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Are you part of the crowd? The role of sex and environmental characteristics for crowdfunding awareness

Egle Vaznyte ^a, Petra Andries ^b, and Sophie Manigart ^{c,d}

^aJheronimus Academy of Data Science (JADS), Eindhoven University of Technology, The Netherlands;

^bDepartment of Marketing, Innovation and Organization, Ghent University, Belgium; ^cDepartment of Accounting, Corporate Finance and Taxation, Ghent University; ^dVlerick Business School, Belgium

ABSTRACT

Crowdfunding has become an alternative source of financing for entrepreneurial new ventures and social projects. While identifying and “tapping the right crowd” of backers has been shown to be crucial for the success of crowdfunding campaigns, we still lack a basic understanding of why individuals become backers in the first place and why so many others do not. Building on information processing theory, we advance crowdfunding awareness as an important precedent to actual engagement as a backer. We hypothesize and—using a sample of 1,042 individuals in Flanders (Belgium)—show that individuals’ crowdfunding awareness depends on whether they are male or female, as well as on the (perceived) socioeconomic environment they are in. Furthermore, our findings suggest that women tend to derive their crowdfunding awareness to a larger extent from these environmental characteristics than men. These results have important implications for theory and practice.

KEYWORDS

Crowdfunding awareness; information processing theory; sex-differences; socioeconomic environment

Introduction

In the past decade, crowdfunding has emerged as an alternative and viable source of financing for entrepreneurial ventures and social projects (Bellavitis et al., 2017; Block et al., 2018; Lin & Viswanathan, 2016; Mollick, 2014; Short et al., 2017). By drawing on small financial contributions gathered from a large group of individuals on Internet-based platforms, i.e., the “crowd,” entrepreneurs and projects are able to collect funding as well as receive society’s attention and feedback regarding their products or services (Belleflamme et al., 2014; Moritz & Block, 2016). As the benefits of crowdfunding become more and more visible, the demand for crowdfunding is booming (Burtch et al., 2013; Crosetto & Regner, 2018). Yet whether a sufficient number of individuals in the crowd—commonly referred to as *backers* (Mollick, 2014)—is ready to provide funding remains to be seen.

While research on crowdfunding is exponentially growing (Moritz & Block, 2016), most studies have extensively focused on crowdfunding campaigns’

CONTACT Egle Vaznyte  e.vaznyte@tue.nl  Jheronimus Academy of Data Science (JADS), ‘s-Hertogenbosch 5211 DA, The Netherlands.

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success factors, such as the number of early backers, financial goal, duration, linguistic style, social network, campaigns' model, orientation, and quality (e.g., Belleflamme et al., 2013; Colombo et al., 2015; Cumming et al., 2020b; Datta et al., 2019; Frydrych et al., 2014; Mollick, 2014; Parhankangas & Renko, 2017; Vismara, 2016, 2018a), as well as on their respective consequences for venture performance in terms of acquiring follow-up funding, growth, and innovation (e.g., Mollick & Kuppuswamy, 2014; Stanko & Henard, 2017; Thies et al., 2019; Walthoff-Borm et al., 2018). Surprisingly, however, significantly fewer scholars have examined the characteristics of the backers (McKenny et al., 2017). Although some progress has been made in studying actual backers' motivation to financially support specific crowdfunding campaigns (e.g., Allison et al., 2015; Bitterl & Schreier, 2018; Cholakova & Clarysse, 2015; Kuppuswamy & Bayus, 2017), and their consecutive funding behavior (e.g., Agrawal et al., 2015; Hervé et al., 2019; Lin & Viswanathan, 2016; Polzin et al., 2018), we still know relatively little about why some individuals become backers in the first place while so many others do not.

This lack of understanding is striking, especially knowing that the success of any crowdfunding platform (e.g., Belleflamme et al., 2015) and the respective crowdfunding campaigns (e.g., Colombo et al., 2015; Kuppuswamy & Bayus, 2018; Stanko & Henard, 2017) directly depends on the number of (potential) backers. While some projects on crowdfunding platforms fail because they suffer from a poor quality or are generally unattractive (Mollick, 2014), they may also fail simply because the number of backers is still too limited. Empirical evidence suggests that, despite the increasing popularity of crowdfunding, only a small part of the population has backed crowdfunding campaigns thus far.¹ For example, when considering the biggest crowdfunding platforms, GoFundMe (2020) has had about 50 million backers since 2010, Kickstarter (2020) about 18 million backers since 2007, and Indiegogo (2020) about 9 million backers since 2008 (of which only 30% outside the United States). While these numbers might seem high, this is only a small fraction of the total population. Moreover, women are particularly underrepresented as backers, especially in investment-based crowdfunding (Ziegler & Shneor, 2020). Also, the number of repeat backers is rather small, from 23% for reward-based crowdfunding to 38% for equity-based crowdfunding in Europe (Ziegler & Shneor, 2020). Continuously attracting new backers is hence vital.

It is well known from information processing theory that people are more likely to engage in a certain action if they are aware of it (Bettman, 1970; Bettman et al., 1991). Lack of awareness about crowdfunding might hence explain the low participation rate of the crowd. In the United States, a surprising 36% of individuals is still unaware of crowdfunding today (Fundly, 2020). The situation

¹The United States and United Kingdom have the greatest crowdfunding transaction activity; other European countries are still at considerably lower rates of crowdfunding activity (Chervyakov & Rocholl, 2019).

is even worse in Europe, with only 41% of UK respondents, 21.5% of German respondents, 17.4% of Spanish respondents, and 16.6% of Polish respondents being aware of crowdfunding or peer-to-peer lending (Oxera, 2015). As a result, the European Commission observed “a general lack of awareness about crowdfunding in Europe” (European Commission, 2014, p. 10), and policy makers around the globe are trying to raise awareness about crowdfunding in an attempt to increase the overall number of backers.

This study focuses on individuals’ awareness of crowdfunding as an important precedent to backing behavior. In particular, it aims to increase our understanding of the key characteristics determining *crowdfunding awareness*—measured as whether or not a person has heard about crowdfunding in general and can name a crowdfunding platform more specifically. Drawing on information processing theory, we advance an individual’s personal characteristics and socioeconomic environment as important determinants of his/her crowdfunding awareness. In particular, we argue that due to differences in preferences between men and women (Darley & Smith, 1995), women will be less aware of crowdfunding than their male counterparts. As information is not acquired and processed in a social vacuum (Bettman et al., 1991), we further propose that a (perceived) socioeconomic environment with more positive cues about entrepreneurial endeavors will contribute to crowdfunding awareness. Finally, in line with information processing theory, we also expect that men and women will differ in how they select and process information about these environmental cues (Darley & Smith, 1995; Meyers-Levy & Maheswaran, 1991), with women considering them more comprehensively and men relying only on a subset of highly available external environment cues. In particular, we hypothesize that the effect of environmental characteristics on crowdfunding awareness will be stronger for women than for men. We empirically confirm these hypotheses using individual-level survey data of 1,042 working age individuals from Flanders, the northern and Dutch-speaking part of Belgium.

This research is the first to our knowledge to conceptually discuss and empirically test the antecedents of individuals’ crowdfunding awareness. It contributes to our understanding of why some individuals are more likely to become backers than others. In particular, our findings reveal that women are less aware about crowdfunding in general than men, which may explain why there are fewer women backers in the first place (Hervé et al., 2019; Mohammadi & Shafi, 2018; Vismara et al., 2017). Moreover, our study underlines the importance of an individual’s socioeconomic environment in defining crowdfunding awareness, especially for women. These findings have important implications for policy and practice.

The remainder of the study is organized as follows. First, we provide a brief overview of the relevant crowdfunding literature. Second, we present our theoretical framework and respective propositions. In the following part we

cover the data and methodology, which leads to the main results, and finally to a discussion and a conclusion.

