender differences. According to social feminist theory, people of different genders go through different socialization experiences resulting in different yet equally valid self-perceptions, motivations, and beliefs (Becker-Blease & Sohl, 2007). Since these cognitive and motivational aspects represent antecedents of intentions and behavior in theories of signaling (Connelly et al., 2011), trust (Hosmer, 1995), self-determination (Deci & Ryan, 1985), and planned behavior (Ajzen, 1991), ignoring the way in which they differ between genders, may camouflage important gender effects. This concern is further exacerbated in light of literature reviews exhibiting systematic documentation of gender differences and particularities in both funding and investment behavior (Serwaah, 2021; Serwaah & Shneor, 2021; Wheadon & Duval-Couetil, 2019).

To address this gap and assess its relevance, we propose a gender-based model for explaining crowdfunding contribution intentions (CCI). We develop the model through identification of critical antecedents of funding decisions for which literature has documented gender differences before. We then argue for the relevance of each antecedent and conclude with a series of hypotheses, which jointly constitute our model. In this respect, the proposed model reflects an integration of earlier findings about gender

differences across theories, while showing both gender differences and, more importantly, the different ways in which they affect CCI and behavior. Here, since little research has examined gender's role in crowdfunding backer intention and behavior, we will draw on literature covering gender and economic behavior in general, and supplement it with relevant studies available in the crowdfunding context specifically.

Furthermore, we specify our model to the context of the non-investment model of crowdfunding known as 'reward crowdfunding'. Under such model, backers provide funding to individuals, projects, or organizations in exchange for non-monetary rewards, products, or services, while accepting a degree of risk of non-delivery on campaign promises (Shneor & Munim, 2019). We focus on this model for several reasons. First, at a global level, the largest portions of female backers is evident in non-investment models of crowdfunding, representing 48% of all backers in reward crowdfunding, and 49% in donation crowdfunding (Ziegler et al., 2021). Second, earlier research shows that females exhibited a higher degree of contribution behavior in reward crowdfunding both when using objective and subjective measurement of such behavior (Shneor & Munim, 2019). And third, since reward crowdfunding is associated with relatively lower sums of average contributions, proximity to familiar concepts of presales and ecommerce (Mollick, 2014), and lighter regulatory requirements than investment models, it can be viewed as an entry stage into crowdfunding with lower thresholds for backer experimentation with novel fundraising methods.

## **2.1 Risk Perception**

Research documents higher levels of risk aversion among women, especially as related to financial decision making and investment behavior (e.g., Becker-Blease & Sohl, 2011; Khor et al., 2020; Powell & Ansic, 1997). Here, it is argued that women are more concerned about venture failure when considering entrepreneurship in general (Wagner, 2007), and hence also adopt stricter decision criteria when considering funding it (Bellucci et al., 2010). Accordingly, a literature review on gender differences related to preferences in economic behavior revealed that females are more risk averse than males irrespective of whether research is set as an experiment or a field study (Croson & Gneezy, 2009). Furthermore, a literature review focusing on female investment behavior, found that risk

aversion is one of the most consistent variables influencing females' investment decisions across studies (Serwaah & Shneor, 2021).

In the context of crowdfunding, some show that females invest less in risky equity investments and invest more in less risky investment such as bonds (Hervé et al., 2019). Even when investing in equity, they tend to invest less in younger firms, those with small teams, and those offering larger shares of equity (Mohammadi & Shafi, 2018; Venturelli et al., 2019), as those signal greater risk. While reward crowdfunding does not reflect the same levels of risk as investment models, it is associated with risks of late or non-delivery on campaign promises (Appio et al., 2020; Zheng et al., 2017). Hence, one can extend the negative relations between risk perceptions and financial backing behavior also into the context of backer CCI in reward crowdfunding. Accordingly, we hypothesize the following:

**H1.** The negative association between risk perceptions and contribution intentions will be stronger in females than males.

## **2.2 Self-efficacy**

Self-efficacy is one's perception about his or her own ability to perform a behavior (Bandura, 1982). Here, earlier research showed that females tend to exhibit lower levels of both confidence (Estes & Hosseini, 1988) and overconfidence (Barber & Odean, 2001) than men in tasks such as financial investments, as well as more general handling of money (Prince, 1993), and, hence, leading to their lower level of involvement in such activities. Even within the financial industry, research shows that female loan officers exhibit lower confidence in awarding credit to un-established borrowers than male loan officers (Bellucci et al., 2010). In the context of equity crowdfunding it has been argued that the combination of low minimum investment requirements and opportunities to accumulate experiences may aid females in improving their investment skills (Bapna & Ganco, 2020), and by extension their confidence towards engaging in them.

Overall, empirical evidence presents a positive association between self-efficacy levels and CCI in reward crowdfunding (Kuo et al., 2020; Shneor & Munim, 2019). However, such



insights do not consider the potential role that gender may have on such effects. Hence, when bringing earlier insights into the relative overconfidence of males in handling money and financials into the reward crowdfunding context, we suggest that such overconfidence will exert a greater influence over CCI in males than in females. Accordingly, we hypothesize the following:

**H2.** The positive association between perceived self-efficacy and contribution intentions will be stronger in males than females.

While both risk perception and self-efficacy may have independent effects on behavioral intentions, the two may also be closely related. Specifically, one can assume that degree of self-efficacy may influence estimations of risks. Indeed, earlier research has often discussed both effects, arguing that low confidence in females explains their risk averting behavior (Barber & Odean, 2001; Croson & Gneezy, 2009; Montford & Goldsmith, 2016), and that evidence of risk aversion is an indication of low self-confidence (Bellucci et al., 2010). Applying this logic into crowdfunding, one can argue that risk may mediate the effect of self-efficacy on CCI. However, since males tend to exhibit greater degrees of confidence, they may be more prone to underestimate related risks. And, in return, such underestimation of risk may further boost their CCI.

**H3 (a).** The negative association between perceived self-efficacy and risk perceptions will be stronger in males than females.

**H3 (b).** The extent to which risk perceptions mediate the effect of self-efficacy on contribution intentions will be stronger in males than in females.

### **2.3 Homophily**

Homophily is the tendency of individuals to associate with others based on shared or similar characteristics (McPherson et al., 2001). In their review of the consequences of homophily, Ertug et al. (2021) highlight that it has both positive and negative aspects, as it can both lead to smoother coordination, better communication, and enhanced trust between actors, as well as limits exposure to relevant knowledge, perspectives, and other resources

that an actor may access through relevant social contacts. In the context of fundraising, homophily has been identified as a critical consideration for funding flows between backers and receivers. Here research shows that perceived homophily influences financial decision making (Stolper & Walter, 2019), investment behavior (Becker-Blease & Sohl, 2007; Qin et al., 2021), as well as loan approval by loan officers (Wollersheim et al., 2013).

One factor which may induce homophily is being members of the same sex. Specifically in the case of women, sex-based homophily goes beyond biological affinity and may also represent corrective discrimination favoring fellow-women fundraisers as members of a minority in otherwise male dominant environments and sectors (Greenberg & Mollick, 2016). Similarly it was shown that women donate more to women-related causes based on shared experiences of the implications of gender inequality (Dale et al., 2017).

In crowdfunding context, research find evidence for an effect of gender-based homophily. In equity crowdfunding, females tend to invest to a greater extent in female led firms (Venturelli et al., 2019), however some highlight that this is evident with respect to inexperienced female investors but not in the case of experienced female investors (Bapna & Ganco, 2020). In reward crowdfunding, research shows that both genders have a tendency to fund entrepreneurs of their own gender (Gafni et al., 2020). Others find that females support friends and family to a greater extent than male backers, and they support fellow female creators to a greater extent than men backers (Groza et al., 2020). A different study suggests an activist form of homophily, where a small proportion of female backers disproportionately support women-led projects in areas where women are historically underrepresented (Greenberg & Mollick, 2016). Building on the above insights, we hypothesize the following:

**H4.** The positive association between perceived homophily and contribution intentions will be stronger in females than males.

## **2.4 Prosocial orientation**

Prosocial orientation is defined as the focus on the needs of others and an inclination to enhance the welfare of others (Côté et al., 2011). Here, research into gender and values

showed that females are more likely to express concern and responsibility for the well-being of others than their male peers (Beutel & Marini, 1995), that empathy is more strongly developed among women (Jolliffe & Farrington, 2006), and that women exhibit stronger tendencies towards cooperative behavior (Furtner et al., 2021). Evidence for this is especially clear in studies of charitable giving, showing that women's higher empathic concern and the principle of care explain women's likelihood to give to charity, give more, and to a wider set of sectors and needs (De Wit & Bekkers, 2015; Mesch et al., 2011; Simmons & Emanuele, 2007).

Similar evidence has also emerged in crowdfunding research. Generally, empathy (Liu et al., 2018), prosocial motivations (G. Li & Wang, 2019), altruistic motivations (Ryu et al., 2020), and concerns with well-being (Efrat et al., 2020), have been found to positively associate with CCI in non-investment models such as reward and donation crowdfunding. When also considering gender, it was showed that the relationship between other-orientation and funding decision was stronger among women, while the relationship for self-orientation was stronger among men (Zhang & Chen, 2019). Furthermore, it has been argued that women's tendency to contribute earlier in the campaign process indicates an altruistic motivation rather than a reward motivation, which better characterizes late contributors (Ryu et al., 2020). Accordingly, we hypothesize the following:

**H5.** The positive association between perceived prosocial orientation and contribution intentions will be stronger in females than males.

## **2.5 Susceptibility to social influence**

Susceptibility to social influence is viewed as one's tendency to change attitudes, intentions, communication, and behavior in response to others' activities (Stöckli & Hofer, 2020). One important aspect of susceptibility to social influence is the willingness to conform with demands and expectations of others in one's social circle (Bearden et al., 1989). With respect to gender, earlier research found that women were more conforming than men in group pressure situations (Eagly & Carli, 1981), tend to experience higher social pressure, and react more strongly when facing social pressure (Croson & Gneezy, 2009).

We suggest that, in the context of crowdfunding, susceptibility to social influence reflects the willingness to conform with expectations of others in one's social circle about supporting crowdfunding campaigns. Here, research in crowdfunding has demonstrated a positive association between a person's perception of subjective norms (the degree of perceived encouragement from close social circle to contribute to crowdfunding) and CCI (Baber, 2020; Shneor & Munim, 2019; Shneor et al., 2021). However, these studies did not examine gender differences. Whence, when applying the findings about women's greater tendency to conform in other contexts, as presented earlier, one can expect that complying with norms about contribution will enhance their intentions to do so. Accordingly, we hypothesize the following:

**H6.** The positive association between susceptibility to social influence and contribution intentions will be stronger in females than males.

Furthermore, research on charitable giving suggested that because women exhibit a stronger principle of care, when faced with expectations to act in line with that principle by their environment, they experience increased social pressure to give (De Wit & Bekkers, 2015). A different study into donation giving found that only females increase donations after receiving social information that suggests generosity to be the prevailing social norm (Goeschl et al., 2018). Furthermore, it has also been shown that women's stronger empathy for members of their close social circle results in them investing more in friends and family as "love money" with lower return expectations (Maula et al., 2005). Accordingly, we hypothesize the following:

**H7 (a).** The positive association between prosocial orientation and susceptibility to social influence will be stronger in females than males.

**H7 (b).** The extent to which susceptibility to social influence will mediate the effect of prosocial orientation on contribution intentions will be stronger in females than males.

Similarly, the relations between susceptibility to social influence and homophily may also be intertwined. Here, earlier research showed that homophily along various demographic characteristics between advisor and advisee were influential in both males' and females'

likelihood to follow financial advice (Stolper & Walter, 2019). And, specifically in crowdfunding, some showed that reciprocal obligation and sense of shared struggle drives females' willingness to contribute to fundraisers, when they themselves have fundraised before (Groza et al., 2020). Accordingly, we hypothesize the following:

**H8 (a).** The positive association between perceived homophily and susceptibility to social influence will be stronger in females than males.

**H8 (b).** The extent to which susceptibility to social influence will mediate the effect of homophily on contribution intentions will be stronger in females than males.