Theoretical background and hypotheses

The importance of crowdfunding backers

The recent and extensive growth of new financial products and services, mainly driven by advanced digital technology, has made financial markets more easily approachable for “small investors” (Lusardi & Mitchell, 2014). Crowdfunding is one of them. Instead of raising money from a small group of sophisticated investors, entrepreneurial ventures and social initiatives can now refer to a large group of individuals requesting small financial contributions via crowdfunding (Belleflamme et al., 2014; Mollick, 2014; Moritz & Block, 2016). Crowdfunding is a two-sided digital platform that facilitates the exchange between the creators of crowdfunding campaigns, i.e., entrepreneurial or social projects seeking funding, and the contributors, i.e., project backers who provide funding in exchange for financial or nonfinancial rewards (Belleflamme et al., 2015).

Generally, there are two types of crowdfunding platforms and campaigns: (a) investment-based, where backers buy a financial instrument (typically shares or a loan) of an entrepreneurial venture; and (b) reward- and/or donation-based, where backers either buy the product or another type of reward or expect nothing personally in return (Belleflamme et al., 2015). Which one is being selected by a backer is primarily determined by his or her motivation (Moritz & Block, 2016). For instance, some individuals may participate in crowdfunding because they are mainly motivated by financial returns that can be earned by purchasing an equity stake or royalty or by providing a loan, i.e., in investment-based crowdfunding (Cholakova & Clarysse, 2015; Hervé et al., 2019). Others may be driven by nonfinancial rewards: they may wish to directly engage in a cocreation of a (novel) product for prosocial reasons or be among the first consumers by “preordering” it in case the crowdfunding campaign turns out to be successful, i.e., reward-based crowdfunding (Bitterl & Schreier, 2018; Kuppuswamy & Bayus, 2017). Still others may be led by altruistic intentions and support a good social cause or a community project by simply donating, i.e., donation-based crowdfunding (Allison et al., 2015; Rey-Martí et al., 2019). However, individuals may also become campaign backers irrespective of the crowdfunding type if they are, for example, asked by a friend or they want to support a particular project from their community (Agrawal et al., 2015; Giudici et al., 2018; Lin & Viswanathan, 2016). As such, crowdfunding provides an opportunity for everyone willing to earn financial returns or to more directly engage in the development of for-profit, social, or cultural ventures (Mollick, 2014).

Irrespective of whether a crowdfunding platform and its crowdfunding campaigns are investment-based or reward- and/or donation-based, a significant number of backers is needed to unleash their full potential (Gawer & Cusumano, 2014). The more backers support a certain crowdfunding campaign, the higher the likelihood the project will succeed in collecting a necessary amount of money in a timely manner. In fact, crowdfunding campaigns run only for a short period of time (on average 30–60 days), and considering the relatively small financial contributions by individual backers, they need to attract as many backers as possible in a short time frame to reach their funding targets. Additionally, multiple empirical studies show that achieving a critical mass of funding from backers early on serves as a signal for a campaign's quality, facilitating even greater crowd interest (Colombo et al., 2015) and chances to succeed (Crosetto & Regner, 2018; Vismara, 2018b; Vulkan et al., 2016). Having an exposure to a large crowd of backers is important not only for meeting the target levels of funding but also for receiving a broader variety of insights and for reaching a larger network of “product evangelists” who spread awareness about the product/project by word of mouth (Colombo et al., 2015; Crosetto & Regner, 2018; Mollick, 2016; Stanko & Henard, 2017).

Finally, as crowdfunding campaigns differ in their purpose and financing and operating needs, it is important to tap the “right crowd” so as to ensure viability of a crowdfunding campaign (Belleflamme et al., 2014). A greater pool of potential backers increases the chances that there will be enough individuals in the crowd sharing similar values and thus be willing to financially support them. Therefore, initiators of crowdfunding campaigns have started to strategically use social media to reach potential backers more effectively (Datta et al., 2019; Sahaym et al., 2019). However, the use of social media is not a magic bullet. Without strong internal social capital of crowdfunding campaign initiators, reliance on external social networks is often not sufficient for a campaign being successful (Colombo et al., 2015). This might be explained by (a) a mismatch in timing such that the entrepreneurs's network backs the project only after it was successfully funded (Foster, 2019); (b) the use of social media channels different from those used by the target audience (Kaplan & Haenlein, 2010); and (c) a lack of social network embeddedness between the crowdfunding campaign owners and the potential backers, leading to a limited overlap of shared third party-connections (Hong et al., 2018).

Taken together, given the importance of a sufficiently high number of potential backers, investigating the drivers of individuals' participation as potential backers is highly relevant.

Crowdfunding awareness through the lens of information processing

In this study we advance *crowdfunding awareness*—whether or not individuals have heard about what crowdfunding generally is and in turn can name any

type of a crowdfunding platform more specifically—as an important antecedent determining whether or not individuals are more likely to be (potential) backers in the first place. As awareness precedes action (Bettman, 1970; Bettman et al., 1991), understanding the drivers of crowdfunding awareness is important to understand an individual's engagement in crowdfunding. Hence, information processing theory provides a fruitful framework in explaining why some individuals are more likely to derive awareness of crowdfunding than others.

According to this theory, people are considered to be information-processing beings (Clark, 2014). They can obtain new knowledge and insights by processing information they actively look for, but such learning “may also occur with little conscious allocation of attention” (Bettman, 1979, p. 28). Information processing theory argues that individuals differ in the way they select, acquire, and interpret information in their environment and therefore also in what they learn (Lord & Maher, 1990). As such, it is a very relevant perspective for understanding why some people are aware of crowdfunding while others are not.

In fact, the insight from information processing theory regarding the differences in the way individuals select, acquire, and interpret information is expected to be particularly relevant when considering environments that are “awash with information,” such as the financial market environment. The number of financial products and their level of intricacy are increasing (Atkinson & Messy, 2012; Clark, 2014; Lusardi et al., 2017). People are faced not only with a greater variety of traditional financial instruments (Guiso & Jappelli, 2005) but also with new financial technologies such as crowdfunding or peer-to-peer lending (e.g., Bruton et al., 2015; Gleasure & Feller, 2016). Although it may seem that more information is always better than less (Clark, 2014), people may have a greater difficulty in scanning all relevant information (Bettman et al., 1991; Huyghe et al., 2016; Van Knippenberg et al., 2015). This increasing information overload may further increase the cost of collecting, storing, and sharing information, which may increase the risk that relevant information would be overlooked (Van Knippenberg et al., 2015). As the extent to which certain information is processed depends on personal characteristics, i.e., “frames of reference,” and on the different information environments individuals occupy (Bettman, 1979; Bettman et al., 1991; Clark, 2014; Payne et al., 1993; Vanacker & Forbes, 2016), there is likely to be a great heterogeneity with respect to crowdfunding awareness among different individuals. In this study, we therefore build on information processing theory to develop hypotheses on how both personal characteristics—an individual's sex—and subjective and objective characteristics related to the environment in which an individual lives may impact an individual's awareness of crowdfunding.

The role of sex in crowdfunding awareness

As traditional information processing theory posits, individuals select and process information against their personal background, i.e., which information they process will depend on their cognitive development, education, and experience (Bettman et al., 1991; Payne et al., 1993). A number of studies demonstrate, however, that even when these characteristics are taken into account, information processing differences may still persist due to sex-related differences. In particular, men and women may differ in their *information processing strategies* and/or *preferences* for different types of information cues (Darley & Smith, 1995). For example, several studies on consumer behavior show that men and women memorize different information from the same message and that messages matching gender roles are perceived as more appealing (Meyers-Levy, 1988; Meyers-Levy & Sternthal, 1991). When considering the crowdfunding context, we expect that such information processing differences will prevail as well. In particular, we expect that men and women will have different *preferences* or *motivations* to engage in entrepreneurial endeavors, financial matters, and technology—three prominent domains representing the phenomenon of crowdfunding.