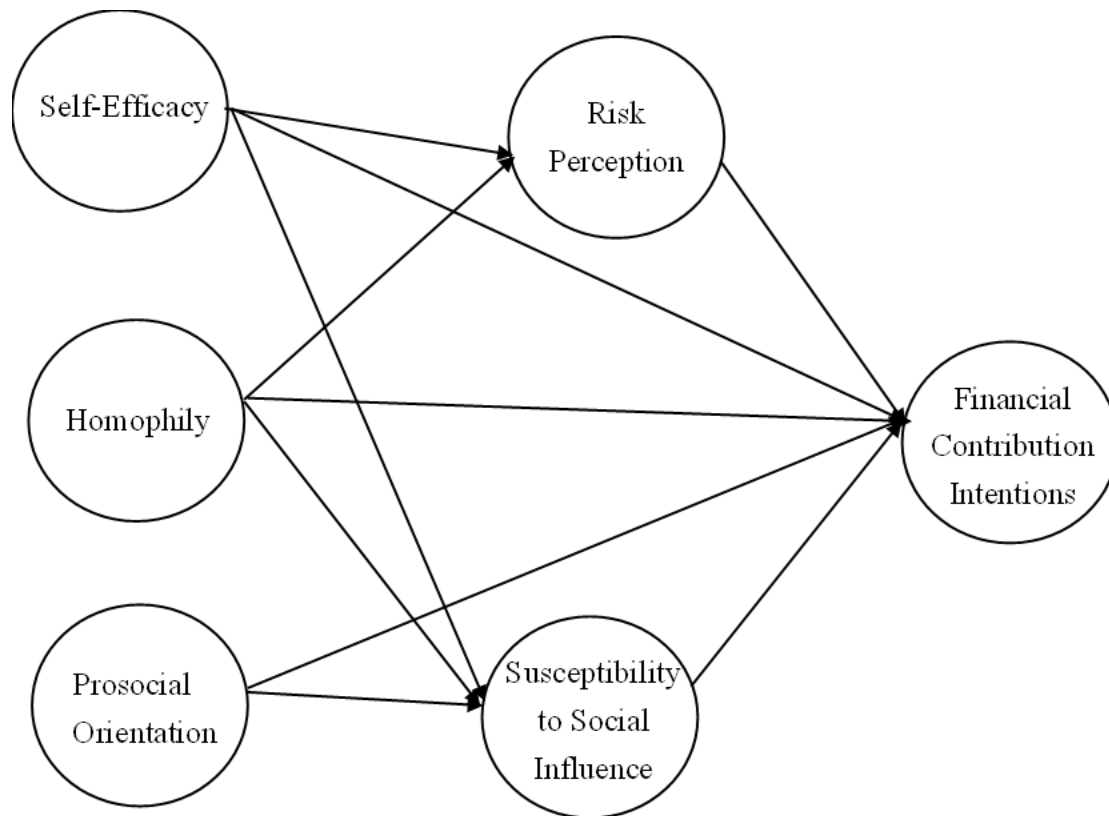
Finally, susceptibility to social influence may also be influenced by perceptions of self-efficacy. Here, psychological experiments reveal that when women exhibit lower confidence in making a decision, they are more likely to use social information due to an activation of an adaptive learning strategy, which is itself colored by gender stereotypes (Cross et al., 2017). Accordingly, since women exhibit lower confidence in financial dealings (Barber & Odean, 2001; Estes & Hosseini, 1988), they may become more susceptible to social influence when making related decisions. Here, it has been argued that evidence of females replicating male investors in equity crowdfunding, while not replicating the actions of their female peers, can be explained by a latent assumption about women being less competent in masculine activities such as investment (Mohammadi & Shafi, 2018). Accordingly, we hypothesize the following:

**H9(a).** The negative association between self-efficacy and susceptibility to social influence will be stronger in females than males.

**H9(b).** The extent to which susceptibility to social influence will mediate the effect of self-efficacy on contribution intentions will be stronger in females than males.

In summary, figure 1 graphically presents the model of our hypothesized relations.

**Figure 1. Gender-based model of crowdfunding contribution intentions**



### **3. Method**

#### **3.1 Context**

The study is conducted in Ghana, which was chosen as an interesting and relevant context for several reasons. First, it represents a fast-growing economy where females' access to finance via traditional institutions has been limited (Buruku & Kudowor, 2020). Second, it represents a social environment characterized by relatively high gender inequality, ranking 107<sup>th</sup> of 153 states on the 2020 Global Gender Gap Index (Crotti et al., 2021) and 138<sup>th</sup> of 189 states on the 2019 Gender Inequality Index (Conceição et al., 2020); which may allow to amplify and better capture gender related effects. Third, despite being a young crowdfunding market, Ghana was already reported to oversee more than half a billion USD in 2020 (Ziegler et al., 2021) and has several platforms operating within it (e.g., Kickstarter,

GofundMed, Kiva, Deki, Zidicircle, and Cofundie). Fourth, crowdfunding is now on local policymakers' agenda in support of unlocking new sources for economic growth (Bank of Ghana, 2021; Ministry of Finance, 2020). Fifth, we are answering concrete calls for studies of crowdfunding in Africa, and as understudied environment in current research (Chao et al., 2020). And, finally, by conducting the study in Ghana we follow Henrich et al.'s (2010) recommendation of reducing social researchers' reliance on samples from 'WEIRD' societies (Western, Educated, Industrialized, Rich and Democratic), while accommodating plurality of insights emerging from relevant though less studied contexts.

### **3.2 Data collection and sample**

We collected data from post graduate students at KNUST's (Kwame Nkrumah University of Science and Technology) school of business during spring 2021, which has a population just over 1,000 post-graduate students. We used in-class paper survey that was distributed to a total of 500 students after an in-class introduction to crowdfunding. This introduction was designed to be neutral, informative, and as measure to ensure a common minimum understanding of the concept. We opted to sample post-graduate students as they better represent the working age adult public. The survey was conducted in English and was answered anonymously.

A total of 456 respondents participated in the survey, of which 403 observations were usable. This number of observations was deemed sufficient, and surpassed the recommended minimum of 200 respondents for structural equation modelling (SEM) type analyses (Hair et al., 2010). Table 1 presents descriptive statistics for our sample, showing it has a close to equal distribution of males and females. Majority of males (23.6%) and females (21.5%) spend between 1 and 2 hours and up to an hour respectively on online browsing and searches. Similarly, both males (19.7%) and females (23.0%) spend up to an hour on professional and social networking sites. The frequency distribution of employment status depict that a high percentage of both males (56.7%) and females (54.0%) are fully employed. Mean age of male respondents is 32.85 years, with a minimum age of 22 years and a maximum of 62 years. For the female respondents, mean age is 31.63 years, with a minimum age of 21 years and a maximum age of 61 years.

**Table 1. Descriptive Statistics**

Variable	Categories	Full Sample	Female	Male
Age	Mean	31.63	30.4	32.85
	SD	6.21	5.68	6.47
	Maximum	62	61	62
	Minimum	21	21	22
Employment status	Fully employed	223	108	115
	Partly employed	54	28	26
	Fully self-employed	19	8	11
	Partly self-employed	29	13	16
	Unemployed/student	78	43	35
Average daily time devoted to online browsing, search, and news	Zero	17	6	11
	Up to 1 hour	84	43	41
	1 to 2 hours	86	38	48
	2 to 3 hours	72	39	33
	3 to 4 hours	70	35	35
	5 hours or more	74	39	35
Average daily time devoted to using social and professional networking sites	Zero	24	15	9
	Up to 1 hour	86	46	40
	1 to 2 hours	74	31	43
	2 to 3 hours	73	31	42
	3 to 4 hours	85	42	43
	5 hours or more	61	35	26

Full sample=403, Female N=200, Male N=203

### 3.3 Non-response bias

Data was collected in different classes at different times, and students were also allowed to deliver the survey at later points in time, some responded earlier than others. To check for potential non-response bias, we followed a wave analysis (Armstrong & Overton, 1977), and tested for significant differences between early and late respondents. First, to ensure comparison between equally sized sub-samples, one observation from the male sample was randomly removed. Second, the early 101 male and 100 female respondents constituted the early response group, and the late 101 male and 100 female respondents constituted the late response group. Table 2 presents the analysis of mean differences between the groups with respect to age and general internet use patterns. Findings show no significant difference between the early and late respondents at 5% statistical significance. Thus, non-response bias is not a concern in this study.



**Table 2: Check for non-response bias**

	Mean first respondents	Mean last respondents	T	Df	P-value
<b>Female</b>					
Age	30.22	30.58	-0.447	196	0.655
Employment status	2.62	2.79	-0.501	197.47	0.617
Online Browsing	3.66	4.05	-1.843	191.49	0.067
Email	2.78	2.49	1.425	197.52	0.156
Networking sites	3.61	3.83	-0.966	197.51	0.335
E-commerce	2.23	2.15	0.434	197.49	0.665
<b>Male</b>					
Age	33.376	32.267	1.218	199.61	0.225
Employment status	2.277	2.693	-1.333	194.12	0.184
Online Browsing	3.861	3.574	1.336	199.65	0.182
Email	2.683	2.693	-0.048	199.84	0.962
Networking sites	3.713	3.732	-0.010	196.04	0.922
E-commerce	1.881	2.129	-1.4816	199.97	0.140

Female N=200, Male N=203

### 3.4 Normality check

We checked for both multivariate and univariate normality using Mardia’s test and Shapiro-Wilk test, respectively. However, in both the male and the female sample, both the Mardia test (p-value <0.05) and the Shapiro-Wilk test (p-values <0.05) indicate non-normal distribution in all items. Accordingly, we used Satorra-Bentler rescaling method (robust maximum likelihood) for the measurement model and structural model estimation using the lavaan package in R-software (Rosseel, 2012).

### 3.5 Measures

As the factors in our models are not directly and objectively measurable, we used multi-items measures from earlier studies, while adjusting relevant wording to the crowdfunding context. All items were assessed based on seven-point Likert scales ranging from 1 = “completely disagree” and 7 = “completely agree”. Table 3 presents in detail the latent factors used, their items, and the sources from which they were adapted. Following an exploratory factor analysis, we remove two items under perceived risk (RISK4, RISK5)

and one item under prosocial orientation (PROM2) for either having low loadings (less than 0.5) or cross loadings on multiple factors.

### **3.6 Validity and reliability**

To ensure reliability and validity of measures, several further checks were conducted. Table 4 presents evidence for convergent and discriminant validity. First, reliability of the constructs was confirmed all Cronbach alpha values were above 0.70 (Cronbach, 1951). The convergent validity of constructs was supported by the statistically significant factor loadings of measurement items at the 0.01% level (see Table 3). And discriminant validity was confirmed by the fact the average variance extracted (AVE) values for all factors were higher than 0.50, and all square roots of the AVE values (on the diagonal) are higher than the correlation coefficients among the factors (Fornell & Larcker, 1981).

Furthermore, based on the recommendation by Anderson and Gerbing (1988), we conduct a confirmatory factor analysis (CFA) to examine the reliability and validity of the measurement scales used in the female and the male sample separately (see Table 3 for factor loadings). All fit indices meet threshold requirements as outlined by Hair et al. (2010). Here, both the comparative fit index (CFI) and the Tuck-Lewis index (TLI) exceeded the recommended minimum threshold of 0.90. Furthermore, the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) values were below the recommended cut-off value of 0.08. Therefore, the measurement model is satisfactory for SEM analysis.

### **3.7 Common method bias**

Collection of data using one method may result in a common method bias problem. Hence, we followed the suggested approaches by Podsakoff et al. (2003) to check for common method bias in our data. First, we sought to establish mono-method variance using

**Table 3: Measurement items**

Construct	Measurement items	FL (Female)	FL (Male)	Source
RISK (Risk)	RISK1 My privacy would be compromised on crowdfunding websites.	0.816	0.682	RISK1-2 adapted from "privacy" (in Internet use) from Vijayasarathy (2004). RISK3 adapted from "perceived risk" (in mobile commerce) from Wu & Wang (2005). RISK4-5 adapted from "security" (in Internet use) from Vijayasarathy (2004). RISK6 adapted from "perceived risk" (in mobile commerce) from Wu & Wang (2005)
	RISK2 Crowdfunding websites cannot be trusted to safeguard my privacy.	0.837	0.658	
	RISK3 I think using crowdfunding websites puts my privacy at risk.	0.887	0.650	
	RISK4 Using credit cards to pay for rewards and products on crowdfunding websites is safe.	Removed	Removed	
	RISK5 In general, making payments on crowdfunding websites is secure.	Removed	Removed	
	RISK6 I think using crowdfunding websites in monetary transactions has potential risk.	0.841	0.608	
HOM (Homophily)	HOM1 In general members of crowdfunding communities think like me.	0.942	0.868	HOM1-3 adapted from "homophily" (realated to SNS) in Chu & Kim (2011).
	HOM2 In general members of crowdfunding communities behave like me.	0.888	0.877	
	HOM3 In general members of crowdfunding communities are like me.	0.919	0.834	
SELE (Self-efficacy)	SELE1 I have confidence in my ability to support crowdfunding campaigns.	0.615	0.731	SELE1-2 adapted from "knowledge self-efficacy" (towards eWoM) in Cheung & Lee (2012). SELE3-4 - own inspired by items under "Internet self-efficacy" in Hsu & Chiu (2004).
	SELE2 I have the expertise needed to contribute to crowdfunding campaigns.	0.916	0.810	
	SELE3 I am confident in my ability to navigate and use crowdfunding platforms' websites.	0.806	0.746	
	SELE4 I am confident in my ability to contribute to campaigns through crowdfunding platforms' websites.	0.891	0.911	

PROM (Prosocial)	PROM1 PROM2 PROM3	My conscience calls me to contribute to crowdfunding campaigns and communities. My decision to support crowdfunding campaigns and communities is fully in line with my moral conviction. I feel morally obliged to contribute to crowdfunding campaigns and communities.	1.042 Removed 0.829	0.931 Removed 0.946	PROM1-3 adapted from "moral obligation" (towards eWoM) in Cheung & Lee (2012)
SOCI (Susceptibility to Social influence)	SOCI1 SOCI2 SOCI3 SOCI4 SOCI5 SOCI6 SOCI7 SOCI8	It is important that others like the crowdfunding campaigns I support. I often identify with other people by supporting the same crowdfunding campaigns they support. When supporting crowdfunding campaigns I generally support those campaigns that I think others will approve of. If other people can see the crowdfunding campaigns I support, I often contribute to campaigns they expect me to support. I achieve a sense of belonging by supporting the same crowdfunding campaigns that others support. I consult other people to help choose the best crowdfunding campaign I should support. To make sure I support the right crowdfunding campaign, I often observe what others are supporting. I gather information from friends or family about crowdfunding campaigns I support.	0.737 0.875 0.883 0.913 0.769 0.816 Removed Removed	0.792 0.879 0.891 0.844 0.860 0.838 Removed Removed	SOCI adapted from "consumer susceptibility to interpersonal influence" in Bearden et al. (1989)
FCI (financial contribution intention)	FCI1 FCI2 FCI3 FCI4 FCI5	Given the chance, I intend to financially contribute to crowdfunding campaigns. Given the chance, I predict that I would financially contribute to crowdfunding campaigns in the future. It is likely that I will financially contribute to crowdfunding campaigns in the near future. I have the intention to financially contribute to crowdfunding campaigns. I intend to actively contribute to crowdfunding campaigns financially.	0.924 0.962 0.967 0.887 0.936	0.891 0.925 0.944 0.899 0.880	FCI1-3 adapted from "intent Pavlou (2003). FCI4-5 adapted from "intention to participate" in Algesheimer et al. (2005)