According to information processing theory, individuals' motivation determines the direction of attention and intensity of information processing (De Dreu et al., 2008), with greater motivation leading to more focused and elaborated processing of informational cues (MacInnis & Jaworski, 1989). Respectively, we propose that crowdfunding-related information processing efforts will be lower for women than for men due to women's lower interest in this domain. In particular, it is well documented that women are less interested in entrepreneurship. They are less likely than men to have entrepreneurial intentions and to pursue an entrepreneurial career path (Dawson & Henley, 2015; Langowitz & Minniti, 2007; Santos et al., 2016). These differences have been mainly attributed to women's greater risk aversion (Mohammadi & Shafi, 2018), including fear of failure (Langowitz & Minniti, 2007), their lower levels of entrepreneurial self-efficacy (Wilson et al., 2007), and their more negative perception of the difficulties related to pursuing entrepreneurial endeavors (Cochran, 2019). Moreover, when it comes to financial products and services, women also show lower interest than men do (Greimel-Fuhrmann & Silgoner, 2018). They are, for example, less likely to participate in the stock market (Van Rooij et al., 2011) or even to save for retirement (Lusardi & Mitchell, 2017). Finally, technology is another topic revealing strong differences between men and women, with women having less favorable attitudes toward computers (e.g., Schumacher & Morahan-Martin, 2001) and lower self-assessed online skills (Hargittai & Shafer, 2006). When considering crowdfunding specifically, we can expect that women's motivation to engage in such activity may be also suppressed by gender role stereotypes and social pressure, where men are

perceived to possess characteristics that are more suitable for entrepreneurial endeavors than do women (e.g., Anglin et al., 2018).

Taken together, we expect that women will be less interested in this phenomenon and will therefore engage in a less intensive information search in this domain, resulting in lower awareness of crowdfunding relative to men. This would also help to explain why the number of female backers is significantly lower than male backers, especially in investment-based crowdfunding (Hervé et al., 2019; Mohammadi & Shafi, 2018; Vismara et al., 2017). Overall, we thus hypothesize that:

H1: *Women are less likely to be aware of crowdfunding than men.*

The role of environmental characteristics for crowdfunding awareness

It is known that people are not acquiring information and making decisions in a “social vacuum” (Bettman et al., 1991; Payne et al., 1993) but instead learn about certain opportunities only because of the situational context they are in (Lim et al., 2010). As such, we expect that the extent to which individuals are more or less likely to learn about crowdfunding will depend on the subjective and objective cues in their environment (Darley & Smith, 1995). In particular, information processing theory suggests that different individuals follow different information processing rules of combining these cues (Bettman, 1970). Hence, the process of environmental cue perception is very important as it determines which of these rules are used dominantly. This explains why individuals—even if exposed to the same environmental cues—may derive different conclusions (Bettman, 1970). Consistent with Arenius and Minniti (2005) as well as Langowitz and Minniti (2007), we hence investigate a number of subjective perceptual and objective environmental characteristics representing individuals’ socioeconomic context, which has been advanced as an important yet overlooked determinant of crowdfunding development (Bruton et al., 2015).

Subjective characteristics

We propose that in environments where people see more entrepreneurial opportunities or success stories in the media (Stenholm et al., 2013; Urbano & Alvarez, 2014), individuals are more likely to possess a broader knowledge of entrepreneurial-related activities and to be aware of crowdfunding. On the one hand, we argue that people who perceive more *entrepreneurial opportunities* in their environment are not only more likely to engage in entrepreneurial activities—such as a new venture creation—themselves (Arenius & Minniti, 2005; Langowitz & Minniti, 2007), they are also more likely to be aware of various ways to support these activities—for example, crowdfunding. Further, when entrepreneurs receive more favorable *media attention*, this endorses their legitimacy and people’s trust (Rey-Martí et al., 2019; Stenholm et al., 2013), which is

central for crowdfunding activities and backers' intentions to contribute funding in particular (Belleflamme et al., 2015; Kang et al., 2016). A study by World Bank (2013) showed that crowdfunding ecosystems flourish in environments that endorse entrepreneurship. Similarly, we also expect that people perceiving an environment as one where entrepreneurs and their innovative and creative ideas are admired by the society—i.e., where entrepreneurs are viewed with *high status and respect* (Stenholm et al., 2013; Yousafzai et al., 2015)—are more likely to be aware of crowdfunding as a means to support entrepreneurial endeavors.

Finally, crowdfunding awareness should also be higher among individuals who have a *role model*, i.e., personally know an entrepreneur (Arenius & Minniti, 2005). More precisely, having a role model helps to better understand complex business practices (Wagner & Sternberg, 2004) and reduce entrepreneurial ambiguity (Minniti, 2004), which may increase one's confidence and interest in entrepreneurial endeavors. Overall, we hypothesize that:

H2: An individual's favorable perception of (a) business opportunities, (b) media attention to entrepreneurship, (c) the status attributed to entrepreneurs, as well as (d) the presence of role models are positively related to crowdfunding awareness.

Objective characteristics

The extent to which people are aware of crowdfunding may also depend on the more objective characteristics of the socioeconomic environment they are in. Specifically, an environment where the *number of start-ups* is high can be associated with a greater possibility of social interactions between entrepreneurs and a local community, where people may receive “word-of-mouth” knowledge about entrepreneurial activities and ways to support them. We can therefore expect that people residing in communities with a higher level of entrepreneurial activity would have more opportunities to learn about crowdfunding in the first place. This is consistent with empirical evidence that backers tend to support local entrepreneurial ventures or social projects instead of more distant ones (Agrawal et al., 2015; Burtch et al., 2014; Lin & Viswanathan, 2016; Mollick, 2014).

However, the socioeconomic context within a region is not homogenous. It differs in terms of entrepreneurial activity and in socioeconomic status such as income level, education, or occupation—two highly interrelated factors (e.g., Armington & Acs, 2002). For instance, entrepreneurship can act as a catalyzer reducing regional wealth disparity by creating new jobs or increasing consumption (Cumming et al., 2020a; Moulick et al., 2019), yet it may also act as factor further widening the gap between rich and poor by decreasing affordability or heightening income inequality (Lewellyn, 2018; Singer, 2006). Thanks to its universal approach, crowdfunding addresses both factors. It is not only about entrepreneurial opportunities but also about social projects that focus on charity for the most vulnerable people (Gleasure & Feller, 2016). As such, the awareness

of crowdfunding may depend not only on the entrepreneurial activity within a certain region but also on the number of people who need support. In particular, in societies where the *proportion of the poorest people* is relatively high, there may be more collective activities organizing support via crowdfunding and hence a higher crowdfunding awareness. Overall, we thus propose that:

H3: *Crowdfunding awareness is higher for individuals living in an environment with (a) a high level of entrepreneurial activity and (b) high poverty rates.*

Sex and environmental characteristics

Finally, in line with information processing theory, we expect that women and men differ not only in their motivation to look for information on crowdfunding (Hypothesis 1) but also in how they select and process information about the aforementioned *environmental* characteristics (Hypotheses 2; Darley & Smith, 1995). In particular, men and women are known to employ different *information processing strategies* and have different thresholds for processing information—an observation that is commonly termed as a “selectivity hypothesis” (Meyers-Levy & Loken, 2015; Meyers-Levy & Maheswaran, 1991).

According to this hypothesis, men are considered to be more selective information processors and, relative to women, employ more simplifying heuristics. Specifically, they tend to rely on a few environmental cues that are highly available and easily noticeable in the focal context. Women, on the other hand, process information more comprehensively and possess a lower threshold at which they apprehend information. That is, they focus their attention on more environmental cues that are both more apparent and more subtle external cues (Meyers-Levy & Maheswaran, 1991). This hypothesis has been largely supported in various instances, such as advertising (Darley & Smith, 1995), investment strategies (Graham et al., 2002), media (Meyers-Levy & Sternthal, 1991), and online search behavior (Richard et al., 2010), just to name a few.

Consequently, we expect that overall environmental characteristics will be of greater importance in determining the crowdfunding awareness of women than is the case for men. Or in other words, we hypothesize that:

H4: *The extent to which crowdfunding awareness is derived from environmental characteristics is more important for women than for men.*

Research method

Data

To test our hypotheses, we conducted an individual-level survey in Flanders, the northern and Dutch-speaking part of Belgium, where we interviewed

a representative sample of 1,042 working-age individuals about their crowdfunding awareness in 2016. The sample of this survey was randomly selected from the whole (working-age) population in Flanders and was stratified based on sex, age, and level of education. We contacted individuals by telephone using a random-digit dialing (RDD) technique in the period between October and December 2016, i.e., we continued the interviews until each stratum was replete.

We believe that this setting is well suited to address our research question. The United Kingdom takes up the lion's share of the European market of alternative finance, with the impact of other European countries growing steadily but slowly (Ziegler et al., 2017). Belgium, among other countries, provides an interesting geographical context to explore. Since 2014, the Belgian crowdfunding scene has been attracting more and more media attention and receiving its first legislative endorsements (KPMG, 2014). In 2015, close to the time of our study, crowdfunding activity in Belgium saw a tremendous increase from EUR€2.5 million in 2014 to EUR€37 million in 2015 (European Crowdfunding Network, 2018). Despite this impressive growth, both crowdfunding per capita and per GDP in Belgium were only average compared to other European countries (Zhang et al., 2016) and still way behind those of the Americas and the Asia-Pacific region (Ziegler et al., 2017). This makes Belgium—and Flanders as its most important economic region—a good setting to test our theory regarding crowdfunding awareness. Moreover, the fact that we do not extract data from existing crowdfunding platforms—unlike most crowdfunding studies—but instead exploit hand-collected data for a representative sample of the whole Flemish population allows us to distinguish between those individuals who are and those who are not aware about crowdfunding. Our relatively large sample size further allows us to draw empirically sound conclusions as well as to compare our findings on crowdfunding awareness with data on other European countries (see Oxera, 2015).

The data set contains information about respondents' main sociodemographic characteristics, their (subjective) socioeconomic environment, as well as their awareness of crowdfunding. However, since not all respondents answered the questionnaire completely, our final sample that is used for the multivariate regression analysis is reduced and equals 747 observations. This reduction, nevertheless, does not have any impact on our final results (i.e., there is no sample selection bias). We provide the mean comparison tests of the initial and the final sample in the appendix.

In a second step, we combined this data set with secondary data on respondents' objective socioeconomic environment for the municipality where the respondent was residing at the time of the survey data collection. Data were taken from *Statistics Flanders* in particular with (a) the number of newly founded firms liable for VAT, (b) the number of people with extremely low income (measured as the number of personal income declarations with

a total net taxable amount equal to zero), and (c) the total number of inhabitants.

Finally, given that our data contain self-reported variables, we also inspected for a common method bias. As suggested by Podsakoff et al. (2003), we conducted Harman's one-factor test using exploratory factor analysis, which suggests that common method variance does not appear to be a significant issue in our data set.

Variables

Dependent variables

We measure crowdfunding awareness by two variables depicting (a) whether or not a person has heard about crowdfunding in general, and (b) can name any type of crowdfunding platform more specifically. Firstly, similar to a European study by Oxera (2015), the respondents were asked whether they had already heard about crowdfunding. Accordingly, we construct a binary variable we term as a *general crowdfunding awareness* that receives a value of 1 (one) if they answered positively to this question, and 0 (zero) otherwise. Secondly, respondents who answered positively to the previous question were further asked to name a crowdfunding platform (Belgian or international). As this question was an open-ended one, we inspected and respectively classified these free-text responses into three groups: (a) respondents indicating a crowdfunding platform name, (b) respondents indicating a crowdfunding project instead of a crowdfunding platform name, and (c) incorrect answers. If the answers contained (a) a correct platform name or (b) a crowdfunding project description (which we double-checked as truly existent with secondary sources), we coded this variable of *specific crowdfunding awareness* as equal to 1. We coded this variable 0 if they could not name any platform or campaign or if their response was not associated with any crowdfunding activities. Out of 1,042 respondents, 74% indicated that they are aware of crowdfunding, but among those who possess a general awareness, only 9% could name a crowdfunding platform or a crowdfunding project (see Figure 1).²

Independent variables

Our first variable of interest represents a respondent's sex, i.e., we include a dummy variable *woman* taking the value 1 for women and 0 for men. Similar to Turro et al. (2016) and Arenius and Minniti (2005), we measure the subjective characteristics of socioeconomic environment at the individual level and the objective characteristics at the aggregated (municipal) level. Specifically, we capture the subjective variables by asking a number of

²When considering these proportions using the final sample of 747 respondents (i.e., after cleaning the sample from missing values), a general awareness of crowdfunding is equal to 76%, and among people having a general awareness only 10% could name a crowdfunding platform or a project.

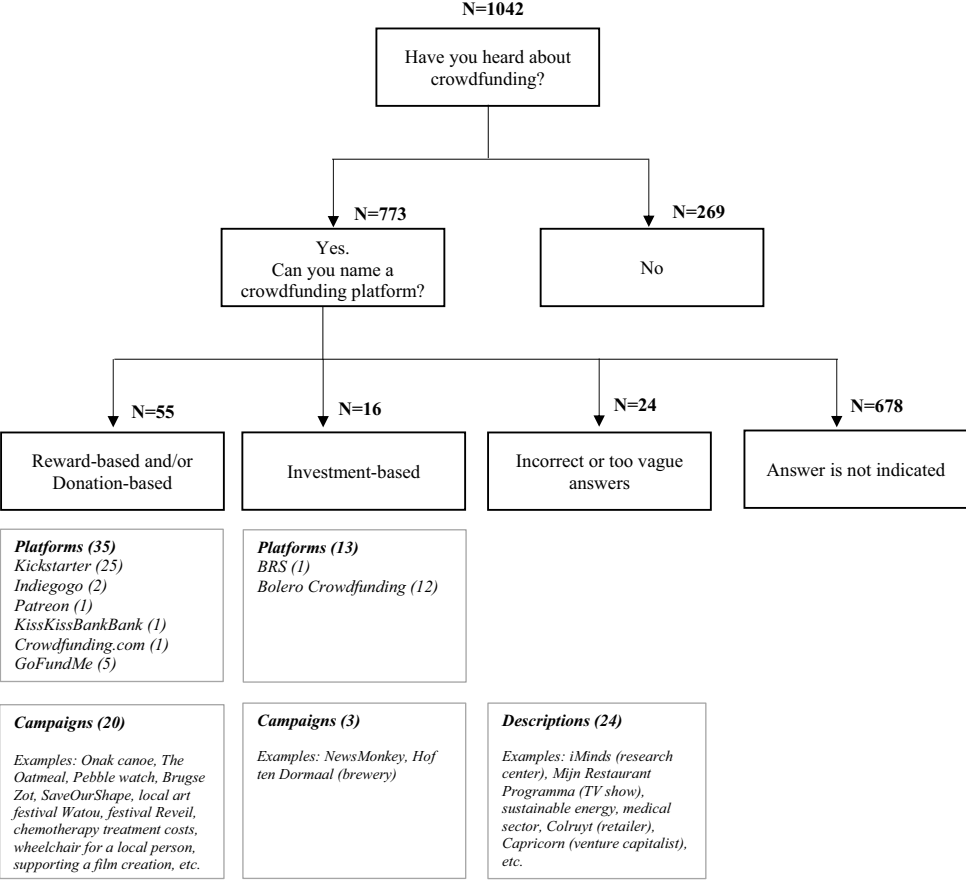


Figure 1. Crowdfunding awareness.

questions: (a) whether or not a respondent thinks that good opportunities to start a business will occur in his/her region in the next six months (dummy variable *opportunity perception*); (b) whether or not people in Flanders often see stories about successful young companies in media (dummy variable *media attention*); (c) whether or not a respondent feels that people who successfully start a business enjoy high esteem and respect in Flanders (dummy variable *high status*); and (d) whether or not s/he knows someone who has set up a business in the last two years (dummy variable *role model*). These variables of subjective socioeconomic environment have been also exploited in other studies (Arenius & Minniti, 2005; Stenholm et al., 2013; Urbano & Alvarez, 2014; Yousafzai et al., 2015). Consecutively, we capture a respondent's objective socioeconomic environment (a) by taking the number of start-ups in 2015 in the municipality where the respondent resides and dividing it by the total number of inhabitants of that municipality in 2015 (*start-up ratio*), and (b) by taking the number of people with extremely low income (measured as the number of personal income declarations with a total

net taxable amount equal to zero) and dividing it by the total number of inhabitants of the municipality (*poverty ratio*). Flanders has 308 municipalities, which guarantees that there is enough variation spanning respondents' local environment conditions and thus differences in their opportunities to learn about crowdfunding.