*Female model fit (N=200):  $\chi^2 (237) = 419.410$ , CFI = 0.957, TLI = 0.950, RMSEA = 0.062, SRMR = 0.058* Male model fit (N=203):  $\chi^2 (237) = 379.969$ , CFI = 0.959, TLI = 0.952, RMSEA = 0.055, SRMR = 0.045. All factor loadings are statistically significant at 0.01

**Table 4. Convergent validity, discriminant validity, and reliability**

Variables	Mean	SD	RISK	HOM	SELC	PROE	PROM	FCI	Reliability( $\alpha$ )
<b>Female</b>									
RISK	5.070	1.525	<b>0.715</b>						0.91
HOM	4.462	1.783	0.053	<b>0.84</b>					0.94
SELE	3.504	1.917	0.004	0.002	<b>0.664</b>				0.88
SOCI	3.774	1.920	0	0.037	0.16	<b>0.696</b>			0.88
PROM	4.695	1.847	0.01	0.001	0.005	0.007	<b>0.886</b>		0.93
FCI	4.175	1.985	0.033	0.618	0.009	0.045	0.018	<b>0.876</b>	0.97
<b>Male</b>									
RISK	2.728	1.284	<b>0.423</b>						0.74
HOM	3.530	1.726	0.01	<b>0.709</b>					0.89
SELE	5.301	1.436	0.078	0	<b>0.644</b>				0.88
SOCC	3.384	1.775	0	0.018	0.012	<b>0.724</b>			0.92
PROM	3.535	1.970	0	0.033	0.02	0.426	<b>0.88</b>		0.94
FCI	3.346	1.913	0.022	0.019	0.139	0.001	0.003	<b>0.824</b>	0.96

Bold value on the diagonal represents the square root of AVE of the respective latent construct.

Reliability ( $\alpha$ ) is the Cronbach alpha value.

Harman's single-factor test by creating a single factor with all measurement items without any rotation in an exploratory factor analysis. Second, to further ensure a more robust evaluation, we employed the CFA marker variable technique using a five-item construct of satisfaction with life. These approaches confirmed that common method bias was not an issue in this study as the average variance explained in all the approaches for both the male sample and the female samples were below the recommended threshold of 50%.

### 3.8 Structural path analyses

To compare two groups, we need to ensure the two different groups are comparable. Accordingly, we check for measurement invariance by achieving at least scalar invariance across the two groups (F. F. Chen, 2008). This requires an estimation and comparison of model fit of three measurement models for each group in a multi-group CFA setting: configural model (a model without any constraints across groups), fixed loading model (equal factor loadings across groups) and a combined fixed loadings and fixed intercepts model (equal factor loadings and equal item intercepts across groups). Table 5 presents the

results of comparing these models' fits indicating that both metric and scalar invariance of the measurement model were achieved in our samples.

**Table 5. Measurement invariance check**

	Df	AIC	BIC	Chisq	$\Delta$ Chisq	$\Delta$ Df	P(>Chisq)
Scalar invariance							
fit.configural	430	28634	29304	703.94			
fit.loadings	447	28623	29226	727.03	21.835	17	0.191
fit.intercepts	464	28612	29146	749.31	21.706	17	0.196

To ensure gender differences with respect to the variables in our model, we first test for significance of differences in their means scores while assuming unequal variances as reported in Table 6. Results indicate that females were associated with higher contribution intentions ( $t(395.724) = -2.971, p = .003$ ), higher risk perceptions ( $t(307.819) = -18.240, p = .000$ ), higher levels of perceived homophily ( $t(390.111) = -3.651, p = .000$ ), higher levels of social orientation ( $t(393.98) = -3.345, p = .001$ ), and lower self-efficacy ( $t(367.425) = 7.548, p = .000$ ) than males. However, counter to expectations, levels of susceptibility to social influence were not significantly different among males and females ( $t(391.863) = -0.390, p = .697$ ).

To test our hypotheses about differences in the relative strength of associations between variables in males and females we revert to a comparison of regression coefficients. Here, we estimate the hypothesized model separately for the male and the female group. Both models returned satisfactory model fit criteria. The ratio of chi-square and degrees of freedom (1.75 for females and 1.53 for males) for both models are below 3. The CFI and TLI values are greater than 0.90. In addition, the RMSEA and SRMR values are below 0.08. The results are presented in Fig. 2a and Fig. 2b.

**Table 6. Equality of Variance, and Equality of Means Test**

Hypothesis	Variable	Sex	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
					F	Sig.	T	Df	Sig. (2-tail)
H1a	FCI	Male	-0.145	1.030	0.453	0.502	-2.968	397.000	0.003
		Female	0.149	0.948			-2.971	395.724	0.003
H1b	RISK	Male	-0.668	0.514	37.402	0.000	-18.359	397.000	0.000
	Avoidance	Female	0.685	0.910			-18.240	307.819	0.000
H1c	SELE	Male	0.350	0.807	20.407	0.000	7.573	397.000	0.000
		Female	-0.359	1.052			7.548	367.425	0.000
H4	Homophily	Male	-0.177	1.059	2.641	0.105	-3.644	397.000	0.000
		Female	0.182	0.903			-3.651	390.111	0.000
H6	PROM	Male	-0.163	0.956	0.039	0.843	-3.347	397.000	0.001
		Female	0.168	1.018			-3.345	393.980	0.001
H8	SOCI	Male	-0.019	0.956	6.070	0.014	-0.391	397.000	0.696
		Female	0.020	1.045			-0.390	391.863	0.697
Control	Age	Male	30.229	8.752	2.002	0.158	-0.76	401.00	0.450
		Female	30.840	7.396			-0.76	391.94	0.449

N= 202 Male, N=197 Female.

Note that while standardized coefficients are reported in figures 2a and 2b, for between-group estimates and comparison of path coefficients, which are reported in Table 7, we used unstandardized coefficients to estimate the z-statistics while employing the equation below (Clogg et al., 1995).

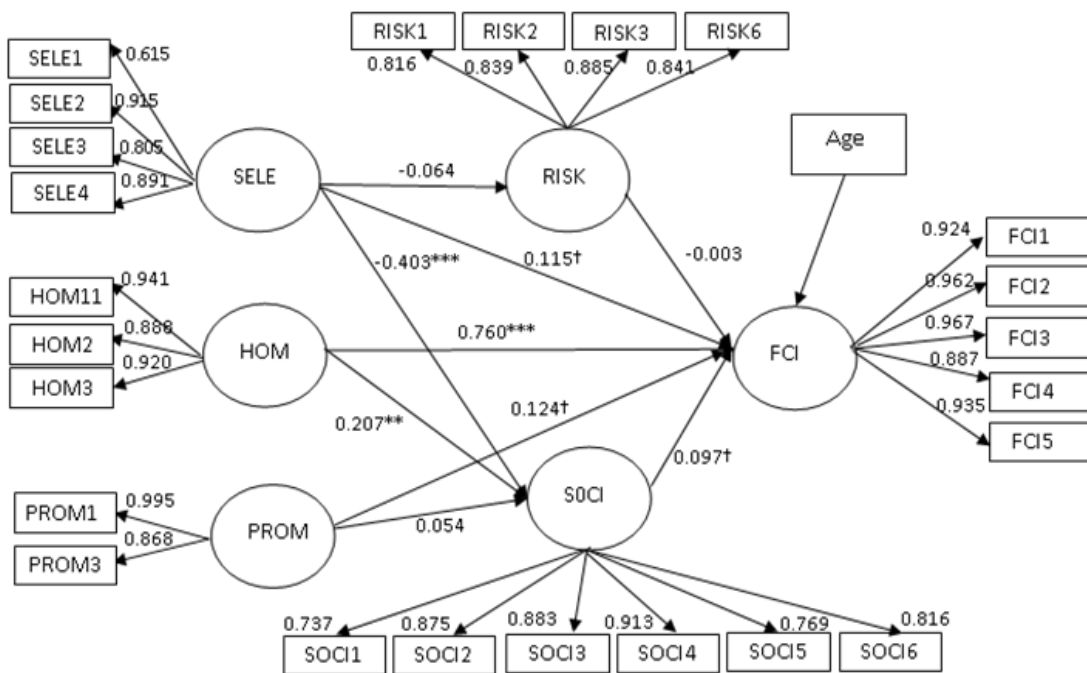
$$Z = \frac{\beta_1 - \beta_2}{\sqrt{(SE_{\beta_1})^2 + (SE_{\beta_2})^2}}$$

Where,

$\beta$  = unstandardized path coefficients

$SE_{\beta}$  = the standard error of  $\beta$

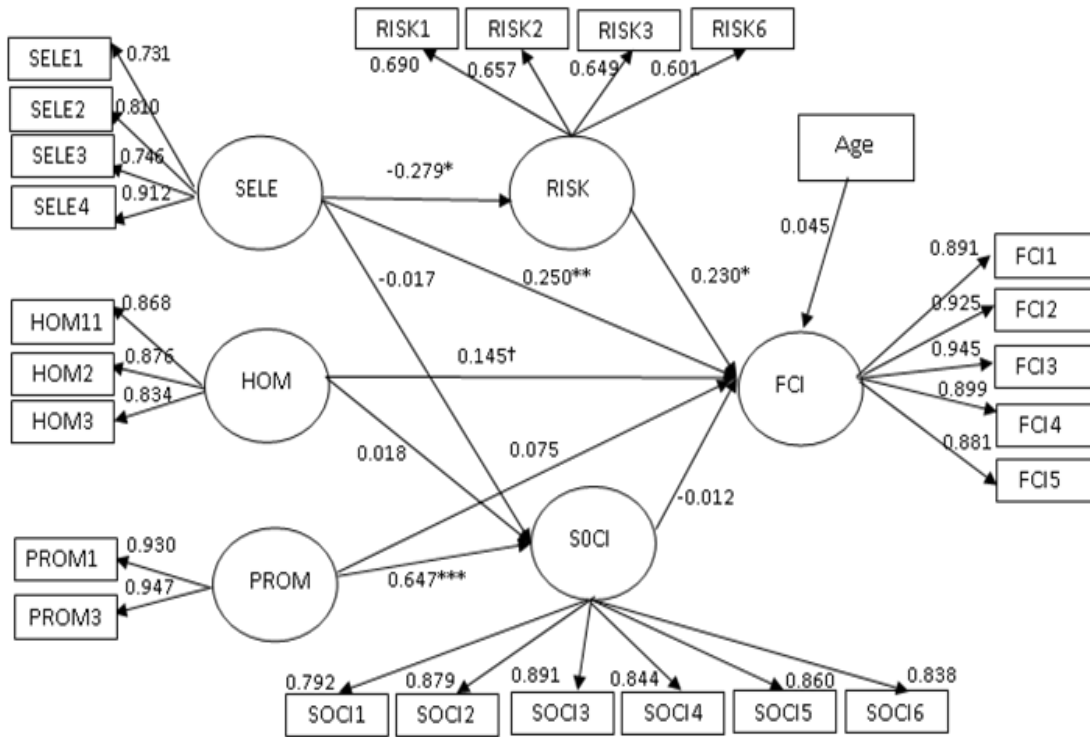
**Figure 2a. SEM estimation for female sample**



Female model fit (N=200):  $\chi^2(263) = 461.521$ , CFI = 0.954, TLI = 0.948, RMSEA = 0.061, SRMR = 0.076. All values are standardized.



**Figure 2b. SEM estimation for male sample**



Male model fit (N=203):  $\chi^2$  (263) = 402.757, CFI = 0.960, TLI = 0.955, RMSEA = 0.052, SRMR = 0.046. All values are standardized.

#### 4. Results

We find that the positive direct effect of homophily on CCI is stronger among females ( $Z = 5.70$ ,  $p < 0.001$ ), confirming H4. The positive direct effect of self-efficacy on CCI is stronger in males ( $Z = 1.63$ ,  $p < 0.05$ ), confirming H2. However, we find no gender differences with respect to the positive association between prosocial orientation ( $Z = 0.48$ ,  $p < 0.316$ ) and susceptibility with CCI ( $Z = 1.07$ ,  $p < 0.143$ ). At the same time, when viewing each gender group separately, we find weak positive association between prosocial orientation and CCI ( $\beta = 0.121$ ,  $p < 0.1$ ) and between susceptibility and CCI ( $\beta = 0.125$ ,  $p < 0.1$ ) in females only, while no significant effects were documented in the male samples. Since the gender difference beta was above 0.1 with respect to susceptibility to social influence, we deem H6 as partly supported. Accordingly, since the gender difference beta for prosocial orientation was below 0.1, we deem H5 rejected. Furthermore, and

surprisingly, we find that risk perceptions are more strongly and negatively associated with CCI in males than females ( $Z = -2.24$ ,  $p < 0.01$ ), hence, also rejecting H1.