Control variables

We also include a number of sociodemographic variables that may relate to an individual's information processing practices in a crowdfunding context; we control for an individual's *age*, *level of education*, *income*, *employment situation*, and for his/her *entrepreneurial experience* and that of his/her *parents*. First, we control for a continuous variable representing respondents' *age*, as it has been shown that younger people are more willing to adopt new (financial) technologies (Bauer & Hein, 2006), which we expect also may concern crowdfunding. Second, as people may differ in the way they scan and draw attention to information depending on their level of education (Ucbasaran et al., 2008), we also expect to see a positive correlation between education and crowdfunding awareness. As such, we include a dummy variable *education* that equals 1 if a respondent has university degree or higher and 0 otherwise. Third, although general crowdfunding awareness may be independent of income levels, people who are financially constrained may nevertheless be more concerned in fulfilling their basic financial needs instead of looking for investment opportunities (Atkinson & Messy, 2012). On the other hand, affluent people are not only more likely to participate in stock market and invest larger amounts (Van Rooij et al., 2011) but may also receive more signals about potential finance opportunities such as crowdfunding. Additionally, since richer people are more prone to be involved in charitable giving (Brown & Ferris, 2007), they may also be more likely to be aware of (donation-based) crowdfunding. Therefore, we include a continuous variable representing an individual's *income*,³ and since this variable is measured at the household level, we also account for a *household size*. Lastly, we control for whether or not a person is *employed* (full time or part-time), whether s/he has current or prior *entrepreneurial experience*, and whether his/her *parents* own(ed) a business. These characteristics may relate to crowdfunding awareness via peer-effects or self-interest in new developments in the entrepreneurial landscape. Since several variables are skewed (i.e., *age*, *household size*, *start-up ratio*, and *poverty ratio*), we logarithmically transform them.

³Although the question in the survey about an individual's household income is formulated as a categorical variable (i.e., less than EUR€1,999, EUR€2,000–2,999, EUR€3,000–3,999, EUR€4,000–4,999, equal or more than EUR€5,000), we treat this variable as continuous because it has a sufficient number of categories and it is normally distributed (Moilanen et al., 2014).

Estimation approach

Given the binary nature of our dependent variable *general crowdfunding awareness*, we test our main propositions using a Probit model. We complement these analyses with a maximum-likelihood Probit model with sample selection (i.e., Heckprobit). Specifically, since we measured people's crowdfunding awareness in two stages (i.e., we first inquired about their *general crowdfunding awareness* and subsequently inquired about their *specific crowdfunding awareness* only if the previous answer was positive), we include a Probit model adjusting for sample selection bias (Wooldridge, 2002). As two exclusion restrictions, we use the variables representing *objective socioeconomic environment*. In line with work by Seghers et al. (2012), we can argue that location effects will be important for a general but not for a specific crowdfunding awareness (i.e., awareness of a specific crowdfunding platform or a campaign). According to Seghers et al. (2012), people need specific human capital or specialized social capital to develop more advanced financial knowledge. As such, we expect that an individual's *perceived socioeconomic environment* (especially the variable determining whether a person knows a *role model* or a variable of perceived favorable *media attention*) will be more informative than his/her *objective socioeconomic environment* when it comes to *specific crowdfunding awareness*.

Results

Descriptive statistics

Table 1 depicts the main descriptive statistics and a pairwise correlation matrix, and Table 2 compares the characteristics of individuals who are not aware of crowdfunding with those that are. The descriptive statistics lend initial support to our main propositions that crowdfunding awareness differs between men and women and that it positively correlates with characteristics representing their perceived and objective socioeconomic environment. The mean comparison test reveals sex-related differences with respect to *general crowdfunding awareness*. In particular, 82% of the men in our sample are aware of crowdfunding compared to only 70% of the women. However, the difference is not significant when considering *specific crowdfunding awareness* (11% for men vs. 9% for women). With respect to the perceived socioeconomic environment, individuals who are aware of crowdfunding have a more positive perception of *media* coverage of successful entrepreneurial stories (46%) and the *status* attributed to entrepreneurship (72%) compared to those who are not aware of crowdfunding (33% and 65% respectively). When considering individuals' *specific crowdfunding awareness*, the results suggest that individuals who perceive more business *opportunities* in their environment on average are more likely to name a crowdfunding platform or a crowdfunding campaign

Table 1. Pairwise correlation of crowdfunding awareness.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 General awareness	0.76	0.43	1															
2 Specific awareness	0.10	0.30	0.16*	1														
3 Woman	0.47	0.50	-0.13*	-0.04	1													
4 Age (ln)	3.74	0.32	-0.01	-0.17*	-0.01	1												
5 Education	0.41	0.49	0.26*	0.06	0.03	0.00	1											
6 Income	2.86	1.27	0.23*	0.07	-0.17*	-0.07	0.27*	1										
7 Ent. experience	0.33	0.47	-0.10*	0.06	-0.10*	0.05	-0.27*	0.03	1									
8 Household size (ln)	1.07	0.48	-0.02	0.00	-0.07*	-0.27*	0.00	0.44*	0.00	1								
9 Employed	0.76	0.43	0.01	-0.05	-0.02	-0.01	0.14*	0.20*	0.16*	0.12*	1							
10 Parents	0.33	0.47	0.05	0.03	-0.02	0.03	0.06	0.09*	0.19*	-0.03	0.02	1						
11 Role model	0.53	0.50	0.00	0.02	-0.01	-0.06	0.00	0.08*	0.22*	0.01	0.12*	0.11*	1					
12 Opportunity perception	0.43	0.50	0.05	0.07	-0.05	0.01	0.08*	0.09*	0.11*	0.03	0.06	0.04	0.10*	1				
13 Media attention	0.43	0.50	0.11*	0.04	0.04	0.10*	0.01	0.04	-0.04	-0.07	0.00	0.03	0.07	0.07	1			
14 High status	0.70	0.46	0.06	0.02	0.06	-0.01	0.06	0.03	-0.13*	0.02	-0.01	-0.07*	-0.03	0.10*	0.07	1		
15 Start-up ratio (ln)	-4.97	0.18	0.07*	0.04	-0.04	-0.09*	0.00	0.01	-0.03	0.00	-0.04	0.06	0.06	0.02	0.03	0.06	1	
16 Poverty ratio (ln)	-3.42	0.39	0.12*	0.05	-0.01	-0.06	0.13*	-0.03	0.00	-0.03	-0.06	-0.02	0.02	0.08*	0.02	0.05	0.26*	1

Note. The variance inflation factor is equal to 1.14. Number of observations for specific awareness is 570. Significance levels: * $p < .05$.

Table 2. Mean differences.