Furthermore, while we do find a weakly significant stronger negative association between self-efficacy and risk perceptions in males ( $Z = 1.17$ ,  $p < 0.088$ ), and thus weakly support H3(a), we do not find evidence that risk perception mediates the effects of self-efficacy and CCI in either males or females. Here, we find a significant difference between two non-significant effects. Hence, rejecting H3(b) overall.

We find that the negative association between self-efficacy and susceptibility to social influence is stronger in females ( $Z = -3.24$ ,  $p < 0.000$ ), hence confirming H9(a), and the latter also exerts a significantly stronger mediation effect between self-efficacy and CCI in females ( $Z = -1.7$ ,  $p < 0.05$ ), hence confirming H9(b). Next, there is a weakly significant positive direct effect between homophily and susceptibility in females ( $Z = -1.6$ ,  $p < 0.055$ ), weakly confirming H8(a), but susceptibility does not mediate the effect of homophily and CCI in both gender groups, hence rejecting H8(b). Finally, we find that direct positive effect between prosocial orientation and susceptibility to social influence is stronger in males rather than females ( $Z = -5.17$ ,  $p < 0.000$ ), rejecting H7(a), and that susceptibility does not mediate the effect of prosocial orientation on CCI in either males or females, rejecting H7(b). We provide possible explanations for these findings in the following discussion section.

**Table 7: SEM and between-group estimation results with controls**

Hypothesis	Regression path	Unstandardized beta (Female)	Unstandardized beta (Male)	$\Delta$ Unstandardized beta	Z-statistics (p-value)	Results
H1	RISK→FCI	-0.004 (0.062)	-0.511* (0.211)	<b>-0.515</b>	-2.242 ( <b>0.01</b> )	<b>Rejected.</b> Stronger for males.
H2	SELE→FCI	0.172 † (0.089)	0.416** (0.12)	<b>-0.244</b>	-1.633 ( <b>0.051</b> )	<b>Confirmed.</b> Stronger for males.
H3(a)	SELE→RISK	-0.066 (0.083)	-0.209* (0.09)	<b>0.143</b>	1.168 ( <b>0.088</b> )	<b>Weakly Confirmed.</b> Stronger in males.
H3(b)	SELE→RISK→FCI	0.000 (0.004)	-0.107 (0.065)	<b>0.065</b>	0.107 ( <b>0.050</b> )	<b>Rejected.</b> No mediation.
H4	HOM→FCI	0.795*** (0.058)	0.161 † (0.095)	<b>0.634</b>	5.696 ( <b>0.000</b> )	<b>Confirmed.</b> Stronger in females.
H5	PROM→FCI	0.121 † (0.062)	0.069 (0.089)	0.052	0.479 (0.316)	<b>Rejected.</b> No gender difference.
H6	SOCI→FCI	0.125 † (0.073)	-0.013 (0.107)	0.138	1.065 (0.143)	<b>Partially confirmed.</b>
H7(a)	PROM→SOCI	0.041 (0.055)	0.551*** (0.082)	<b>-0.51</b>	-5.165 ( <b>0.000</b> )	<b>Rejected.</b> Stronger in males.
H7(b)	PROM→SOCI→FCI	0.005 (0.007)	-0.007 (0.059)	0.012	0.202 (0.420)	<b>Rejected.</b> No mediation.
H8(a)	HOM→SOCI	0.168** (0.055)	0.018 (0.076)	<b>0.15</b>	1.599 ( <b>0.055</b> )	<b>Weakly Confirmed.</b> Stronger in females.
H8(b)	HOM→SOCI→FCI	0.021 (0.013)	0.000 (0.002)	<b>0.021</b>	1.597 ( <b>0.055</b> )	<b>Rejected.</b> No mediation.

H9(a)	SELE→SOC1	-0.466*** 0.092	-0.026 (0.1)	<b>-0.44</b>	-3.238 <b>(0.000)</b>	<b>Confirmed.</b> Stronger in females.
H9(b)	SELE→SOC1→FCI	-0.058† (0.034)	0.000 (0.003)	<b>0.107</b>	-1.699 <b>(0.045)</b>	<b>Confirmed.</b> Stronger in females.
Control	Age→FCI	0.013 (0.017)	0.012 (0.019)	0.001	0.039 (0.484)	

Female model fit (N=200):  $\chi^2$  (263) = 461.521, CFI = 0.954, TLI = 0.948, RMSEA = 0.061, SRMR = 0.076. Male model fit (N=203):  $\chi^2$  (263) = 402.757, CFI = 0.960, TLI = 0.955, RMSEA = 0.052, SRMR = 0.046. A positive  $\Delta$ Unstandardized beta means higher path coefficient for females and vice-versa. Standard error in parenthesis. †p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

## 5. Discussion

The current study aims at identifying the ways in which gender influences CCI. It does so by examining gender differences in the extent to which different cognitive antecedents influence CCI. Taken together, our findings are aligned with the view that males are more likely to exhibit an internal locus of control and need for challenge, while females are more likely to exhibit an external locus of control and need for affiliation (Semykina & Linz, 2007). And these needs have implications for CCI. Nevertheless, we find both support and challenge to common assumptions about effects of gender in financial decision making.

First, in the case of males, we find that self-efficacy exerts a significantly stronger effect on CCI and that risk perceptions exerts a significantly stronger negative effect on CCI than in females. The first finding aligns with expectations and related findings from earlier research in non-crowdfunding financial behavior contexts (Barber & Odean, 2001; Estes & Hosseini, 1988). And, in this respect, our study contributes to existing knowledge by confirming the applicability of this gender effect also in the context of crowdfunding.

However, the second finding challenges our expectations. Here, earlier research has documented stronger risk aversion among females across a variety of financial investment and contribution contexts (Serwaah & Shneor, 2021), including crowdfunding (Hervé et al., 2019; Mohammadi & Shafi, 2018), which stands at odds with our findings. One possible explanation for this contradictory finding may lie in the context of reward crowdfunding. Earlier research has mostly studied this effect in the context of investments in stock trading and equity crowdfunding, while our study is conducted in a non-investment context of reward crowdfunding. In such context, genders may differ in their reward expectations from making contributions. Earlier research shows that, when allocating resources, women are more oriented towards relations and are concerned with community success, while males are more oriented towards agentic competitive success and achievement (Beutel & Marini, 1995; Kahn et al., 1980). Accordingly, females may view reward crowdfunding as more congruent with their values, where the support for others is satisfying in itself (i.e., ‘love money’), whereas males may be more concerned with actually getting the pre-purchased product than with nurturing relations, and hence perceive the activity as riskier.

Nevertheless, in line with expectations, we do find evidence that males' higher levels of self-efficacy are significantly associated with lower perceptions of risk. This finding aligns with earlier research suggesting that higher confidence in males decreases their perceptions of risks or enhances their willingness to take more risk (Barber & Odean, 2001; Croson & Gneezy, 2009; Montford & Goldsmith, 2016).

Second, with respect to females, we show that homophily exerts a significantly stronger association with CCI than in males. This is line with findings highlighting the special role played by gender-based homophily in females' crowdfunding investments and backing behavior (Dale et al., 2017; Greenberg & Mollick, 2016; Venturelli et al., 2019). However, based on our measure of homophily, we show that females act upon perceived homophily with the crowdfunding community as whole, and not only with its female members. Such homophily highlights alignment between females' empathy, principle of care, and greater concern for others (Beutel & Marini, 1995; Jolliffe & Farrington, 2006) and the values of a crowdfunding community created specifically for supporting its members.

Furthermore, with respect to effects of prosocial orientation our findings require closer examination. On the one hand we find weakly significant association between prosocial orientation and CCI in females, and non-significant association with CCI in males. However, on the other hand, we also find no statistically significant difference in the strength of this association between males in females. Taking into consideration the low gender difference beta value, we conclude with rejecting our hypothesis. In this respect, our findings suggest to gender difference in the extent to which prosocial orientation associates with CCI. This somewhat contradictory finding to earlier studies may be related to the concepts employed. Studies that did find prosocial orientation effects examined 'other orientation' (Zhang & Chen, 2019) and altruism (Ryu et al., 2020) rather than prosocial orientation per se. Accordingly, this may suggest that our findings differ due to the use of related yet different concepts when examining gender differences.

Finally, we also find a weakly significant association between susceptibility to social influence in females, and non-significant association with CCI in males. Here, while technically we do find a non-significant gender difference in the extent to which

susceptibility associates with CCI, the fact that the gender difference beta value is above 0.1, and the association is weakly significant only in women, may suggest that such effect may still be evident and could be better captured through use of even larger datasets. Regardless, to the best of our knowledge the current study is the first to provide insights into the role of susceptibility to social influence among females in crowdfunding contribution research.

## **6. Conclusions**

The current study examines the way in which gender differences influence contribution intentions in crowdfunding. It does so by showing gender differences in the extent to which different cognitive antecedents exert influence on CCI. Following a social feminist approach, we identify and suggest critical elements that may serve as cognitive antecedents of intentions, based on consistent documentation of their variance across genders in different contexts of study. Our findings present both support and challenge to existing preconceptions. Specifically, we show that self-efficacy and risk perception exert stronger effects among males than females, and that perceptions of homophily exert stronger effects among females. In addition, we also find weak support for an effect of susceptibility to social influence in females only, while finding no gender differences with respect to the effect of prosocial orientation.

As such, our study presents several contributions. First, we propose and test a novel gender-based model explaining CCI, acknowledging gender's role as influence rather than a control variable (Ahl, 2006; Marlow, 2002; Serwaah, 2021). Second, our findings present new evidence on differences in the extent to which self-efficacy, risk perception, homophily, and susceptibility to social influence affect CCIs differently among males and females. And, third, we answer calls for greater use of primary data in crowdfunding research, as well as for coverage of understudied developing markets in general (Munim et al., 2021; Shneor & Vik, 2020) and African markets in particular (Chao et al., 2020).

## **6.1 Implication for research**

Our study presents several implications for research. First, emerging from the findings is the evidence for the need to include gender differences in crowdfunding backer behavior studies, as we provide compelling evidence that different antecedents exert different influence on contribution behavior among males and females. This may be in the inclusion of gender as moderator in models explaining backer behavior, or through conscious interpretations of findings considering gender distributions in studied samples.

Second, while presenting interesting insights our study has limitations that may inform future research efforts. One effort may be directed towards testing the boundaries of generalizability of our findings, by exploring them in different national contexts characterized by different institutional environments, prevalent levels of gender inequality in society, as well as crowdfunding industry maturity levels. Similarly, generalizability may be tested with respect to applicability to other models of crowdfunding practice, such as equity, lending, as well as non-investment activities such as donations.

A different direction for future research may be following an inductive rather than a deductive research approach. Here qualitative research aiming to reveal differing explanations and narratives through content analysis of backer interviews, may be able to both flesh out new antecedents of CCI that may differ between genders, as well as provide explanations to the existence and non-existence of gender differences identified in the current research.

## **6.2 Implications for practice**

Our findings may suggest several implications for crowdfunding platforms, community organizers, and campaign promoters. First, stakeholders that may wish leverage the positive effects of homophily on contribution intentions, especially among female users, may seek to invest in developing community enhancement features that allows for more interaction among members along a more diversified range of exchanges. Furthermore, in platform user and community members' recruitment and retention efforts, stakeholders may use narratives highlighting values of care, empathy, and relationships that appeal to females in their marketing communications, and community codes of conduct documents.



On the other hand, when wishing to leverage the positive effects of self-efficacy on contribution intentions, as well as when recruiting and retaining male users, platforms and community organizers may seek to invest in confidence boosting features as well as the use of narratives highlighting competence and achievement in marketing communications aimed at male segments. At the same time, these efforts should strike a balance between triggering male participation through invitations to participate in a challenge, and the avoidance of underestimating related risks. The latter may be achieved using risk disclosures and user qualification checks.

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## **PAPER 4: Does gender equality matter? – Examining antecedents of crowdfunding backers' intentions in a gender equal society**

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### **Abstract**

Despite promises of financial democracy, studies find differences between males and females in both the scale of their crowdfunding backing behavior and the factors impacting it. These are explained by social feminist theory claiming that gender differences arise from dissimilar life experiences or socialization. In the current study we identify the most pervasive of gender differences and examine whether they apply in a gender equal society, where dissimilar life experiences or socialization should be minimal. Accordingly, we test related hypotheses based on survey data collected from users of a reward crowdfunding platform from Finland. Findings show a gender invariant positive association between self-efficacy and intentions, and no association between both risk perceptions and susceptibility to social influence and intentions. However, there is a positive association between homophily and intentions in females only, and between pro-social orientation and intentions in males only. Intentions are positively associated with behavior in both genders.

**Keywords:** crowdfunding; gender; sex; intentions; behavior; backer

## **1. Introduction**

Women's engagement in venture funding has largely been underwhelming. Female investors represent a substantially smaller group compared to male investors (Harrison & Mason, 2007), are more risk averse (Eckel & Grossman, 2008), and tend to invest smaller sums while expecting more modest returns (Romaní et al., 2012). Such conditions may contribute to the persistence of a gender gap, where women's engagement in entrepreneurial venturing is lagging behind their male peers. While various policy initiatives are often focused on improving women's access to finance (e.g., Coleman et al., 2019), less efforts are placed on enhancing women's engagement in financially supporting and investing in entrepreneurial ventures.

In the past decade, new forms of venture fundraising mechanisms have emerged, known jointly as 'Crowdfunding'. Such mechanisms leverage internet-based technologies for the collection of relatively small sums of money from many people via online intermediaries (Belleflamme et al., 2014), while employing a variety of both investment and non-investment models of fundraising (Shneor, 2020). Such lowering of thresholds for involvement in venture funding and its wider accessibility are often argued to represent a 'democratization' effect. As such, crowdfunding provides opportunities for reducing social inequalities and overcoming certain discrimination patterns (Greenberg, 2019), by catering to underserved and overlooked market segments (Venturelli et al., 2020), while facilitating a fairer re-allocation of resources in society (Bruntje & Gajda, 2016).

Despite this, gender differences in venture funding seem to persist also in the context of crowdfunding. Here, recent global statistics from 2020 show that women represent 30% of equity crowdfunding investors, 18% of real estate crowdfunding investors, 24% of business crowdlenders, 23% of property crowdlenders, and 33% of reward crowdfunding backers (Ziegler et al., 2021). In this context, Serwaah (2021) argues that gender differences may manifest with respect to motivation, ability, and opportunity to financially back crowdfunding campaigns. Here, research showed that women were less likely to have general awareness of crowdfunding than men, and that socio-economic conditions in the environment contribute to that (Vaznyte et al., 2020). When engaged in supporting crowdfunding campaigns, women were found to support women fundraisers to a greater extent, based on a shared sense of struggle to overcome structural barriers faced by females

in business (Greenberg & Mollick, 2014; Groza et al., 2020). They were also more likely to invest in projects with a prosocial value creation potential (Zhang & Chen, 2019), while being driven by altruism (Ryu et al., 2020). However, they maintain greater degrees of risk avoidance when engaged in investment forms of crowdfunding (Hervé et al., 2019; Loureiro & Gonzalez, 2015), and tend to invest in campaigns initiated by members of their own social network than outside it (Groza et al., 2020).

One explanation for gender differences is provided by social feminist theory, suggesting that women and men are fundamentally different thanks to dissimilar life experiences or socialization leading them to have different (though equally valid) self-perceptions, motivations, and belief structures (Becker-Blease & Sohl, 2007). However, in gender equal societies men and women enjoy equal sharing of resources including paid work, money, decision-making power, and time (Plantenga et al., 2009), as well as achieve similar degrees of education (Crotti et al., 2021). Living in such environments may represent women and men with less dissimilar socialization experiences, beyond those dictated by their biology; and hence, also exhibit more similar self-perceptions, motivations, and belief structures.

Taking the above into consideration, in the current study we wish to examine whether gender differences in crowdfunding backer behavior prevail in gender equal societies? Here, the assumption is that while crowdfunding neutralizes structural and technical barriers to equal engagement by members of both genders, social norms of gender equality should neutralize socio-normative barriers to having similar self-perceptions and motivations underlying crowdfunding behavior in members of both genders.

To achieve this, we first suggest a series of hypotheses highlighting critical ways in which males and females were found to differ in earlier research, while focusing on identified gender differences in crowdfunding intentionality and behavior. We then empirically examine whether such gender differences continue to exist in a gender equal social context. More concretely, we examine the extent to which perceived risk, self-efficacy, homophily, prosocial orientation, and susceptibility to social influence affect backer intentions differently in males and females in a gender equal social environment.

To capture such effects, we conduct our study in Finland as a suitable context for our purposes. First, it represents a social environment characterized by high levels of gender equality, as identified in a variety of international comparisons (Conceição et al., 2020; Crotti et al., 2021; Plantenga et al., 2009). Furthermore, such attitudes has a long history, with Finland being the first country in the world to allow women both unrestricted rights to vote and to stand for political office (Korppi-Tommola, 1990). Second, crowdfunding is a well-established concept in Finland with some 20 active platforms operating in the market, while jointly overseeing volumes surpassing 390 million USD in 2020 (Ziegler et al., 2021). And third, Finland was one of the first European countries to introduce regulatory amendments in support of a crowdfunding market development, well before the introduction of the European Crowdfunding Service Provider regime (Wenzlaff et al., 2020).

Accordingly, our analyses are based on survey data collected from users of Finland's leading reward crowdfunding platform – Mesenaatti.me. This data is then analyzed using structural equation modelling, which is supplemented by a series of quality tests ensuring our data does not suffer from potential biases. Here, reward crowdfunding is deemed as a suitable context, since it is associated with financial contribution of relatively lower sums (Shneor, 2020), while still characterized by a risk of non-delivery or deviation from campaign promises (Appio et al., 2020; Macari & Chun Guo, 2021; Seyb, 2022). In this respect, a reward crowdfunding campaign is closer to an investment pitch than an e-commerce advertisement (Shneor & Munim, 2019).

Our findings show that self-efficacy has a positive association with funding intentions; and that risk perceptions and susceptibility to social influence are not associated with funding intentions in both genders. Nevertheless, homophily was found to be positively associated with funding intentions in females only, while pro-social orientation was positively associated with funding intentions in males only. Moreover, funding intentions were positively associated with funding behavior in both genders, and that indirect effects of self-efficacy, homophily, and susceptibility to social influence on funding behavior was mediated by funding intentions.

Overall, our study presents several contributions. First, we contribute to the less studied field of gender differences in venture funding, as earlier research tended to focus primarily on gender gaps in access to finance rather than on its provision (Serwaah & Shneor, 2021). Second, we provide evidence for context-contingent effects of gender in funding decisions, showing that gender equality, as a socio-normative contextual factor, matters in influencing funding intentions. Third, even though certain gender differences are indeed absent in our context (e.g., effects of risk perceptions and susceptibility to social influences), others emerge (e.g., prosocial motives influential in males only, and homophily motives influential in females only). As such, we provide partial support for the assumptions of social feminist theory, while simultaneously highlighting some of its limitations. Fourth, we present a surprising finding that in gender equal societies prosocial value creation is associated with greater funding intentions among males but not females. This is explained by the measurement used in the current study, which emphasizes moral obligation and justice rather than the sense of empathy and care in line with earlier research on two moral orientations (Gilligan & Attanucci, 1988). Fourth, we present an additional surprising finding that risk perception is not associated with funding intentions, explained by the unique context also being characterized as a high-trust society (Delhey & Newton, 2005), largely eliminating concerns with non-delivery on campaign promises. Finally, we find no effect of susceptibility to social influence in both males and females, explained by Finland representing an individualistic society, where premium is placed on independence, self-reliance, and separateness from other in-group members (Hofstede et al., 2010; Singelis, 1994).

In the remainder of the paper, we first suggest a gender-based framework for explaining crowdfunding backer intentionality, outlined in a series of concrete hypotheses. Each hypothesis is built on a review of relevant literature. Next, we present our methodological choices, followed by the results of our analyses. Our findings are then discussed in comparison to results from earlier studies. Finally, we conclude with suggestions of implications for future with relevant contributions and limitations highlighted accordingly research and practice.

## **2. Gender and funding decisions**

Differences between male and female motivations and behaviors are often explained by feminist theory. At the core of which are assumptions that females' hold oppressed positions in society and that gender conceptualization affects the power relations between males and females in their daily life (Ahl, 2006). Nevertheless, different streams view related dilemmas from different perspectives as reflected in three main approaches: liberal, social, and constructionist (Harding, 1987). The liberal feminist stream (sometimes known as the situational perspective) claims that males and females are essentially equal and observed differences are a result of systematic factors or discriminations that lead to unequal access to key resources such as education, networks, and mentors (Cliff, 1998; Fischer et al., 1993). The social feminist stream (the dispositional perspective) emphasizes that women and men are fundamentally different thanks to differing life experiences and socialization, leading them to have equally valid though different self-perceptions, motivations, and belief systems (e.g., Becker-Blease & Sohl, 2007; Huq et al., 2020). And the constructionist feminist stream (the poststructuralist perspective) postulates that both gender and gender differences are socially constructed and context specific (e.g., Foss, 2010). While the first two streams seek to provide insights into the subordination of females, the constructionist approach integrates the two and focuses on the social construction of gender and its effects on social order.

In the current study we adopt the social feminist approach, while seeking to examine its boundaries. We do so by studying whether gender differences prevail in an otherwise gender equal society. In such environment, men and women enjoy more equal sharing of paid work, money, decision-making power, and time (Plantenga et al., 2009), as well as achieve similar levels of education (Crotti et al., 2021). As a result, one can assume that life experiences and socialization processes are less dissimilar, and hence, leading men and women to hold more similar self-perceptions, motivations, and belief structures. Accordingly, if differences between genders continue to prevail, despite going through similar life experiences and socialization, such findings may present important boundaries for the social feminist view.

More specifically, the study of gender differences in fundraising engagements may serve as a particularly promising setting for exploring the boundaries of social feminist



explanations. Indeed, a recent literature review examining the role of gender in fundraising engagements (Serwaah & Shneor, 2021) has identified both different patterns and more limited engagement of women in venture fundraising versus their male peers in a variety of contexts, spanning general investment (e.g., Jianakoplos & Bernasek, 1998; Marinelli et al., 2017), lending (e.g., Bellucci et al., 2010; Carter et al., 2007), entrepreneurial finance investments (e.g., Hervé et al., 2019; Mohammadi & Shafi, 2018), and philanthropic donations (e.g., De Wit & Bekkers, 2015).

Building on ample evidence of gender differences, we set to develop a framework refining the most pervasive antecedents of financial backing, which exhibit consistent variance across genders in earlier studies. These include perceived risk, self-efficacy, homophily, prosocial orientation, and susceptibility to social influence. In the following subsections, we review each in detail, while suggesting that their effects will not vary in a gender equal society thanks to both men and women going through similar life experiences and socialization processes.

## **2.1 Self-efficacy**

Self-efficacy is defined as one's perceived ability to accomplish or demonstrate a behavior in a given situation (Bandura, 1986), which, in turn, facilitates action or change (Bandura et al., 2001). Cognitions related to high levels of self-efficacy included setting high goals and imagining successful scenarios, while those related to low levels of self-efficacy tended to envision failure (Bandura, 1993). In this respect, earlier research shows that females exhibit lower self-confidence than males when conducting financial analyses (Webster & Ellis, 1996), dealing with money (Prince, 1993), and in making investment decisions, even when controlling for differences in age, education, industry, and experience (Croson & Gneezy, 2009; Estes & Hosseini, 1988).

While self-efficacy and self-confidence have been used interchangeably in research, they are conceptually distinguished in that self-efficacy relates to specific perceptions prior to action, while self-confidence relates to judgments resulting from action (Cramer et al., 2009). Accordingly, we deem self-efficacy as more relevant for capturing effects on funding intentions, as it represents a cognitive and affective component occurring before action takes place (Ajzen, 1991). Indeed, earlier research in the context of crowdfunding

shows that self-efficacy is positively associated with funding intentions in both reward (Kuo et al., 2020; Shneor & Munim, 2019) and donation crowdfunding (Y. Chen et al., 2021). Assuming that self-efficacy effects should not vary by gender in gender equal environments, because of socialization into equal sharing of resources and decision-making power (Plantenga et al., 2009), we suggest that the earlier identified positive association will be evident in both males and females in such contexts.

Accordingly, we hypothesize the following:

**H1:** The positive association between self-efficacy and funding intentions is gender invariant in a gender equal society.

## **2.2 Perceived risk**

Perceived risk is defined as a subjective expectation about potential loss in pursuing a desired outcome (Ko et al., 2004). Accordingly, actors seeking to avoid loss tend to perceive greater risk and may seek greater degree of assurances before acting. In economic behavior research, most evidence points to significant gender differences in levels of risk perceptions, with women exhibiting greater degrees of risk aversion (Charness & Gneezy, 2012; Croson & Gneezy, 2009; Powell & Ansic, 1997). Unsurprisingly, this pattern is also consistent in studies examining gender differences in investment behavior (Serwaah & Shneor, 2021), associated with risks arising from substantial information asymmetries between fundraisers and investors (Glücksman, 2020; Lu et al., 2021; Sewaid et al., 2021).

Similarly, crowdfunding research shows that women tend to invest in lower risk assets (Hervé et al., 2019), as well as in equity campaigns presenting financial indicators congruent with signals of lower risk investments (Cicchiello & Kazemikhasragh, 2022; Mohammadi & Shafi, 2018). While reward crowdfunding may involve lower risks than in financial investments, it nonetheless involves a degree of risk of non-delivery or deviations from campaign promises (Appio et al., 2020; Macari & Chun Guo, 2021; Seyb, 2022). Such risks are equally faced by both men and women, and in environments characterized by gender equal access to resources, decision-making power, and education levels, one can assume that members of both genders will develop similar belief structures about related risks, and how they should be addressed and minimized.

Accordingly, we hypothesize the following:

**H2:** The negative association between perceived risk and funding intentions is gender invariant in a gender equal society.

### **2.3 Prosocial orientation**

Prosocial orientation is defined as a focus on the needs of others and an inclination towards enhancing the welfare of others (Côté et al., 2011). Stimulated by empathic concern and the principle of care, prosocial behavior manifests in expression of compassion towards others and a moral conviction to help them (De Wit & Bekkers, 2015). Evidence about women's greater engagement in charity and philanthropy (De Wit & Bekkers, 2015; Mesch et al., 2011), has often been explained by insights from psychological research showing that empathy is more strongly developed among women (Jolliffe & Farrington, 2006), and that agreeableness was a personality trait more dominant among women across cultures (Schmitt et al., 2008). Nevertheless, the role of empathy is not reserved to charitable giving only and may also explain women's tendency to invest more in friends and family in what has been termed as 'love money', involving a strong relational motivation for investments and lower return expectations (Maula et al., 2005; Romaní et al., 2012).