Variable	General Awareness (N = 747)				Specific Awareness (N = 570)			
	Not aware Mean	Aware Mean	t stat	p val.	Not aware Mean	Aware Mean	t stat	p val.
<i>Environmental characteristics</i>								
Role model	0.525	0.528	−0.062		0.525	0.554	−0.402	
Opportunity perception	0.384	0.442	−1.360		0.430	0.554	−1.770	*
Media attention	0.333	0.461	−3.020	***	0.455	0.518	−0.891	
High status	0.650	0.718	−1.724	*	0.714	0.750	−0.567	
Start-up ratio (ln)	−4.996	−4.965	−1.991	**	−4.967	−4.946	−0.840	
Poverty ratio (ln)	−3.501	−3.391	−3.293	***	−3.397	−3.336	−1.090	
<i>Sociodemographic characteristics</i>								
Woman	0.588	0.430	3.703	***	0.436	0.375	0.872	
Age(ln)	3.745	3.741	0.143		3.760	3.573	4.174	***
Education	0.175	0.479	−7.439	***	0.469	0.571	−1.459	
Income	2.339	3.026	−6.457	***	2.996	3.304	−1.760	*
Ent. experience	0.418	0.309	2.702	***	0.300	0.393	−1.434	
Parents	0.294	0.344	−1.235		0.339	0.393	−0.812	
Employed	0.751	0.758	−0.175		0.765	0.696	1.130	
Household size (ln)	1.082	1.063	0.457		1.063	1.060	0.046	

Note. Significance levels: * $p < .10$; ** $p < .05$; *** $p < .01$.

(55%) compared to those who cannot (43%). Finally, mean differences are also significant when considering local environment characteristics, with people coming from municipalities with greater *start-up ratio* and/or *poverty* level on average being more aware of crowdfunding in general than those who are not. Interestingly, none of these objective characteristics is significantly different for individuals with and without *specific crowdfunding awareness*.

Multivariate regression analyses

We now turn to the empirical evidence of Probit models presented in Table 3 (for convenience, we report average marginal effects [AME]). We first analyze the effects for *general crowdfunding awareness*. As predicted in Hypothesis 1, women are less likely to have general awareness of crowdfunding than men. Specifically, women's probability of being generally aware of crowdfunding is on average 10.6 percentage points lower than men's (Model 1: $AME_{\text{Woman}} = -0.106$, $p < .01$). Consecutively, for testing the importance of environmental characteristics, we primarily inspect to what extent their inclusion contributes to the model fit. As the results suggest, the socioeconomic context contributes significantly to a general awareness of crowdfunding, i.e., the inclusion of all environmental characteristics improves the predictability of *general crowdfunding awareness* by 17% (Model 4 vs. Model 1: LR test $\chi^2 = 16.83$, $p < .01$). With respect to the perceived socioeconomic environment, only perceived *media attention* contributes to an increased *general crowdfunding awareness* (Model 4: $AME_{\text{Media attention}} = 0.073$, $p < .05$) and thus lends support to Hypothesis 2b. Nevertheless, we fail to find support for Hypotheses 2a, 2c, and 2d. Whether or not individuals (H2a) see more *business opportunities*

Table 3. Average marginal effects of crowdfunding awareness.

	Probit				Heckprobit	
	General Awareness				1st stage:	2nd stage:
	Model 1	Model 2	Model 3	Model 4	General Awareness	Specific Awareness
<i>Sociodemographic characteristics</i>						
Woman	−0.106*** (0.029)	−0.106*** (0.029)	−0.109*** (0.029)	−0.105*** (0.029)	−0.103*** (0.028)	0.013 (0.051)
Age (ln)	−0.028 (0.047)	−0.026 (0.047)	−0.040 (0.047)	−0.029 (0.047)	−0.028 (0.047)	−0.199*** (0.050)
Education	0.196*** (0.031)	0.195*** (0.031)	0.194*** (0.031)	0.182*** (0.031)	0.182*** (0.031)	−0.030 (0.078)
Income	0.067*** (0.013)	0.066*** (0.013)	0.063*** (0.013)	0.065*** (0.013)	0.067*** (0.013)	0.014 (0.025)
Ent. experience	−0.096*** (0.031)	−0.100*** (0.031)	−0.092*** (0.031)	−0.091*** (0.031)	−0.088*** (0.031)	0.089 (0.055)
Household size (ln)	−0.096*** (0.034)	−0.096*** (0.034)	−0.089*** (0.034)	−0.089*** (0.033)	−0.093*** (0.033)	−0.050 (0.047)
Employed	−0.038 (0.035)	−0.039 (0.035)	−0.039 (0.035)	−0.032 (0.034)	−0.032 (0.034)	−0.037 (0.041)
Parents	0.023 (0.032)	0.022 (0.032)	0.022 (0.032)	0.025 (0.032)	0.028 (0.032)	0.004 (0.035)
<i>Environmental characteristics</i>						
Role model		0.012 (0.030)	0.007 (0.030)	0.002 (0.030)	0.006 (0.030)	−0.022 (0.035)
Opportunity per.		0.018 (0.029)	0.009 (0.030)	0.004 (0.030)	0.005 (0.029)	0.049 (0.034)
Media attention			0.073** (0.030)	0.073** (0.029)	0.067** (0.030)	0.016 (0.041)
High status			0.024 (0.031)	0.020 (0.031)	0.021 (0.031)	0.007 (0.038)
Start-up ratio (ln)				0.058 (0.081)	0.057 (0.078)	
Poverty ratio (ln)				0.109*** (0.040)	0.098** (0.043)	
[#] <i>p</i> (transformed)						−0.890 (0.796)
N	747	747	747	747	747	570
Log-likelihood	−353.865	−353.574	−350.109	−345.451		−511.057
Pseudo R ²	0.135	0.136	0.144	0.155		
[†] Model fit χ^2	110.289***	110.871***	117.800***	127.118***		21.750**
LR test [‡]		0.58	6.93**	9.32***		

Note. Standard errors are in the parentheses. All models contain a constant, but its average marginal effects are not reported.

[†]Model fit: LR test allows to compare two models and inspect whether one model has a better fit than the other (e.g., model 2 has better fit than model 1, etc.).

[‡]Heckman model: LR test of independent equations ($p = 0$): $\chi^2 = 1.05$, $p > .10$ indicating no selection issue.

Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

(H2a), think about entrepreneurs with *high status* (H2b), or have an entrepreneurial *role model* (H2d), none seems to impact their awareness of crowdfunding.

With respect to the objective socioeconomic environment, we find supportive evidence for the importance of the *poverty ratio* (Model 4: $AME_{Poverty\ ratio} = 0.109$, $p < .01$) and Hypothesis 3b respectively but not for the *start-up ratio*. Interestingly, sex and perceived environmental characteristics have no significant effects for *specific crowdfunding awareness*, i.e., for learning about a specific crowdfunding platform or a campaign (Model 6). Since the model

concerning *specific crowdfunding awareness* (Model 6) does not present any selection issue, we conduct further analyses with a Probit model.

To test the fourth hypothesis, we run the analyses using a subsample of women and men respectively and inspect to what extent the joint inclusion of *environmental* characteristics improves the model fit. As presented in Table 4, the likelihood ratio test indicates that a joint consideration of all environmental variables contributes significantly to the explanation of *general crowdfunding awareness* for women (Model 1 vs. Model 2: LR test $\chi^2 = 13.28$, $p < .05$), whereas the joint inclusion of these environmental factors is not significant for the male subsample (Model 3 vs. Model 4: LR test $\chi^2 = 5.91$, $p > .10$). This lends support for our H4. We do not observe these effects with respect to *specific crowdfunding awareness*, however.