Crowdfunding research showed that the relationship between other-orientation and funding decision is stronger for women than men (Zhang & Chen, 2019), and that women's tendency to contribute earlier in the campaign process may be explained by them being more driven by an altruistic motivation than by a purely utilitarian reward motivation, which can be associated with late contributions (Ryu et al., 2020). Moreover, when ignoring gender differences, research finds that backers exhibiting greater degree of empathy also have greater funding intentions (Liu et al., 2018), and that campaigns driven by prosocial missions, such as sustainability, also exhibit better outcomes than others (Bento et al., 2019; Calic & Mosakowski, 2016).

When brought into the context of gender equal societies, thanks to similar educational achievements and equal sharing in decision-making power, one may expect that prosocial concerns carry similar weight in financial decision making by both men and women. Furthermore, since prosocial benefits are likely to positively influence the well-being of both men and women, there is no reason to assume an a-priori preference for them among

members of either gender. This is particularly relevant in an environment where both share similar understanding of the importance of well-being and a similar experience of related needs.

Accordingly, we hypothesize the following:

**H3:** The positive association between prosocial orientation and funding intentions is gender invariant in a gender equal society.

## **2.4 Homophily**

Homophily is defined as the tendency of individuals to associate with others based on shared or similar characteristics (McPherson et al., 2001). On the one hand, it smoothens communication, coordination, and enhances trust between people, while on the other it creates redundancy and limits their exposure to alternative yet relevant knowledge and resources (Ertug et al., 2021). Homophily manifests at both structural and individual levels (McPherson et al., 2001). At a structural level it is ‘induced’ by systems of opportunity and constraints, while at the individual level it is a ‘choice’ to associate with others based on perceived similarities (Ertug et al., 2021).

Earlier research shows that choice homophily has been associated with decisions to invest in entrepreneurial ventures (Boulton et al., 2019), based on a sense of shared entrepreneurial experience (Qin et al., 2021), ethnicity (Hegde & Tumlinson, 2012), and gender (Oranburg & Geiger, 2019). Similar results were also identified with respect to loan officers’ likelihood of granting microfinance loans (Blanco-Oliver et al., 2021). In the context of crowdfunding, gender-based homophily, especially with respect to women’s greater tendency to support fellow women, was evident in equity crowdfunding (Venturelli et al., 2019), prosocial crowdlending (Galak et al., 2011), reward-based crowdfunding (Gafni et al., 2020), and donation crowdfunding (Greenberg & Mollick, 2016). While this seems to be the general trend, others found that gender-based homophily had an effect in inexperienced female investors but not experienced ones (Bapna & Ganco, 2020), or that such effect was not evident at all (Giudici et al., 2020).

Regardless, researchers have suggested that an ‘activist’ form of gender-based homophily influences women’s funding behavior, where women develop greater disposition to

support other women based on perceptions of shared structural barriers stemming from their common social identity, as well as the struggles that it implies (Greenberg & Mollick, 2016). However, women raised up in gender equal societies may have not experienced the same struggles that women experience in more gender unequal societies. As such, one can expect that gender equal societies neutralizes the need for an activist form of corrective discrimination in project funding, as members of both genders enjoy equal access to resources. Nevertheless, and in line with earlier research, other sources of homophily are expected to still have an impact on funding behavior, only that such impact may be gender invariant.

Accordingly, we hypothesize the following:

**H4:** The positive association between an individual's perceived homophily with a fundraiser and their funding intentions is gender invariant in a gender equal society.

## **2.5 Susceptibility to social influence**

Interpersonal influence refers to the tendency of individuals to identify with and conform to the expectation of others (normative influences) and/or their tendency to learn either by observational learning and by seeking information from significant others (informational influences) (Bearden et al., 1989). Susceptibility to social influence reflects one's sensitivity to normative and informational influences from others, which translates into changes in their attitudes, intentions, and behavior in response to the actions of others (Stöckli & Hofer, 2020).

Regarding susceptibility to social influence in men and women, earlier psychological research found that women tended to be more conforming than men (Cooper, 1979), and specifically in situations of group pressure (Eagly & Carli, 1981). Furthermore, women were found to be more sensitive to social cues than men (Gilligan, 1982). Such studies attributed their findings to different social role expectations from men and women, where men are expected to demonstrate independence in successful performance, while women are expected to be more communally oriented in fostering relationships and interpersonal cooperation (Guadagno & Cialdini, 2002).

Earlier crowdfunding research has yet to examine gender differences in the role played by susceptibility to social influence. Nevertheless, research has shown that in mixed samples of males and females the extent to which one experiences encouragement from their close social circle to contribute to crowdfunding campaigns was positively associated with their intentions to do so (Baber, 2020; Y. Chen et al., 2019; Shneor & Munim, 2019; Shneor et al., 2021). Furthermore, studies also found evidence for herding behavior in crowdfunding, where backing dynamics intensify with increasing levels of earlier backing (at least until reaching the set goal), as was evident in equity crowdfunding (e.g., Bade & Walther, 2021; Vismara, 2018), crowdlending (e.g., Herzenstein et al., 2011; Lee & Lee, 2012), and non-investment crowdfunding models (e.g., Kuppuswamy & Bayus, 2017; Petit & Wirtz, 2021).

In gender equal societies one can expect it to be equally legitimate for both men and women to independently demonstrate successful performance as well as to seek interpersonal cooperation, while the extent to which these are expressed are more likely to be anchored in different personalities than in differing gender role expectations. Accordingly, men and women in such societies are likely to be influenced by social cues to a similar degree. And, in accordance with earlier findings in the context of crowdfunding, are also likely to be equally influenced by encouragement from social circle to fund crowdfunded ventures. Hence, we hypothesize the following:

**H5:** The positive association between one's susceptibility to social influence and their funding intention is gender invariant in a gender equal society.

## **2.6 The mediating role of funding intentions**

Thus far, we have argued for a series of antecedents of funding intentions. However, intentions have been found to be positively associated with behavior based on both conceptual arguments and a wide basis of empirical evidence in multiple contexts of study (Ajzen, 1991; Armitage & Conner, 2001; Sheeran, 2002). Such evidence is also available with respect to positive associations between funding intentions and behavior in crowdfunding (Shneor & Munim, 2019; Shneor et al., 2021). Nevertheless, such association should not be taken for granted, as intentions may not always translate into behavior (e.g., Carrington et al., 2014; Fishbein et al., 2003) due to required sacrifices and

tradeoffs, or limited access to relevant opportunities, resources, or legal rights. Similarly, behavior may occur without intention, when one is compelled to engage in a behavior to avoid threats to well-being, or because of being subjected to social pressure or legal obligations.

Here, while we are unaware of crowdfunding research showing gender differences in terms of the association between crowdfunding intentions and behavior, one can envisage social environments in which women's more limited access to resources, decision-making power, and money management rights may limit their ability to fund crowdfunding projects, regardless of their intentions to do so. On the other hand, gender equal societies do not pose such limitations, and hence leading us to expect that both men and women will exhibit similar levels of congruence between their crowdfunding contribution intentions and behaviors. Furthermore, and as a result, one can also expect that intentions may mediate the effects of its antecedents on behavior in a consistent and gender invariant manner.

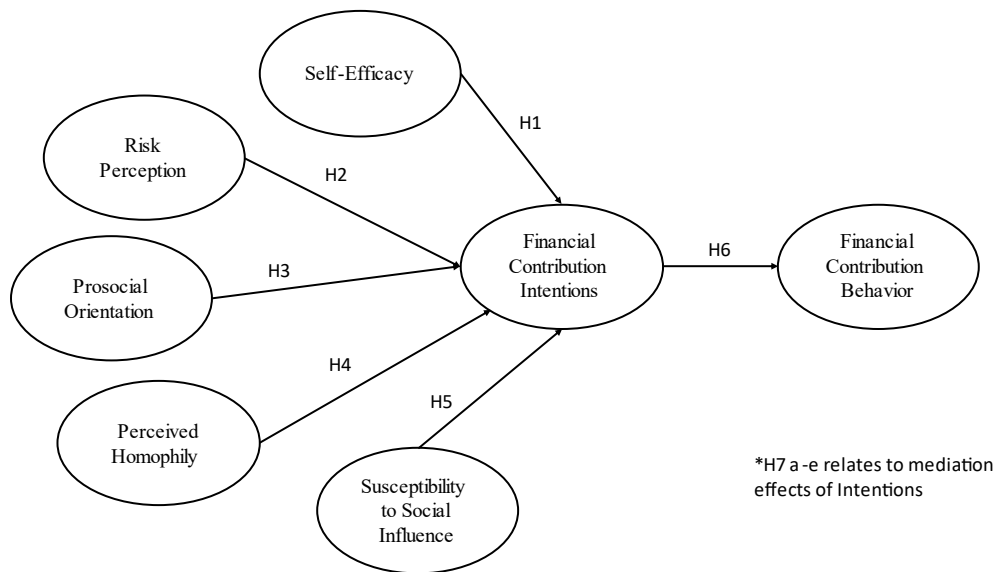
Accordingly, we hypothesize the following:

**H6:** The positive association between one's funding intentions and their funding behavior is gender invariant in a gender equal society.

**H7:** Funding intentions will mediate the association between (a) self-efficacy; (b) perceived risk; (c) prosocial orientation; (d) homophily; and (e) susceptibility to social influence with funding behavior in a gender invariant manner.

In summary, figure 1 graphically presents the model of our hypothesized relations.

**Figure 1. Gender-based model crowdfunding intentions and behavior**



### 3. Data and Methodology

#### 3.1 Data collection and sample

Our data was collected from users of Finland's largest reward crowdfunding platform: Mesenaatti.me. In the period between 2013-2017, the platform reported raising more than EUR 3 million and a success rate of 68% (Shneor & Munim, 2019). A web survey was emailed to the 25,000 users of the platform, administered using the SurveyXact tool, with four reminders sent within a two months' period. Prior to its distribution the survey, the survey was piloted among 12 individuals with minor adjustments introduced following feedback received. Furthermore, to ensure relevance and clarity a final review and modification of the survey was performed by the platform's managers. Since the survey included a long list of items used for other purposes, the overall effort required was viewed as demanding. Hence, to encourage responses, respondents were offered to partake in a lottery-draw of 35 gift cards valued at USD 200 each.

After removing incomplete entries and those suspected of monotonous response bias, we were left with 556 usable entries (a 2.2% response rate). A sample size deemed sufficient



to meet stringent requirements, well surpassing the minimum threshold of 200 entries (Hair et al., 2010) for structural equation modelling (SEM). Table 1 presents some of the sample's characteristics. There is almost an equal distribution of males and females, with the findings showing a high percentage of respondents having a bachelor (28.06%) or master's degree (36.33%). The average, maximum and minimum ages of respondents were 42.7, 83 and 18 respectively. Majority of respondents (37.05%) spend between 2 and 3 hours on online browsing and searches daily, and 41% spend between 1 and 2 hours on professional and social networking sites daily.

**Table 1: Sample frequency distribution**

Variable	Categories	Frequency	Percentage
Sex	Female	275	49.46
	Male	281	50.54
Age	Mean	42.67	-
	Standard deviation	12.37	-
	Maximum	83	-
	Minimum	18	-
Educational level	Less than 12 years	86	15.47
	High school /gymnasium	106	19.06
	Bachelor's degree	156	28.06
	Master's degree	202	36.33
	PhD degree	26	4.68
Average daily time devoted to online browsing, search and news	Zero	6	1.08
	1 to 2 hours	180	32.37
	2 to 3 hours	206	37.05
	3 to 4 hours	93	16.73
	4 to 5 hours	46	8.27
	5 hours or more	24	4.32
Average daily time devoted to using social and professional networking sites	Zero	52	9.35
	1 to 2 hours	227	40.83
	2 to 3 hours	149	26.80
	3 to 4 hours	81	14.57
	4 to 5 hours	28	5.04
	5 hours or more	18	3.24

Potential for a non-response bias was checked using the wave approach (Armstrong & Overton, 1977). Here, we tested the difference between early and late respondents concerning the means of key demographic indicators using an independent-samples T-Test. Based on the proportions of the times at which the survey responses were received,

the first 278 observations were taken as early respondents, and the last 278 were taken as late respondents. Except for age (capturing a 2-year difference) the findings show no significant difference between the first and last respondents at 5% statistical significance. Thus, non-response bias is not a serious concern in this study.

### **3.2 Measures**

The main variables examined in this study are multi-faceted, hence we employed multiple item measures. Financial contribution behavior (FCB) was measured via two items (adopted from: Yoo et al., 2013). Financial contribution intention (FCI) was measured using five items (adopted from: Algesheimer et al., 2005; Pavlou, 2003). Risk perception (RISK) was measured using six items (adopted from: Vijayasathy, 2002; Wu & Wang, 2005). Homophily (HOM) was measured using three items (adopted from: Chu & Kim, 2011). Self-efficacy (SELE) was based on four items (adopted from: Cheung & Lee, 2012; Hsu & Chiu, 2004). And susceptibility to social influence (SOCI) used eight items (adopted from: Bearden et al., 1989). All items were assessed based on seven-point Likert scales ranging from 1 = “completely disagree” to 7 = “completely agree”. Table 2 displays all measurement items with factor loadings and Cronbach alpha values. Furthermore, all items removed during the exploratory and confirmatory factor analyses (see measurement model section) are also listed.