To verify our main findings, we conducted multiple robustness checks (available from the authors upon request). First, we inspected whether the results hold when controlling for a different set of variables (e.g., by excluding variables with the lowest response rate—*income*, *high status*, and *opportunity perception*—and by including additional variables such as the unemployment rate in the respondent's region, whether the respondent resides in a city or village, province-level fixed effects, and several more) and were able to reproduce our main findings. Second, we also conducted additional analyses with clustered standard errors at the municipality level, yet this adjustment did not change the main results. Third, we also controlled for a possible nonlinear effect of *age* (e.g., Agarwal et al., 2009), which was significant. Finally, we used different model specifications (e.g., zero inflated Probit for *specific crowdfunding awareness* with imputed zero values) and tested the hypotheses on different subgroups according to *age*, *education*, and *income*. All these analyses provided results that are consistent with our main findings.

Discussion and conclusion

This study investigates what determines awareness of crowdfunding. We show that individuals' general awareness of crowdfunding differs substantially depending not only on their personal characteristics but also on the socioeconomic environment they are in and that these environmental characteristics are more important in determining crowdfunding awareness for women than for men. These findings primarily contribute to both crowdfunding literature and practice and offer additional insights into financial literacy and information processing theory.

Our research primarily complements the broad crowdfunding literature by shedding some light on why people may become backers in the first place. In particular, it advances crowdfunding awareness (or a lack thereof) as one of the key antecedents helping to explain why there is still a relatively low participation rate in crowdfunding, especially in European countries such as in Belgium. Backers are critically important for the success of crowdfunding as they help not

Table 4. Average marginal effects of crowdfunding awareness: Sex-related differences.

	General Awareness				Specific Awareness			
	Women		Men		Women		Men	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Sociodemographic characteristics</i>								
Age (ln)	−0.028 (0.079)	−0.019 (0.079)	−0.028 (0.056)	−0.028 (0.057)	−0.092* (0.054)	−0.093* (0.055)	−0.183*** (0.049)	−0.193*** (0.048)
Education	0.207*** (0.046)	0.193*** (0.046)	0.180*** (0.043)	0.167*** (0.044)	0.049 (0.037)	0.068* (0.039)	0.015 (0.035)	0.009 (0.034)
Income	0.079*** (0.020)	0.075*** (0.020)	0.057*** (0.017)	0.057*** (0.017)	0.029* (0.016)	0.032* (0.017)	0.021 (0.017)	0.023 (0.017)
Ent. experience	−0.097* (0.050)	−0.094* (0.050)	−0.091** (0.038)	−0.082** (0.040)	0.072* (0.037)	0.064* (0.038)	0.025 (0.036)	0.037 (0.038)
Household size (ln)	−0.094* (0.053)	−0.090* (0.053)	−0.091** (0.043)	−0.084** (0.043)	−0.023 (0.046)	−0.036 (0.047)	−0.076* (0.041)	−0.081** (0.041)
Employed	−0.052 (0.055)	−0.036 (0.054)	−0.016 (0.045)	−0.013 (0.044)	−0.036 (0.040)	−0.034 (0.041)	−0.030 (0.041)	−0.028 (0.041)
Parents	0.089* (0.051)	0.092* (0.051)	−0.027 (0.039)	−0.030 (0.040)	0.045 (0.035)	0.033 (0.035)	−0.024 (0.036)	−0.028 (0.037)
<i>Environmental characteristics</i>								
Role model		0.011 (0.046)		−0.002 (0.039)		0.030 (0.038)		−0.051 (0.036)
Opportunity per.		0.009 (0.046)		−0.004 (0.038)		0.023 (0.036)		0.060* (0.034)
Media attention		0.121*** (0.045)		0.033 (0.039)		0.037 (0.035)		0.030 (0.033)
High status		0.009 (0.052)		0.031 (0.039)		−0.044 (0.039)		0.052 (0.039)
Start-up ratio(ln)		0.079 (0.133)		0.061 (0.099)		0.129 (0.112)		−0.017 (0.097)
Poverty ratio(ln)		0.112* (0.063)		0.096* (0.052)		−0.039 (0.045)		0.039 (0.043)
N	349	349	398	398	245	245	325	325
Log-likelihood	−185.447	−178.808	−166.560	−163.606	−63.159	−60.730	−101.978	−97.200
Pseudo R2	0.128	0.159	0.122	0.137	0.119	0.153	0.082	0.125
Model fit χ2	54.297***	67.575***	46.202***	52.111***	17.012**	21.868*	18.125**	27.682**
LR test [†]		13.28**		5.91		4.86		9.56

Fit Characteristics of Accompanying Models (detailed)

Models	General Awareness				Specific Awareness			
	Women		Men		Women		Men	
	LR test χ^2	p	LR test χ^2	p	LR test χ^2	p	LR test χ^2	p
1 Sociodemographic								
2 Sociodemographic + Subjective	1 vs 2	.87	.07	.80	3.27	.51	8.70	.07
3 Sociodemographic + Objective	1 vs 3	5.62	.06	.10	1.85	.40	1.46	.48
4 Sociodemographic + Subjective + Objective	1 vs 4	13.28	.04	.43	4.86	.56	9.56	.14

All models contain a constant, but its average marginal effects are not reported.

[†]LR-test allows to compare two models and inspect whether one model has a better fit than the other (e.g., model 2 has better fit than model 1, etc.). Standard errors are in the parentheses. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

only bridge the funding gap for the entrepreneurial ventures or social projects (Polzin et al., 2018) but also build customer awareness, receive feedback, and develop credibility with other potential investors (e.g., Belleflamme et al., 2014, 2015; Colombo et al., 2015; Crosetto & Regner, 2018; Hornuf et al., 2018; Mollick, 2016; Stanko & Henard, 2017). Also, considering the burgeoning demand for crowdfunding (Crosetto & Regner, 2018; Rey-Martí et al., 2019), there is a substantial need for new backers contributing to crowdfunding campaigns.

Because our results demonstrate that women are generally less aware about crowdfunding, they also help to explain why there are fewer female than male backers (Hervé et al., 2019; Mohammadi & Shafi, 2018; Vismara et al., 2017). The latter insight is particularly worrisome. Lack of crowdfunding awareness by women may result in bias of the type of campaigns that get funded, a so-called taste-based discrimination (Gafni et al., 2019). It may also result in lower support for female-owned crowdfunding campaigns, as there seems to be strong homophily between the backers and the entrepreneurs (Vismara et al., 2017). Addressing the knowledge gap of women, and society in general, may hence be essential for eliminating the sex-related bias and making crowdfunding a truly democratized type of finance (e.g., Cumming et al., 2019; Mollick & Robb, 2016). From a methodological point of view, our study indicates that future research should account for selection issues when investigating backers' behavior (i.e., by first controlling for whether or not individuals are aware of crowdfunding and only then investigating their crowdfunding participation and respective investment behavior).

Secondly, we emphasize the importance of environmental characteristics in determining individuals' awareness of crowdfunding. More specifically, we underline the importance of the socioeconomic environment, which has been advanced as a relevant yet overlooked determinant of the evolution of new financial alternatives such as crowdfunding (Bruton et al., 2015). While a qualitative study by Bruton et al. (2015) mainly focused on the importance of a supportive regulatory environment for the successful development of financial innovations such as crowdfunding, peer-to-peer lending, or microfinance, our study emphasizes the crucial role of the supportive (perceived) socioeconomic environment for crowdfunding awareness, which we believe is critical for a successful attraction of new backers and thus the development of crowdfunding. As noted by several scholars, it is important to have a community that supports entrepreneurs and their initiatives to leverage the "wisdom of the crowd" and make crowdfunding a viable source of entrepreneurial finance (Belleflamme et al., 2014; Frydrych et al., 2014; Giudici et al., 2018). Specifically, our findings reveal that people have a greater opportunity to learn about crowdfunding as a means to support entrepreneurial or social initiatives if they recognize many successful entrepreneurship stories in media and/or come from the environments where more people are needing support.

As crowdfunding represents a new investment opportunity in exchange for financial or nonfinancial rewards, we believe our study offers valuable insights to financial literacy scholars as well. Studies report that many individuals have limited financial literacy (e.g., Atkinson & Messy, 2012; Lusardi & Mitchell, 2014), which in turn limits their participation in the stock market, planning for their retirement, or taking advantage of financial innovations (Campbell, 2006; Lusardi & Mitchell, 2017; Van Rooij et al., 2011). However, the majority of these studies have focused on the role of sociodemographic characteristics for explaining financial literacy (Clark, 2014); a greater understanding of key underlying mechanisms determining people's financial literacy is crucial. By explicitly drawing on information processing theory and demonstrating that individuals' awareness of crowdfunding depends not only on their personal characteristics but also on their perceived and objective socioeconomic environment, our study complements and further advances research in this domain. In particular, the consideration of individuals' socioeconomic environment may further help to explain the financial literacy gap between men and women. Prior research has observed that large differences in financial literacy persists between men and women even after controlling for a broad set of their sociodemographic characteristics (e.g., Greimel-Fuhrmann & Silgoner, 2018; Van Rooij et al., 2011) and has called for future research helping to explain this gap (Bucher-Koenen et al., 2017; Lusardi & Mitchell, 2014).

Last but not least, we contribute to information processing theory by integrating and empirically validating its core principles (including the selectivity hypothesis) in a crowdfunding context and by further endorsing its interdisciplinary potential. While information processing theory is well established in consumer research (Bettman, 1970, 1979; Bettman et al., 1991), we believe it can provide an indispensable lens for investigating decision making in an entrepreneurial context too. For instance, by explicitly articulating differences in preferences and information processing strategies between men and women (Darley & Smith, 1995), this theory could help to explain sex-related differences not only in crowdfunding but also in other forms of entrepreneurial finance. The theoretical lens may be especially valuable considering the increasing complexity and availability of information (Van Knippenberg et al., 2015), which necessitates a better understanding of opportunity identification, pursued strategies, and other decision-making practices and biases within an entrepreneurial context.

Limitations and future research

Our study has several limitations and remaining questions that we hope would be of interest for future research. First, to explain *crowdfunding awareness*, we have relied on general information about individuals and

their situational context. However, a more fine-grained picture of these characteristics would be relevant, especially for explaining *specific crowdfunding awareness*. In particular, the fact that none of the *socioeconomic environment* characteristics contributes to a *specific crowdfunding awareness* and that only respondents' *income* and *entrepreneurial experience* strongly and positively relates to this specific awareness suggests that specific awareness about crowdfunding results from more directly applicable specific human capital rather than from generic human capital. This explanation is in line with prior findings that an economic or business education is more predictive than a formal education (Seghers et al., 2012). As such, we encourage future studies to collect more detailed information on individuals' sociodemographic characteristics (e.g., type of education, different experience). Along the same lines, more detailed mapping of the *environmental* variables including attitudes (i.e., risk perception) and behavior (i.e., involvement in social media; Hong et al., 2018; Mohammadi & Shafi, 2018) would be particularly relevant. A more fine-grained measure of crowdfunding awareness (e.g., a scale-based measure capturing a degree of individuals' understanding of crowdfunding and its respective risks and potential returns) would be also warranted for future research.

Second, while our study investigates the extent to which the potential "crowd" of backers is aware of crowdfunding, an important question becomes to what extent entrepreneurs are aware of this financing possibility. Prior studies have found that entrepreneurs have a limited knowledge of different finance alternatives, which subsequently can lead to suboptimal financial decision making (Seghers et al., 2012; Van Auken, 2001). Therefore, future research should investigate the role of entrepreneurs' crowdfunding awareness for their decision whether and how to set up a crowdfunding campaign and for their success in obtaining the desired financing from backers.

Finally, as we offer insight onto crowdfunding awareness in Flanders (Belgium), it remains unclear to what extent crowdfunding awareness is pervasive in other countries and whether (if so) this lack of awareness is an impediment for the future global expansion of crowdfunding. While we believe that the results can be generalizable to a broader context (for insights on the general crowdfunding awareness in the British, German, Polish, and Spanish contexts, see Oxera, 2015), we nevertheless encourage larger-scale and ideally longitudinal-type studies in regions outside Europe. We hope that these remaining concerns will inspire future scholarly work.

Implications for policy and practice

By consequence, this study has important implications for policy and practice. First, as financial markets are getting more complex, governments should

provide more guidance on new financing alternatives such as crowdfunding, allowing their societies to fully leverage these new investment opportunities. Our study points to the need for educating and thus reaching out to the “crowd,” which currently still lacks awareness of crowdfunding. Particular attention of awareness-increasing programs should be given to women, considering their lower interest in entrepreneurial endeavors stemming from a greater risk aversion or gender role stereotypes (e.g., Anglin et al., 2018; Mohammadi & Shafi, 2018). Second, governments should also invest into creating a more favorable entrepreneurial environment, which would help to foster not only the entrepreneurial endeavors within their region or country (Stenholm et al., 2013; Urbano & Alvarez, 2014; Yousafzai et al., 2015) but also the societies’ awareness of ways to support these activities, as for example, crowdfunding. In either way, an increased awareness of crowdfunding in the population could lead to greater crowdfunding participation and thus contribute directly to entrepreneurial ventures or social projects as well as indirectly to job creation (Mollick & Kuppaswamy, 2014; Ramos & González, 2015), community development, and overall economic growth (European Commission, 2014; World Bank, 2013).

As for practice, our findings suggest that crowdfunding platforms as well as creators of crowdfunding campaigns should pay more attention to socio-demographic and environmental differences in their advertising strategies, especially directed to people who are not actively seeking information (Hollensen & Opresnik, 2014). The fact that only approximately 5% of all respondents could name a crowdfunding platform and the other 2% could only describe a crowdfunding campaign provides stark evidence that awareness-increasing advertising strategies would be instrumental in this respect. A better understanding of these characteristics can be helpful in analyzing people’s willingness to invest in crowdfunding campaigns as well as help entrepreneurs to further refine their product and develop more targeted marketing strategies considering, among others, sex-related differences in information processing (Darley & Smith, 1995).

ORCID

Egle Vaznyte  <http://orcid.org/0000-0001-8171-7502>

Petra Andries  <http://orcid.org/0000-0001-6758-5304>

Sophie Manigart  <http://orcid.org/0000-0002-3406-9386>

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Appendix

Sample comparison: Mean differences.

Table A1.

Variable	Excluded obs.		Final Sample		Difference	SE	<i>t</i> stat	<i>p</i> value
	<i>N</i>	Mean	<i>N</i>	Mean				
General awareness	295	0.688	747	0.763	−0.075	0.030	−2.495	.013
Specific awareness	203	0.074	570	0.098	−0.024	0.024	−1.031	.303
Woman	296	0.541	747	0.467	0.073	0.034	2.139	.033
Age (ln)	293	3.700	747	3.742	−0.042	0.024	−1.770	.077
Education	297	0.347	747	0.407	−0.060	0.033	−1.799	.072
Income	142	2.718	747	2.863	−0.145	0.116	−1.252	.211
Ent. experience	296	0.311	747	0.335	−0.024	0.032	−0.740	.460
Parents	294	0.371	747	0.332	0.039	0.033	1.185	.236
Employed	292	0.651	747	0.756	−0.106	0.031	−3.452	.001
Household size (ln)	290	1.075	747	1.067	0.008	0.033	0.227	.821
Role model	294	0.463	747	0.527	−0.065	0.034	−1.886	.060
Opportunity perception	193	0.363	747	0.428	−0.066	0.040	−1.652	.099
Media attention	271	0.476	747	0.431	0.045	0.035	1.276	.202
High status	263	0.753	747	0.701	0.051	0.032	1.588	.113
Start-up ratio (ln)	291	−4.976	747	−4.973	−0.003	0.013	−0.272	.786
Poverty ratio (ln)	291	−3.456	747	−3.417	−0.039	0.027	−1.440	.150