**Table 2: Measurement items, properties and convergent validity**

Construct	Items	Item statements	Loadings	Alpha
RISK (Perceived risk)	RISK1	My privacy would be compromised on crowdfunding websites. Crowdfunding websites cannot be trusted to safeguard my privacy. I think using crowdfunding websites puts my privacy at risk. Using credit cards to pay for rewards and products on crowdfunding websites is safe. In general, making payments on crowdfunding websites is secure. I think using crowdfunding websites in monetary transactions has potential risk.	0.847	0.86
	RISK2		0.715	
	RISK3		0.852	
	RISK4		Removed	
	RISK5		Removed	
	RISK6		0.715	
SELE (Self-efficacy)	SELE1	I have confidence in my ability to support crowdfunding campaigns. I have the expertise needed to contribute to crowdfunding campaigns. I am confident in my ability to navigate and use crowdfunding platforms' websites. I am confident in my ability to contribute to campaigns through crowdfunding platforms' websites.	0.781	0.87
	SELE2		0.700	
	SELE3		0.823	
	SELE4		0.856	
HOM (Homophily)	HOM1	In general members of crowdfunding communities think like me. In general members of crowdfunding communities behave like me. In general members of crowdfunding communities are like me.	0.818	0.86
	HOM2		0.855	
	HOM3		0.802	
PROM (Prosocial)	PROM1	My conscience calls me to contribute to crowdfunding campaigns and communities. My decision to support crowdfunding campaigns and communities is fully in line with my moral conviction. I feel morally obliged to contribute to crowdfunding campaigns and communities.	0.883	0.86
	PROM2		Removed	
	PROM3		0.838	
SOCI (Social Influence)	SOCI1	It is important that others like the crowdfunding campaigns I support. I often identify with other people by supporting the same crowdfunding campaigns they support. When supporting crowdfunding campaigns, I generally support those campaigns that I think others will approve of. If other people can see the crowdfunding campaigns I support, I often contribute to campaigns they expect me to support. I achieve a sense of belonging by supporting the same crowdfunding campaigns that others support. I consult other people to help choose the best crowdfunding campaign I should support. To make sure I support the right crowdfunding campaign, I often observe what others are supporting. I gather information from friends or family about crowdfunding campaigns I support.	0.664	0.84
	SOCI2		0.762	
	SOCI3		0.673	
	SOCI4		0.707	
	SOCI5		0.791	
	SOCI6		Removed	
	SOCI7		0.549	
	SOCI8		Removed	

FCI (financial contribution intention)	FCI1	Given the chance, I intend to financially contribute to crowdfunding campaigns. Given the chance, I predict that I would financially contribute to crowdfunding campaigns in the future. It is likely that I will financially contribute to crowdfunding campaigns in the near future. I have the intention to financially contribute to crowdfunding campaigns. I intend to actively contribute to crowdfunding campaigns financially.	0.847	0.92
	FCI2		0.857	
	FCI3		0.852	
	FCI4		0.909	
	FCI5		0.692	
FCB (Financial contribution behaviour)	FCI1	I frequently contribute financially to crowdfunding campaigns. I spend much effort in financially contributing to crowdfunding campaigns.	0.831	0.66
	FCI2		0.597	

Model fit (N=556):  $\chi^2$  (278) = 651.504, CFI = 0.943, TLI = 0.934, RMSEA = 0.049, SRMR = 0.044. Notes: All factor loadings are statistically significant at 0.01%. FL refers to factor loading.

### 3.3 Measurement model

Before estimating the measurement model, we checked for normality using Mardia's test and Shapiro-Wilk test. The null hypothesis of multivariate normality was rejected by Mardia test (p-value <0.05). Similarly, the null hypothesis of univariate normality was rejected by the Shapiro-Wilk test for all measurement items (p-values <0.05). Therefore, we used Satorra-Bentler rescaling method (robust maximum likelihood) for the SEM estimation (Rosseel, 2012) using the lavaan package in R-software.

Following the two-step approach (Anderson & Gerbing, 1988), we first conducted exploratory factor analysis (EFA). Two items under perceived risk (RISK4, RISK5), one item under prosocial orientation (PROM2) and two items under susceptibility to social influence (SOC16, SOC18) were excluded either for having loadings lower than 0.5 or for cross-loading on multiple factors. Next, we conducted a confirmatory factor analysis (CFA) to validate the internal and external consistency of the various measures (Hair et al., 2010). As shown in Table 2, all measurement items were unidimensional with acceptable model fit statistics. The measurement model fit as indicated by the values for comparative fit index (CFI) and Tuck-Lewis index (TLI) exceeded the recommended threshold of 0.90, and the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) had values below the cut-off value of 0.08, all meeting recommended thresholds (Hair et al., 2010). Hence, the measurement model is satisfactory and can be used for further SEM analyses.

The structural path of the proposed conceptual model was assessed separately for male and female respondents to allow for between-group differences in SEM analysis. Table 3 presents the descriptive statistics and correlation of all latent variables. The correlation matrix in Table 3 further shows no indication of multicollinearity among the latent variables.

**Table 3. Descriptive statistics and correlations among constructs**

Constructs	Mean	SD	RISK	SELC	HOM	PROM	SOCI	FCI	FCB
RISK	2.988	1.459	1.000						
SELE	5.538	1.454	-0.148	1.000					
HOM	2.689	1.419	0.068	0.131	1.000				
PROM	2.851	1.792	-0.013	0.042	0.380	1.000			
SOCI	2.738	1.633	0.110	-0.004	0.452	0.338	1.000		
FCI	4.227	1.620	-0.099	0.375	0.273	0.254	0.216	1.000	
FCB	2.513	1.278	0.012	0.242	0.294	0.216	0.278	0.637	1.000

Note: Mean and SD values are average of all items measuring each respective latent variable. The correlation matrix based on the correlation among the constructs derived from CFA.

### 3.4 Validity and reliability

Table 2 presents the reliability of factors, all presenting satisfactory levels of Cronbach alpha values exceeding or close to 0.70. Furthermore, all factor loadings are statistically significant ( $p < 0.001$ ), and the average variance extracted (AVE) values of all constructs were higher than 0.50 (see Table 4) confirming convergent validity. The AVE values within factors are greater than the squared correlation coefficients between the pair of corresponding constructs, thereby confirming discriminant validity (Fornell & Larcker, 1981), as illustrated in Table 4.

**Table 4. Discriminant validity**

	RISK	SELC	HOM	PROM	SOCI	FCI	FCB
RISK	1.000						
SELE	0.022	1.000					
HOM	0.005	0.017	1.000				
PROM	0.000	0.002	0.144	1.000			
SOCI	0.012	0.000	0.204	0.114	1.000		
FCI	0.010	0.140	0.074	0.065	0.047	1.000	
FCB	0.000	0.059	0.086	0.047	0.077	0.406	1.000
AVE	0.617	0.627	0.681	0.741	0.484	0.697	0.524

Note: Average variance extracted (AVE) of each construct is greater than squared Pearson correlation values below the diagonal, therefore, discriminant validity is confirmed.

### 3.5 Common method bias

To minimize threats of common method bias, surveys listed items in random order, so that no respondent answered the exact same survey. To further rule out possible problems of common method bias, we followed the suggested approaches by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) and adopted Harman’s single factor test. We conducted this test by loading all measurement items (12 items) on one latent variable without any rotation in an exploratory factor analysis. The average variance explained by the single construct is 42% which is below the recommended cut-off of 50%.

## 4. Results

To ensure comparability of our male and female groups of respondents, we check for measurement invariance by achieving both metric and scalar invariance across the two groups (F. F. Chen, 2008). Metric invariance is achieved if there is no significant difference between the configural model (M1 in Table 5) and equal factor loadings model (M2). Subsequently, scalar invariance is established by fixing equal factor loadings and equal intercepts across groups (M3) and thereafter compare M3 with M2. Initially, we failed to achieve scalar invariance as both M2 and M3 were significantly different at 5% statistical significance. Hence, we sought to establish partial measurement invariance as illustrated in Table 5, by removing equal intercept constraint from three items (SELE2, PROM1, SOC12).

**Table 5. Measurement invariance**

<b>Models</b>	<b><math>\Delta\chi^2</math></b>	<b><math>\Delta df</math></b>	<b><math>\Delta CFI</math></b>	<b><math>\Delta RMSEA</math></b>	<b>P value</b>
<i>Initial invariance checking</i>					
M1 (configural, $\chi^2 = 993$ , $df = 556$ )	-	-	-	-	-
M1 Vs M2 (Equal loadings)	22.382	19	-0.001	-0.001	0.266
M2 Vs M3 (Equal intercepts)	34.259	19	-0.002	0.000	0.017
<i>After removing equal intercepts constraints of SELE2, PROM1 and SOC12</i>					
M1 (configural, $\chi^2 = 993$ , $df = 556$ )	-	-	-	-	-
M1 Vs M2 (Equal loadings)	22.382	19	0.000	-0.001	0.266
M2 Vs M3 (Equal intercepts)	6.004	15	0.001	-0.001	0.980

**Table 6: SEM and between-group estimation results**

Hypothesis	Regression path	Unstandardized beta (Female)	Unstandardized beta (Male)	$\Delta$ Unstandardize d beta	Z-statistics (p-value)	Results
H1	SELE→FCI	0.341*** (0.086)	0.334*** (0.075)	0.007	0.061 (0.476)	<b>Supported</b>
H2	RISK→FCI	-0.091 (0.080)	-0.063 (0.086)	-0.028	-0.238 (0.406)	Not supported
H3	HOM→FCI	0.199* (0.104)	0.053 (0.088)	<b>0.146</b>	1.072 (0.142)	Not supported
H4	PROM→FCI	0.106 (0.078)	0.198** (0.056)	-0.092	-0.958 (0.169)	Not supported
H5	SOCI→FCI	0.135 (0.160)	0.115 (0.093)	0.020	0.108 (0.457)	Not supported
H6	FCI→FCB	0.674*** (0.062)	0.571*** (0.054)	<b>0.103</b>	1.253 (0.105)	<b>Supported</b>
H7a	SELE→FCI→FCB	0.230*** (0.054)	0.191*** (0.035)	0.039	0.606 (0.272)	<b>Supported</b>
H7b	RISK→FCI→FCB	-0.061 (0.048)	-0.037 (0.037)	-0.024	-0.396 (0.346)	Not supported
H7c	HOM→FCI→FCB	0.134* (0.065)	0.030 (0.037)	<b>0.104</b>	1.391 ( <b>0.082</b> )	Not supported
H7d	PROM→FCI→FCB	0.071 (0.048)	0.113** (0.025)	-0.042	-0.776 (0.219)	Not supported
H7e	SOCC→FCI→FCB	0.091** (0.096)	0.066 (0.040)	0.025	0.240 (0.405)	Not supported

Female model fit (N=275):  $\chi^2$  (283) = 501.938, CFI = 0.934, TLI = 0.924, RMSEA = 0.053, SRMR = 0.057. Male model fit (N=281):  $\chi^2$  (283) = 505.218, CFI = 0.937, TLI = 0.928, RMSEA = 0.056, SRMR = 0.054. Standard error in parenthesis. †p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.



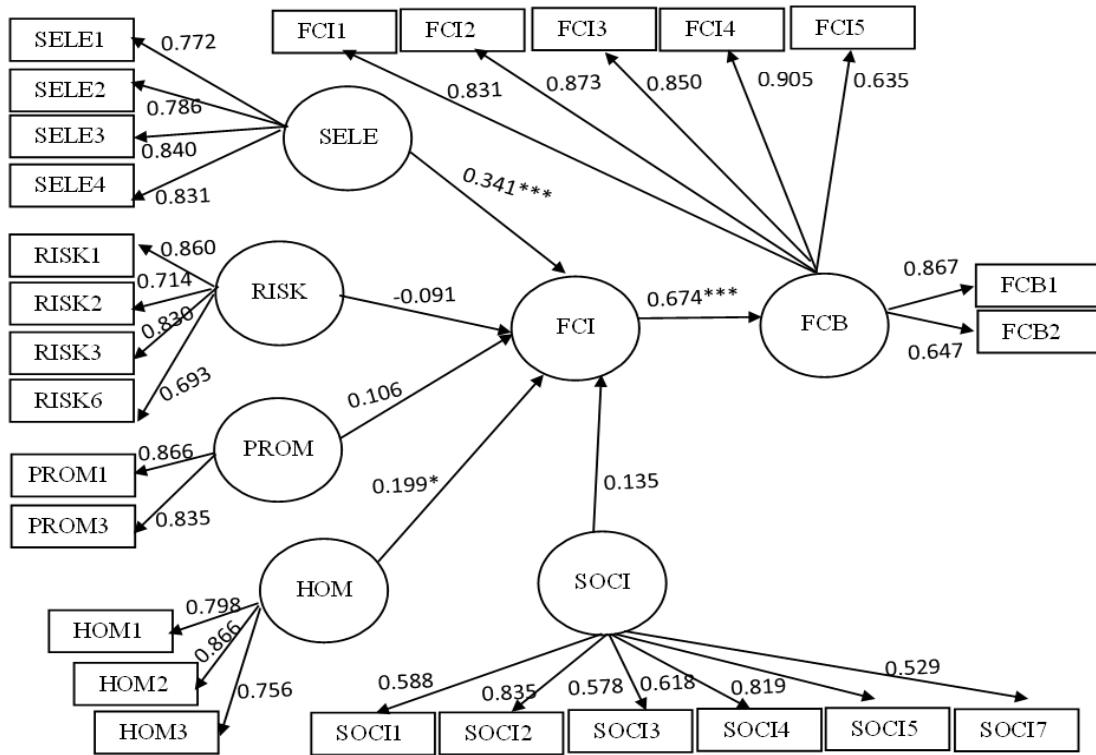
To test our hypotheses, we employed a structural model using MLR. Table 6 test the effects of the cognitive factors on FCI, as well as the mediation effects. The results are graphically presented in Figures 2a and 2b (Note: while standardized coefficients are presented in figures 2a and 2b, unstandardized coefficients are used in Table 6). The estimated structural model shows a good model-fit where the ratio of chi-square and degrees of freedom are all below 3 as recommended by Bollen & Long (1992), and also meeting all thresholds for goodness-of-fit indices: CFI and TLI values exceeded 0.90 and both RMSEA and SRMR values are below 0.08.

The first set of hypotheses concerns the effects of cognitive factors on FCI. First, we find positive association between self-efficacy and FCI which is gender invariant in support of H1. Second, albeit being gender invariant, we find no significant negative association between perceived risk and FCI, hence rejecting H2. Third, the positive effect of prosocial orientation on FCI is only significant in the male sample, hence rejecting H3. Fourth, the association of homophily with FCI is only significant in the female sample, hence rejecting H4. Moreover, albeit gender invariant, there is no significant positive association between susceptibility to social influence and FCI, rejecting H5. Finally, we find gender invariant positive association between FCI and funding behavior, confirming H6. Overall, while we do find evidence for gender invariant effects (or their lack of) with respect to three of the cognitive antecedents, two still present significant effects in one group but not the other.

#### **4.1 The mediation effects**

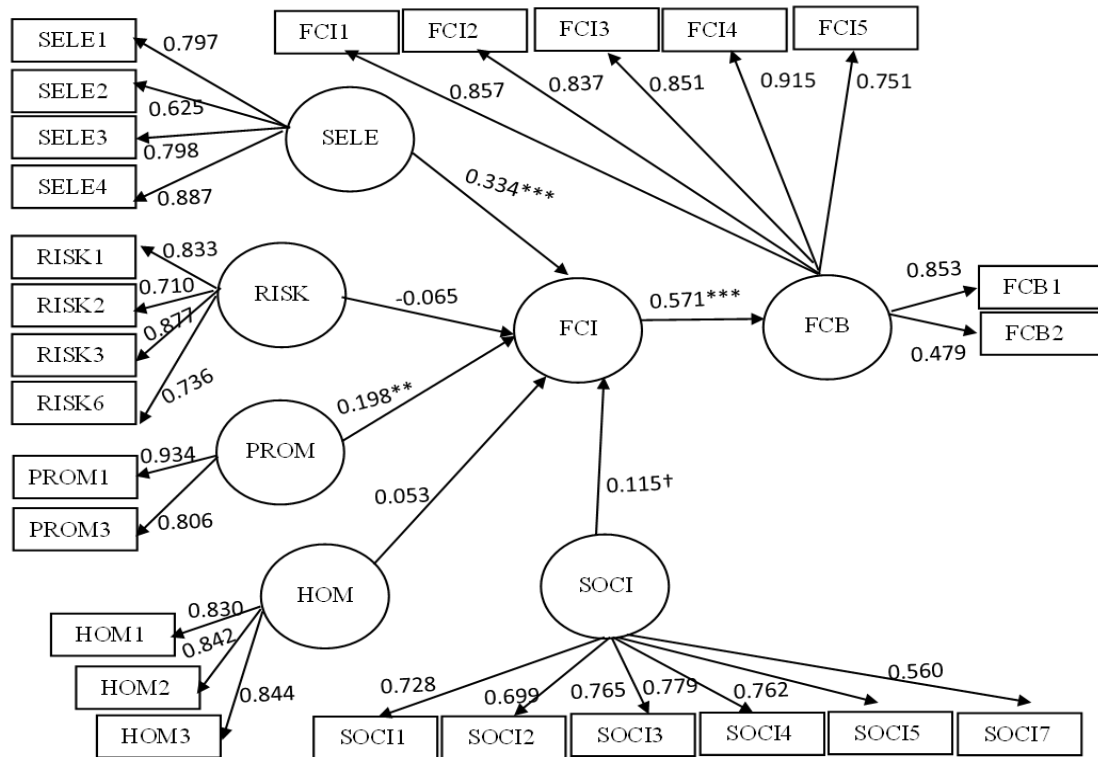
We used mediation analysis to investigate whether the effects of the selected cognitive factors on funding behavior is mediated by FCI. Here, we only find a gender invariant significant mediation effect of FCI between self-efficacy and funding behavior in support of H7a. However, we find that FCI does not mediate the effects of risk perceptions and susceptibility to social influence on funding behavior, rejecting H7b and H7e respectively. And we do find FCI to be significantly mediating the effects of prosocial orientation on funding behavior in males only, as well as the effects of homophily on funding behavior in females only, hence rejecting the gender invariance in H7c and H7d respectively.

**Figure 2a. SEM results for female sample**



Female model fit (N=275):  $\chi^2(283) = 501.938$ , CFI = 0.934, TLI = 0.924, RMSEA = 0.053, SRMR = 0.057. †p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001. All values are standardized.

**Figure 2b. SEM results for male sample**



Male model fit (N=281):  $\chi^2(283) = 505.218$ , CFI = 0.937, TLI = 0.928, RMSEA = 0.056, SRMR = 0.054. † $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . All values are standardized.

## 5. Discussion

The current study supports research arguing the importance of context for gender discourse in entrepreneurship (Ahl & Marlow, 2012). Here, we specifically examine whether gender equal social environment leads members of both genders to be similarly affected by cognitive conditions when deciding to financially support ventures via crowdfunding. Inspired by assumptions of social feminist theory (Becker-Blease & Sohl, 2007), we have argued that by neutralizing differences in life experiences and socialization (to the extent possible), both male and females are likely to exhibit more similar decision making patterns, as a result of developing more similar self-perceptions, motivations, and belief structures. Overall, our findings present mixed evidence in this respect.

First, our findings do show a gender invariant positive effect of self-efficacy on funding intentions, and that intentions mediate the effects of self-efficacy on funding behavior in a gender invariant manner. This implies that self-perceptions of own competence in both males and females have similar impact on their likelihood to develop funding intentions and behaviors. Furthermore, the non-significant differences of Betas in both groups, suggests that gender invariance is not only in terms of effect and direction, but also its magnitude. These findings are aligned with our assumptions that similar access to opportunities, resources, and education (Conceição et al., 2020; Crotti et al., 2021; Plantenga et al., 2009) lead members of both genders to assess the importance of competence in a similar way when making decisions related to crowdfunding contributions.

Second, while we see a gender invariant negative association between risk perception and funding intentions, it is not significant. On the one hand, such findings contradicts most earlier research suggesting that women are more risk averse in a variety of contexts (Charness & Gneezy, 2012; Croson & Gneezy, 2009; Powell & Ansic, 1997), and hence may imply that they are non-affected in a similar way to men. Such view can still be considered to confirm the gender invariance assumption. However, the non-significance of the effect remains surprising. One possible explanation may be linked to Finland being characterized as a high trust society, where people believe others will not deliberately or knowingly do them harm and hence can be trusted (Delhey & Newton, 2005). Such predispositions may alleviate concerns with untruthful campaigning, fraud, or platform security. This in turn leads both men and women to trust the platform and its community of users and ignore prospective risks when faced with opportunities to contribute to crowdfunding campaigns.

Another surprising finding relates to a significant association between prosocial orientation and funding intentions in men, but not women. Such finding does not only refute our assumptions of gender invariance, but also presents opposite results than in earlier research suggesting women to be more concerned with well-being of others in a manner that affects their behavior when providing financial support (Ryu et al., 2020; Zhang & Chen, 2019)

including in the Finnish context (Maula et al., 2005). A potential explanation here, may be related to the measure we have used for capturing prosocial orientation. Here, earlier research distinguished between two moral orientations one considered with justice while the other with care, also showing that the former is more prominent among males while the latter more prominent in females (Gilligan & Attanucci, 1988). Accordingly, we suggest that the items used in our measure better reflect aspects of justice and sense of obligation than compassion and care, and hence may be better more attuned to male interpretations of moral orientation.

Less surprising is our findings that homophily is positively associated with funding intentions in females only. Such finding is in accordance with earlier research (Gafni et al., 2020). However, the fact that an homophily effect was absent in males challenges our assumptions of gender invariance in gender equal societies. Since our measures did not stress gender-based homophily we remain doubtful that the effect identified relates to the activist choice form of homophily (Greenberg & Mollick, 2016). Instead, we believe this relates more to empathy and agreeableness, implying greater ability to be considerate and altruistic. Indeed, earlier research covering 55 countries, have found that women score higher than men on the agreeableness personality trait (Schmitt et al., 2008), and that such findings were also evident in Finland in particular (Feingold, 1994). While the specific sources of this pattern have not yet been fully determined, it may represent an exception of aspects in which men and women are indeed fundamentally different, even when going through similar life experiences and socialization.

Finally, our finding that susceptibility to social influence was not associated with funding intentions in both males and females, represents a surprising finding as well. Here, again, while gender invariance was evident, it was observed with respect to no effect rather than a positive effect. A potential explanation here may be the individualistic nature of Finnish society. Indeed, cross-cultural research identifies Finland as a more individualistic than collectivistic culture. Specifically, in individualistic societies the interest of the individual prevails over that of the group, ties between individuals are loose, and premium is placed on self-reliance and separateness from other in-group members (Hofstede et al., 2010;

Singelis, 1994). In such social environment, individuals will act independently and will rely less on cues from peers. When viewed from this perspective, susceptibility to social influence is unlikely to affect funding intentions and behavior in individualistic societies. In this respect, earlier research showed that Finnish crowdfunding backers are affected by various variables differently from backers in a collectivistic society such as China (Shneor et al., 2021).

## **6. Conclusion**

The current study examines whether gender differences in crowdfunding intentions and behavior prevail under conditions of a gender equal society. Specifically, we examine whether different cognitive antecedents exert different effects in men and women on decisions related to crowdfunding contribution. Following a social feminist approach, we suggest that such effects should be gender invariant due to similar life experiences and socialization processes that members of both genders go through. Nevertheless, we find mixed evidence and provide possible explanations for several surprising findings.

Overall, we find evidence of gender invariance with respect to the effect of self-efficacy, as well as gender invariance with respect to the non-effect of risk perceptions and susceptibility to social influence. However, we also find differences, where the effect of social orientation is prevalent in males only, and the effect of homophily is prevalent among women only.

As such, our study presents several contributions. First, we provide insights onto gender differences in venture funding decisions, a theme that received limited attention in earlier research (Serwaah & Shneor, 2021). Second, we provide evidence for context-contingent effects of gender on funding decisions. Third, we provide partial support for the assumptions of social feminist theory, while simultaneously highlighting some of its limitations in explaining gender differences in crowdfunding backer behavior. Fourth, we present a surprising finding that in gender equal societies prosocial value creation is associated with greater funding intentions among males but not females, which is explained by the items used in our measure being more strongly to justice than care. Fifth, we present

an additional surprising finding that risk perception is not associated with funding intentions, explained as related to Finland being a high-trust society (Delhey & Newton, 2005). Finally, we show that susceptibility to social influence has no effect in both males and females, which is explained by the prevalence of individualistic cultural values in Finland (Hofstede et al., 2010).

### **6.1 Implications for research**

Our study, while presenting interesting insights, has limitations that can inform future research. First, our findings may represent context specific results. Accordingly, future research should re-examine the boundaries of generalizability of our findings both by replicating the study in additional gender equal societies, as well as when conducting comparative studies with data from societies that vary along gender equality levels. Similarly, the context of reward-crowdfunding also represents a unique set of risks and commercial considerations that may differ significantly from other types of crowdfunding such as investments in equity and loans. Accordingly, re-examining these gender differences and similarities in the context of investment crowdfunding, may further our understanding of the impacts of gender equality in such contexts. Finally, while we argue for the inclusion of some cognitive antecedents, others may consider examining same effects with respect to other psychological antecedents that may be of interest, such as personality traits and communication styles to name a few.

### **6.2 Implications for practice**

Our findings may help inform crowdfunding platform design as well as campaign strategy. From a platform perspective, we show that when operating in and serving gender equal markets, certain features may be developed that can answer needs of different segments. Features helping to indicate and visualize prosocial value propositions in campaigns may be of interest to male users. Features enhancing shared identity and community feeling may be of interest to female users. And features supporting a sense of competence and mastery may be of interest to both. Adding such features in platform interfaces can enhance users' intentions to make financial contributions as well as do so.

From a fundraiser perspective, our findings can help shape promotional messaging via social media in a more appealing way to gender-based segments, as well as inform campaign designers which messages should be highlighted to ensure congruence with segment members' preferences. For example, stressing prosocial value creation in campaign media elements and promotional messaging may appeal to men. Stressing shared identity and characteristics with prospective customers may appeal to women. Furthermore, messages reassuring people's competence or support to make the best decision may appeal to both.



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